## **Background Information**

Name:	David Kuhlmann
Date:	9/15/2018
Affiliation:	Westwood Professional Services, Inc.
Address:	12701 Whitewater Drive, Suite 300 Minnetonka, MN 55343
Phone Number:	(952) 937-5150
e-mail address:	david.Kuhlmann@westwoodps.com
Name of Wetland:	WB_118
Vegetation Community(ies):	Farmed, Type 1, PEM1Af
HGM Class(es):	depressional

Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.



North: Up			
Lat/Long or UTM Coordinate	300848.744153 4413456.10539		
USGS Quad Name	Big Plain OH o39083g3		
County	Madison		
Township	Fairfield		
Section and Subsection	No		
Hydrologic Unit Code	50600020106		
Site Visit	9/15/2018		
NWI Map	No		
Ohio Wetland Inventory Map	No		
Soil Survey	CsB: Crosby-Lewisburg complex, 2 to 6 percent slopes		
Delineation report/map	See Report Exhibits		

Name of Wetland: WB\_118

Wetland Size (acres, hectares): 0.054

Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.



Comments, Narrative Discussion, Justification of Category Changes:

North: Up

See Wetland and Upland Sample Datasheets

Final score :

19

Category: 1

#### **Scoring Boundary Worksheet**

Wetland: WB 118

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	Yes	Not Applicable
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	Yes	Not Applicable
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	Yes	Not Applicable
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	Yes	Not Applicable
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	Yes	Not Applicable
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.	Yes	Not Applicable

# Narrative Rating Wetland: WB\_118

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature and by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle or highlight one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 1812 July 6, 2000).	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	NO Go to Question 2
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	NO Go to Question 3
3	<b>Documented High Quality Wetland.</b> Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland. Go to Question 4	NO Go to Question 4
4	Significant Breeding or oncentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland. Go to Question 5	NO Go to Question 5
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by Phalaris arundinacea, Lythrum salicaria, or Phragmites australis, or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland. Go to Question 6	NO Go to Question 6
6	<b>Bogs.</b> Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly Sphagnum spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland. Go to Question 7	NO Go to Question 7
7	<b>Fens.</b> Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland. Go to Question 8a	NO Go to Question 8a
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age exceeding at least 50% o a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	Go to Question 8b

Wetland: WB 118

	Wetland: WB_118							
8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast eight (dbh), generally diameters greater than 45cm (17.7in) dbh?	YES Wetland should be evaluated for possible Go to Question 9a Category 3 status.	NO Go to Question 9a					
9a	<b>Lake Erie coastal and tributary wetlands.</b> Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES Go to Question 9b	NO Go to Question 10					
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES	NO Go to Question 9c					
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	YES Go to Question 9d	NO Go to Question 10					
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES Wetland is a Category 3 wetland. Go to Question 10	NO Go to Question 9e					
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status. Go to Question 10	NO Go to Question 10					
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	YES Wetland is a Category 3 wetland. Go to Question 11	NO Go to Question 11					
11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	YES Wetland should be evaluated for possible Category 3 status. Complete Quantitative Rating	NO Complete Quantitative Rating					

#### Table 1. Characteristic plant species.

#### invasive/exotic spp

Lythrum salicaria
Myriophyllum spicatum
Najas minor
Phalaris arundinacea
Phragmites australis
Potamogeton crispus
Ranunculus ficaria
Rhamnus frangula
Typha angustifolia
Typha yalauc

#### fen species

Zygadenus elegans var. glaucus Cacalia plantaginea Carex flava Carex sterilis Carex stricta Deschampsia caespitosa Eleocharis rostellata Eriophorum viridicarinatum Gentianopsis spp. Lobelia kalmii Parnassia glauca Potentilla fruticosa Rhamnus alnifolia Rhynchospora capillacea Salix candida Salix myricoides Salix serissima Solidago ohioensis Tofieldia glutinosa Triglochin maritimum Triglochin palustre

#### bog species

Calla palustris
Carex atlantica var. capillacea
Carex echinata
Carex oligosperma
Carex trisperma
Chamaedaphne calyculata
Decodon verticillatus
Eriophorum virginicum
Larix Iaricina
Nemopanthus mucronatus
Schechzeria palustris
Sphagnum spp.
Vaccinium corymbosum
Vaccinium oxycoccos
Woodwardia virginica
Xyris difformis

#### **Oak Opening species**

Carex cryptolepis Carex lasiocarpa Carex stricta Cladium mariscoides Calamagrostis stricta Calamagrostis canadensis Quercus palustris

#### wet prairie species

Calamagrostis canadensis Calamogrostis stricta Carex atherodes Carex buxbaumii Carex pellita Carex sartwellii Gentiana andrewsii Helianthus grosseserratus Liatris spicata Lysimachia quadriflora Lythrum alatum Pycnanthemum virginianum Silphium terebinthinaceum Sorghastrum nutans Spartina pectinata Solidago riddellii

ORAM v. 5.0 Field Form Quantitative Rating Madison David Kuhlmann Wetland: WB 118 Site: Rater(s): Date: 9/15/2018 Metric 1 Wetland Area (Ac.) 0.054 0 0 select one size class and assign score subtotal max 6 pts subtotal >50 acres (>20.2ha) (6 pts) 25 to <50 acres (10.1 to <20.2ha) (5 pts) 10 to <25 acres (4 to <10.1ha) (4 pts) 3 to <10 acres (1.2 to <4ha) (3 pts) 0.3 to <3 acres (0.12 to <1.2ha) (2pts) 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt.) <0.1 acres (0.04ha) (0 pts) Metric 2 Upland Buffers and Surrounding Land use 1.0 1.0 2a. Calculate average buffer width. Select only one and assign score. Do not double check. max 14 pts WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7) subtotal MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4) NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1) VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0) 2b. Intensity of surrounding land use. Select one or double check and average. VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7) LOW. Old field (>10 years), shrub land, young second growth forest. (5) MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3) **X** HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1) Metric 3 Hydrology 15.0 16.0 3b. Connectivity. Score all that apply. 3a. Sources of Water Score all that apply. max 30 pts subtotal High pH groundwater (5) 100 year floodplain (1) Other groundwater (3) Between stream/lake and other human use (1) Precipitation (1) Part of wetland/upland (e.g. forest), complex (1) X Seasonal/Intermittent surface water (3) Part of riparian or upland corridor (1) Perennial surface water (lake or stream) (5) 3c. Maximum water depth. Select only one and assign score. 3d. Duration inundation/saturation. Score one or dbl check. >0.7 (27.6in) (3) Semi- to permanently inundated/saturated (4) 0.4 to 0.7m (15.7 to 27.6in) (2) Regularly inundated/saturated (3) <0.4m (<15.7in) (1) Seasonally inundated (2) Seasonally saturated in upper 30cm (12in) (1) X 3e. Modifications to natural hydrologic regime. Score one or double check and average. None or none apparent (12) Check all disturbances observed X Recovered (7) ditch point source (nonstormwater) Recovering (3) tile filling/grading Recent or no recovery (1) dike road bed/RR track dredging weir stormwater inlet other Metric 4 Habitat Alteration and Development 3.0 19.0 4a. Substrate disturbance. Score one or double check and average. max 20 pts subtotal None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1) 4b. Habitat development. Select only one and assign score. Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) **X** Poor (1) 4c. Habitat alteration. Score one or double check and average. None or none apparent (9) Check all disturbances observed Recovered (6) mowing shrub/sapling removal Recovering (3) herbaceous/aquatic bed removal grazing Recent or no recovery (1) sedimentation clearcutting 19.0 selective cutting dredging subtotal this page woody debris removal farming last revised 1 February 2001 jjm toxic pollutants nutrient enhancement

7

	ORAM	v. 5.0 Field For	rm Quantitativ	e Rating		_			
	Site:	Madison	Rater(s):	David Kuhl	mann		Date:	9/15/2018 Wetland:	WB 118
	19					_			
	Subtotal fi	rst page							
^	10	Metric 5.			cial We				
0	19	subtotal	select one	size class an	d assigi	n score			
ax 6 pts	subtotal	<u>.                                    </u>							
		Bog (10)							
		Fen (10)							
		Old growth fo	orest (10)						
		Mature fores	sted wetland (5)						
			stal/tributary wet		-				
			stal/tributary wet		ydrology (	(5)			
			and Prairies (Oak C	Openings) (10)					
		Relict Wet Pr							
		Known occur	rence state/federa	al threatened or	endanger	ed species (10)			
		Significant m	nigratory songbird,	/water fowl habit	tat or usa	ge (10)			
		Category 1 W	/etland. See Ques	tion 1 Qualitative	e Rating (-	-10)			
0	10	Metric 6	Plant comm	nunities, inter	spersio	n, micro topography.			
0	19	6a. Wetlan	nd Vegetation Co	ommunities.	Vegeta	ation Community Cover	Scale		
ax 14 pts	subtotal						(0.0.1)		
			resent using 0 to	3 scale.	0	Absent or comprises <0.1			
		1 Aquatic bed			1	Present and either compr	•		
		0 Emergent				vegetation and is of mode		omprises a	
		O Shrub O Forest				significant part but is of lo Present and either compr		rt of wotland's	
					2	vegetation and is of mode			
						part and is of high quality		iliprises a siliai	
		Open water Other			3	Present and comprises sign		more of wetland's	
		Other			3	vegetation and is of high		nore, or wetland 3	
		6b. Horizon	tal (plan view) I	nterspersion.		regetation and is or mg.	444		
		Select only			Narrat	ive Description of Vege	tation Quality		
		<b>0</b> High (5)			low			nonnative or disturbance tol	erant native
		Moderately h	nigh(4)		.011	species			
		0 Moderate (3)	)		mod	Native spp are dominant	component of the	e vegetation,	
		0 Moderately I	low (2)			although nonnative and/o	or disturbance tole	erant native spp	
		<b>0</b> Low (1)				can also be present, and s	pecies diversity m	noderate to	
		<b>X</b> None (0)				moderately high, but gene	erally w/o present	ce of rare	
		<del></del>				threatened or endangered	d spp		
		6c. Covera	ge of invasive p	lants. Refer	high	A predominance of native	e species, with no	nnative spp	
			RAM long form for			and/or disturbance tolera			
			oints for covera	ige		absent, and high spp dive			
		0 Extensive >75				the presence of rare, thre	atened, or endan	gered spp	
			-75% cover (-3)		n a		- 0 1'1		
		X Sparse 5-25%				at and Open Water Clas			
		<del></del>	t <5% cover (0)		0	Absent <0.1ha (0.247 acr	•		
		<b>0</b> Absent (1)			1	Low 0.1 to <1ha (0.247 to			
		6d. Microt	onogranhy		2	Moderate 1 to <4ha (2.4 High 4ha (9.88 acres) or r			
			sent using 1 to 3 s	cale	3	111g11 411a (3.88 acres) 01 1	nore		
			ummocks/tussocks		Microt	opography Cover Scale			
		_	y debris >15cm (6		0	Absent			
			ad >25cm (10in) db		1	Present very small amoun	ts or if more com	mon	
		Amphibian br			1	of marginal quality			
			0,		2	Present in moderate amo	unts, but not of hi	igher	
					_	quality or in small amount		=	
					3	Present in moderate or gr	eater amounts		
						and of highest quality			
						•			

End of Quantitative Rating. Complete Categorization Worksheets.

19 Total Score

### **ORAM Summary Worksheet**

		an: i	or highlight swer or nsert score	Result	
Narrative R	ating	•	score		
	Question 1 Critical Habitat	YES	NO	If yes, Category 3.	
	Question 2. Threatened or Endangered Species	YES	NO	If yes, Category 3.	
	Question 3. High Quality Natural Wetland	YES	NO	If yes, Category 3.	
	Question 4. Significant bird habitat	YES	NO	If yes, Category 3.	
	Question 5. Category 1 Wetlands	YES	NO	If yes, Category 1.	
	Question 6. Bogs	YES	NO	If yes, Category 3.	
	Question 7. Fens	YES	NO	If yes, Category 3.	
	Question 8a. Old Growth Forest	YES	NO	If yes, Category 3.	
	Question 8b. Mature Forested Wetland	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.	
	Question 9b. Lake Erie Wetlands - Restricted	YES	NO	If yes, evaluate for Category 3; may also be 1 or	
	Question 9d. Lake Erie Wetlands – Unrestricted with native	YES	NO	If yes, Category 3.	
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.	
	Question 10. Oak Openings	YES	NO	If yes, Category 3.	
	Question 11. Relict Wet Prairies	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.	
uantitativ	e Rating		-		
	Metric 1. Size		0		
	Metric 2. Buffers and surrounding land use		1		
	Metric 3. Hydrology		15		
	Metric 4. Habitat		3		
	Metric 5. Special Wetland Communities		0		
	Metric 6. Plant communities, interspersion, microtopography		0		
	TOTAL SCORE Wetland: WB_118	-	19	1 Category based on score breakpoints	

## Wetland Categorization Worksheet

	Wetland	WB_118	
Choices	Circle or highlig	tht one	Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES  Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating Nos. 5	YES Wetland should be categorized as a Category 1 wetland	NO	Is quantitative rating score greater than the Category 2 scoring threshold (including any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been undercategorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	YES Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc., and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was under categorized by this method. A written justification for recategorization should be provided on Background Information Form	NO Wetland is assigned to category as determined by the ORAM.	A wetland may be under categorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this
Choose one	Final Category :	1	1
	Cotoron 1		Cotton 2
	Category 1		Category 2 Category 3

End of Ohio Rapid Assessment Method for Wetlands.

## **Background Information**

Name:	David Kuhlmann
Date:	9/15/2018
Affiliation:	Westwood Professional Services, Inc.
Address:	12701 Whitewater Drive, Suite 300 Minnetonka, MN 55343
Phone Number:	(952) 937-5150
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Name of Wetland: WB\_119
Wetland Size (acres, hectares): 0.076

Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.



Comments, Narrative Discussion, Justification of Category Changes: North: Up

See Wetland and Upland Sample Datasheets

Final score : 19 Category: 1

#### **Scoring Boundary Worksheet**

Wetland: WB 119

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#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	Yes	Not Applicable
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	Yes	Not Applicable
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	Yes	Not Applicable
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	Yes	Not Applicable
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	Yes	Not Applicable
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.	Yes	Not Applicable

# Narrative Rating Wetland: WB\_119

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature and by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle or highlight one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 1812 July 6, 2000).	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	NO Go to Question 2
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	NO Go to Question 3
3	<b>Documented High Quality Wetland.</b> Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland. Go to Question 4	NO Go to Question 4
4	Significant Breeding or oncentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland. Go to Question 5	NO Go to Question 5
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by Phalaris arundinacea, Lythrum salicaria, or Phragmites australis, or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland. Go to Question 6	NO Go to Question 6
6	<b>Bogs.</b> Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly Sphagnum spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland. Go to Question 7	NO Go to Question 7
7	<b>Fens.</b> Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland. Go to Question 8a	NO Go to Question 8a
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age exceeding at least 50% o a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	NO Go to Question 8b

Wetland: WB\_119

	Wetland: WB_119		
8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast eight (dbh), generally diameters greater than 45cm (17.7in) dbh?	YES Wetland should be evaluated for possible Go to Question 9a Category 3 status.	NO Go to Question 9a
9a	<b>Lake Erie coastal and tributary wetlands.</b> Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES Go to Question 9b	NO Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES	NO Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	YES Go to Question 9d	NO Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES Wetland is a Category 3 wetland. Go to Question 10	NO Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status. Go to Question 10	NO Go to Question 10
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	YES Wetland is a Category 3 wetland. Go to Question 11	NO Go to Question 11
11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	Wetland should be	NO Complete Quantitative Rating

#### Table 1. Characteristic plant species.

#### invasive/exotic spp

Lythrum salicaria
Myriophyllum spicatum
Najas minor
Phalaris arundinacea
Phragmites australis
Potamogeton crispus
Ranunculus ficaria
Rhamnus frangula
Typha angustifolia
Typha yalauc

#### fen species

Zygadenus elegans var. glaucus Cacalia plantaginea Carex flava Carex sterilis Carex stricta Deschampsia caespitosa Eleocharis rostellata Eriophorum viridicarinatum Gentianopsis spp. Lobelia kalmii Parnassia glauca Potentilla fruticosa Rhamnus alnifolia Rhynchospora capillacea Salix candida Salix myricoides Salix serissima Solidago ohioensis Tofieldia glutinosa Triglochin maritimum Triglochin palustre

#### bog species

Calla palustris
Carex atlantica var. capillacea
Carex echinata
Carex oligosperma
Carex trisperma
Chamaedaphne calyculata
Decodon verticillatus
Eriophorum virginicum
Larix Iaricina
Nemopanthus mucronatus
Schechzeria palustris
Sphagnum spp.
Vaccinium corymbosum
Vaccinium oxycoccos
Woodwardia virginica
Xyris difformis

#### **Oak Opening species**

Carex cryptolepis Carex lasiocarpa Carex stricta Cladium mariscoides Calamagrostis stricta Calamagrostis canadensis Quercus palustris

#### wet prairie species

Calamagrostis canadensis Calamogrostis stricta Carex atherodes Carex buxbaumii Carex pellita Carex sartwellii Gentiana andrewsii Helianthus grosseserratus Liatris spicata Lysimachia quadriflora Lythrum alatum Pycnanthemum virginianum Silphium terebinthinaceum Sorghastrum nutans Spartina pectinata Solidago riddellii

ORAM v. 5.0 Field Form Quantitative Rating Madison David Kuhlmann Wetland: WB 119 Site: Rater(s): Date: 9/15/2018 Metric 1 Wetland Area (Ac.) 0.076 0 0 select one size class and assign score subtotal max 6 pts subtotal >50 acres (>20.2ha) (6 pts) 25 to <50 acres (10.1 to <20.2ha) (5 pts) 10 to <25 acres (4 to <10.1ha) (4 pts) 3 to <10 acres (1.2 to <4ha) (3 pts) 0.3 to <3 acres (0.12 to <1.2ha) (2pts) 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt.) <0.1 acres (0.04ha) (0 pts) Metric 2 Upland Buffers and Surrounding Land use 1.0 1.0 2a. Calculate average buffer width. Select only one and assign score. Do not double check. max 14 pts WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7) subtotal MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4) NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1) VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0) 2b. Intensity of surrounding land use. Select one or double check and average. VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7) LOW. Old field (>10 years), shrub land, young second growth forest. (5) MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3) **X** HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1) Metric 3 Hydrology 15.0 16.0 3b. Connectivity. Score all that apply. 3a. Sources of Water Score all that apply. max 30 pts subtotal High pH groundwater (5) 100 year floodplain (1) Other groundwater (3) Between stream/lake and other human use (1) Precipitation (1) Part of wetland/upland (e.g. forest), complex (1) X Seasonal/Intermittent surface water (3) Part of riparian or upland corridor (1) Perennial surface water (lake or stream) (5) 3c. Maximum water depth. Select only one and assign score. 3d. Duration inundation/saturation. Score one or dbl check. >0.7 (27.6in) (3) Semi- to permanently inundated/saturated (4) 0.4 to 0.7m (15.7 to 27.6in) (2) Regularly inundated/saturated (3) <0.4m (<15.7in) (1) Seasonally inundated (2) Seasonally saturated in upper 30cm (12in) (1) X 3e. Modifications to natural hydrologic regime. Score one or double check and average. None or none apparent (12) Check all disturbances observed X Recovered (7) ditch point source (nonstormwater) Recovering (3) tile filling/grading Recent or no recovery (1) dike road bed/RR track dredging weir stormwater inlet other Metric 4 Habitat Alteration and Development 3.0 19.0 4a. Substrate disturbance. Score one or double check and average. max 20 pts subtotal None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1) 4b. Habitat development. Select only one and assign score. Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) **X** Poor (1) 4c. Habitat alteration. Score one or double check and average. None or none apparent (9) Check all disturbances observed Recovered (6) mowing shrub/sapling removal Recovering (3) herbaceous/aquatic bed removal grazing Recent or no recovery (1) sedimentation clearcutting 19.0 selective cutting dredging subtotal this page woody debris removal farming last revised 1 February 2001 jjm toxic pollutants nutrient enhancement

7

	ORAM	1 v. 5.0 Field	Form Quantitativ	e Rating					
	Site:	Madisor	Rater(s):	David Kuhln	nann		Date:	9/15/2018 Wetland:	WB 119
	19								
	Subtotal fi	rst page							
0	19	Metric 5		•	ial Wet				
U	19	subtotal	select one	size class and	lassign	i score			
6 pts	subtotal								
		Bog (10)							
		Fen (10)							
		<u> </u>	h forest (10)						
			rested wetland (5)			(4.0)			
			coastal/tributary we						
			coastal/tributary we		arology (	5)			
			n Sand Prairies (Oak ( et Prairies (10)	openings) (10)					
		<del></del>		al throatoned or o	ndangara	od sposios (10)			
			currence state/feder		_				
			t migratory songbird 1 Wetland. See Que		_				
		1 Metric 6	S Plant comr	nunities inters	nersio	n, micro topography.			
0	19		land Vegetation C		-	tion Community Cover S	Scalo		
14 pts	subtotal	] 04	regetation c		vegeta	tion community cover s	ocale		
		Score all	l present using 0 t	o 3 scale.	0	Absent or comprises <0.1h	a (0.2471 acres)	contiguous area	
		<b>1</b> Aquatic b			1	Present and either compris	-		
		<b>0</b> Emergent				vegetation and is of moder		mprises a	
		<b>O</b> Shrub				significant part but is of lo			
		<b>0</b> Forest			2	Present and either compris			
		<b>0</b> Mudflats				vegetation and is of moder	ate quality or co	mprises a smal	
		Open wat	ter			part and is of high quality		C 11 11	
		Other			3	Present and comprises sig		nore, of wetland's	
		6h Haris	ontal (plan view)	Interchercien		vegetation and is of high q	luality		
		Select or		interspersion.	Narrati	ve Description of Veget	ation Quality		
		High (5)	ily one.		low			nonnative or disturbance tole	rant nativo
		Moderate	ly high(4)		low	species	nedominance of	normative or disturbance tole	Talle Hative
		Moderate			mod	Native spp are dominant of	omponent of the	vegetation	
			ely low (2)		IIIOu	although nonnative and/or	-	_	
		Low (1)	(			can also be present, and sp		• •	
		X None (0)				moderately high, but gene	· · · · · · · · · · · · · · · · · · ·		
						threatened or endangered			
		6c. Cove	erage of invasive p	olants. Refer	high	A predominance of native	species, with nor	nnative spp	
		to Table 1	ORAM long form fo	r list. Add		and/or disturbance toleran	nt native spp abse	ent or virtually	
		or deduc	t points for cover	age		absent, and high spp divers	sity and often, bu	t not always,	
		Extensive	>75% cover (-5)			the presence of rare, threa	tened, or endang	gered spp	
			25-75% cover (-3)						
			25% cover (-1)			t and Open Water Class			
			sent <5% cover (0)			Absent <0.1ha (0.247 acre	,		
		Absent (1)	)			Low 0.1 to <1ha (0.247 to 2			
		ed Mic	rotonogranhy		2	Moderate 1 to <4ha (2.47			
			rotopography present using 1 to 3	ccalo	3	High 4ha (9.88 acres) or m	lore		
			I hummocks/tussock		Microto	opography Cover Scale			
			oody debris >15cm (6			Absent			
			dead >25cm (10in) d			Present very small amount	s or if more com	mon	
			n breeding pools			of marginal quality			
		<u> </u>	٠.		2	Present in moderate amou	nts, but not of hi	gher	
						quality or in small amounts			
					3	Present in moderate or gre	eater amounts		
						and of highest quality			

End of Quantitative Rating. Complete Categorization Worksheets.

19 Total Score

### **ORAM Summary Worksheet**

	circle or highlight answer or insert score		Result
larrative Rating			
Question 1 Critical Habitat	YES	NO	If yes, Category 3.
Question 2. Threatened or Endangered Species	YES	NO	If yes, Category 3.
Question 3. High Quality Natural Wetland	YES	NO	If yes, Category 3.
Question 4. Significant bird habitat	YES	NO	If yes, Category 3.
Question 5. Category 1 Wetlands	YES	NO	If yes, Category 1.
Question 6. Bogs	YES	NO	If yes, Category 3.
Question 7. Fens	YES	NO	If yes, Category 3.
Question 8a. Old Growth Forest	YES	NO	If yes, Category 3.
Question 8b. Mature Forested Wetland	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2
Question 9b. Lake Erie Wetlands - Restricted	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2
Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES	NO	If yes, Category 3.
Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2
Question 10. Oak Openings	YES	NO	If yes, Category 3.
Question 11. Relict Wet Prairies	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2
antitative Rating			
Metric 1. Size		0	
Metric 2. Buffers and surrounding land use		1	
Metric 3. Hydrology		15	
Metric 4. Habitat		3	
Metric 5. Special Wetland Communities		0	
Metric 6. Plant communities, interspersion, microtopography		0	
TOTAL SCORE Wetland: WB 119		19	1 Category based on score breakpoints

## Wetland Categorization Worksheet

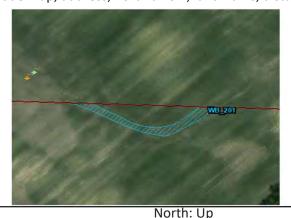
	Wetland	WB_119	
Choices	Circle or highlig	ht one	Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES  Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating Nos. 5	YES Wetland should be categorized as a Category 1 wetland	NO	Is quantitative rating score greater than the Category 2 scoring threshold (including any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been undercategorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	YES Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc., and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was under categorized by this method. A written justification for recategorization should be provided on Background Information Form	NO Wetland is assigned to category as determined by the ORAM.	A wetland may be under categorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this
Choose one	Final Category :	1	]

End of Ohio Rapid Assessment Method for Wetlands.

## **Background Information**

Name:	David Kuhlmann
Date:	11/19/2019
Affiliation:	Westwood Professional Services, Inc.
Address:	12701 Whitewater Drive, Suite 300 Minnetonka, MN 55343
Phone Number:	(952) 937-5150
e-mail address:	david.Kuhlmann@westwoodps.com
Name of Wetland:	WB_201
Vegetation Community(ies):	Farmed, Type 1, PEM1Af
HGM Class(es):	depressional

Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.



	Νόττη: Ορ
Lat/Long or UTM Coordinate	301815.720.293 4415126.80255
USGS Quad Name	Big Plain OH o39083g3
County	Madison
Township	Fairfield
Section and Subsection	No
Hydrologic Unit Code	50600020106
Site Visit	11/19/2019
NWI Map	No
Ohio Wetland Inventory Map	No
Soil Survey	Ko: Kokomo silty clay loam, 0 to 2 percent slopes
Delineation report/map	See Report Exhibits

WB\_201 Name of Wetland: Wetland Size (acres, hectares): 0.160 Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc. Comments, Narrative Discussion, Justification of Category Changes: North: Up See Wetland and Upland Sample Datasheets

Category: 1

Final score :

10

#### **Scoring Boundary Worksheet**

Wetland: WB\_201

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	Yes	Not Applicable
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	Yes	Not Applicable
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	Yes	Not Applicable
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	Yes	Not Applicable
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	Yes	Not Applicable
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.	Yes	Not Applicable

# Narrative Rating Wetland: WB\_201

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature and by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle or highlight one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 1812 July 6, 2000).	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	NO Go to Question 2
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	NO Go to Question 3
3	<b>Documented High Quality Wetland.</b> Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland. Go to Question 4	NO Go to Question 4
4	<b>Significant Breeding or oncentration Area.</b> Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland. Go to Question 5	NO Go to Question 5
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by Phalaris arundinacea, Lythrum salicaria, or Phragmites australis, or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland. Go to Question 6	NO Go to Question 6
6	<b>Bogs.</b> Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly Sphagnum spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland. Go to Question 7	NO Go to Question 7
7	<b>Fens.</b> Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland. Go to Question 8a	NO Go to Question 8a
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	NO Go to Question 8b

Wetland: WB\_201

	Wetland: WB_201		
8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of	YES	NO
	upper forest canopy consisting of deciduous trees with large diameters at breast eight (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible Go to Question 9a Category 3 status.	Go to Question 9a
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575	YES	NO
	feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	Go to Question 9b	Go to Question 10
9b	Does the wetland's hydrology result from measures designed to	YES	NO
	prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?		Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is	YES	NO
90	hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	Go to Question 9d	Go to Question 10
9d	Does the wetland have a predominance of native species within its	YES	NO
	vegetation communities, although non-native or disturbance tolerant native species can also be present?	Wetland is a Category 3 wetland. Go to Question 10	Go to Question 9e
e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species	YES	NO
C	within its vegetation communities?	Wetland should be evaluated for possible Category 3 status. Go to Question 10	Go to Question 10
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood	YES	NO
	Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	Wetland is a Category 3 wetland. Go to Question 11	Go to Question 11
11		YES	NO
	species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	Wetland should be evaluated for possible Category 3 status. Complete Quantitative Rating	Complete Quantitative Rating

#### Table 1. Characteristic plant species.

#### invasive/exotic spp

Lythrum salicaria Myriophyllum spicatum Najas minor Phalaris arundinacea Phragmites australis Potamogeton crispus Ranunculus ficaria Rhamnus frangula Typha angustifolia Typha xglauc

#### fen species

Zygadenus elegans var. glaucus Cacalia plantaginea Carex flava Carex sterilis Carex stricta Deschampsia caespitosa Eleocharis rostellata Eriophorum viridicarinatum Gentianopsis spp. Lobelia kalmii Parnassia glauca Potentilla fruticosa Rhamnus alnifolia Rhynchospora capillacea Salix candida Salix myricoides Salix serissima Solidago ohioensis

Tofieldia glutinosa Triglochin maritimum Triglochin palustre

#### bog species

Calla palustris Carex atlantica var. capillacea Carex echinata Carex oligosperma Carex trisperma Chamaedaphne calyculata Decodon verticillatus Eriophorum virginicum Larix laricina Nemopanthus mucronatus Schechzeria palustris  $Sphagnum\ spp.$ Vaccinium corymbosum Vaccinium oxycoccos Woodwardia virginica Xyris difformis

#### **Oak Opening species**

Carex cryptolepis
Carex lasiocarpa
Carex stricta
Cladium mariscoides
Calamagrostis stricta
Calamagrostis canadensis
Quercus palustris

#### wet prairie species

Calamagrostis canadensis Calamogrostis stricta Carex atherodes Carex buxbaumii Carex pellita Carex sartwellii Gentiana andrewsii Helianthus grosseserratus Liatris spicata Lysimachia quadriflora Lvthrum alatum Pycnanthemum virginianum Silphium terebinthinaceum Sorghastrum nutans Spartina pectinata Solidago riddellii

ORAM v. 5.0 Field Form Quantitative Rating David Kuhlmann 11/19/2019 Wetland: WB 201 Site: Francis Rater(s): Date: Metric 1 Wetland Area (Ac.) 0.160 1 1 select one size class and assign score subtotal max 6 pts subtotal >50 acres (>20.2ha) (6 pts) 25 to <50 acres (10.1 to <20.2ha) (5 pts) 10 to <25 acres (4 to <10.1ha) (4 pts) 3 to <10 acres (1.2 to <4ha) (3 pts) 0.3 to <3 acres (0.12 to <1.2ha) (2pts) 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt.) <0.1 acres (0.04ha) (0 pts) Metric 2 Upland Buffers and Surrounding Land use 1.0 2.0 2a. Calculate average buffer width. Select only one and assign score. Do not double check. max 14 pts subtotal WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7) MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4) NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1) х VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0) 2b. Intensity of surrounding land use. Select one or double check and average. VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7) LOW. Old field (>10 years), shrub land, young second growth forest. (5) MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3) **X** HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1) Metric 3 Hydrology 4.0 6.0 3b. Connectivity. Score all that apply. 3a. Sources of Water Score all that apply. max 30 pts subtotal High pH groundwater (5) 100 year floodplain (1) Other groundwater (3) Between stream/lake and other human use (1) Precipitation (1) Part of wetland/upland (e.g. forest), complex (1) X Seasonal/Intermittent surface water (3) Part of riparian or upland corridor (1) Perennial surface water (lake or stream) (5) 3c. Maximum water depth. Select only one and assign score. 3d. Duration inundation/saturation. Score one or dbl check. >0.7 (27.6in) (3) Semi- to permanently inundated/saturated (4) 0.4 to 0.7m (15.7 to 27.6in) (2) Regularly inundated/saturated (3) <0.4m (<15.7in) (1) Seasonally inundated (2) Seasonally saturated in upper 30cm (12in) (1) X 3e. Modifications to natural hydrologic regime. Score one or double check and average. None or none apparent (12) Check all disturbances observed Recovered (7) 0 ditch point source (nonstormwater) Recovering (3) 0 0 tile filling/grading X Recent or no recovery (1) 0 dike 0 road bed/RR track 0 0 dredging weir 0 0 stormwater inlet other Metric 4 Habitat Alteration and Development 3.0 9.0 4a. Substrate disturbance. Score one or double check and average. max 20 pts subtotal None or none apparent (4) Recovered (3) Recovering (2) **X** Recent or no recovery (1) 4b. Habitat development. Select only one and assign score. Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) **X** Poor (1) 4c. Habitat alteration. Score one or double check and average. None or none apparent (9) Check all disturbances observed 0 mowing 0 Recovered (6) shrub/sapling removal 0 grazing 0 Recovering (3) herbaceous/aquatic bed removal

0 clearcutting

0 selective cutting

0 toxic pollutants

0 woody debris removal

sedimentation

nutrient enhancement

dredging

farming

Χ

0

Х

Х

last revised 1 February 2001 jjm 7

9.0

subtotal this page

Recent or no recovery (1)

	ORAM	v. 5.0 Field For	rm Quantitativ	e Rating					
	Site:	Francis	Rater(s):	David Kuhl	mann	]	Date:	11/19/2019 Wetland:	WB 201
	9					-			
	Subtotal fi	rst page							
0	9	Metric 5.		•	cial Wel				
		subtotal	select one s	size class an	d assigi	n score			
ax 6 pts	subtotal								
		Bog (10)							
		Fen (10) Old growth fo	orost (10)						
			sted wetland (5)						
			stal/tributary wetl	and-unrestricted	hvdrolog	v (10)			
			stal/tributary wetl						
		Lake Plain Sa	and Prairies (Oak O	penings) (10)					
		Relict Wet Pr	rairies (10)						
		Known occur	rrence state/federa	l threatened or	endangere	ed species (10)			
		Significant m	nigratory songbird/	water fowl habit	at or usag	ge (10)			
		Category 1 W	Vetland. See Quest	tion 1 Qualitative	Rating (-:	10)			
1	10	Metric 6			-	n, micro topography.			
_		6a. Wetlar	nd Vegetation Co	ommunities.	Vegeta	ation Community Cover	Scale		
ax 14 pts	subtotal	Score all pr	resent using 0 to	3 scale.	0	Absent or comprises <0.1h	na (0.2471 acres)	contiguous area	
		Aquatic bed	_	o occirc.	1	Present and either compri			
		0 Emergent			-	vegetation and is of mode			
		<b>0</b> Shrub				significant part but is of lo	w quality		
		<b>0</b> Forest			2	Present and either compri			
		<b>0</b> Mudflats				vegetation and is of mode		mprises a small	
		Open water				part and is of high quality		C 11 11	
		<b>0</b> Other			3	Present and comprises sig vegetation and is of high of		more, of wetland's	
		6b. Horizon	ntal (plan view) II	nterspersion.		vegetation and is of flight	quanty		
		Select only		c.spersioni	Narrat	ive Description of Veget	tation Quality		
		<b>0</b> High (5)			low			nonnative or disturbance tol	erant native
		<b>0</b> Moderately h	nigh(4)			species			
		0 Moderate (3)	•		mod	Native spp are dominant of	•	_	
		Moderately I	low (2)			although nonnative and/o			
		0 Low (1)				can also be present, and s			
		X None (0)				moderately high, but gene threatened or endangered		ce of rare	
		6c. Covera	age of invasive pl	lants. Refer	high	A predominance of native		nnative spp	
			RAM long form for			and/or disturbance tolerar	-		
			oints for covera			absent, and high spp diver		-	
		Extensive >75	5% cover (-5)			the presence of rare, threa	atened, or endan	gered spp	
			5-75% cover (-3)						
		Sparse 5-25%			_	at and Open Water Class			
			nt <5% cover (0)		0	Absent <0.1ha (0.247 acre Low 0.1 to <1ha (0.247 to	·		
		X Absent (1)				Moderate 1 to <4ha (2.47)	· · · · · · · · · · · · · · · · · · ·		
		6d. Microt	topography		3	High 4ha (9.88 acres) or m	· · · · · · · · · · · · · · · · · · ·		
			sent using 1 to 3 so	cale.		0 1 (1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			
		<b>0</b> Vegetated hu	ummocks/tussocks		Microt	opography Cover Scale			
			ly debris >15cm (6i		0	Absent			
			ad >25cm (10in) db	h	1	Present very small amount	ts or if more com	mon	
		Amphibian br	reeding pools			of marginal quality	into historit of	iahor	
					2	Present in moderate amou quality or in small amount		=	
					3	Present in moderate or gre		Ly	
					3	and of highest quality	cater amounts		
						and or monest quanty			

End of Quantitative Rating. Complete Categorization Worksheets.

10 Total Score

### **ORAM Summary Worksheet**

	an: i	or highlight swer or nsert	Result
Narrative Rating		score	
Question 1 Critical Habitat	YES	NO	If yes, Category 3.
Question 2. Threatened or Endangered Species	YES	NO	If yes, Category 3.
Question 3. High Quality Natural Wetland	YES	NO	If yes, Category 3.
Question 4. Significant bird habitat	YES	NO	If yes, Category 3.
Question 5. Category 1 Wetlands	YES	NO	If yes, Category 1.
Question 6. Bogs	YES	NO	If yes, Category 3.
Question 7. Fens	YES	NO	If yes, Category 3.
Question 8a. Old Growth Forest	YES	NO	If yes, Category 3.
Question 8b. Mature Forested Wetland	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
Question 9b. Lake Erie Wetlands - Restricted	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES	NO	If yes, Category 3.
Question 9e. Lake Erie Wetlands - Unrestricted with invasive	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
Question 10. Oak Openings	YES	NO	If yes, Category 3.
Question 11. Relict Wet Prairies	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating			
Metric 1. Size		1	
Metric 2. Buffers and surrounding land use		1	
Metric 3. Hydrology		4	
Metric 4. Habitat		3	
Metric 5. Special Wetland Communities		0	
Metric 6. Plant communities, interspersion, microtopograph	У	1	
TOTAL SCORE Wetland: WB_201		10	1 Category based on score breakpoints

## Wetland Categorization Worksheet

	Wetland	WB_201	
Choices	Circle or highlig	ght one	Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES  Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating Nos. 5	YES Wetland should be categorized as a Category 1 wetland	NO	Is quantitative rating score greater than the Category 2 scoring threshold (including any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been undercategorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	YES Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc., and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was under categorized by this method. A written justification for recategorization should be provided on Background Information Form	NO Wetland is assigned to category as determined by the ORAM.	A wetland may be under categorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this
Choose one	Final Category :	1	
	Category 1		Category 2 Category 3

End of Ohio Rapid Assessment Method for Wetlands.

## **Background Information**

Name:	David Kuhlmann
Date:	11/19/2019
Affiliation:	Westwood Professional Services, Inc.
Address:	12701 Whitewater Drive, Suite 300 Minnetonka, MN 55343
Phone Number:	(952) 937-5150
e-mail address:	david.Kuhlmann@westwoodps.com
Name of Wetland:	WB_202
Vegetation Community(ies):	Farmed, Type 1, PEM1Af
HGM Class(es):	depressional

Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.



North: Up				
Lat/Long or UTM Coordinate	301699.807662 4415024.657			
USGS Quad Name	Big Plain OH o39083g3			
County	Madison			
Township	Fairfield			
Section and Subsection	No			
Hydrologic Unit Code	50600020106			
Site Visit	11/19/2019			
NWI Map	No			
Ohio Wetland Inventory Map	No			
Soil Survey	Ko: Kokomo silty clay loam, 0 to 2 percent slopes			
Delineation report/map	See Report Exhibits			

Name of Wetland: WB\_202
Wetland Size (acres, hectares): 0.315

Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.



Comments, Narrative Discussion, Justification of Category Changes: North: Up

See Wetland and Upland Sample Datasheets

Final score : 11 Category: 1

#### **Scoring Boundary Worksheet**

Wetland: WB 202

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	Yes	Not Applicable
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	Yes	Not Applicable
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	Yes	Not Applicable
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	Yes	Not Applicable
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	Yes	Not Applicable
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.	Yes	Not Applicable

# Narrative Rating Wetland: WB\_202

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature and by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle or highlight one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 1812 July 6, 2000).	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	NO Go to Question 2
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	NO Go to Question 3
3	<b>Documented High Quality Wetland.</b> Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland. Go to Question 4	NO Go to Question 4
4	<b>Significant Breeding or oncentration Area.</b> Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland. Go to Question 5	NO Go to Question 5
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by Phalaris arundinacea, Lythrum salicaria, or Phragmites australis, or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland. Go to Question 6	NO Go to Question 6
6	<b>Bogs.</b> Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly Sphagnum spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland. Go to Question 7	NO Go to Question 7
7	<b>Fens.</b> Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland. Go to Question 8a	NO Go to Question 8a
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	NO Go to Question 8b

Wetland: WB 202

	Wetland: WB_202		
8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of	YES	NO
	upper forest canopy consisting of deciduous trees with large diameters at breast eight (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible Go to Question 9a Category 3 status.	Go to Question 9a
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575	YES	NO
	feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	Go to Question 9b	Go to Question 10
9b	Does the wetland's hydrology result from measures designed to	YES	NO
	prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?		Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is	YES	NO
90	hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	Go to Question 9d	Go to Question 10
9d	Does the wetland have a predominance of native species within its	YES	NO
	vegetation communities, although non-native or disturbance tolerant native species can also be present?	Wetland is a Category 3 wetland. Go to Question 10	Go to Question 9e
e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species	YES	NO
C	within its vegetation communities?	Wetland should be evaluated for possible Category 3 status. Go to Question 10	Go to Question 10
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood	YES	NO
	Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	Wetland is a Category 3 wetland. Go to Question 11	Go to Question 11
11		YES	NO
	species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	Wetland should be evaluated for possible Category 3 status. Complete Quantitative Rating	Complete Quantitative Rating

#### Table 1. Characteristic plant species.

#### invasive/exotic spp

Lythrum salicaria Myriophyllum spicatum Najas minor Phalaris arundinacea Phragmites australis Potamogeton crispus Ranunculus ficaria Rhamnus frangula Typha angustifolia Typha xglauc

#### fen species

Zygadenus elegans var. glaucus Cacalia plantaginea Carex flava Carex sterilis Carex stricta Deschampsia caespitosa Eleocharis rostellata Eriophorum viridicarinatum Gentianopsis spp. Lobelia kalmii Parnassia glauca Potentilla fruticosa Rhamnus alnifolia Rhynchospora capillacea Salix candida Salix myricoides Salix serissima Solidago ohioensis

Tofieldia glutinosa Triglochin maritimum Triglochin palustre

#### bog species

Calla palustris Carex atlantica var. capillacea Carex echinata Carex oligosperma Carex trisperma Chamaedaphne calyculata Decodon verticillatus Eriophorum virginicum Larix laricina Nemopanthus mucronatus Schechzeria palustris  $Sphagnum\ spp.$ Vaccinium corymbosum Vaccinium oxycoccos Woodwardia virginica Xyris difformis

#### **Oak Opening species**

Carex cryptolepis Carex lasiocarpa Carex stricta Cladium mariscoides Calamagrostis stricta Calamagrostis canadensis Quercus palustris

#### wet prairie species

Calamagrostis canadensis Calamogrostis stricta Carex atherodes Carex buxbaumii Carex pellita Carex sartwellii Gentiana andrewsii Helianthus grosseserratus Liatris spicata Lysimachia quadriflora Lvthrum alatum Pycnanthemum virginianum Silphium terebinthinaceum Sorghastrum nutans Spartina pectinata Solidago riddellii

ORAM v. 5.0 Field Form Quantitative Rating David Kuhlmann 11/19/2019 Wetland: WB 202 Site: Francis Rater(s): Date: Metric 1 Wetland Area (Ac.) 0.315 2 2 select one size class and assign score subtotal max 6 pts subtotal >50 acres (>20.2ha) (6 pts) 25 to <50 acres (10.1 to <20.2ha) (5 pts) 10 to <25 acres (4 to <10.1ha) (4 pts) 3 to <10 acres (1.2 to <4ha) (3 pts) 0.3 to <3 acres (0.12 to <1.2ha) (2pts) 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt.) <0.1 acres (0.04ha) (0 pts) Metric 2 Upland Buffers and Surrounding Land use 1.0 3.0 2a. Calculate average buffer width. Select only one and assign score. Do not double check. max 14 pts subtotal WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7) MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4) NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1) х VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0) 2b. Intensity of surrounding land use. Select one or double check and average. VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7) LOW. Old field (>10 years), shrub land, young second growth forest. (5) MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3) **X** HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1) Metric 3 Hydrology 4.0 7.0 3b. Connectivity. Score all that apply. 3a. Sources of Water Score all that apply. max 30 pts subtotal High pH groundwater (5) 100 year floodplain (1) Other groundwater (3) Between stream/lake and other human use (1) Precipitation (1) Part of wetland/upland (e.g. forest), complex (1) X Seasonal/Intermittent surface water (3) Part of riparian or upland corridor (1) Perennial surface water (lake or stream) (5) 3c. Maximum water depth. Select only one and assign score. 3d. Duration inundation/saturation. Score one or dbl check. >0.7 (27.6in) (3) Semi- to permanently inundated/saturated (4) 0.4 to 0.7m (15.7 to 27.6in) (2) Regularly inundated/saturated (3) <0.4m (<15.7in) (1) Seasonally inundated (2) Seasonally saturated in upper 30cm (12in) (1) X 3e. Modifications to natural hydrologic regime. Score one or double check and average. None or none apparent (12) Check all disturbances observed 0 ditch Recovered (7) point source (nonstormwater) Recovering (3) 0 0 tile filling/grading X Recent or no recovery (1) 0 dike 0 road bed/RR track 0 0 dredging weir 0 0 stormwater inlet other Metric 4 Habitat Alteration and Development 3.0 10.0 4a. Substrate disturbance. Score one or double check and average. max 20 pts subtotal None or none apparent (4) Recovered (3) Recovering (2) **X** Recent or no recovery (1) 4b. Habitat development. Select only one and assign score. Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) **X** Poor (1) 4c. Habitat alteration. Score one or double check and average. None or none apparent (9) Check all disturbances observed 0 mowing 0 Recovered (6) shrub/sapling removal 0 grazing 0 Recovering (3) herbaceous/aquatic bed removal Recent or no recovery (1) 0 clearcutting sedimentation

**10.0** subtotal this page last revised 1 February 2001 jjm

 0
 mowing
 0
 shrub/sapling removal

 0
 grazing
 0
 herbaceous/aquatic bed removal

 0
 clearcutting
 x
 sedimentation

 0
 selective cutting
 0
 dredging

 0
 woody debris removal
 x
 farming

 0
 toxic pollutants
 x
 nutrient enhancement

	ORAM	l v. !	5.0 Field Fo	rm Quantitative	e Rating							
	Site:		Francis	Rater(s):	David Kuhl	mann	1	Date:	11/19/2019 Wetlar	ıd:	WB 20	2
	10	I	11411615	inater(s).	Davia Rain		1	Dute.	11/15/2015   ***Ctial		VVD 20	
		-										
0	Subtotal fi	]	Metric 5.			cial We						
		sub	ototal	select one s	size class an	a assigi	n score					
x 6 pts	subtotal	_	In (40)									
			Bog (10)									
		_	Fen (10)	. (40)								
		_	Old growth fo									
		_	1	sted wetland (5)			(4.0)					
		<u> </u>		stal/tributary wetla		-						
		_		stal/tributary wetla		drology (	5)					
		_		and Prairies (Oak Op	penings) (10)							
		_	Relict Wet Pr									
		<u> </u>	Known occur	rence state/federal	I threatened or $\epsilon$	endangere	ed species (10)					
			1 -	nigratory songbird/v		_						
			Category 1 W	Vetland. See Questi	ion 1 Qualitative	Rating (-	10)					
		-										
1	11		Metric 6			spersio	n, micro topography.					
		]	6a. Wetlar	nd Vegetation Co	mmunities.	Vegeta	ation Community Cover	Scale				
x 14 pts	subtotal		Score all pr	resent using 0 to	2 scalo		Absent or comprises <0.1	ha (0 2471 acros)	contiguous area			
			Aquatic bed	_	J scale.	<u>0</u> 1	Present and either compr					
		_	Emergent			1	vegetation and is of mode					
		_	Shrub				significant part but is of lo		omprises a			
		0	Forest			2	Present and either compr		ert of wetland's	—		
		0	Mudflats			2	vegetation and is of mode					
		6	Open water				part and is of high quality		mprises a sirian			
		6	Other			3	Present and comprises sig		more of wetland's			
		U	Journe			3	vegetation and is of high		more, or wedana s			
			6b. Horizon	ital (plan view) In	nterspersion.		1 -0	11-1-17				
			Select only			Narrat	ive Description of Vege	tation Quality				
		0	High (5)			low			f nonnative or disturbance	toler	ant native	
		_	Moderately h	nigh(4)			species					
		Ō	Moderate (3)	)		mod	Native spp are dominant	component of th	e vegetation,			
		0	Moderately I	low (2)			although nonnative and/o	or disturbance tol	erant native spp			
		0	Low (1)				can also be present, and s	pecies diversity n	noderate to			
		х	None (0)				moderately high, but gene	erally w/o presen	ce of rare			
			-				threatened or endangered					
			6c. Covera	ige of invasive pla	ants. Refer	high	A predominance of native	e species, with no	onnative spp			
				RAM long form for			and/or disturbance tolera		•			
				oints for coverag	ge		absent, and high spp dive	•	• •			
			Extensive >75	` '			the presence of rare, thre	atened, or endan	gered spp			
			1	5-75% cover (-3)								
			Sparse 5-25%	, ,		_	at and Open Water Clas					
		_		it <5% cover (0)		0	Absent <0.1ha (0.247 acr	·				
		X	Absent (1)			1	Low 0.1 to <1ha (0.247 to					
			6d Microt	topography		2	Moderate 1 to <4ha (2.4 High 4ha (9.88 acres) or r					
				sent using 1 to 3 sc	alo.	3	Tigil 411a (9.00 acres) 01 1	nore				
			_	ummocks/tussocks	.aie.	Microt	copography Cover Scale					
		6		ly debris >15cm (6ir	n)	0	Absent					
		0		ad >25cm (10in) dbl		1	Present very small amoun	ts or if more com	imon			
		0	Amphibian bi			_	of marginal quality					
			•	-		2	Present in moderate amo	unts, but not of h	igher			
							quality or in small amount	ts of highest qual	ity			
						3	Present in moderate or gr	eater amounts				
							and of highest quality					
												_

End of Quantitative Rating. Complete Categorization Worksheets.

11 Total Score

## **ORAM Summary Worksheet**

			or highlight swer or nsert core	Result	
Narrative Rating			core		
<u> </u>	n 1 Critical Habitat	YES	NO	If yes, Catego	rv 3.
Question	2. Threatened or Endangered Species	YES	NO	If yes, Catego	
Question	3. High Quality Natural Wetland	YES	NO	If yes, Catego	ry 3.
Question	14. Significant bird habitat	YES	NO	If yes, Catego	ry 3.
	5. Category 1 Wetlands	YES	NO	If yes, Catego	
Question	i 6. Bogs	YES	NO	If yes, Catego	ry 3.
Question	7. Fens	YES	NO	If yes, Catego	ry 3.
Question	8a. Old Growth Forest	YES	NO	If yes, Catego	ry 3.
Question	8b. Mature Forested Wetland	YES	NO	If yes, evaluat	te for Category 3; may also be 1 or 2.
Question	9b. Lake Erie Wetlands - Restricted	YES	NO	If yes, evaluat	te for Category 3; may also be 1 or 2.
Question plants	9d. Lake Erie Wetlands – Unrestricted with native	YES	NO	If yes, Catego	ry 3.
	9e. Lake Erie Wetlands - Unrestricted with invasive	YES	NO	If yes, evaluat	te for Category 3; may also be 1 or 2.
Question	10. Oak Openings	YES	NO	If yes, Catego	ry 3.
Question	11. Relict Wet Prairies	YES	NO	If yes, evaluat	te for Category 3; may also be 1 or 2.
Quantitative Rating					
Metric 1	. Size		2		
Metric 2	. Buffers and surrounding land use		1		
Metric 3	. Hydrology		4		
Metric 4	. Habitat		3		
Metric 5	. Special Wetland Communities		0		
Metric 6	Plant communities, interspersion, microtopography		1		
TOTAL S	CORE Wetland: WB_202		11	1 (	Category based on score breakpoints

# Wetland Categorization Worksheet

	Wetland	WB_202	
Choices	Circle or highlig	ght one	Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES  Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating Nos. 5	YES  Wetland should be categorized as a Category 1 wetland	NO	Is quantitative rating score greater than the Category 2 scoring threshold (including any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been undercategorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	YES Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc., and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was under categorized by this method. A written justification for recategorization should be provided on Background Information Form	NO Wetland is assigned to category as determined by the ORAM.	A wetland may be under categorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this
Choose one	Final Category :	1	]
	Category 1		Category 2 Category 3

End of Ohio Rapid Assessment Method for Wetlands.

# **Background Information**

Name:	David Kuhlmann
Date:	11/19/2019
Affiliation:	Westwood Professional Services, Inc.
Address:	12701 Whitewater Drive, Suite 300 Minnetonka, MN 55343
Phone Number:	(952) 937-5150
e-mail address:	david.Kuhlmann@westwoodps.com
Name of Wetland:	WB_203
Vegetation Community(ies):	Farmed, Type 1, PEM1Af
HGM Class(es):	depressional

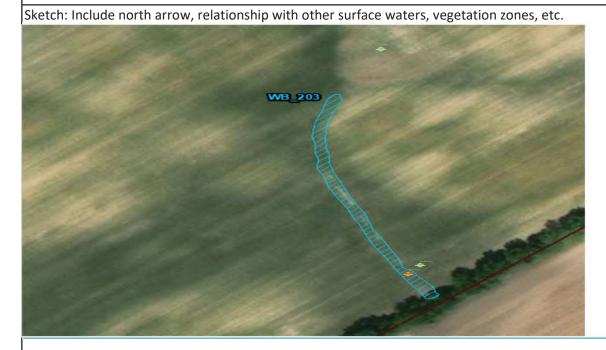
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.



North: Up				
Lat/Long or UTM Coordinate	301434.971808 4414719.30242			
USGS Quad Name	Big Plain OH o39083g3			
County	Madison			
Township	Fairfield			
Section and Subsection	No			
Hydrologic Unit Code	50600020106			
Site Visit	11/19/2019			
NWI Map	No			
Ohio Wetland Inventory Map	Yes			
Soil Survey	Pa: Patton silty clay loam, 0 to 2 percent slopes			
Delineation report/map	See Report Exhibits			

Name of Wetland: WB\_203
Wetland Size (acres, hectares): 0.188

vvetidita size (deres), fleetares).



Comments, Narrative Discussion, Justification of Category Changes: North: Up

See Wetland and Upland Sample Datasheets

Final score : 10 Category: 1

#### **Scoring Boundary Worksheet**

Wetland: WB 203

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	Yes	Not Applicable
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	Yes	Not Applicable
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	Yes	Not Applicable
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	Yes	Not Applicable
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	Yes	Not Applicable
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.	Yes	Not Applicable

# Narrative Rating Wetland: WB\_203

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature and by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle or highlight one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 1812 July 6, 2000).	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	NO Go to Question 2
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	NO Go to Question 3
3	<b>Documented High Quality Wetland.</b> Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland. Go to Question 4	NO Go to Question 4
4	<b>Significant Breeding or oncentration Area.</b> Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland. Go to Question 5	NO Go to Question 5
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by Phalaris arundinacea, Lythrum salicaria, or Phragmites australis, or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland. Go to Question 6	NO Go to Question 6
6	<b>Bogs.</b> Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly Sphagnum spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland. Go to Question 7	NO Go to Question 7
7	<b>Fens.</b> Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland. Go to Question 8a	NO Go to Question 8a
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	NO Go to Question 8b

Wetland: WB 203

	Wetland: WB_203						
8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of	YES	NO				
	upper forest canopy consisting of deciduous trees with large diameters at breast eight (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible Go to Question 9a Category 3 status.	Go to Question 9a				
— Эа	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575	YES	NO				
	feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	Go to Question 9b	Go to Question 10				
9b	Does the wetland's hydrology result from measures designed to	YES	NO				
	prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?		Go to Question 9c				
٦,	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is	YES	NO				
9c	hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	Go to Question 9d	Go to Question 10				
9d	Does the wetland have a predominance of native species within its	YES	NO				
	vegetation communities, although non-native or disturbance tolerant native species can also be present?	Wetland is a Category 3 wetland. Go to Question 10	Go to Question 9e				
<u> </u>	Does the wetland have a predominance of non-native or disturbance tolerant native plant species	YES	NO				
	within its vegetation communities?	Wetland should be evaluated for possible Category 3 status. Go to Question 10	Go to Question 10				
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood	YES	NO				
	Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	Wetland is a Category 3 wetland. Go to Question 11	Go to Question 11				
11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the	YES	NO				
	species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and	Wetland should be evaluated for possible Category 3 status. Complete Quantitative Rating	Complete Quantitative Rating				

#### Table 1. Characteristic plant species.

#### invasive/exotic spp

Lythrum salicaria Myriophyllum spicatum Najas minor Phalaris arundinacea Phragmites australis Potamogeton crispus Ranunculus ficaria Rhamnus frangula Typha angustifolia Typha xglauc

#### fen species

Zygadenus elegans var. glaucus Cacalia plantaginea Carex flava Carex sterilis Carex stricta Deschampsia caespitosa Eleocharis rostellata Eriophorum viridicarinatum Gentianopsis spp. Lobelia kalmii Parnassia glauca Potentilla fruticosa Rhamnus alnifolia Rhynchospora capillacea Salix candida Salix myricoides Salix serissima Solidago ohioensis

Tofieldia glutinosa Triglochin maritimum Triglochin palustre

#### bog species

Calla palustris Carex atlantica var. capillacea Carex echinata Carex oligosperma Carex trisperma Chamaedaphne calyculata Decodon verticillatus Eriophorum virginicum Larix laricina Nemopanthus mucronatus Schechzeria palustris  $Sphagnum\ spp.$ Vaccinium corymbosum Vaccinium oxycoccos Woodwardia virginica Xyris difformis

#### **Oak Opening species**

Carex cryptolepis
Carex lasiocarpa
Carex stricta
Cladium mariscoides
Calamagrostis stricta
Calamagrostis canadensis
Quercus palustris

#### wet prairie species

Calamagrostis canadensis Calamogrostis stricta Carex atherodes Carex buxbaumii Carex pellita Carex sartwellii Gentiana andrewsii Helianthus grosseserratus Liatris spicata Lysimachia quadriflora Lvthrum alatum Pycnanthemum virginianum Silphium terebinthinaceum Sorghastrum nutans Spartina pectinata Solidago riddellii

ORAM v. 5.0 Field Form Quantitative Rating David Kuhlmann 11/19/2019 Wetland: WB 203 Site: Francis Rater(s): Date: Metric 1 Wetland Area (Ac.) 0.1881 1 select one size class and assign score subtotal max 6 pts subtotal >50 acres (>20.2ha) (6 pts) 25 to <50 acres (10.1 to <20.2ha) (5 pts) 10 to <25 acres (4 to <10.1ha) (4 pts) 3 to <10 acres (1.2 to <4ha) (3 pts) 0.3 to <3 acres (0.12 to <1.2ha) (2pts) 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt.) <0.1 acres (0.04ha) (0 pts) Metric 2 Upland Buffers and Surrounding Land use 1.0 2.0 2a. Calculate average buffer width. Select only one and assign score. Do not double check. max 14 pts subtotal WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7) MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4) NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1) х VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0) 2b. Intensity of surrounding land use. Select one or double check and average. VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7) LOW. Old field (>10 years), shrub land, young second growth forest. (5) MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3) **X** HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1) Metric 3 Hydrology 4.0 6.0 3b. Connectivity. Score all that apply. 3a. Sources of Water Score all that apply. max 30 pts subtotal High pH groundwater (5) 100 year floodplain (1) Other groundwater (3) Between stream/lake and other human use (1) Precipitation (1) Part of wetland/upland (e.g. forest), complex (1) X Seasonal/Intermittent surface water (3) Part of riparian or upland corridor (1) Perennial surface water (lake or stream) (5) 3c. Maximum water depth. Select only one and assign score. 3d. Duration inundation/saturation. Score one or dbl check. >0.7 (27.6in) (3) Semi- to permanently inundated/saturated (4) 0.4 to 0.7m (15.7 to 27.6in) (2) Regularly inundated/saturated (3) <0.4m (<15.7in) (1) Seasonally inundated (2) Seasonally saturated in upper 30cm (12in) (1) X 3e. Modifications to natural hydrologic regime. Score one or double check and average. None or none apparent (12) Check all disturbances observed Recovered (7) 0 ditch point source (nonstormwater) Recovering (3) 0 0 tile filling/grading X Recent or no recovery (1) 0 dike 0 road bed/RR track 0 0 dredging weir 0 0 stormwater inlet other Metric 4 Habitat Alteration and Development 3.0 9.0 4a. Substrate disturbance. Score one or double check and average. max 20 pts subtotal None or none apparent (4) Recovered (3) Recovering (2) **X** Recent or no recovery (1) 4b. Habitat development. Select only one and assign score. Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) **X** Poor (1) 4c. Habitat alteration. Score one or double check and average. None or none apparent (9) Check all disturbances observed 0 mowing 0 Recovered (6) shrub/sapling removal 0 grazing 0 Recovering (3) herbaceous/aquatic bed removal Recent or no recovery (1)

subtotal this page last revised 1 February 2001 jjm 0 clearcutting sedimentation Χ 0 selective cutting dredging 0 0 woody debris removal Х farming 0 toxic pollutants Х nutrient enhancement

9.0

	ORAM	l v. 5.0 Field For	rm Quantitative	Rating					
	Site:	Francis	Rater(s):	David Kuhlı	mann	]	Date:	11/19/2019 Wetland	l: WB 203
	9					•		· · ·	
	Subtotal fi	4							
_		Metric 5.		Spec	ial Wet	tlands			
0	9	subtotal	select one si	ize class and	d assign	n score			
ax 6 pts	subtotal								
		Bog (10)							
		Fen (10)							
		Old growth fo	rest (10)						
		Mature forest	ted wetland (5)						
		Lake Erie coas	stal/tributary wetlai	nd-unrestricted	hydrolog	y (10)			
			stal/tributary wetlar		drology (	5)			
			and Prairies (Oak Op	enings) (10)					
		Relict Wet Pr	airies (10)						
		Known occurr	rence state/federal	threatened or e	ndangere	ed species (10)			
		Significant m	igratory songbird/w	ater fowl habita	at or usag	ge (10)			
		Category 1 W	etland. See Question	on 1 Qualitative	Rating (-:	10)			
		<del></del>							
1	10	Metric 6	Plant commu	unities, inter	spersio	n, micro topography.			
	10	6a. Wetlan	nd Vegetation Cor	mmunities.	Vegeta	ation Community Cover	Scale		
ax 14 pts	subtotal	- Caawa all ww		2		IAL 0.41	- (0.2474)		
			esent using 0 to 3	s scare.	0	Absent or comprises <0.1h Present and either compri			
		<b>⊢</b> ⊸_ '			1	vegetation and is of mode			
		0 Emergent 0 Shrub				significant part but is of lo		omprises a	
		0 Forest				Present and either compri		art of wetland's	
		0 Mudflats			2	vegetation and is of mode			
		0 Open water				part and is of high quality			
		0 Other			3	Present and comprises sig		more, of wetland's	
						vegetation and is of high		•	
			tal (plan view) In	terspersion.					
		Select only	one.		Narrat	ive Description of Veget			
		<b>0</b> High (5)			low	Low spp diversity and/or	predominance of	nonnative or disturbance to	lerant native
		<b>0</b> Moderately h				species			
		0 Moderate (3)			mod	Native spp are dominant	•	_	
		0 Moderately	ow (2)			although nonnative and/o		• •	
		0 Low (1)				can also be present, and s moderately high, but gene			
		<b>X</b> None (0)				threatened or endangered		ce of rare	
		6c Covera	ge of invasive pla	ints Refer	high	A predominance of native		nnative can	
			RAM long form for I		111611	and/or disturbance tolera		• • •	
			oints for coverage			absent, and high spp diver		·	
		Extensive >75				the presence of rare, three			
		Moderate 25-	-75% cover (-3)					<u> </u>	
		Sparse 5-25%	cover (-1)		Mudfla	at and Open Water Clas	s Quality		
		Nearly absent	t <5% cover (0)		0	Absent <0.1ha (0.247 acre	es)		
		X Absent (1)			1	Low 0.1 to <1ha (0.247 to	2.47 acres)		
					2	Moderate 1 to <4ha (2.47			
		6d. Microt			3	High 4ha (9.88 acres) or n	nore		
			sent using 1 to 3 sca	ale.					
			immocks/tussocks	`		opography Cover Scale			
			y debris >15cm (6in)		0	Absent	: f		
			nd >25cm (10in) dbh	I	1	Present very small amoun	is or it more com	IIIIOII	
		<b>0</b> Amphibian br	ecuing pools			of marginal quality Present in moderate amou	ints hut not of h	igher	
					2	quality or in small amount		-	
					3	Present in moderate or gre		**1	
					J	and of highest quality			

End of Quantitative Rating. Complete Categorization Worksheets.

10 Total Score

## **ORAM Summary Worksheet**

			or highlight swer or nsert score	Result
Narrative F	Rating			
	Question 1 Critical Habitat	YES	NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES	NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES	NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES	NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES	NO	If yes, Category 1.
	Question 6. Bogs	YES	NO	If yes, Category 3.
	Question 7. Fens	YES	NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES	NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES	NO	If yes, Category 3.
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES	NO	If yes, Category 3.
	Question 11. Relict Wet Prairies	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
uantitativ	ve Rating		•	
	Metric 1. Size		1	
	Metric 2. Buffers and surrounding land use		1	
	Metric 3. Hydrology		4	
	Metric 4. Habitat		3	
	Metric 5. Special Wetland Communities		0	
	Metric 6. Plant communities, interspersion, microtopography		1	
	TOTAL SCORE Wetland: WB_203	•	10	Category based on score breakpoints

# Wetland Categorization Worksheet

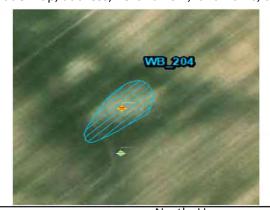
	Wetland	WB_203	
Choices	Circle or highlig	ght one	Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES  Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating Nos. 5	YES Wetland should be categorized as a Category 1 wetland	NO	Is quantitative rating score greater than the Category 2 scoring threshold (including any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been undercategorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	YES Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to tha category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc., and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was under categorized by this method. A written justification for recategorization should be provided on Background Information Form	NO Wetland is assigned to category as determined by the ORAM.	A wetland may be under categorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this
Choose one	Final Category :	1	
	Category 1		Category 2 Category 3

End of Ohio Rapid Assessment Method for Wetlands.

# **Background Information**

Name:	David Kuhlmann
Date:	11/19/2019
Affiliation:	Westwood Professional Services, Inc.
Address:	12701 Whitewater Drive, Suite 300 Minnetonka, MN 55343
Phone Number:	(952) 937-5150
e-mail address:	david.Kuhlmann@westwoodps.com
Name of Wetland:	WB_204
Vegetation Community(ies):	Farmed, Type 1, PEM1Af
HGM Class(es):	depressional

Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.



	North: Up
Lat/Long or UTM Coordinate	301331.538821 4414999.19285
USGS Quad Name	Big Plain OH o39083g3
County	Madison
Township	Fairfield
Section and Subsection	No
Hydrologic Unit Code	50600020106
Site Visit	11/19/2019
NWI Map	No
Ohio Wetland Inventory Map	No
Soil Survey	Pa: Patton silty clay loam, 0 to 2 percent slopes
Delineation report/map	See Report Exhibits

Name of Wetland: WB\_204

Wetland Size (acres, hectares): 0.125

Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.



Comments, Narrative Discussion, Justification of Category Changes:

See Wetland and Upland Sample Datasheets

North: Up

Final score : 10 Category: 1

#### **Scoring Boundary Worksheet**

Wetland: WB 204

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	Yes	Not Applicable
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	Yes	Not Applicable
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	Yes	Not Applicable
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	Yes	Not Applicable
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	Yes	Not Applicable
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.	Yes	Not Applicable

# Narrative Rating Wetland: WB\_204

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature and by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle or highlight one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 1812 July 6, 2000).	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	NO Go to Question 2
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	NO Go to Question 3
3	<b>Documented High Quality Wetland.</b> Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland. Go to Question 4	NO Go to Question 4
4	<b>Significant Breeding or oncentration Area.</b> Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland. Go to Question 5	NO Go to Question 5
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by Phalaris arundinacea, Lythrum salicaria, or Phragmites australis, or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland. Go to Question 6	NO Go to Question 6
6	<b>Bogs.</b> Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly Sphagnum spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland. Go to Question 7	NO Go to Question 7
7	<b>Fens.</b> Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland. Go to Question 8a	NO Go to Question 8a
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	NO Go to Question 8b

Wetland: WB 204

	Wetland: WB_204		
8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast eight (dbh), generally diameters greater than 45cm (17.7in) dbh?	YES Wetland should be evaluated for possible Go to Question 9a Category 3 status.	NO Go to Question 9a
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES Go to Question 9b	NO Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES	NO Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	YES Go to Question 9d	NO Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES Wetland is a Category 3 wetland. Go to Question 10	NO Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status. Go to Question 10	NO Go to Question 10
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	YES Wetland is a Category 3 wetland. Go to Question 11	NO Go to Question 11
11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	YES Wetland should be evaluated for possible Category 3 status. Complete Quantitative Rating	NO Complete Quantitative Rating

#### Table 1. Characteristic plant species.

#### invasive/exotic spp

Lythrum salicaria Myriophyllum spicatum Najas minor Phalaris arundinacea Phragmites australis Potamogeton crispus Ranunculus ficaria Rhamnus frangula Typha angustifolia Typha xglauc

#### fen species

Zygadenus elegans var. glaucus Cacalia plantaginea Carex flava Carex sterilis Carex stricta Deschampsia caespitosa Eleocharis rostellata Eriophorum viridicarinatum Gentianopsis spp. Lobelia kalmii Parnassia glauca Potentilla fruticosa Rhamnus alnifolia Rhynchospora capillacea Salix candida Salix myricoides Salix serissima Solidago ohioensis

Tofieldia glutinosa Triglochin maritimum Triglochin palustre

#### bog species

Calla palustris Carex atlantica var. capillacea Carex echinata Carex oligosperma Carex trisperma Chamaedaphne calyculata Decodon verticillatus Eriophorum virginicum Larix laricina Nemopanthus mucronatus Schechzeria palustris  $Sphagnum\ spp.$ Vaccinium corymbosum Vaccinium oxycoccos Woodwardia virginica Xyris difformis

#### **Oak Opening species**

Carex cryptolepis
Carex lasiocarpa
Carex stricta
Cladium mariscoides
Calamagrostis stricta
Calamagrostis canadensis
Quercus palustris

#### wet prairie species

Calamagrostis canadensis Calamogrostis stricta Carex atherodes Carex buxbaumii Carex pellita Carex sartwellii Gentiana andrewsii Helianthus grosseserratus Liatris spicata Lysimachia quadriflora Lvthrum alatum Pycnanthemum virginianum Silphium terebinthinaceum Sorghastrum nutans Spartina pectinata Solidago riddellii

ORAM v. 5.0 Field Form Quantitative Rating David Kuhlmann 11/19/2019 Wetland: WB 204 Site: Francis Rater(s): Date: Metric 1 Wetland Area (Ac.) 0.1251 1 select one size class and assign score subtotal max 6 pts subtotal >50 acres (>20.2ha) (6 pts) 25 to <50 acres (10.1 to <20.2ha) (5 pts) 10 to <25 acres (4 to <10.1ha) (4 pts) 3 to <10 acres (1.2 to <4ha) (3 pts) 0.3 to <3 acres (0.12 to <1.2ha) (2pts) 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt.) <0.1 acres (0.04ha) (0 pts) Metric 2 Upland Buffers and Surrounding Land use 1.0 2.0 2a. Calculate average buffer width. Select only one and assign score. Do not double check. max 14 pts subtotal WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7) MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4) NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1) х VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0) 2b. Intensity of surrounding land use. Select one or double check and average. VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7) LOW. Old field (>10 years), shrub land, young second growth forest. (5) MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3) **X** HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1) Metric 3 Hydrology 4.0 6.0 3b. Connectivity. Score all that apply. 3a. Sources of Water Score all that apply. max 30 pts subtotal High pH groundwater (5) 100 year floodplain (1) Other groundwater (3) Between stream/lake and other human use (1) Precipitation (1) Part of wetland/upland (e.g. forest), complex (1) X Seasonal/Intermittent surface water (3) Part of riparian or upland corridor (1) Perennial surface water (lake or stream) (5) 3c. Maximum water depth. Select only one and assign score. 3d. Duration inundation/saturation. Score one or dbl check. >0.7 (27.6in) (3) Semi- to permanently inundated/saturated (4) 0.4 to 0.7m (15.7 to 27.6in) (2) Regularly inundated/saturated (3) <0.4m (<15.7in) (1) Seasonally inundated (2) Seasonally saturated in upper 30cm (12in) (1) X 3e. Modifications to natural hydrologic regime. Score one or double check and average. None or none apparent (12) Check all disturbances observed 0 ditch Recovered (7) point source (nonstormwater) Recovering (3) 0 0 tile filling/grading X Recent or no recovery (1) 0 dike 0 road bed/RR track 0 0 dredging weir 0 0 stormwater inlet other Metric 4 Habitat Alteration and Development 3.0 9.0 4a. Substrate disturbance. Score one or double check and average. max 20 pts subtotal None or none apparent (4) Recovered (3) Recovering (2) **X** Recent or no recovery (1) 4b. Habitat development. Select only one and assign score. Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) **X** Poor (1) 4c. Habitat alteration. Score one or double check and average. None or none apparent (9) Check all disturbances observed 0 mowing 0 Recovered (6) shrub/sapling removal 0 grazing 0 Recovering (3) herbaceous/aquatic bed removal

sedimentation

nutrient enhancement

dredging

farming

x Recent or no recovery (1) 0 clearcutting x

9.0 selective cutting 0

subtotal this page 0 woody debris removal x

last revised 1 February 2001 jjm 0 toxic pollutants x

	ORAM	l v. 5.0 Field F	orm Quantitativ	ve Rating						
	Site:	Francis	Rater(s):	David Kuhl	mann	]	Date:	11/19/2019 Wetlan	d:	WB 204
	9		1220000							
	Subtotal fi	4								
0	9	Metric 5.		Spe size class an	<mark>cial Wet</mark> d assign					
x 6 pts	subtotal	1			0					
		Bog (10)								
		Fen (10)								
			n forest (10)							
			rested wetland (5)							
			oastal/tributary wet	land-unrestricted	l hydrolog	v (10)				
			oastal/tributary wet		-					
			Sand Prairies (Oak C		, 0, (	,				
		Relict Wet	Prairies (10)							
		Known occ	currence state/feder	al threatened or	endangere	ed species (10)				
		Significant	: migratory songbird	/water fowl habit	at or usad	re (10)				
			Wetland. See Ques		_					
		,	•			- /				
_		Metric 6	Plant comr	nunities, inte	rspersio	n, micro topography.				
1	10	6a. Wetl	land Vegetation C		-	ition Community Cover	Scale			
x 14 pts	subtotal	•	_			<u> </u>				
			present using 0 to	o 3 scale.	0	Absent or comprises < 0.1h				
		<b>0</b> Aquatic be	ed :		1	Present and either compri				
		<b>0</b> Emergent				vegetation and is of mode		omprises a		
		0 Shrub				significant part but is of lo				
		0 Forest			2	Present and either compri				
		0 Mudflats	~-			vegetation and is of mode	rate quality or co	mprises a smail		
		O Open wate	21			part and is of high quality Present and comprises sig	mificant part or	mara of watland's		
		<b>O</b> Other			3	vegetation and is of high (		nore, or wettand s		
		6b. Horizo	ontal (plan view)	Interspersion.		regetation and is or mgire	444,			
		Select onl	.,		Narrat	ive Description of Veget	tation Quality			
		<b>0</b> High (5)	,		low	Low spp diversity and/or		nonnative or disturbance	tolera	int native
		0 Moderately	y high(4)			species				
		0 Moderate (	(3)		mod	Native spp are dominant of	component of the	e vegetation,		
		<b>0</b> Moderatel	ly low (2)			although nonnative and/o	r disturbance tole	erant native spp		
		<b>0</b> Low (1)				can also be present, and sp	pecies diversity m	noderate to		
		X None (0)				moderately high, but gene		ce of rare		
						threatened or endangered				
			rage of invasive p		high	A predominance of native	=			
			ORAM long form fo points for covera			and/or disturbance toleranabsent, and high spp diver		•		
			>75% cover (-5)	age		the presence of rare, threa				
		$\square$	25-75% cover (-3)			the presence of fare, three	aterica, or endang	gerea spp		
			5% cover (-1)		Mudfla	at and Open Water Class	s Quality			
			ent <5% cover (0)		0	Absent <0.1ha (0.247 acre				
		X Absent (1)			1	Low 0.1 to <1ha (0.247 to	2.47 acres)			
					2	Moderate 1 to <4ha (2.47	7 to 9.88 acres)			
			otopography		3	High 4ha (9.88 acres) or m	nore			
			resent using 1 to 3 s							
			hummocks/tussocks			opography Cover Scale				
			ody debris >15cm (6		0	Absent	to or if many are are are			
			lead >25cm (10in) d	ווע	1	Present very small amount	rs or ii more com	IIIUII		
		<b>O</b> Amphibian	breeding pools			of marginal quality Present in moderate amou	ints hut not of h	igher		
					2	quality or in small amount				
					3	Present in moderate or gre		-1		
					J	and of highest quality				

End of Quantitative Rating. Complete Categorization Worksheets.

10 Total Score

## **ORAM Summary Worksheet**

	ans i	or highlight swer or nsert	Result
Narrative Rating		score	
Question 1 Critical Habitat	YES	NO	If yes, Category 3.
Question 2. Threatened or Endangered Species	YES	NO	If yes, Category 3.
Question 3. High Quality Natural Wetland	YES	NO	If yes, Category 3.
Question 4. Significant bird habitat	YES	NO	If yes, Category 3.
Question 5. Category 1 Wetlands	YES	NO	If yes, Category 1.
Question 6. Bogs	YES	NO	If yes, Category 3.
Question 7. Fens	YES	NO	If yes, Category 3.
Question 8a. Old Growth Forest	YES	NO	If yes, Category 3.
Question 8b. Mature Forested Wetland	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
Question 9b. Lake Erie Wetlands - Restricted	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES	NO	If yes, Category 3.
Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
Question 10. Oak Openings	YES	NO	If yes, Category 3.
Question 11. Relict Wet Prairies	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating			
Metric 1. Size		1	
Metric 2. Buffers and surrounding land use		1	
Metric 3. Hydrology		4	
Metric 4. Habitat		3	
Metric 5. Special Wetland Communities		0	
Metric 6. Plant communities, interspersion, microtopography		1	
TOTAL SCORE Wetland: WB_204		10	Category based on score breakpoints

# Wetland Categorization Worksheet

	Wetland	WB_204	
Choices	Circle or highlig	tht one	Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES  Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating Nos. 5	YES Wetland should be categorized as a Category 1 wetland	NO	Is quantitative rating score greater than the Category 2 scoring threshold (including any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been undercategorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	YES Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc., and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was under categorized by this method. A written justification for recategorization should be provided on Background Information Form	NO Wetland is assigned to category as determined by the ORAM.	A wetland may be under categorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this
Choose one	Final Category :	1	
			-
	Category 1		Category 2 Category 3

End of Ohio Rapid Assessment Method for Wetlands.

# **Background Information**

Name:	David Kuhlmann
Date:	11/19/2019
Affiliation:	Westwood Professional Services, Inc.
Address:	12701 Whitewater Drive, Suite 300 Minnetonka, MN 55343
Phone Number:	(952) 937-5150
e-mail address:	david.Kuhlmann@westwoodps.com
Name of Wetland:	WB_205
Vegetation Community(ies):	Farmed, Type 1, PEM1Af
HGM Class(es):	depressional

Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.



	North: Op
Lat/Long or UTM Coordinate	301413.526819 4415112.62038
USGS Quad Name	Big Plain OH o39083g3
County	Madison
Township	Fairfield
Section and Subsection	No
Hydrologic Unit Code	50600020106
Site Visit	11/19/2019
NWI Map	No
Ohio Wetland Inventory Map	No
Soil Survey	CsA: Crosby -Lewisburg silt loams, 0 to 2 percent slopes
Delineation report/map	See Report Exhibits

Name of Wetland: WB\_205 Wetland Size (acres, hectares): 0.074 Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc. Comments, Narrative Discussion, Justification of Category Changes: North: Up See Wetland and Upland Sample Datasheets Final score : 9 Category: 1

#### **Scoring Boundary Worksheet**

Wetland: WB 205

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	Yes	Not Applicable
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	Yes	Not Applicable
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	Yes	Not Applicable
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	Yes	Not Applicable
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	Yes	Not Applicable
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.	Yes	Not Applicable

# Narrative Rating Wetland: WB\_205

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature and by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle or highlight one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 1812 July 6, 2000).	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	NO Go to Question 2
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	NO Go to Question 3
3	<b>Documented High Quality Wetland.</b> Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland. Go to Question 4	NO Go to Question 4
4	<b>Significant Breeding or oncentration Area.</b> Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland. Go to Question 5	NO Go to Question 5
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by Phalaris arundinacea, Lythrum salicaria, or Phragmites australis, or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland. Go to Question 6	NO Go to Question 6
6	<b>Bogs.</b> Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly Sphagnum spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland. Go to Question 7	NO Go to Question 7
7	<b>Fens.</b> Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland. Go to Question 8a	NO Go to Question 8a
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	NO Go to Question 8b

Wetland: WB 205

	Wetland: WB_205		
8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of	YES	NO
	upper forest canopy consisting of deciduous trees with large diameters at breast eight (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible Go to Question 9a Category 3 status.	Go to Question 9a
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575	YES	NO
	feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	Go to Question 9b	Go to Question 10
9b	Does the wetland's hydrology result from measures designed to	YES	NO
	prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?		Go to Question 9c
 9с	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is	YES	NO
90	hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	Go to Question 9d	Go to Question 10
9d	Does the wetland have a predominance of native species within its	YES	NO
	vegetation communities, although non-native or disturbance tolerant native species can also be present?	Wetland is a Category 3 wetland. Go to Question 10	Go to Question 9e
<u> </u>	Does the wetland have a predominance of non-native or disturbance tolerant native plant species	YES	NO
	within its vegetation communities?	Wetland should be evaluated for possible Category 3 status. Go to Question 10	Go to Question 10
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood	YES	NO
	Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	Wetland is a Category 3 wetland. Go to Question 11	Go to Question 11
11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the	YES	NO
	species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and	Wetland should be evaluated for possible Category 3 status. Complete Quantitative Rating	Complete Quantitative Rating

#### Table 1. Characteristic plant species.

#### invasive/exotic spp

Lythrum salicaria Myriophyllum spicatum Najas minor Phalaris arundinacea Phragmites australis Potamogeton crispus Ranunculus ficaria Rhamnus frangula Typha angustifolia Typha xglauc

#### fen species

Zygadenus elegans var. glaucus Cacalia plantaginea Carex flava Carex sterilis Carex stricta Deschampsia caespitosa Eleocharis rostellata Eriophorum viridicarinatum Gentianopsis spp. Lobelia kalmii Parnassia glauca Potentilla fruticosa Rhamnus alnifolia Rhynchospora capillacea Salix candida Salix myricoides Salix serissima Solidago ohioensis

Tofieldia glutinosa Triglochin maritimum Triglochin palustre

#### bog species

Calla palustris Carex atlantica var. capillacea Carex echinata Carex oligosperma Carex trisperma Chamaedaphne calyculata Decodon verticillatus Eriophorum virginicum Larix laricina Nemopanthus mucronatus Schechzeria palustris  $Sphagnum\ spp.$ Vaccinium corymbosum Vaccinium oxycoccos Woodwardia virginica Xyris difformis

#### **Oak Opening species**

Carex cryptolepis
Carex lasiocarpa
Carex stricta
Cladium mariscoides
Calamagrostis stricta
Calamagrostis canadensis
Quercus palustris

#### wet prairie species

Calamagrostis canadensis Calamogrostis stricta Carex atherodes Carex buxbaumii Carex pellita Carex sartwellii Gentiana andrewsii Helianthus grosseserratus Liatris spicata Lysimachia quadriflora Lvthrum alatum Pycnanthemum virginianum Silphium terebinthinaceum Sorghastrum nutans Spartina pectinata Solidago riddellii

ORAM v. 5.0 Field Form Quantitative Rating David Kuhlmann 11/19/2019 Wetland: WB 205 Site: Francis Rater(s): Date: Metric 1 Wetland Area (Ac.) 0.0740 0 select one size class and assign score subtotal max 6 pts >50 acres (>20.2ha) (6 pts) subtotal 25 to <50 acres (10.1 to <20.2ha) (5 pts) 10 to <25 acres (4 to <10.1ha) (4 pts) 3 to <10 acres (1.2 to <4ha) (3 pts) 0.3 to <3 acres (0.12 to <1.2ha) (2pts) 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt.) <0.1 acres (0.04ha) (0 pts) Metric 2 Upland Buffers and Surrounding Land use 1.0 1.0 2a. Calculate average buffer width. Select only one and assign score. Do not double check. max 14 pts subtotal WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7) MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4) NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1) х VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0) 2b. Intensity of surrounding land use. Select one or double check and average. VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7) LOW. Old field (>10 years), shrub land, young second growth forest. (5) MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3) **X** HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1) Metric 3 Hydrology 4.0 5.0 3b. Connectivity. Score all that apply. 3a. Sources of Water Score all that apply. max 30 pts subtotal High pH groundwater (5) 100 year floodplain (1) Other groundwater (3) Between stream/lake and other human use (1) Precipitation (1) Part of wetland/upland (e.g. forest), complex (1) X Seasonal/Intermittent surface water (3) Part of riparian or upland corridor (1) Perennial surface water (lake or stream) (5) 3c. Maximum water depth. Select only one and assign score. 3d. Duration inundation/saturation. Score one or dbl check. >0.7 (27.6in) (3) Semi- to permanently inundated/saturated (4) 0.4 to 0.7m (15.7 to 27.6in) (2) Regularly inundated/saturated (3) <0.4m (<15.7in) (1) Seasonally inundated (2) Seasonally saturated in upper 30cm (12in) (1) X 3e. Modifications to natural hydrologic regime. Score one or double check and average. None or none apparent (12) Check all disturbances observed 0 ditch Recovered (7) point source (nonstormwater) Recovering (3) 0 0 tile filling/grading X Recent or no recovery (1) 0 dike 0 road bed/RR track 0 0 dredging weir 0 0 stormwater inlet other Metric 4 Habitat Alteration and Development 3.0 8.0 4a. Substrate disturbance. Score one or double check and average. max 20 pts subtotal None or none apparent (4) Recovered (3) Recovering (2) **X** Recent or no recovery (1) 4b. Habitat development. Select only one and assign score. Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) **X** Poor (1) 4c. Habitat alteration. Score one or double check and average. None or none apparent (9) Check all disturbances observed 0 mowing 0 Recovered (6) shrub/sapling removal 0 grazing 0 Recovering (3) herbaceous/aquatic bed removal 0 clearcutting Recent or no recovery (1) sedimentation

**8.0** subtotal this page last revised 1 February 2001 jjm

O mowing O shrub/sapling removal
O grazing O herbaceous/aquatic bed removal
O clearcutting x sedimentation
O selective cutting O dredging
O woody debris removal x farming
O toxic pollutants x nutrient enhancement

	ORAM	v. <sup>5</sup>	5.0 Field For	m Quantit	ative Rating						
	Site:		Francis	Rater(s):		uhlmann	[	Date:	11/19/2019 Wetlar	.d.	WB 205
	8		Traireis	Nate (3)	, Davia III	211111101111		Date.	11/13/2013   **Ctial	<u></u>	WB 203
		] 									
0	Subtotal fir	]	Metric 5.	select o	<b>s</b> ne size class	<b>pecial Wet</b> and assigr					
ax 6 pts	subtotal		Bog (10)								
			Fen (10)								
		_	Old growth fo	rest (10)							
		⊢	Mature forest		5)						
		⊢			wetland-unrestric	ted hydrolog	v (10)				
		$\vdash$	1	-	wetland-restricte						
			Lake Plain Sai	nd Prairies (C	ak Openings) (10)						
			Relict Wet Pra	airies (10)							
			Known occurr	ence state/fe	ederal threatened	or endangere	ed species (10)				
	Significant migratory songbird/water fowl habit			abitat or usag	e (10)						
					Question 1 Qualita	_					
			•								
1	9		Metric 6	Plant co	mmunities, in	terspersio	n, micro topography.				
	9		6a. Wetlan	d Vegetatio	on Communities	<ul> <li>Vegeta</li> </ul>	tion Community Cover	Scale			
ax 14 pts	subtotal		Score all pr	acant using	0 to 2 ccalo		Absort or comprises to 1k	22 (0 2471 agree)	contiguous area		
			1	esent using	0 to 3 scale.	<u>0</u>	Absent or comprises < 0.1h Present and either compri				
		0	Emergent			1	vegetation and is of mode				
		0	Shrub				significant part but is of lo		omprises a		
		6	Forest			2	Present and either compri		art of wetland's		
		0	Mudflats			_	vegetation and is of mode				
		ō	Open water				part and is of high quality		·		
		Ō	Other			3	Present and comprises sig	nificant part, or	more, of wetland's		
			•				vegetation and is of high (	quality			
					w) Interspersio		ive Description of Vess	ration Ovality			
		_	Select only on High (5)	one.			ive Description of Veget		f nonnative or disturbance	+-1	
			Moderately hi	igh(4)		low	species	predominance o	i nonnative or disturbance	toler	ant native
		_	Moderate (3)			mod	Native spp are dominant	component of th	e vegetation.		
		0	Moderately lo			mou	although nonnative and/o		_		
		ŏ	Low (1)	- ( )			can also be present, and s				
		X	None (0)				moderately high, but gene				
			•				threatened or endangered	l spp			
			6c. Coverag	ge of invasi	ve plants. Refei	high	A predominance of native	species, with no	onnative spp		
				_	n for list. Add		and/or disturbance tolera		•		
		_	or deduct po		verage		absent, and high spp diver				
		<u> </u>	Extensive >75	, ,	2)		the presence of rare, threa	atened, or endar	igered spp		
		<u> </u>	Moderate 25- Sparse 5-25%	•	3)	Mudfla	it and Open Water Clas	s Quality			
			Nearly absent		n)		Absent <0.1ha (0.247 acre				
		x	Absent (1)	. 1370 00001 (0	2)		Low 0.1 to <1ha (0.247 to				
			] (=,			2	Moderate 1 to <4ha (2.47				
			6d. Microto	opography		3	High 4ha (9.88 acres) or n				
			Score all pres	ent using 1 to	o 3 scale.						
			Vegetated hui			Microt	opography Cover Scale				
		0	Coarse woody				Absent				
		0	Standing dead		n) dbh	1	Present very small amoun	ts or if more con	nmon		
		0	Amphibian br	eeding pools			of marginal quality		inh an		
						2	Present in moderate amount		=		
							quality or in small amount Present in moderate or gro		ity		
						3	and of highest quality	cater amounts			

End of Quantitative Rating. Complete Categorization Worksheets.

9 Total Score

## **ORAM Summary Worksheet**

		e or highlight answer or insert score	Result		
Narrative Rating					
Question 1 Critical Habitat	YES	NO	If yes, Category 3.		
Question 2. Threatened or Endangered Species	YES	NO	If yes, Category 3.		
Question 3. High Quality Natural Wetland	YES	NO	If yes, Category 3.		
Question 4. Significant bird habitat	YES	NO	If yes, Category 3.		
Question 5. Category 1 Wetlands	YES	NO	If yes, Category 1.		
Question 6. Bogs	YES	NO	If yes, Category 3.		
Question 7. Fens	YES	NO	If yes, Category 3.		
Question 8a. Old Growth Forest	YES	NO	If yes, Category 3.		
Question 8b. Mature Forested Wetland	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.		
Question 9b. Lake Erie Wetlands - Restricted	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.		
Question 9d. Lake Erie Wetlands – Unrestricted wi	th native YES	NO	If yes, Category 3.		
Question 9e. Lake Erie Wetlands - Unrestricted wit plants	th invasive YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.		
Question 10. Oak Openings	YES	NO	If yes, Category 3.		
Question 11. Relict Wet Prairies	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.		
uantitative Rating					
Metric 1. Size		0			
Metric 2. Buffers and surrounding land use		1			
Metric 3. Hydrology		4			
Metric 4. Habitat		3			
Metric 5. Special Wetland Communities		0			
Metric 6. Plant communities, interspersion, microt	opography	1			
TOTAL SCORE Wetland: WE	3_205	9	1 Category based on score breakpoints		

# Wetland Categorization Worksheet

	Wetland	WB_205		
Choices	Circle or highlig	ght one	Evaluation of Categorization Result of ORAM	
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score less than the Category 2 scorir threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OA Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM	
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES  Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.	
Did you answer "Yes" to Narrative Rating Nos. 5	YES Wetland should be categorized as a Category 1 wetland	NO	Is quantitative rating score greater than the Category 2 scoring threshold (including any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been undercategorized by the ORAM	
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	YES Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to tha category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.	
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc., and a consideration of the narrative criteria in OAC rule 3745-1-54(C).	
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was under categorized by this method. A written justification for recategorization should be provided on Background Information Form	NO Wetland is assigned to category as determined by the ORAM.	A wetland may be under categorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this	
Choose one	Final Category :	1		
	Category 1		Category 2 Category 3	

End of Ohio Rapid Assessment Method for Wetlands.

## **Background Information**

Name:	David Kuhlmann
Date:	11/19/2019
Affiliation:	Westwood Professional Services, Inc.
Address:	12701 Whitewater Drive, Suite 300 Minnetonka, MN 55343
Phone Number:	(952) 937-5150
e-mail address:	david.Kuhlmann@westwoodps.com
Name of Wetland:	WB_206
Vegetation Community(ies):	Farmed, Type 1, PEM1Af
HGM Class(es):	depressional

Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.



	North: Up
Lat/Long or UTM Coordinate	301169.047636 4415019.8617
USGS Quad Name	Big Plain OH o39083g3
County	Madison
Township	Fairfield
Section and Subsection	No
Hydrologic Unit Code	50600020106
Site Visit	11/19/2019
NWI Map	No
Ohio Wetland Inventory Map	No
Soil Survey	CsB: Crosby -Lewisburg silt loams, 2 to 6 percent slopes
Delineation report/map	See Report Exhibits

Name of Wetland: WB\_206

Wetland Size (acres, hectares): 1.010

Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.



Comments, Narrative Discussion, Justification of Category Changes:

See Wetland and Upland Sample Datasheets

North: Up

Final score : 21.5 Category: 1

### **Scoring Boundary Worksheet**

Wetland: WB 206

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	Yes	Not Applicable
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	Yes	Not Applicable
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	Yes	Not Applicable
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	Yes	Not Applicable
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	Yes	Not Applicable
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.	Yes	Not Applicable

## Narrative Rating Wetland: WB\_206

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature and by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle or highlight one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 1812 July 6, 2000).	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	NO Go to Question 2
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	NO Go to Question 3
3	<b>Documented High Quality Wetland.</b> Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland. Go to Question 4	NO Go to Question 4
4	<b>Significant Breeding or oncentration Area.</b> Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland. Go to Question 5	NO Go to Question 5
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by Phalaris arundinacea, Lythrum salicaria, or Phragmites australis, or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland. Go to Question 6	NO Go to Question 6
6	<b>Bogs.</b> Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly Sphagnum spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland. Go to Question 7	NO Go to Question 7
7	<b>Fens.</b> Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland. Go to Question 8a	NO Go to Question 8a
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	NO Go to Question 8b

Wetland: WB\_206

	Wetland: WB_206		
8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast eight (dbh), generally diameters greater than 45cm (17.7in) dbh?	YES Wetland should be evaluated for possible Go to Question 9a Category 3 status.	NO Go to Question 9a
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES Go to Question 9b	NO Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES	NO Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	YES Go to Question 9d	NO Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES Wetland is a Category 3 wetland. Go to Question 10	NO Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status. Go to Question 10	NO Go to Question 10
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	YES Wetland is a Category 3 wetland. Go to Question 11	NO Go to Question 11
11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	YES Wetland should be evaluated for possible Category 3 status. Complete Quantitative Rating	NO Complete Quantitative Rating

## Table 1. Characteristic plant species.

### invasive/exotic spp

Lythrum salicaria Myriophyllum spicatum Najas minor Phalaris arundinacea Phragmites australis Potamogeton crispus Ranunculus ficaria Rhamnus frangula Typha angustifolia Typha xglauc

### fen species

Zygadenus elegans var. glaucus Cacalia plantaginea Carex flava Carex sterilis Carex stricta Deschampsia caespitosa Eleocharis rostellata Eriophorum viridicarinatum Gentianopsis spp. Lobelia kalmii Parnassia glauca Potentilla fruticosa Rhamnus alnifolia Rhynchospora capillacea Salix candida Salix myricoides Salix serissima Solidago ohioensis

Tofieldia glutinosa Triglochin maritimum Triglochin palustre

## bog species

Calla palustris Carex atlantica var. capillacea Carex echinata Carex oligosperma Carex trisperma Chamaedaphne calyculata Decodon verticillatus Eriophorum virginicum Larix laricina Nemopanthus mucronatus Schechzeria palustris  $Sphagnum\ spp.$ Vaccinium corymbosum Vaccinium oxycoccos Woodwardia virginica Xyris difformis

## **Oak Opening species**

Carex cryptolepis
Carex lasiocarpa
Carex stricta
Cladium mariscoides
Calamagrostis stricta
Calamagrostis canadensis
Quercus palustris

### wet prairie species

Calamagrostis canadensis Calamogrostis stricta Carex atherodes Carex buxbaumii Carex pellita Carex sartwellii Gentiana andrewsii Helianthus grosseserratus Liatris spicata Lysimachia quadriflora Lvthrum alatum Pycnanthemum virginianum Silphium terebinthinaceum Sorghastrum nutans Spartina pectinata Solidago riddellii

ORAM v. 5.0 Field Form Quantitative Rating David Kuhlmann 11/19/2019 Wetland: WB 206 Site: Francis Rater(s): Date: Metric 1 Wetland Area (Ac.) 1.010 0 0 select one size class and assign score subtotal max 6 pts >50 acres (>20.2ha) (6 pts) subtotal 25 to <50 acres (10.1 to <20.2ha) (5 pts) 10 to <25 acres (4 to <10.1ha) (4 pts) 3 to <10 acres (1.2 to <4ha) (3 pts) 0.3 to <3 acres (0.12 to <1.2ha) (2pts) 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt.) 0 <0.1 acres (0.04ha) (0 pts) Metric 2 Upland Buffers and Surrounding Land use 3.0 3.0 2a. Calculate average buffer width. Select only one and assign score. Do not double check. max 14 pts subtotal WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7) MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4) NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1) **O** VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0) 2b. Intensity of surrounding land use. Select one or double check and average. VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7) LOW. Old field (>10 years), shrub land, young second growth forest. (5) **X** MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3) **X** HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1) Metric 3 Hydrology 7.0 10.0 3b. Connectivity. Score all that apply. 3a. Sources of Water Score all that apply. max 30 pts subtotal High pH groundwater (5) 100 year floodplain (1) Other groundwater (3) Between stream/lake and other human use (1) Precipitation (1) X Part of wetland/upland (e.g. forest), complex (1) X Seasonal/Intermittent surface water (3) Part of riparian or upland corridor (1) Perennial surface water (lake or stream) (5) 3c. Maximum water depth. Select only one and assign score. 3d. Duration inundation/saturation. Score one or dbl check. >0.7 (27.6in) (3) Semi- to permanently inundated/saturated (4) 0.4 to 0.7m (15.7 to 27.6in) (2) Regularly inundated/saturated (3) <0.4m (<15.7in) (1) Seasonally inundated (2) X Seasonally saturated in upper 30cm (12in) (1) 3e. Modifications to natural hydrologic regime. Score one or double check and average. None or none apparent (12) Check all disturbances observed 0 ditch Recovered (7) point source (nonstormwater) Recovering (3) 0 tile filling/grading X Recent or no recovery (1) 0 dike 0 road bed/RR track 0 0 dredging weir 0 0 stormwater inlet other Metric 4 Habitat Alteration and Development 4.5 14.5 4a. Substrate disturbance. Score one or double check and average. max 20 pts subtotal None or none apparent (4) Recovered (3) Recovering (2) Х **X** Recent or no recovery (1) 4b. Habitat development. Select only one and assign score. Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) **X** Poor to fair (2) Poor (1) 4c. Habitat alteration. Score one or double check and average. None or none apparent (9) Check all disturbances observed 0 mowing 0 Recovered (6) shrub/sapling removal 0 grazing 0 Recovering (3) herbaceous/aquatic bed removal 0 clearcutting Recent or no recovery (1) sedimentation Χ

14.5

subtotal this page last revised 1 February 2001 jjm 0 selective cutting dredging 0 0 woody debris removal Х farming 0 toxic pollutants Х nutrient enhancement

	ORAN	l v. 5	5.0 Field Fo	rm Quantitativ	ve Rating		_			
	Site:		Francis	Rater(s):	David Kuhlı	mann		Date:	11/19/2019 Wetland:	WB_206
	14.5									
	Subtotal fi	rst pag								
0	14.5	Ι.	Metric 5.			ial Wet				
		sub	total	select one	size class and	a assigi	n score			
x 6 pts	subtotal	_	lpog (10)							
		_	Bog (10) Fen (10)							
			Old growth fo	orest (10)						
			-	sted wetland (5)						
		Н	1	stal/tributary wet	land-unrestricted	hydrolog	y (10)			
			Lake Erie coa	stal/tributary wet	land-restricted hy	drology (	5)			
			Lake Plain Sa	and Prairies (Oak 0	Openings) (10)					
			Relict Wet Pr	rairies (10)						
		<u> </u>	Known occur	rence state/feder	al threatened or e	ndangere	ed species (10)			
			Significant m	nigratory songbird	/water fowl habita	at or usag	ge (10)			
			Category 1 W	Vetland. See Ques	stion 1 Qualitative	Rating (-:	10)			
		,								
7	21.5		Metric 6			-	n, micro topography.			
x 14 pts	subtotal		6a. Wetlar	nd Vegetation C	ommunities.	Vegeta	ation Community Cover S	Scale		
.x 2 1 pts	Subtotal		Score all pr	resent using 0 to	o 3 scale.	0	Absent or comprises <0.1ha	a (0.2471 acres)	contiguous area	
		1	Aquatic bed	_		1	Present and either compris			
		0	Emergent				vegetation and is of moder	ate quality, or c	omprises a	
		_	Shrub				significant part but is of lov			
		$\vdash$	Forest			2	Present and either compris			
		0	Mudflats				vegetation and is of moder	ate quality or co	omprises a small	
		0	Open water				part and is of high quality	ificant nart or	mara of watland's	
		0	Other			3	Present and comprises sign vegetation and is of high q		more, or wetland's	
			6b. Horizon	ntal (plan view)	Interspersion.		vegetation and is or might q	adirey		
			Select only			Narrat	ive Description of Vegeta	ation Quality		
			High (5)			low	Low spp diversity and/or p	redominance of	nonnative or disturbance toler	ant native
			Moderately h	nigh(4)			species			
			Moderate (3)			mod	Native spp are dominant of			
		L	Moderately I	low (2)			although nonnative and/or		• • • • • • • • • • • • • • • • • • • •	
		X	Low (1)				can also be present, and sp			
		0	None (0)				moderately high, but gener threatened or endangered		ce of rare	
			6c. Covera	ige of invasive p	lants. Refer	high	A predominance of native		nnative snn	
				RAM long form fo		6	and/or disturbance toleran			
				oints for covera			absent, and high spp divers		•	
			Extensive >75	5% cover (-5)			the presence of rare, threa	tened, or endan	gered spp	
				5-75% cover (-3)						
			Sparse 5-25%				at and Open Water Class			
				t <5% cover (0)		0	Absent <0.1ha (0.247 acrestow 0.1 to <1ha (0.247 to 2	•		
		U	Absent (1)			2	Moderate 1 to <4ha (2.47			
			6d. Microt	topography		3	High 4ha (9.88 acres) or m			
				sent using 1 to 3	scale.		0 1 (1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			
		0		ummocks/tussocks		Microt	opography Cover Scale			
		1	Coarse wood	ly debris >15cm (6	in)	0	Absent			
				ad >25cm (10in) d	bh	1	Present very small amounts	s or if more com	mon	
		0	Amphibian br	reeding pools			of marginal quality	ata but as to Cl	iahor	
						2	Present in moderate amouguality or in small amounts			
						3	Present in moderate or gre		ity	
						3	and of highest quality			
							1 - 0 - 34 - 4			

End of Quantitative Rating. Complete Categorization Worksheets.

21.5 Total Score

## **ORAM Summary Worksheet**

		circle or highlight answer or insert		Result
Narrative Ra	nting	<u> </u>	core	
italiative ite	Question 1 Critical Habitat	YES	NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES	NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES	NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES	NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES	NO	If yes, Category 1.
	Question 6. Bogs	YES	NO	If yes, Category 3.
	Question 7. Fens	YES	NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES	NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES	NO	If yes, Category 3.
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES	NO	If yes, Category 3.
	Question 11. Relict Wet Prairies	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative	e Rating			
	Metric 1. Size		0	
	Metric 2. Buffers and surrounding land use		3	
	Metric 3. Hydrology		7	
	Metric 4. Habitat		4.5	
	Metric 5. Special Wetland Communities		0	
	Metric 6. Plant communities, interspersion, microtopography		7	
	TOTAL SCORE Wetland: WB_206	•	21.5	Category based on score breakpoints

## Wetland Categorization Worksheet

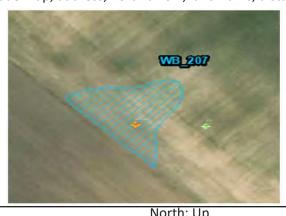
	Wetland	WB_206	
Choices	Circle or highlig	ght one	Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES  Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating Nos. 5	YES Wetland should be categorized as a Category 1 wetland	NO	Is quantitative rating score greater than the Category 2 scoring threshold (including any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been undercategorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	YES Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to tha category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc., and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was under categorized by this method. A written justification for recategorization should be provided on Background Information Form	NO Wetland is assigned to category as determined by the ORAM.	A wetland may be under categorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this
Choose one	Final Category :	1	]
	Category 1		Category 2 Category 3

End of Ohio Rapid Assessment Method for Wetlands.

## **Background Information**

Name:	David Kuhlmann
Date:	11/19/2019
Affiliation:	Westwood Professional Services, Inc.
Address:	12701 Whitewater Drive, Suite 300 Minnetonka, MN 55343
Phone Number:	(952) 937-5150
e-mail address:	david.Kuhlmann@westwoodps.com
Name of Wetland:	WB_207
Vegetation Community(ies):	Farmed, Type 1, PEM1Af
HGM Class(es):	depressional

Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.



North: Up				
Lat/Long or UTM Coordinate	301144.357855 4414663.57495			
USGS Quad Name	Big Plain OH o39083g3			
County	Madison			
Township	Fairfield			
Section and Subsection	No			
Hydrologic Unit Code	50600020106			
Site Visit	11/19/2019			
NWI Map	No			
Ohio Wetland Inventory Map	No			
Soil Survey	Ko: Kokomo silty clay loam, 0 to 2 percent slopes			
Delineation report/map	See Report Exhibits			

Name of Wetland: WB\_207

Wetland Size (acres, hectares): 0.184

Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.



Comments, Narrative Discussion, Justification of Category Changes:

See Wetland and Upland Sample Datasheets

North: Up

Final score : 10 Category: 1

### **Scoring Boundary Worksheet**

Wetland: WB 207

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. Areas with a high degree of hydrologic interaction should be scored as a single wetland. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	Yes	Not Applicable
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	Yes	Not Applicable
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	Yes	Not Applicable
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	Yes	Not Applicable
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	Yes	Not Applicable
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.	Yes	Not Applicable

## Narrative Rating Wetland: WB\_207

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature and by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle or highlight one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 1812 July 6, 2000).	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	NO Go to Question 2
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	NO Go to Question 3
3	<b>Documented High Quality Wetland.</b> Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland. Go to Question 4	NO Go to Question 4
4	<b>Significant Breeding or oncentration Area.</b> Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland. Go to Question 5	NO Go to Question 5
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by Phalaris arundinacea, Lythrum salicaria, or Phragmites australis, or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland. Go to Question 6	NO Go to Question 6
6	<b>Bogs.</b> Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly Sphagnum spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland. Go to Question 7	NO Go to Question 7
7	<b>Fens.</b> Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland. Go to Question 8a	NO Go to Question 8a
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	NO Go to Question 8b

Wetland: WB 207

	Wetland: WB_207						
8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast eight (dbh), generally diameters greater than 45cm (17.7in) dbh?	YES Wetland should be evaluated for possible Go to Question 9a Category 3 status.	NO Go to Question 9a				
9a	<b>Lake Erie coastal and tributary wetlands.</b> Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES Go to Question 9b	NO Go to Question 10				
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES	NO Go to Question 9c				
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	YES Go to Question 9d	NO Go to Question 10				
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES Wetland is a Category 3 wetland. Go to Question 10	NO Go to Question 9e				
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status. Go to Question 10	NO Go to Question 10				
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	YES Wetland is a Category 3 wetland. Go to Question 11	NO Go to Question 11				
11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	YES Wetland should be evaluated for possible Category 3 status. Complete Quantitative Rating	NO Complete Quantitative Rating				

## Table 1. Characteristic plant species.

### invasive/exotic spp

Lythrum salicaria Myriophyllum spicatum Najas minor Phalaris arundinacea Phragmites australis Potamogeton crispus Ranunculus ficaria Rhamnus frangula Typha angustifolia Typha xglauc

### fen species

Zygadenus elegans var. glaucus Cacalia plantaginea Carex flava Carex sterilis Carex stricta Deschampsia caespitosa Eleocharis rostellata Eriophorum viridicarinatum Gentianopsis spp. Lobelia kalmii Parnassia glauca Potentilla fruticosa Rhamnus alnifolia Rhynchospora capillacea Salix candida Salix myricoides Salix serissima Solidago ohioensis

Tofieldia glutinosa Triglochin maritimum Triglochin palustre

## bog species

Calla palustris Carex atlantica var. capillacea Carex echinata Carex oligosperma Carex trisperma Chamaedaphne calyculata Decodon verticillatus Eriophorum virginicum Larix laricina Nemopanthus mucronatus Schechzeria palustris  $Sphagnum\ spp.$ Vaccinium corymbosum Vaccinium oxycoccos Woodwardia virginica Xyris difformis

## **Oak Opening species**

Carex cryptolepis
Carex lasiocarpa
Carex stricta
Cladium mariscoides
Calamagrostis stricta
Calamagrostis canadensis
Quercus palustris

### wet prairie species

Calamagrostis canadensis Calamogrostis stricta Carex atherodes Carex buxbaumii Carex pellita Carex sartwellii Gentiana andrewsii Helianthus grosseserratus Liatris spicata Lysimachia quadriflora Lvthrum alatum Pycnanthemum virginianum Silphium terebinthinaceum Sorghastrum nutans Spartina pectinata Solidago riddellii

ORAM v. 5.0 Field Form Quantitative Rating David Kuhlmann 11/19/2019 Wetland: Site: Francis Rater(s): WB 207 Date: Metric 1 Wetland Area (Ac.) 0.1841 1 select one size class and assign score subtotal max 6 pts subtotal >50 acres (>20.2ha) (6 pts) 25 to <50 acres (10.1 to <20.2ha) (5 pts) 10 to <25 acres (4 to <10.1ha) (4 pts) 3 to <10 acres (1.2 to <4ha) (3 pts) 0.3 to <3 acres (0.12 to <1.2ha) (2pts) 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt.) **0** <0.1 acres (0.04ha) (0 pts) Metric 2 Upland Buffers and Surrounding Land use 1.0 2.0 2a. Calculate average buffer width. Select only one and assign score. Do not double check. max 14 pts subtotal WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7) MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4) NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1) х VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0) 2b. Intensity of surrounding land use. Select one or double check and average. VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7) LOW. Old field (>10 years), shrub land, young second growth forest. (5) MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3) **X** HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1) Metric 3 Hydrology 4.0 6.0 3b. Connectivity. Score all that apply. 3a. Sources of Water Score all that apply. max 30 pts subtotal High pH groundwater (5) 100 year floodplain (1) Other groundwater (3) Between stream/lake and other human use (1) Precipitation (1) Part of wetland/upland (e.g. forest), complex (1) X Seasonal/Intermittent surface water (3) Part of riparian or upland corridor (1) Perennial surface water (lake or stream) (5) 3c. Maximum water depth. Select only one and assign score. 3d. Duration inundation/saturation. Score one or dbl check. >0.7 (27.6in) (3) Semi- to permanently inundated/saturated (4) 0.4 to 0.7m (15.7 to 27.6in) (2) Regularly inundated/saturated (3) <0.4m (<15.7in) (1) Seasonally inundated (2) Seasonally saturated in upper 30cm (12in) (1) X 3e. Modifications to natural hydrologic regime. Score one or double check and average. None or none apparent (12) Check all disturbances observed Recovered (7) 0 ditch point source (nonstormwater) Recovering (3) 0 tile filling/grading X Recent or no recovery (1) 0 dike 0 road bed/RR track 0 0 dredging weir 0 0 stormwater inlet other Metric 4 Habitat Alteration and Development 3.0 9.0 4a. Substrate disturbance. Score one or double check and average. max 20 pts subtotal None or none apparent (4) Recovered (3) Recovering (2) **X** Recent or no recovery (1) 4b. Habitat development. Select only one and assign score. Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) O Poor to fair (2) **X** Poor (1) 4c. Habitat alteration. Score one or double check and average. None or none apparent (9) Check all disturbances observed 0 mowing 0 Recovered (6) shrub/sapling removal 0 grazing 0 Recovering (3) herbaceous/aquatic bed removal Recent or no recovery (1)

subtotal this page 0 woo last revised 1 February 2001 jjm 0 toxi

	ORAM	v. 5	5.0 Field Form Quantitative Rating		
	Site:		Francis Rater(s): David Kuhlı	mann	Date: 11/19/2019 Wetland: WB 207
	9				
	Subtotal fir	st pag		:-! \^/-	Alamala
0	9	cuh	Metric 5. Spectoral select one size class and	ial Wet	
v 6 nts	subtotal	Isub	Select one size class and	a assigi	11 30016
A O PLS	Subtotui		Bog (10)		
			Fen (10)		
			Old growth forest (10)		
			Mature forested wetland (5)		
		<u> </u>	Lake Erie coastal/tributary wetland-unrestricted		
		<u> </u>	Lake Erie coastal/tributary wetland-restricted hy Lake Plain Sand Prairies (Oak Openings) (10)	drology (	(5)
			Relict Wet Prairies (10)		
			Known occurrence state/federal threatened or e	ndangere	red species (10)
			Significant migratory songbird/water fowl habita	_	
		┢	Category 1 Wetland. See Question 1 Qualitative	_	
1	10	1	Metric 6 Plant communities, inter-	spersio	on, micro topography.
1	10		6a. Wetland Vegetation Communities.	Vegeta	ation Community Cover Scale
x 14 pts	subtotal		Score all present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
		0	Aquatic bed	1	Present and either comprises small part of wetland's
			Emergent	_	vegetation and is of moderate quality, or comprises a
		0	Shrub		significant part but is of low quality
		0	Forest	2	Present and either comprises significant part of wetland's
		0	Mudflats		vegetation and is of moderate quality or comprises a small
		0	Open water		part and is of high quality
		0	Other	3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality
			6b. Horizontal (plan view) Interspersion.		rescution and is of man quality
			Select only one.	Narrat	tive Description of Vegetation Quality
			High (5)	low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native
			Moderately high(4)		species
		<u> </u>	Moderate (3)	mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp
		⊢	Moderately low (2) Low (1)		can also be present, and species diversity moderate to
		×	None (0)		moderately high, but generally w/o presence of rare
			(4)		threatened or endangered spp
			6c. Coverage of invasive plants. Refer	high	A predominance of native species, with nonnative spp
			to Table 1 ORAM long form for list. Add		and/or disturbance tolerant native spp absent or virtually
		_	or deduct points for coverage		absent, and high spp diversity and often, but not always,
		<u> </u>	Extensive >75% cover (-5)		the presence of rare, threatened, or endangered spp
		_	Moderate 25-75% cover (-3) Sparse 5-25% cover (-1)	Mudfla	at and Open Water Class Quality
		۳	Nearly absent <5% cover (0)	0	Absent <0.1ha (0.247 acres)
		x	Absent (1)	1	Low 0.1 to <1ha (0.247 to 2.47 acres)
				2	Moderate 1 to <4ha (2.47 to 9.88 acres)
			6d. Microtopography	3	High 4ha (9.88 acres) or more
			Score all present using 1 to 3 scale. Vegetated hummocks/tussocks	Microt	topography Cover Scale
			Coarse woody debris >15cm (6in)		Absent
		0	Standing dead >25cm (10in) dbh	1	Present very small amounts or if more common
		_	Amphibian breeding pools		of marginal quality
				2	Present in moderate amounts, but not of higher
					quality or in small amounts of highest quality
				3	Present in moderate or greater amounts and of highest quality
					and or induced quanty

End of Quantitative Rating. Complete Categorization Worksheets.

10 Total Score

## **ORAM Summary Worksheet**

	ans i	or highlight swer or nsert score	Result
arrative Rating			
Question 1 Critical Habitat	YES	NO	If yes, Category 3.
Question 2. Threatened or Endangered Species	YES	NO	If yes, Category 3.
Question 3. High Quality Natural Wetland	YES	NO	If yes, Category 3.
Question 4. Significant bird habitat	YES	NO	If yes, Category 3.
Question 5. Category 1 Wetlands	YES	NO	If yes, Category 1.
Question 6. Bogs	YES	NO	If yes, Category 3.
Question 7. Fens	YES	NO	If yes, Category 3.
Question 8a. Old Growth Forest	YES	NO	If yes, Category 3.
Question 8b. Mature Forested Wetland	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2
Question 9b. Lake Erie Wetlands - Restricted	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2
Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES	NO	If yes, Category 3.
Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2
Question 10. Oak Openings	YES	NO	If yes, Category 3.
Question 11. Relict Wet Prairies	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2
antitative Rating			
Metric 1. Size		1	
Metric 2. Buffers and surrounding land use		1	
Metric 3. Hydrology		4	
Metric 4. Habitat		3	
Metric 5. Special Wetland Communities		0	
Metric 6. Plant communities, interspersion, microtopography		1	
TOTAL SCORE Wetland: WB 207	•	10	Category based on score breakpoint:

## Wetland Categorization Worksheet

	Wetland	WB_207	
Choices	Circle or highlig	ght one	Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	NO	Is quantitative rating score less than the Category 2 scoring threshold (excluding gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been overcategorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES  Wetland should be evaluated for possible Category 3 status	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating Nos. 5	YES Wetland should be categorized as a Category 1 wetland	NO	Is quantitative rating score greater than the Category 2 scoring threshold (including any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been undercategorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	YES Wetland is assigned to the appropriate category based on the scoring range	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc., and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was not categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was under categorized by this method. A written justification for recategorization should be provided on Background Information Form	Wetland is assigned to category as determined by the ORAM.	A wetland may be under categorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this
Choose one	Final Category :	1	]
	Category 1		Category 2 Category 3

End of Ohio Rapid Assessment Method for Wetlands.

## Westwood

## **Appendix B2**

**QHEI & HHEI Forms** 



# Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI	Score:	September 1
~,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	000101	85.00

TARREST CONTRACTOR DE LA CONTRACTOR DE L			ninentration in the second second	
Stream & Location: [] ad	e Ron; WC-OI		RM:	<u> </u>
	Scor	ers Full Name & Affiliatio	n: David 14	uhlmann-Weshwood
River Code:	STORET #:	Lat./Long.: 3 9 . 2 ( (NAD 83 - decimat *)	<u> 34</u> /83.	3 4 7 6 Office verified location
1] SUBSTRATE Check ONLY To estimate % or r	note every type present	Chec	k ONE (Or 2 &	
BEST TYPES POOL RI	OTHER TYRES	OOL RIFFLE ORIGIN		QUALITY
□□ BLDR/SLABS [10]	HARDPAN [4]	LIMESTONE[I	1	HEAVY [-2]
BOULDER [9]		[∄ TILLS [1] ☐ WETLANDS [0]	SILT	☐ MODERATE [-1] Substra  ☑ NORMAL [0]
☐☐ COBBLE [8]	[] [] MUCK [2] [] [] SILT [2]	☐ HARDPAN [0]		□ FREE M1 (/
⊠ □ SAND [6]	ARTIFICIAL [0]	☐ SANDSTONE [	OJ EDDEN.	EXTENSIVE [-2]
☐ ☐ BEDROCK [5]	(Score natural sub-	strates; ignore RIP/RAP [0]		MODERATE [-1] Maximu
NUMBER OF BEST TYPES:	☐ 4 or more [2] slduge from p  3 or less [0]	oint-sources)	[o] m	☐ EXTENSIVE [-2] ☐ MODERATE [-1]  SS ☑ NORMAL [0] ☐ NONE [1]
Comments		COAL FINES [	2]	entral establishment i Trail Tea ann aiste artas
2] INSTREAM COVER Indicate	te presence 0 to 3: 0-Absent; 1-V	/ery small amounts or if more com	mon of margin	al AMOUNT
quality: 3-Highest quality in modera	r; 2-Moderate amounts, but not o ite or greater amounts (e.g., ver)	it nignest quality or in small amou / large boulders in deep or fast wa	nts of nignest ater, large	Check ONE (Or 2 & average)
diameter log that is stable, well dev	reloped rootwad in deep / fast wa	ater, or deep, well-defined, functio	nal pools. [	_ EXTENSIVE >75% [11]  ☑ MODERATE 25-75% [7]
UNDERCUT BANKS [1]  OVERHANGING VEGETATION	POOLS > 70cm ON [1] ○ ROOTWADS [1]		HYTES [1]	☑ MODERATE 25-75% [7] ☑ SPARSE 5-<25% [3]
O SHALLOWS (IN SLOW WAT			anna ann an a	☐ NEARLY ABSENT <5% [1]
ROOTMATS [1]				Cover
Comments				Maximum 20
3] CHANNEL MORPHOLOG	Y Check ONE in each category	(Or 2 & average)		**************************************
SINUOSITY DEVELOP	to be a start		No.	
HIGH [4] EXCELLE		☐ HIGH [3]  ☑ MODERATE	F21	
MODERATE [3] ☐ GOOD [5] ☐ LOW [2] ☑ FAIR [3]	☐ RECOVERING [3]		[2]	
		EARTHORN EARTHORN SERVICES (1997)		Channel
Comments				Maximum 14 20
4] BANK EROSION AND RI	PARIAN ZONE Check ONE	in each category for EACH BANK	Or 2 per bank	: & average)
I Hr.	RIPARIAN WIDTH	FLOOD PLAIN QUA	LK	
		FOREST, SWAMP [3]		CONSERVATION TILLAGE [1] URBAN OR INDUSTRIAL [0]
		☐ SHRUB OR OLD FIELD [2] ☐ RESIDENTIAL, PARK, NEW FIE		MINING / CONSTRUCTION [0]
☐ ☐ HEAVY / SEVERE [1] ☐ ☐	VERY NARROW < 5m [1] 🔲 🛚	FENCED PASTURE [1]	Indicate	e predominant land use(s)
	NONE [0] 🔯 🖸	TOPEN PASTURE, ROWCROP	[0] past 10	00m riparian. Riparian /
Comments				Maximum 10
5] POOL / GLIDE AND RIFF		OUDDENT VELOCI	TV	Recreation Potential
MAXIMUM DEPTH Check ONE (ONLY!) CI	CHANNEL WIDTH heck ONE (Or 2 & average)	CURRENT VELOCI Check ALL that apply	1 1	Primary Contact
		☐ TORRENTIAL [-1] ☐ SLOW	[1]	Secondary Contact
			STITIAL [-1]	(circle one and comment on back)
☑ 0.4-<0.7m [2] ☐ POO ☐ 0.2-<0.4m [1]	L WIDTH < RIFFLE WIDTH [0]	☐ FAST [1] ☐ INTERI ☐ MODERATE [1] ☐ EDDIE	NITTENT [-2] 5 [1]	Pool /
☐ < 0.2m [0]		Indicate for reach - pools an		Current L
Comments				Maximum \\\12
		e large enough to suppo	rt a popula	tion NO RIFFLE [metric=0
of riffle-obligate specie RIFFLE DEPTH		NE ( <i>Or 2 &amp; average</i> ). . <b>E / RUN SUBSTRATE R</b>	IFFLE / RU	N EMBEDDEDNESS
· · · · · · · · · · · · · · · · · · ·	AXIMUM > 50cm [2] STABL			ONE [2]
哟BESTAREAS 5-10cm [1] □ M/	AXIMUM < 50cm [1] ⊠ MOD. S	STABLE (e.g., Large Gravel) [1]	ДĽ	OW [1]
BEST AREAS < 5cm [metric=0]	UNSTA	BLE (e.g., Fine Gravel, Sand) [0]	∆  X   = ר־ו	ODERATE [0] Riffle / Run
Comments			ي ابا	XTENSIVE [-1] Run 5
6] GRADIENT ( ), (4) ft/mi)	☑ VERY LOW - LOW [2-4]	9/ DOOL (2 C	0/01/01	=.( = )
DRAINAGE AREA	MODERATE [6-10]	%POOL:(25)	%GLIDE	
4 . 0. 40-0 .00	IT HIGH VERY HIGH MARK	%RUN- ( (\ )	)%RIFFLE	- " ( ( ) [ )

/ Satispinity Observations, Concerns, Access unrections, etc.	WWTP / CSO / NPDES / INDUSTRY HARDENED / URBAN / DIRT&GRIME CONTAMINATED / LANDFILL BMPS-CONSTRUCTION-SEDIMENT LOGGING / IRRIGATION / COOLING BANK / EROSION / SURFACE FALSE BANK / MANURE / LAGOON WASH H <sub>2</sub> O / TILE / H <sub>2</sub> O TABLE ACID / MINE / QUARRY / FLOW NATURAL / WETLAND / STAGNANT PARK / GOLF / LAWN / HOME LEGACY Tree:	THE PROPERTY OF THE PROPERTY O	3 3 3 1 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3		
COMMENTAL REGION STEAM LYPICAL OF STEAMS, ACCESS UNEQUARIED, OWER SATIONS, OUTCHIS, ACCESS UNECHOUS, ELC.	DJ MAINTENANCE Circle some & COMMENT PUBLIC / PRIVATE / BOTH / NA ACTIVE / HISTORIC / BOTH / NA YOUNG-SUCCESSION-OLD SPRAY / SNAG / REMOVED MODIFIED / DIPPED OUT / NA LEVEED / ONE SIDED RELOCATED / CUTOFFS MOVING-BEDLOAD-STABLE ARMOURED / SLUMPS ISLANDS / SCOURED IMPOUNDED / DESICCATED			Venz M	
	BJAESTHETICS  2nd	i di poèrti i merca com e ma como como como como como como como c			
A J SAMPLED REACH Check ALL that apply METHOD STAGE BOAT 1st -sample pass 2nd WADE   HIGH   WADE   HIGH   L. LINE   UP	DISTANCE	Stream Drawing:			

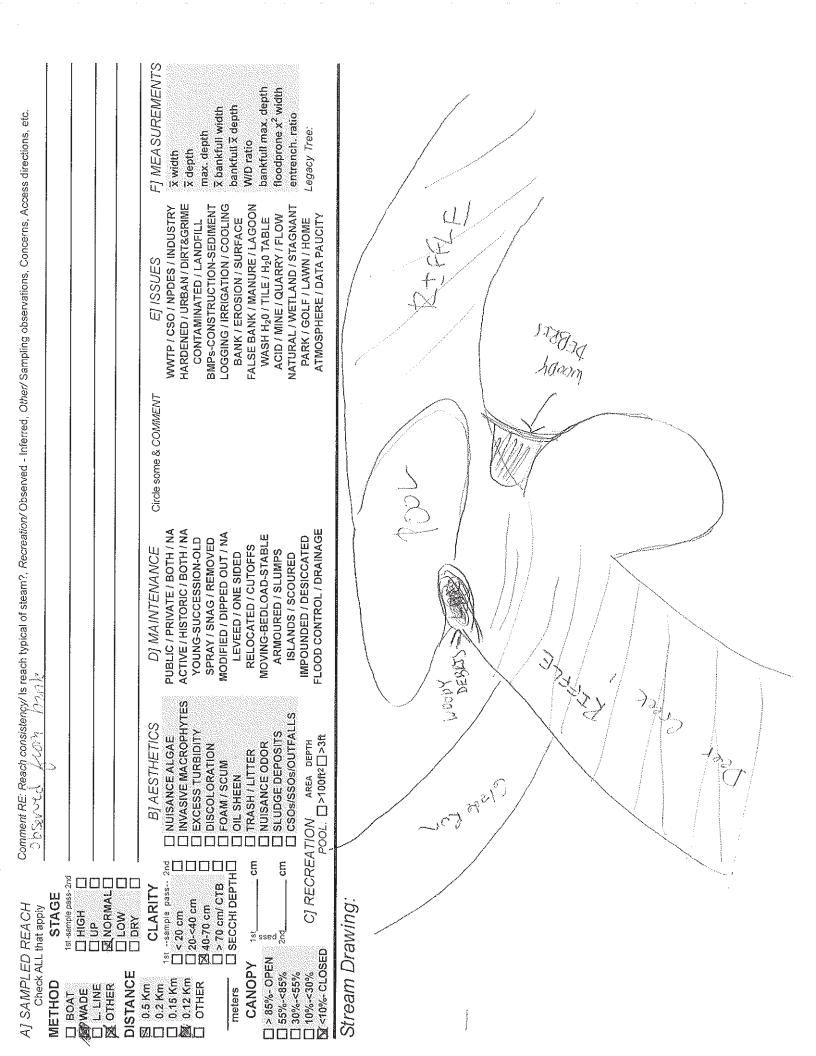


# Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score:

100	eenver	005590	22000	50.
	7	1	-	J.
88	(0	ŀ٠.	رال	22
S.,		4.79		i di

Stream & Location: Dec Creek WC-02 RM: 52.8 Date: [21] 616	
Scorers Full Name & Affiliation: David Kuhlmann Westwe	0d
River Code: STORET#: Lat./Long.: 39.2536 183.3473 Office verified location	
1] SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present Check ONE (Or 2 & average)	
BEST TYPES POOL RIFFLE OTHER TYPES POOL RIFFLE ORIGIN QUALITY	
□□ BLDR /SLABS [10] □□ HARDPAN [4] □□ LIMESTONE [1] □□ HEAVY [-2] □□ BOULDER [9] □□ □□ DETRITUS [3] □□ □□ TILLS [1] □□ MODERATE [-1] Substra	ate
☐ COBBLE [8] ☐ MUCK [2] ☐ WETLANDS [0] SIL1 MORMAL [0]	
GRAVEL [7] BO DE SILT [2] GO 30 HARDPAN [0] FREE [1] SANDSTONE [0] SANDSTONE [0] EXTENSIVE [-2]	
□□ BEDROCK [5] (Score natural substrates; ignore □ RIP/RAP [0]	ım.
SHALE GIT SHALE GIT	
Comments (2) Coal fines [-2]	
2] INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest	
quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.	
UNDERCUT BANKS [1]POOLS > 70cm [2]OXBOWS, BACKWATERS [1] ⊠ MODERATE 25-75% [7]	
2 OVERHANGING VEGETATION [1] U ROOTWADS [1]	
ROOTMATS [1] Cover	(Same
Comments Maximum 15	
3] CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average)	
SINUOSITY DEVELOPMENT CHANNELIZATION STABILITY	
☐ HIGH [4]       ☐ EXCELLENT [7]       ☒ NONE [6]       ☐ HIGH [3]         ☒ MODERATE [3]       ☐ GOOD [5]       ☐ RECOVERED [4]       ☒ MODERATE [2]	
□ LOW[2] ☑ FAIR [3] □ RECOVERING [3] □ LOW [1]	
□ NONE [1] □ POOR [1] □ RECENT OR NO RECOVERY [1] Channel Channel Channel	
20	
4] BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average)  River right looking downstream RIPARIAN WIDTH FLOOD PLAIN QUALITY	
L R RIPARIAN WIDTH L R TEOOD FEATH QUALITY I R CONSERVATION TILLAGE [1]	
□ □ NONE / LITTLE [3] □ □ MODERATE 10-50m [3] □ □ SHRUB OR OLD FIELD [2] □ □ URBAN OR INDUSTRIAL [0]	
☑ MODERATE [2]       ☐ NARROW 5-10m [2]       ☐ RESIDENTIAL, PARK, NEW FIELD [1]       ☐ MINING / CONSTRUCTION [0]         ☐ HEAVY / SEVERE [1]       ☐ VERY NARROW < 5m [1]	264
□ □ NONE [0] □ ☑ OPEN PASTURE ROWCROP [0] past 100m riparian. Riparian	Constant Con
Comments Maximum 10 10	3
5] POOL / GLIDE AND RIFFLE / RUN QUALITY	
MAXIMUM DEPTH CHANNEL WIDTH CURRENT VELOCITY Recreation Potential	
Check ONE (ONIV) Check ONE (Or 2 Layorage) Check All that apply Primary Contact II	
Check ONE (ONLY!) Check ONE (Or 2 & average) Check ALL that apply Primary Contact  > 1m [6] POOL WIDTH > RIFFLE WIDTH [2] TORRENTIAL [-1] SLOW [1] Secondary Contact	
□ >1m [6] □ POOL WIDTH >RIFFLE WIDTH [2] □ TORRENTIAL [-1] □ SLOW [1] Secondary Contact   Secondary Contact   Gircle one and comment on back)	
□ > 1m [6] □ POOL WIDTH > RIFFLE WIDTH [2] □ TORRENTIAL [-1] □ SLOW [1] □ Secondary Contact □ [-1] □ 0.4-<0.7m [2] □ POOL WIDTH < RIFFLE WIDTH [0] □ FAST [1] □ INTERSTITIAL [-1] □ INTERMITTENT [-2] □ 0.2-<0.4m [1] □ MODERATE [1] □ EDDIES [1] Pool / [-1]	
□ >1m [6] □ POOL WIDTH > RIFFLE WIDTH [2] □ TORRENTIAL [-1] □ SLOW [1] □ Secondary Contact □ [7] □ [7	The second of th
Secondary Contact   Sec	National Property of the Parket of the Parke
Secondary Contact   Sec	o]
Secondary Contact   Sec	0]
Secondary Contact   Secondary   Secondary Contact   Secondary C	0]
> 1m [6]	O]
Secondary Contact   Seco	O]
> 1m [6]	DI Comment
Secondary Contact   O.7-<1m [4]   POOL WIDTH > RIFFLE WIDTH [2]   TORRENTIAL [-1]   SLOW [1]   Secondary Contact   O.7-<1m [4]   POOL WIDTH = RIFFLE WIDTH [1]   VERY FAST [1]   INTERSTITIAL [-1]   O.4-<0.7m [2]   POOL WIDTH < RIFFLE WIDTH [0]   FAST [1]   INTERMITTENT [-2]   MODERATE [1]   EDDIES [1]   O.2-<0.4m [1]   Indicate for reach - pools and riffles.    Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:   Check ONE (Or 2 & average).   RIFFLE DEPTH   RUN DEPTH   RIFFLE / RUN SUBSTRATE   RIFFLE / RUN EMBEDDEDNESS   MAXIMUM > 50cm [2]   STABLE (e.g., Cobble, Boulder) [2]   NONE [2]   MAXIMUM > 50cm [1]   MOD. STABLE (e.g., Large Gravel) [1]   MODERATE [0]   Riffle / Run Emetric=0]   Comments   One find the comment of th	[Nonemanne]





# Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

HEI Score:	Heren	41
HEI Score:	10-14	10

Stream & Location:	WG-100			RM: _	Date:	11/5/18
			rs Full Name & Affili			Office verifie
River Code:		RET #:	Lat./Long.39.	8300183	1205	localio
BEST TYPES BEST TYPES BEST TYPES BEST TYPES BOULDER [9] COBBLE [8] BOULDER [7] BEST [7] BEST [6] BEDROCK [5] NUMBER OF BEST	30 M.C	/PE present THER TYPES PO HARDPAN [4] DETRITUS [3] MUCK [2] SILT [2] ARTIFICIAL [0] (Score natural substre [2] sludge from po	OLRIFFLE ORIG	NE [1] DS [0] SILT DS [0] DNE [0] RINE [0]	QUALITHEAVY [-2	1 E[-1] Subs [0] 9
nuality 3.Hinhest nuality	quality, 2-Moderat in moderate or greate e, well developed roof (5 [1]	e ampunts, but not of amounts (e.g., very	AQUATIC MAC	amounts of nignes ast water, large unctional pools.	Check ONE (Or EXTENSIVE : MODERATE: SU SPARSE 5-42 NEARLY ABS	2 & average) >75% [11] 25-75% [7] 25% [3]
☐ HIGH [4] ☐ ☐ MODERATE [3] ☐ ☐ X LOW [2] ☐	HOLOGY Check OF VELOPMENT EXCELLENT [7] GOOD [5] FAIR [3] POOR [1]	CHANNELIZATI NONE [6]	TION STABIL  MET HIGH [3  MODER  LOW [1	3] RATE [2]		Channel Maximum 20
4] BANK EROSION River right looking downstr EROSION NONE / LITTLE [3] MODERATE [2] HEAVY / SEVERE   Comments	RIPARIA	N WIDTH  n [4]	SHRUB OR OLD FIELD ( RESIDENTIAL, PARK, NE	QUALITY  [2]  [2]  [M FIELD [1]	CONSERVATION URBAN OR IND MINING / CONS ate predominant la	USTRIAL [0] TRUCTION [0]
5] POOL / GLIDE AI  MAXIMUM DEPTI  Check ONE (ONLY!)  > 1m [6]  0.7-<1m [4]  0.4-<0.7m [2]  0.2-<0.4m [1]  <0.2m [0]  Comments	H CHANN	EL WIDTH Or 2 & average) RIFFLE WIDTH [2] RIFFLE WIDTH [1] RIFFLE WIDTH [0]	FAST [1]	apply LOW [1] TERSTITIAL [-1] TERMITTENT [-2 DDIES [1]		Contact / Contact
Indicate for fun of riffle-obligate RIFFLE DEPTH BEST AREAS > 10cm KBEST AREAS < 5cm [metrlc=	e species: RUN DEF [2] □ MAXIMUM > [1] 🏋 MAXIMUM <	Check ON PTH RIFFL 50cm [2] STABLE 50cm [1] MOD S	e large enough to se E (Or 2 & average). E / RUN SUBSTRATE E (e.g., Cobble, Boulder) [ TABLE (e.g., Large Grave BLE (e.g., Fine Grave), Sar	E RIFFLE / R [2] [2] [3]	Iation NO FUN EMBEDDE NONE [2] LOW [1] MODERATE [0] EXTENSIVE [-1]	RIFFLE [metr
6] GRADIENT ( )	of aft/mil Museu	LOW - LOW [2-4]	0/ 0001	70 0000	DE: (40)	Cradiant
DRAINAGE ARE	A MODE	LOW - LOW [2-4] RATE [6-10] · VERY HIGH [10-6]	%POOL:( %RUN: (	20 ) %GLI 20 )%RIFF		Gradient Maximum 10

	FJ MEASUREMENTS  X width  E x depth  max. depth  G bankfull x depth  N WD ratio  bankfull max. depth floodprone x² width floodprone x² width T entrench. ratio  Legacy Tree:
	WWTP / CSO / NPDES / INDUSTRY HARDENED / URBAN / DIRT&GRIME CONTAMINATED / LANDFILL BMPs-CONSTRUCTION-SEDIMENT LOGGING / IRRIGATION / COOLING BANK / EROSION / SURFACE FALSE BANK / MANURE / LAGOON WASH H <sub>2</sub> 0 / TILE / H <sub>2</sub> 0 TABLE ACID / MINE / QUARRY / FLOW NATURAL / WETLAND / STAGNANT PARK / GOLF / LAWN / HOME ATMOSPHERE / DATA PAUCITY
	Circle some & COMMENT
	DJ MAINTENANCE PUBLIC / PRIVATE / BOTH / NA ACTIVE / HISTORIC / BOTH / NA YOUNG-SUCCESSION-OLD SPRAY / SNAG / REMOVED MODIFIED / DIPPED OUT / NA LEVEED / ONE SIDED RELOCATED / CUTOFFS MOVING-BEDLOAD-STABLE ARMOURED / SLUMPS ISLANDS / SCOURED IMPOUNDED / DESICCATED FLOOD CONTROL / DRAINAGE
	BJ AESTHETICS  □ NUISANCE ALGAE  □ INVASIVE MACROPHYTES  ☑ EXCESS TURBIDITY  □ DISCOLORATION  ☑ FOAM / SCUM  □ OIL SHEEN  □ TRASH / LITTER  □ NUISANCE ODOR  □ SLUDGE DEPOSITS  □ CSOS/SSOS/OUTFALLS  47/ON AREA DEPTH  POOL: □>100ff²□>3ft
METHOD STAGE  STAGE  STAGE  WADE  LLINE  OTHER  DISTANCE	RITY  Passe-2nd  ccm  Ccm  Cm  Ccm  Ccm  Ccm  Ccm  Ccm

Comment RE: Reach consistency/ Is reach typical of steam?, Recreation/ Observed - Inferred, Other/ Sampling observations, Concerns, Access directions, etc.

# Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3):

ENOTH OF SERVICE	SITE NUMBER_V	10-07	RIVER BA	SIN	DR.	AINAGE AREA (mí²) RIVER MILE	3.5
ATE 12/16/16	ACH (R) 100 Pull Vul	LAT. 3 11	DOSS LON	IG. OS. STYG RIV	VER CODE	RIVER MILE	
						'H Streams" for Instru	uctions
TREAM CHANNEL	MONE / NA	TURAL CHA	NNEL UR	ECOVERED LI REG	COVERING L	RECENT OR NO RECO	OVERY
MODIFICATIONS:							
SUBSTRATE (E	stimate percent of eve	ery type of s	ubstrate pre	sent. Check ONLY two	predominant s	ubstrate TYPE boxes	
(Max of 40). Add	total number of signific	ant substrate	e types found	(Max of 8). Final metri	c score is sum	of boxes A & B.	HHE Metri
TYPE BLDR SLABS		PERCENT	TYPE	SILT [3 pt]		PERCENT	Point
BOULDER (>	·256 mm) [16 pts]			LEAF PACKWOOD	-	s]	Substra
□ □ BEDROCK				FINE DETRITUS [3			Max =
	256 mm) [12 pts] 64 mm) [9 pts]	50	00	CLAY or HARDPAN MUCK [0 pts]	[n bt]		1-45
SAND (<2 m	-	50		ARTIFICIAL [3 pts]			LE
Total of Pe	rcentages of	F)	(A)			(B) G	A + B
Bldr Slabs, Bould	er, Cobble, Bedrock _		15	TOTAL NUMBI		3	
CORE OF TWO MOST	PREDOMINATE SUBS	TRATE TYP	ES:	TOTAL NUMBI	ER OF SUBSTI	KATE TYPES:	_
. Maximum Pool	Depth (Measure the m plunge pools from roa	aximum por	ol depth with	in the 61 meter (2001	ft) evaluation re	ach at the time of	Pool De Max =
> 30 centimeters		u cuivents or	Storm water p	> 5 cm - 10 cm [15			max -
> 22.5 - 30 cm [3			8	< 5 cm [5 pts]	OLOT CHANNE	L fo ptol	20
> 10 - 22.5 cm [2	5 ptsj	_		NO WATER OR M		20	
COMMENTS				MAXIMUM F	POOL DEPTH (	centimeters):	
	OTH (Measured as the	average of	3-4 measure		ck ONLY one b		Bankfu
> 4.0 meters (> 13	) <b>[30 pts]</b> · 9' 7" - 13') <b>[2</b> 5 pts]			> 1.0 m - 1.5 m (> 3 ≤ 1.0 m (≤ 3' 3") [5		ots]	Width _Max≃3
	4' 8" - 9' 7") [20 pts]					20	
LJ > 1.5 m - 3.0 m (				AVERAGE E	BANKFULL WII	OTH (meters)	25
COMMENTS							
COMMENTS_		This i		nust also be complet			
COMMENTS	N ZONE AND FLOOD	This i	LITY &N	OTE: River Left (L) and		ooking downstream☆	
COMMENTS	N ZONE AND FLOOD AN WIDTH	This I PLAIN QUAL FLOODF L R	LITY & N PLAIN QUALI (Most Predd	OTE: River Left (L) and TY ominant per Bank)	d Right (R) as lo		
RIPARIA RIPARIA L R (Per E	N ZONE AND FLOOD AN WIDTH rank) >10m	This I PLAIN QUAL FLOODF L R	LITY & N PLAIN QUALI (Most Predo Mature Fore	OTE: River Left (L) and TY ominant per Bank) est, Wetland	d Right (R) as lo	Conservation Tillage	
RIPARIA RIPARI L R (Per E	N ZONE AND FLOOD AN WIDTH eank)	This I PLAIN QUAL FLOODF L R	LITY & N PLAIN QUALI (Most Predo Mature Fore	OTE: River Left (L) and TY ominant per Bank)	d Right (R) as lo	Conservation Tillage Urban or Industrial	
RIPARIA RIPARIA PER PARIA PER PARIA PER	N ZONE AND FLOOD AN WIDTH rank) >10m	This I PLAIN QUAL FLOODF L R	LITY &N PLAIN QUALI  (Most Predo Mature Fore Immature F Field	OTE: River Left (L) and TY ominant per Bank) est, Wetland	d Right (R) as lo	Conservation Tillage	
RIPARIA RIPARI L R (Per E	N ZONE AND FLOOD AN WIDTH (ank) >10m (ate 5-10m	This I PLAIN QUAL FLOODF L R	LITY &N PLAIN QUALI  (Most Predo Mature Fore Immature F Field	OTE: River Left (L) and TY  cominant per Bank) est, Wetland corest, Shrub or Old  Park, New Field	d Right (R) as lo	Conservation Tillage Urban or Industrial Open Pasture, Row	
RIPARIA RIPARIA RIPARI L R (Per E  Wide  Wide  Narro  None COMME	N ZONE AND FLOOD AN WIDTH (ank) >10m (ate 5-10m	This I	LITY &N PLAIN QUALI (Most Predo Mature Fore Immature F Field Residential, Fenced Pas	OTE: River Left (L) and TY common to per Bank) est, Wetland corest, Shrub or Old Park, New Field sture	d Right (R) as lo	Conservation Tillage Urban or Industrial Open Pasture, Row Crop	
RIPARIA RIPARI L R (Per E  Wide  Wide  Narro  None COMME FLOW R	N ZONE AND FLOOD AN WIDTH  iank) >10m  rate 5-10m  v <5m  NTS  EGIME (At Time of Everowing reflow with isolated powers)	This i	LITY AND PLAIN QUALI  (Most Predo Mature Fore Immature Field Residential, Fenced Pastheck ONLY of the Pastheck ONL	OTE: River Left (L) and TY common to per Bank) est, Wetland corest, Shrub or Old  Park, New Field sture  Inc. box):  Moist Char	d Right (R) as lo	Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction	-
RIPARIA RIPARIA RIPARIA RIPARIA  RIPARIA  RIPARIA  RIPARIA  RIPARIA  None COMME  FLOW R  Stream FI  Subsurfac COMME	N ZONE AND FLOOD AN WIDTH  eank) >10m  ate 5-10m  w <5m  NTS  EGIME (At Time of Eva owing ate flow with isolated poon	This I PLAIN QUAI FLOODF L R D D D D D D D D D D D D D D D D D D D	LITY &N PLAIN QUALI (Most Predo Mature Fore Immature F Field Residential, Fenced Pase Theck ONLY o	OTE: River Left (L) and TY  Description  Park, New Field  Sture  Moist Char  Dry channe	d Right (R) as lo	Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction	
RIPARIA RIPARIA RIPARIA L R (Per E  Wide  Narro  None COMME FLOW R Stream F Subsurfac COMME SINUOS None	N ZONE AND FLOOD AN WIDTH Fank) >10m rate 5-10m w <5m  NTS EGIME (At Time of Every owing re flow with isolated por NTS TY (Number of bends	This I PLAIN QUAL FLOODE L R D D D D D D D D D D D D D D D D D D D	LITY &N PLAIN QUALI (Most Predo Mature Fore Immature F Field Residential, Fenced Pase Theck ONLY o	OTE: River Left (L) and TY  Ominant per Bank) est, Wetland orest, Shrub or Old  Park, New Field sture  Moist Char Dry channe (Check ONLY one	d Right (R) as lo	Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction  ools, no flow (Intermittent) whemeral)	
RIPARIA RIPARIA RIPARIA  RIPARIA  RIPARIA  RIPARIA  RIPARIA  Narro  Narro  None COMME  FLOW R  Stream FI  Subsurfac COMME  SINUOS	N ZONE AND FLOOD AN WIDTH  eank) >10m  ate 5-10m  w <5m  NTS  EGIME (At Time of Eva owing ate flow with isolated poon	This I PLAIN QUAL FLOODF L R	LITY &N PLAIN QUALI (Most Predo Mature Fore Immature F Field Residential, Fenced Pase Theck ONLY o	OTE: River Left (L) and TY  cominant per Bank) est, Wetland corest, Shrub or Old  Park, New Field sture  Moist Char Dry channe	d Right (R) as lo	Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction  ools, no flow (Intermittent)	

ENA	MELOCATION DEER CI	EK; WC-05	2-		
	SITE NUMBER		RIVER BAS	BIN DRAIN G DRAIN DRAINER CODE	IAGE AREA (mi²) 60 - 5
NGTH	OF STREAM REACH (ft) 200	LAT. 39,85	36 LON	G. 73,3473 RIVER CODE	RIVER MILE 52.8
OTE:	: Complete All Items On This F	orm - Refer to "F	Field Eva	luation Manual for Ohio's PHWH	Streams" for Instructions
REAL	M CHANNEL MONE/	NATURAL CHANNE	EL ORE	COVERED RECOVERING R	ECENT OR NO RECOVERY
	CATIONS:				Company and
				ent. Check ONLY two predominant sub-	
YPE (	(Max of 40). Add total number of sign	PERCENT	TYPE	Max of 8). Final metric score is sum of b	PERCENT Metri
	BLDR SLABS [16 pts]	PERCENT	$\Delta$ 10	SILT [3 pt]	30 Point
	BOULDER (>256 mm) [16 pts]		00	LEAF PACKWOODY DEBRIS [3 pts]	Substra
	BEDROCK [16 pt]		00	FINE DETRITUS [3 pts]	Max = 4
	COBBLE (65-256 mm) [12 pts]	+2/\	00	CLAY or HARDPAN [0 pt]	
	GRAVEL (2-64 mm) [9 pts]	10		MUCK [0 pts]	114
	SAND (<2 mm) [6 pts]		00	ARTIFICIAL [3 pts]	
	Total of Percentages of	. (A	1 309		(B) 7 A+B
	Bidr Slabs, Boulder, Cobble, Bedroci OF TWO MOST PREDOMINATE SU		12	TOTAL NUMBER OF SUBSTRA	TE TYPES
-	of two moot rangements				
-	Maximum Pool Depth (Measure th	e maximum pool d	epth withi	in the 61 meter (200 ft) evaluation reach	at the time of Pool De
	evaluation. Avoid plunge pools from	road culverts or stor	m water p		Max = :
	> 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts]		H	> 5 cm - 10 cm [15 pts] < 5 cm [5 pts]	20
_	> 10 - 22.5 cm [25 pts]		ŏ	NO WATER OR MOIST CHANNEL [	o pts]
				MAXIMUM POOL DEPTH (cer	200
	COMMENTS				
	BANK FULL WIDTH (Measured as	the average of 3-4	measuren	nents) (Check ONLY one box	
	<ul> <li>4.0 meters (&gt; 13') [30 pts]</li> <li>3.0 m - 4.0 m (&gt; 9' 7" - 13') [25 pts]</li> </ul>		8	> 1.0 m - 1.5 m (> 3'3" - 4'8") [15 pts] ≤ 1.0 m (≤ 3'3") [5 pts]	Max=3
	1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts			2 1.0m (2 0 0 ) to proj	20.0
					30 30
	COMMENTS			AVERAGE BANKFULL WIDTH	(meters)
	RIPARIAN ZONE AND FLO	This info	rmation <u>m</u>	<u>nust</u> also be completed DTE: River Left (L) and Right (R) as l∞k	ing downstream☆
	RIPARIAN WIDTH	FLOODPLA			<b>3</b>
	L R (Per Bank)		lost Predo	minant per Bank) L R st, Wetland	
	☑ ☑ Wide >10m	7			conservation Tillage
	☐ ☐ Moderate 5-10m		nmature Fo eld	orest, Shrub or Old	rban or Industrial
	□ □ Narrow <5m			Park New Field	pen Pasture, Row
	□ □ None		enced Pasi		crop fining or Construction
			V 6 1018		wed by open cro
	COMMENTS adjacet		0,	o boy):	i the \$1001072in
	COMMENTS adjacel	F	CAUSE		
	COMMENTS AND TO SEE THE COMMENTS AND THE	Evaluation) (Check	k ONLY or		no flow (Intermittent)
	COMMENTS adjacel		k ONLY or	Moist Channel, isolated pools  Dry channel, no water (Ephe	
	FLOW REGIME (At Time of Stream Flowing		k ONLY or	Moist Channel, isolated pools	
	FLOW REGIME (At Time of Stream Flowing Subsurface flow with isolated COMMENTS	pools (Interstitial)		Moist Channel, isolated pools Dry channel, no water (Ephe	
	FLOW REGIME (At Time of Stream Flowing Subsurface flow with isolated COMMENTS	pools (Interstitial)		Moist Channel, isolated pools Dry channel, no water (Ephe	

☐ Moderate (2 ft/100 ft)

☐ Moderate to Severe

Severe (10 ft/100 ft)

☐ Flat (0 5 ft/100 ft)

STREAM GRADIENT ESTIMATE
t (0.5 ft/100 ft) Flat to Moderate

# Chieff Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3):



ATE 121	STREAM REACH (ft)	LAT. 39	8648 LONG83,3437 RI	DRAINAGE AREA (mi²) VER CODE RIVER MILE	
,				r Ohio's PHWH Streams" for Instru	uctio
and the last				COVERING RECENT OR NO RECO	
MODIFICA		/ NATURAL CH	ANNEL D'REGOVERED D'REI	COVERING WRECENT OR NO RECO	JVER
				predominant substrate TYPE boxes	н
TYPE	x of 40). Add total number of sig	PERCENT	te types found (Max of 8). Final metri TYPE	PERCENT	Me
	BLDR SLABS [16 pts]		☐ ☐ SILT [3 pt]		Po
	BOULDER (>256 mm) [16 pts]		LEAF PACKWOOD	The state of the s	Sub
	BEDROCK [16 pt] COBBLE (65-256 mm) [12 pts]		FINE DETRITUS [3		Max
	GRAVEL (2-64 mm) [9 pts]		☐ ☐ MUCK [0 pts]	[орі]	7
	SAND (<2 mm) [6 pts]		☐ ☐ ARTIFICIAL [3 pts]		4
	Total of Percentages of	_	(A) a	(B) 7	A
	Slabs, Boulder, Cobble, Bedro		0	(4)	^
CORE OF	TWO MOST PREDOMINATE S	UBSTRATE TY	PES: TOTAL NUMBI	ER OF SUBSTRATE TYPES:	_
. Max	dmum Pool Depth (Measure t	he maximum po	ool depth within the 61 meter (200)	ft) evaluation reach at the time of	Pool
-		road culverts o	r storm water pipes) (Check ONL)		Ma
	centimeters [20 pts] .5 - 30 cm [30 pts]		> 5 cm - 10 cm [15 < 5 cm [5 pts]	ptsj	
	- 22.5 cm [25 pts]			OIST CHANNEL [0 pts]	C
col	MMENTS		MAXIMIIME	POOL DEPTH (centimeters):	
	MINIST CO.				-
	AND STREET OF THE PROPERTY AND THE PROPERTY OF				Bai
	NK FULL WIDTH (Measured as	s the average of		ck ONLY one box): 3' 3" - 4' 8") [15 pts]	
> 4.0 > 3.0	meters (> 13') [30 pts] m - 4.0 m (> 9' 7" - 13') [25 pts	D.	3-4 measurements  (Che     > 1.0 m - 1.5 m (> 3   \( \leq \) \( \leq \) (\$ 3" 3") [5	3' 3" - 4' 8") [15 pts]	W
> 4.0 > 3.0	meters (> 13') [30 pts]	D.	> 1.0 m - 1.5 m (> 3	3' 3" - 4' 8") [15 pts] pts]	W
> 4.0 > 3.0 > 1.5	meters (> 13') [30 pts]   m - 4.0 m (> 9' 7" - 13') [25 pts   m - 3.0 m (> 4' 8" - 9' 7") [20 pt	l s]	> 1.0 m - 1.5 m (> 3	3' 3" - 4' 8") [15 pts] pts]	W
> 4.0 > 3.0 > 1.5	meters (> 13') [30 pts]   m - 4.0 m (> 9' 7" - 13') [25 pts   m - 3.0 m (> 4' 8" - 9' 7") [20 pt	l s]	☐ > 1.0 m - 1.5 m (> 3 ☑ ≤ 1.0 m (≤ 3' 3") [5	3' 3" - 4' 8") [15 pts] pts]	W
> 4.0 > 3.0 > 1.5	meters (> 13') [30 pts] 0 m - 4.0 m (> 9' 7" - 13') [25 pts 5 m - 3.0 m (> 4' 8" - 9' 7") [20 pt	l s) This	> 1.0 m - 1.5 m (> 3	3' 3" - 4' 8") [15 pts] pts] BANKFULL WIDTH (meters)	W
> 4.0 > 3.0 > 1.5	meters (> 13') [30 pts] m - 4.0 m (> 9' 7" - 13') [25 pts m - 3.0 m (> 4' 8" - 9' 7") [20 pt  MMENTS	This	> 1.0 m - 1.5 m (> 3 ✓ ≤ 1.0 m (≤ 3' 3") [5 AVERAGE E  Information must also be complet LITY \$\frac{1}{2}NOTE: River Left (L) and	3' 3" - 4' 8") [15 pts] pts] BANKFULL WIDTH (meters)	W
> 4.0   > 3.0   > 1.5   col	meters (> 13') [30 pts] m - 4.0 m (> 9' 7" - 13') [25 pts m - 3.0 m (> 4' 8" - 9' 7") [20 pt  MMENTS	This DODPLAIN QUA	> 1.0 m - 1.5 m (> 3 ✓ ≤ 1.0 m (≤ 3' 3") [5 AVERAGE E  Information must also be complet LITY \$NOTE: River Left (L) and	3'3" - 4'8") [15 pts] pts]  BANKFULL WIDTH (meters)  sed d Right (R) as looking downstream &	W
> 4.0   > 3.0   > 1.5   col	meters (> 13') [30 pts]   m - 4.0 m (> 9' 7" - 13') [25 pts   m - 3.0 m (> 4' 8" - 9' 7") [20 pt   m - 3.0 m (> 4' 8" - 9' 7") [20 pt   m   m   m   m   m   m   m   m   m	This DODPLAIN QUA	> 1.0 m - 1.5 m (> 3 ✓ ≤ 1.0 m (≤ 3' 3") [5 AVERAGE E  Information must also be complet LITY \$\frac{1}{2}NOTE: River Left (L) and	3' 3" - 4' 8") [15 pts] pts] BANKFULL WIDTH (meters)	W
> 4.0   > 3.0   > 1.5   col	meters (> 13') [30 pts] m - 4.0 m (> 9' 7" - 13') [25 pts] m - 3.0 m (> 4' 8" - 9' 7") [20 pt]  MMENTS  RIPARIAN ZONE AND FLO  RIPARIAN WIDTH  R (Per Bank)  Wide >10m	This DODPLAIN QUA FLOOD L R	> 1.0 m - 1.5 m (> 3 3") [5  AVERAGE E  Information must also be complet LITY ANOTE: River Left (L) and PLAIN QUALITY  (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Shrub or Old	BANKFULL WIDTH (meters)  sed d Right (R) as looking downstream &	W
> 4.0   > 3.0   > 1.5   col	meters (> 13') [30 pts]   m - 4.0 m (> 9' 7" - 13') [25 pts]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   mmENTS	This DODPLAIN QUA FLOOD L R	> 1.0 m - 1.5 m (> 3 3") [5  AVERAGE E  Information must also be complet. LITY	BANKFULL WIDTH (meters)  BANKFULL WIDTH (meters)  L R Conservation Tillage Urban or Industrial	W
> 4.0   > 3.0   > 1.5   COI	meters (> 13') [30 pts]   m - 4.0 m (> 9' 7" - 13') [25 pts]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 10 pt]   m - 3.0 m (	This podplain qua	> 1.0 m - 1.5 m (> 3 s'') [5 ≤ 1.0 m (≤ 3 s'') [5	BANKFULL WIDTH (meters)  BANKFULL WIDTH (meters)  BANKFULL WIDTH (meters)  Ced  d Right (R) as looking downstream &  L R  Conservation Tillage  Urban or Industrial  Open Pasture, Row Crop	W
> 4.0   > 3.0   > 1.5   col	meters (> 13') [30 pts]   m - 4.0 m (> 9' 7" - 13') [25 pts]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 4.0 m (= 10 m) [20 pt]   m - 4.0 m (=	This DODPLAIN QUA FLOOD L R	> 1.0 m - 1.5 m (> 3 s'') [5 ≤ 1.0 m (≤ 3 s'') [5	BANKFULL WIDTH (meters)  BANKFULL WIDTH (meters)  L R Conservation Tillage Urban or Industrial Open Pasture, Row	W
> 4.0   > 3.0   > 1.5   COI	meters (> 13') [30 pts]   m - 4.0 m (> 9' 7" - 13') [25 pts]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 10 pt]   m - 3	This DODPLAIN QUA FLOOD L R	> 1.0 m - 1.5 m (> 3 s'') [5 ≤ 1.0 m (≤ 3 s'') [5	BANKFULL WIDTH (meters)  BANKFULL WIDTH (meters)  BANKFULL WIDTH (meters)  Ced  d Right (R) as looking downstream &  L R  Conservation Tillage  Urban or Industrial  Open Pasture, Row Crop	W
> 4.0 > 3.0 > 1.5 col	meters (> 13') [30 pts]   m - 4.0 m (> 9' 7" - 13') [25 pts]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 4.0 m (= 10 m (> 4' 8" - 9' 7") [20 pt]   m - 4.0 m (= 10 m (> 4' 8" - 9' 7") [20 pt]   m - 4.0 m (= 10 m (> 4' 8" - 9' 7") [20 pt]   m - 4.0 m (= 10 m (> 4' 8" - 9' 7") [20 pt]   m - 4.0 m (= 10 m (> 4' 8" - 9' 7") [20 pt]   m - 4.0 m (= 10 m (> 4' 8" - 9' 7") [20 pt]   m - 4.0 m (= 10 m (> 4' 8" - 9' 7") [20 pt]   m - 4.0 m (= 10 m (> 4' 8" - 9' 7") [20 pt]   m - 4.0 m (= 10 m (> 4' 8" - 9' 7") [20 pt]   m - 4.0 m (= 10 m (> 4' 8" - 9' 7") [20 pt]   m - 4.0 m (= 10 m (> 4' 8" - 9' 7") [20 pt]   m - 4.0 m (= 10 m (> 4' 8" - 9' 7") [20 pt]   m - 4.0 m (= 10 m (> 4' 8" - 9' 7") [20 pt]   m - 4.0 m (= 10 m (> 4' 8" - 9' 7") [20 pt]   m - 4.0	This DODPLAIN QUA FLOOD L R	> 1.0 m - 1.5 m (> 3 s'') [5 ≤ 1.0 m (≤ 3 s'') [5	BANKFULL WIDTH (meters)  BANKFULL WIDTH (meters)  BANKFULL WIDTH (meters)  BANKFULL WIDTH (meters)  Conservation Tillage  Urban or Industrial  Open Pasture, Row  Crop  Mining or Construction	W Ma
> 4.0   > 3.0   > 1.5   COI	meters (> 13') [30 pts]   m - 4.0 m (> 9' 7" - 13') [25 pts]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 4' 8" - 9' 7") [20 pt]   m - 3.0 m (> 10 pt]   m - 3	This DODPLAIN QUA	> 1.0 m - 1.5 m (> 3 3") [5  AVERAGE E  Information must also be complet LITY ANOTE: River Left (L) and PLAIN QUALITY  (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Shrub or Old Field Residential, Park, New Field Fenced Pasture  Check ONLY one box):  Moist Chan	BANKFULL WIDTH (meters)  BANKFULL WIDTH (meters)  BANKFULL WIDTH (meters)  Ced  d Right (R) as looking downstream &  L R  Conservation Tillage  Urban or Industrial  Open Pasture, Row Crop	W Ma
> 4.0 > 3.0 > 1.5 col	meters (> 13') [30 pts]   m - 4.0 m (> 9' 7" - 13') [25 pts]   m - 4.0 m (> 9' 7" - 13') [25 pts]   m - 3.0 m (> 4' 8" - 9' 7") [20 pts]   mmENTS	This DODPLAIN QUA	> 1.0 m - 1.5 m (> 3 3") [5  AVERAGE E  Information must also be complet LITY ANOTE: River Left (L) and PLAIN QUALITY  (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Shrub or Old Field Residential, Park, New Field Fenced Pasture  Check ONLY one box):  Moist Chan	BANKFULL WIDTH (meters)  BANKFULL WIDTH (meters)  L R Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction	W Ma
> 4.0 > 3.0 > 1.5 col	meters (> 13') [30 pts] m - 4.0 m (> 9' 7" - 13') [25 pts] m - 3.0 m (> 4' 8" - 9' 7") [20 pt] mmeters (> 18' 8" - 9' 7") [20 pt] mmeters (> 18' 8" - 9' 7") [20 pt] mmeters (> 18' 8" - 9' 7") [20 pt] mmeters (> 18' 8" - 9' 7") [20 pt] mmeters (> 19' 7") [20 pt] mmeters (> 19' 7") [25 pts] mmeters (> 19' 7" - 13') [25 pts] mmeters (> 19' 7" - 13	This DODPLAIN QUAL FLOOD L R D D D D D D D D D D D D D D D D D D D	> 1.0 m - 1.5 m (> 3 3") [5  AVERAGE E  Information must also be complet LITY ANOTE: River Left (L) and PLAIN QUALITY  (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Shrub or Old Field Residential, Park, New Field Fenced Pasture  Check ONLY one box):  Moist Chan	BANKFULL WIDTH (meters)  Conservation Tillage  Urban or Industrial  Open Pasture, Row Crop Mining or Construction  Conservation Tillage  Urban or Industrial  Open Pasture, Row Crop Mining or Construction  Conservation Tillage  Urban or Industrial  Open Pasture, Row Crop Mining or Construction  Conservation Tillage  Urban or Industrial  Open Pasture, Row Crop Mining or Construction	W Ma
> 4.0 > 3.0 > 1.5 col	meters (> 13') [30 pts] m - 4.0 m (> 9' 7" - 13') [25 pts] m - 3.0 m (> 4' 8" - 9' 7") [20 pt] mmeters (> 18' 8" - 9' 7") [20 pt] mmeters (> 18' 8" - 9' 7") [20 pt] mmeters (> 18' 8" - 9' 7") [20 pt] mmeters (> 18' 8" - 9' 7") [20 pt] mmeters (> 19' 7") [20 pt] mmeters (> 19' 7") [25 pts] mmeters (> 19' 7" - 13') [25 pts] mmeters (> 19' 7" - 13	This DODPLAIN QUAL FLOOD L R D D D D D D D D D D D D D D D D D D D	> 1.0 m - 1.5 m (> 3 s'') [5 ≤ 1.0 m (≤ 3 s'') [5	BANKFULL WIDTH (meters)  Conservation Tillage  Urban or Industrial  Open Pasture, Row Crop Mining or Construction  Conservation Tillage  Urban or Industrial  Open Pasture, Row Crop Mining or Construction  Conservation Tillage  Urban or Industrial  Open Pasture, Row Crop Mining or Construction  Conservation Tillage  Urban or Industrial  Open Pasture, Row Crop Mining or Construction	W Ma

# Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3):

	SITE NUMBER		RIVER BASIN		DF	AINAGE AREA (mi²)	1
IGTH OF ST	SITE NUMBER_	LAT. 39.	Rto LONG.	43.3495 RIV	ER CODE	RIVER MILE	
TE 12/16	SCORER David Kur	Timano CO	MMENTS				
	plete All Items On This For						uction
101E. 00III		_					
TREAM CH		TURAL CHA	NNEL   RECO	VERED REC	OVERING L	RECENT OR NO RECO	VERY
MODIFICATI	ONS:						
SUBST	TRATE (Estimate percent of ev	ery type of s	uhstrate present	Check ON Y two	predominant	substrate TVPE haves I	
	f 40). Add total number of signific						HH
TYPE		PERCENT	TYPE	T PA - 45		PERCENT	Met
	DR SLABS [16 pts] DULDER (>256 mm) [16 pts]			LT [3 pt] EAF PACKWOODY	DEBRIS 13 n		1 01
	DROCK [16 pt]			NE DETRITUS [3			Subs
	DBBLE (65-256 mm) [12 pts]			AY or HARDPAN			Max
				UCK [0 pts]		60	1
	ND (<2 mm) [6 pts]			RTIFICIAL [3 pts]			90
1	Total of Percentages of	1	(A)			(B)	A+
	abs, Boulder, Cobble, Bedrock _		0		ar an amount of	3	***
CORE OF TW	O MOST PREDOMINATE SUB	STRATE TYP	ES:	TOTAL NUMBE	R OF SUBST	RATE TYPES:	
Maxim	um Pool Depth (Measure the n	naximum pod	ol depth within ti	ne 61 meter (200 f	t) evaluation re	each at the time of	Pool I
	tion. Avoid plunge pools from roa	d culverts or					Max
	ntimeters [20 pts] - 30 cm [30 pts]			5 cm - 10 cm [15 5 cm [5 pts]	pts]		1
	22.5 cm [25 pts]				NOT OLIANDI	1) 101-1	5
				NO WATER OR MO	JIST CHAININE	L[Upts]	
COMM						5	
COMM	ENTS					centimeters):	
BANK	ENTSFULL WIDTH (Measured as the	e average of	3-4 measuremen	MAXIMUM Po	OOL DEPTH (	centimeters):	Bani
. BANK	FULL WIDTH (Measured as the eters (> 13') [30 pts]	e average of	3-4 measuremen	mAXIMUM Pots) (Chec	OOL DEPTH ( k <i>ONLY</i> one 3" - 4' 8") [15	centimeters):	Wid
BANK > 4.0 me	ENTSFULL WIDTH (Measured as the	average of	3-4 measuremen	MAXIMUM Po	OOL DEPTH ( k <i>ONLY</i> one 3" - 4' 8") [15	centimeters):	Wid
BANK > 4.0 me > 3.0 m > 1.5 m	FULL WIDTH (Measured as the eters (> 13') [30 pts] - 4.0 m (> 9' 7" - 13') [25 pts] - 3.0 m (> 4' 8" - 9' 7") [20 pts]		3-4 measuremen	MAXIMUM Pi ts) (Chec 1.0 m - 1.5 m (> 3' s 1.0 m (≤ 3' 3'') [5 p	OOL DEPTH ( k <i>ONLY</i> one 3" - 4' 8") [15 ots]	box):	Banl Wid Max
BANK > 4.0 me > 3.0 m > 1.5 m	FULL WIDTH (Measured as the eters (> 13') [30 pts] - 4.0 m (> 9' 7" - 13') [25 pts]		3-4 measuremen	MAXIMUM Pi ts) (Chec 1.0 m - 1.5 m (> 3' s 1.0 m (≤ 3' 3'') [5 p	OOL DEPTH ( k <i>ONLY</i> one 3" - 4' 8") [15 ots]	box):	Wid
BANK > 4.0 me > 3.0 m > 1.5 m	FULL WIDTH (Measured as the eters (> 13') [30 pts] - 4.0 m (> 9' 7" - 13') [25 pts] - 3.0 m (> 4' 8" - 9' 7") [20 pts]		3-4 measuremen	MAXIMUM Pots) (Chects) (Chects 1.0 m - 1.5 m (> 3' 3'') [5]	OOL DEPTH ( k <i>ONLY</i> one 3" - 4' 8") [15 ots]  ANKFULL WI	box):	Wid
BANK > 4.0 me > 3.0 m > 1.5 m	FULL WIDTH (Measured as the eters (> 13') [30 pts] - 4.0 m (> 9' 7" - 13') [25 pts] - 3.0 m (> 4' 8" - 9' 7") [20 pts]  ENTS	This I	3-4 measuremen	MAXIMUM Pots) (Chector) (Chector	OOL DEPTH ( k ONLY one 3" - 4' 8") [15   ots]  ANKFULL WI	DOX): pts]  DTH (meters)	Wid
BANK > 4.0 me > 3.0 m > 1.5 m	FULL WIDTH (Measured as the eters (> 13') [30 pts] - 4.0 m (> 9' 7" - 13') [25 pts] - 3.0 m (> 4' 8" - 9' 7") [20 pts]  ENTS  RIPARIAN ZONE AND FLOOD  RIPARIAN WIDTH	This i PLAIN QUAL FLOODE	3-4 measuremen	MAXIMUM Pots) (Chect   1.0 m - 1.5 m (> 3' s 1.0 m (≤ 3' 3') [5 ]AVERAGE B t also be complete: River Left (L) and	NooL DEPTH (  k ONLY one 3" - 4' 8") [15    ots]  ANKFULL WI  od  Right (R) as I	DOX): pts]  DTH (meters)	Wid
BANK > 4.0 me > 3.0 m > 1.5 m  COMM	FULL WIDTH (Measured as the eters (> 13') [30 pts] - 4.0 m (> 9' 7" - 13') [25 pts] - 3.0 m (> 4' 8" - 9' 7") [20 pts]  ENTS  RIPARIAN ZONE AND FLOOD  RIPARIAN WIDTH  (Per Bank)	This i	3-4 measuremen	MAXIMUM Potes) (Chect 1.0 m - 1.5 m (> 3' 1.0 m (≤ 3' 3'') [5]AVERAGE B t also be completed: River Left (L) and ant per Bank)	NooL DEPTH (  k ONLY one 3" - 4' 8") [15    ots]  ANKFULL WI  od  Right (R) as I	centimeters):  Dox): pts]  DTH (meters)	Wid
BANK > 4.0 me > 3.0 m > 1.5 m  COMM	FULL WIDTH (Measured as the eters (> 13') [30 pts] - 4.0 m (> 9' 7" - 13') [25 pts] - 3.0 m (> 4' 8" - 9' 7") [20 pts]  ENTS  RIPARIAN ZONE AND FLOOD  RIPARIAN WIDTH  (Per Bank)  Wide >10m	This in PLAIN QUAL FLOODE L R	3-4 measuremen	MAXIMUM Pots) (Chect 1.0 m - 1.5 m (> 3' 3') [5] AVERAGE B  t also be completed River Left (L) and ant per Bank)  Wetland	OOL DEPTH ( k ONLY one 3" - 4' 8") [15   ots]  ANKFULL WI od Right (R) as I	centimeters):  box): pts]  DTH (meters)  cooking downstream &  Conservation Tillage	Wid
BANK > 4.0 me > 3.0 m > 1.5 m  COMM	FULL WIDTH (Measured as the eters (> 13') [30 pts] - 4.0 m (> 9' 7" - 13') [25 pts] - 3.0 m (> 4' 8" - 9' 7") [20 pts]  ENTS  RIPARIAN ZONE AND FLOOD  RIPARIAN WIDTH  (Per Bank)  Wide >10m  Moderate 5-10m	This i	3-4 measurements information mus. ITY ANOTE PLAIN QUALITY (Most Predomin Mature Forest, \)	MAXIMUM Pots) (Chect 1.0 m - 1.5 m (> 3' 3') [5] AVERAGE B  t also be completed River Left (L) and ant per Bank)  Wetland	OOL DEPTH ( k ONLY one 3" - 4' 8") [15   ots]  ANKFULL WI od Right (R) as I	centimeters):  box): pts]  DTH (meters)  cooking downstream &  Conservation Tillage Urban or Industrial	Wid
BANK > 4.0 me > 3.0 m > 1.5 m  COMM	FULL WIDTH (Measured as the eters (> 13') [30 pts] - 4.0 m (> 9' 7" - 13') [25 pts] - 3.0 m (> 4' 8" - 9' 7") [20 pts]  ENTS  RIPARIAN ZONE AND FLOOD  RIPARIAN WIDTH  (Per Bank)  Wide >10m  Moderate 5-10m	This in PLAIN QUAL FLOODE L R	3-4 measurements information mus. ITY ANOTE PLAIN QUALITY (Most Predomin Mature Forest, \ Immature Forest	MAXIMUM Potes  1.0 m - 1.5 m (> 3' s' 1.0 m (≤ 3' 3") [5]  AVERAGE B  t also be completed: River Left (L) and ant per Bank)  Wetland t, Shrub or Old	OOL DEPTH ( k ONLY one 3" - 4' 8") [15   ots]  ANKFULL WI od Right (R) as I	centimeters):  box): pts]  DTH (meters)  cooking downstream &  Conservation Tillage Urban or Industrial Open Pasture, Row	Wid
BANK > 4.0 me > 3.0 m > 1.5 m  COMM	FULL WIDTH (Measured as the eters (> 13') [30 pts] - 4.0 m (> 9' 7" - 13') [25 pts] - 3.0 m (> 4' 8" - 9' 7") [20 pts]  ENTS  RIPARIAN ZONE AND FLOOD RIPARIAN WIDTH (Per Bank) Wide >10m Moderate 5-10m Narrow <5m	This is plain qual FLOODE	information mus. ITY ANOTE PLAIN QUALITY (Most Predomin Mature Forest, \ Immature Fores Field	MAXIMUM Pots) (Chect 1.0 m - 1.5 m (> 3' 5') [5]AVERAGE B t also be complete: River Left (L) and ant per Bank) Vetland t, Shrub or Old k, New Field	OOL DEPTH ( k ONLY one 3" - 4' 8") [15   ots]  ANKFULL WI od Right (R) as I	centimeters):  box): pts]  DTH (meters)  cooking downstream &  Conservation Tillage Urban or Industrial	Wic
BANK > 4.0 me > 3.0 m > 1.5 m  COMM	FULL WIDTH (Measured as the eters (> 13') [30 pts] - 4.0 m (> 9' 7" - 13') [25 pts] - 3.0 m (> 4' 8" - 9' 7") [20 pts]  ENTS  RIPARIAN ZONE AND FLOOD RIPARIAN WIDTH (Per Bank) Wide >10m Moderate 5-10m Narrow <5m	This is plain qual floods  Floods  L R	information mus. ITY ANOTE PLAIN QUALITY (Most Predomin Mature Forest, \ Immature Fores Field Residential, Par	MAXIMUM Pots) (Chect 1.0 m - 1.5 m (> 3' 5') [5]AVERAGE B t also be complete: River Left (L) and ant per Bank) Vetland t, Shrub or Old k, New Field	OOL DEPTH ( k ONLY one 3" - 4' 8") [15 ots]  ANKFULL WI  ed Right (R) as I	Conservation Tillage Urban or Industrial Open Pasture, Row Crop	Wid
BANK > 4.0 me > 3.0 m > 1.5 m  COMM	FULL WIDTH (Measured as the eters (> 13') [30 pts] - 4.0 m (> 9' 7" - 13') [25 pts] - 3.0 m (> 4' 8" - 9' 7") [20 pts]  ENTS  RIPARIAN ZONE AND FLOOD RIPARIAN WIDTH (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None COMMENTS	This is plain qual floods	information mus. ITY ANOTE PLAIN QUALITY (Most Predomin Mature Forest, \ Immature Forest Field Residential, Par	MAXIMUM Pots) (Chect 1.0 m - 1.5 m (> 3' 5') [5]  AVERAGE B  t also be completed: River Left (L) and ant per Bank)  Vetland t, Shrub or Old  k, New Field	OOL DEPTH ( k ONLY one 3" - 4' 8") [15 ots]  ANKFULL WI  ed Right (R) as I	Conservation Tillage Urban or Industrial Open Pasture, Row Crop	Wid
BANK > 4.0 me > 3.0 m > 1.5 m  COMM	FULL WIDTH (Measured as the eters (> 13') [30 pts] - 4.0 m (> 9' 7" - 13') [25 pts] - 3.0 m (> 4' 8" - 9' 7") [20 pts]  IENTS  RIPARIAN ZONE AND FLOOD RIPARIAN WIDTH (Per Bank) Wide >10m Moderate 5-10m  Narrow <5m None COMMENTS  FLOW REGIME (At Time of Exceptions)	This is PLAIN QUAL FLOODS L R D D D D D D D D D D D D D D D D D D D	information mus. ITY ANOTE LAIN QUALITY (Most Predomin Mature Forest, \ Immature Forest Field Residential, Par Fenced Pasture	MAXIMUM Pots) (Chect 1.0 m - 1.5 m (> 3' 3') [5] AVERAGE B  t also be completed: River Left (L) and ant per Bank) Wetland t, Shrub or Old  k, New Field  ox): Moist Change  the completed ox in the complete o	OOL DEPTH (  k ONLY one 3" - 4' 8") [15    ots]  ANKFULL WI  cd Right (R) as I	centimeters):  box): pts]  DTH (meters)  cooking downstream  Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction	Wide
BANK > 4.0 me > 3.0 m > 1.5 m  COMM	FULL WIDTH (Measured as the eters (> 13') [30 pts] - 4.0 m (> 9' 7" - 13') [25 pts] - 3.0 m (> 4' 8" - 9' 7") [20 pts]  IENTS  RIPARIAN ZONE AND FLOOD RIPARIAN WIDTH (Per Bank) Wide >10m Moderate 5-10m  Narrow <5m None COMMENTS  FLOW REGIME (At Time of Exceptions) Stream Flowing Subsurface flow with isolated po	This is PLAIN QUAL FLOODS L R D D D D D D D D D D D D D D D D D D D	information mus. ITY ANOTE PLAIN QUALITY (Most Predomin Mature Forest, \ Immature Forest Field Residential, Par Fenced Pasture	MAXIMUM Pots) (Chector) (	OOL DEPTH ( k ONLY one 3" - 4' 8") [15   ots]  ANKFULL WI  Right (R) as I	centimeters):  box): pts]  DTH (meters)  cooking downstream  Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction	Wide
BANK > 4.0 me > 3.0 m > 1.5 m  COMM	FULL WIDTH (Measured as the eters (> 13') [30 pts] - 4.0 m (> 9' 7" - 13') [25 pts] - 3.0 m (> 4' 8" - 9' 7") [20 pts]  IENTS  RIPARIAN ZONE AND FLOOD RIPARIAN WIDTH (Per Bank) Wide >10m Moderate 5-10m  Narrow <5m None COMMENTS  FLOW REGIME (At Time of Exceptions)	This is PLAIN QUAL FLOODS L R D D D D D D D D D D D D D D D D D D D	information mus. ITY ANOTE PLAIN QUALITY (Most Predomin Mature Forest, \ Immature Forest Field Residential, Par Fenced Pasture	MAXIMUM Pots) (Chect 1.0 m - 1.5 m (> 3' 3') [5] AVERAGE B  t also be completed: River Left (L) and ant per Bank) Wetland t, Shrub or Old  k, New Field  ox): Moist Change  the completed ox in the complete o	OOL DEPTH (  k ONLY one 3" - 4' 8") [15    ots]  ANKFULL WI  cd Right (R) as I	centimeters):  box): pts]  DTH (meters)  cooking downstream  Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction	Wide
BANK > 4.0 me > 3.0 m > 1.5 m  COMM	FULL WIDTH (Measured as the eters (> 13') [30 pts] - 4.0 m (> 9' 7" - 13') [25 pts] - 3.0 m (> 4' 8" - 9' 7") [20 pts]  IENTS  RIPARIAN ZONE AND FLOOD RIPARIAN WIDTH (Per Bank) Wide >10m Moderate 5-10m  Narrow <5m None COMMENTS  FLOW REGIME (At Time of Events of Eve	This is PLAIN QUAL FLOODE L R IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	information mus. ITY ANOTE PLAIN QUALITY (Most Predomin Mature Forest, \ Immature Fores Field Residential, Par Fenced Pasture	MAXIMUM Pots) (Check 1.0 m - 1.5 m (> 3's 1.0 m (≤ 3'3') [5] AVERAGE B  t also be complete River Left (L) and ant per Bank) Wetland t, Shrub or Old  k, New Field  ox): Moist ChangDry channel	Nool DEPTH (  k ONLY one 3" - 4' 8") [15    STANKFULL WI  COMBAN Right (R) as I  L R   C   C    D   C   C    The l, isolated point, no water (E)	centimeters):  box): pts]  DTH (meters)  cooking downstream &  Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction  cools, no flow (Intermittent)	Wide
BANK > 4.0 me > 3.0 m > 1.5 m  COMM	FULL WIDTH (Measured as the eters (> 13') [30 pts] - 4.0 m (> 9' 7' - 13') [25 pts] - 3.0 m (> 4' 8" - 9' 7") [20 pts]  IENTS  RIPARIAN ZONE AND FLOOD RIPARIAN WIDTH (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None COMMENTS  FLOW REGIME (At Time of Events Stream Flowing Subsurface flow with isolated po	This is PLAIN QUAL FLOODE L R IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	information mus. ITY ANOTE PLAIN QUALITY (Most Predomin Mature Forest, \ Immature Fores Field Residential, Par Fenced Pasture	MAXIMUM Pots) (Chect 1.0 m - 1.5 m (> 3' 5') [5] AVERAGE B  t also be completed: River Left (L) and ant per Bank) Wetland t, Shrub or Old  k, New Field  ox): Moist ChangeDry channel	Nool DEPTH (  k ONLY one 3" - 4' 8") [15    STANKFULL WI  COMBAN Right (R) as I  L R   C   C    D   C   C    The l, isolated point, no water (E)	centimeters):  box): pts]  DTH (meters)  cooking downstream  Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction	Wide

## **OhioEPA**

## Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3):



SITE NAME/LOCATION SITE NUMBER WC-05 RIVER BASIN DRAINAGE AREA (mi²) LAT. 39.8602 LONG. 3.3514 RIVER CODE RIVER MILE LENGTH OF STREAM REACH (ft) SCORER Juid AUMINEUNCOMMENTS\_ NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING Ⅲ RECENT OR NO RECOVERY STREAM CHANNEL MODIFICATIONS: SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes HHEI (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. Metric **Points** BLDR SLABS [16 pts] 00 LEAF PACKWOODY DEBRIS [3 pts] BOULDER (>256 mm) [16 pts] Substrate BEDROCK [16 pt] FINE DETRITUS [3 pts] Max = 4000 CLAY or HARDPAN [0 pt] COBBLE (65-256 mm) [12 pts] GRAVEL (2-64 mm) [9 pts] MUCK [0 pts] ARTIFICIAL [3 pts] SAND (<2 mm) [6 pts] Total of Percentages of (B) Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES: Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of 2. **Pool Depth** evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): Max = 30> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts] > 22.5 - 30 cm [30 pts] < 5 cm [5 pts] NO WATER OR MOIST CHANNEL [0 pts] > 10 - 22.5 cm [25 pts] MAXIMUM POOL DEPTH (centimeters): BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): Bankfull > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] Width ≤ 1.0 m (≤ 3' 3") [5 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] Max=30 > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] COMMENTS **AVERAGE BANKFULL WIDTH (meters)** This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream & RIPARIAN WIDTH FLOODPLAIN QUALITY (Per Bank) L R (Most Predominant per Bank) Wide >10m 00 Mature Forest, Wetland 00 Conservation Tillage Immature Forest, Shrub or Old Moderate 5-10m Urban or Industrial Open Pasture, Row D.S. Narrow <5m Residential, Park, New Field None Fenced Pasture Mining or Construction COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box) Stream Flowing Moist Channel, isolated pools, no flow (Intermittent) Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): 1.0 2.0 3.0 None 0.5 1.5 2.5 STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) ☐ Flat to Moderate Moderate (2 #/100 ft) Moderate to Severe Severe (10 ft/100 ft)

## **ChieEPA**

## Primary Headwater Habitat Evaluation Form



Severe (10 fl/100 ft)

HHEI Score (sum of metrics 1, 2, 3): SITE NAME/LOCATION RIVER BASIN DRAINAGE AREA (mi2) SITE NUMBER LENGTH OF STREAM REACH (ft) 100 LAT. 39-8595 LONG. 783-3573 RIVER CODE RIVER MILE DATE 12/16/16 SCORER David KUNINANN COMMENTS\_ NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING 'M RECENT OR NO RECOVERY **MODIFICATIONS:** SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes HHEI (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. Metric PERCENT PERCENT Points BLDR SLABS [16 pts] SILT [3 pt] OB 00 LEAF PACKWOODY DEBRIS [3 pts] BOULDER (>256 mm) [16 pts] Substrate BEDROCK [16 pt] FINE DETRITUS [3 pts] Max = 40COBBLE (65-256 mm) [12 pts] CLAY or HARDPAN [0 pt] MUCK [0 pts] GRAVEL (2-64 mm) [9 pts] ARTIFICIAL [3 pts] SAND (<2 mm) [6 pts] (B) Total of Percentages of A+B Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES: **Pool Depth** Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): Max = 30> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts] < 5 cm [5 pts] > 22.5 - 30 cm [30 pts] NO WATER OR MOIST CHANNEL [0 pts] > 10 - 22.5 cm [25 pts] MAXIMUM POOL DEPTH (centimeters): COMMENTS BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): Bankfull Width > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] > 4.0 meters (> 13') [30 pts] Max=30  $\leq 1.0 \text{ m } (\leq 3' \, 3'') [5 \text{ pts}]$ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] **AVERAGE BANKFULL WIDTH (meters)** COMMENTS This information must also be completed &NOTE: River Left (L) and Right (R) as looking downstream ☆ RIPARIAN ZONE AND FLOODPLAIN QUALITY FLOODPLAIN QUALITY RIPARIAN WIDTH (Most Predominant per Bank) (Per Bank) NA. Wide >10m Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Moderate 5-10m Urban or Industrial Open Pasture, Row Residential, Park, New Field Narrow <5m Fenced Pasture Mining or Construction COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Moist Channel, isolated pools, no flow (Intermittent) Stream Flowing Dry channel, no water (Ephemeral) Subsurface flow with isolated pools (Interstitial) SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): 2.0 3.0 10 None 1.5 25 >3 0.5 STREAM GRADIENT ESTIMATE

Moderate to Severe

Moderate (2 ft/100 ft)

Flat (0 5 ft/100 ft)

☐ Flat to Moderate

# Chieff Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3):



TE NAME/LOCATIONSITE NUMBER_ SIGHT OF STREAM REACH (ft)	RIVER BASIN	DRAINAGE AREA (mi²) 0.55
TE 2 16/16 SCORER DAVID	White COMMENTS	
1	rm - Refer to "Field Evaluation Manual for Ohi	
TREAM CHANNEL NONE / NO	ATURAL CHANNEL RECOVERED RECOVE	RING RECENT OR NO RECOVERY
(Max of 40). Add total number of signi  YPE  BLDR SLABS [16 pts]  BOULDER (>256 mm) [16 pts]  BEDROCK [16 pt]  COBBLE (65-256 mm) [12 pts]  GRAVEL (2-64 mm) [9 pts]  SAND (<2 mm) [6 pts]  Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock		PERCENT PERCENT BRIS [3 pts]  (B)  A + E
CORE OF TWO MOST PREDOMINATE SUI	SSTRATE TYPES: TOTAL NUMBER OF	SUBSTRATE TYPES:
	maximum pool depth within the 61 meter (200 ft) eva pad culverts or storm water pipes) (Check ONLY one > 5 cm - 10 cm [15 pts] < 5 cm [5 pts] NO WATER OR MOIST	Max =
COMMENTS	MAXIMUM POOL	DEPTH (centimeters):
BANK FULL WIDTH (Measured as t > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	> 1.0 m - 1.5 m (> 3' 3" - ≤ 1.0 m (≤ 3' 3") [5 pts]	/LY one box): Bank: Widt Max=
COMMENTS	AVERAGE BANK	FULL WIDTH (meters)
RIPARIAN ZONE AND FLOO RIPARIAN WIDTH	This information <u>must</u> also be completed  DPLAIN QUALITY ☆NOTE: River Left (L) and Righ  FLOODPLAIN QUALITY	it (R) as looking downstream☆
L R (Per Bank)	L R (Most Predominant per Bank)	L R
☐ ☐ Wide >10m ☐ ☐ Moderate 5-10m	Immature Forest, Shrub or Old	☐ ☐ Conservation Tillage ☐ ☐ Urban or Industrial
	Field	0.0000000000000000000000000000000000000
☐ ☐ Narrow <5m ☐ ☑ None COMMENTS		Crop  Mining or Construction
FLOW REGIME (At Time of E  Stream Flowing  Subsurface flow with isolated p  COMMENTS		solated pools, no flow (Intermittent) water (Ephemeral)
SINUOSITY (Number of bend None 0.5	s per 61 m (200 ft) of channel) (Check <i>ONLY</i> one box)  1.0	3.0



## Primary Headwater Habitat Evaluation Form



HHEI Score (sum of metrics 1, 2, 3): SITE NAME/LOCATION \_ V4C - 6 8 DRAINAGE AREA (mi2) 0 729 RIVER BASIN\_ SITE NUMBER LENGTH OF STREAM REACH (ft) 100 LAT. 39.8517 LONG. 33.3354 RIVER CODE \_\_\_\_\_ RIVER MILE DATE 12 16 SCORER David Kuhlmann COMMENTS\_ NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions STREAM CHANNEL **MODIFICATIONS:** SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. HHEI Metric TYPE PERCENT **Points** BLDR SLABS [16 pts] LEAF PACKWOODY DEBRIS [3 pts] BOULDER (>256 mm) [16 pts] Substrate 00 BEDROCK [16 pt] FINE DETRITUS [3 pts] Max = 40CLAY or HARDPAN [0 pt] COBBLE (65-256 mm) [12 pts] MUCK [0 pts] 团口 GRAVEL (2-64 mm) [9 pts] 00 ARTIFICIAL [3 pts] SAND (<2 mm) [6 pts] (B) Total of Percentages of A+B Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES: Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of **Pool Depth** 2. evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): Max = 30> 5 cm - 10 cm [15 pts] > 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] < 5 cm [5 pts] NO WATER OR MOIST CHANNEL [0 pts] > 10 - 22.5 cm [25 pts] **MAXIMUM POOL DEPTH (centimeters):** BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): Bankfull Width > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] > 4.0 meters (> 13') [30 pts] Max=30 > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] **AVERAGE BANKFULL WIDTH (meters)** COMMENTS This information must also be completed &NOTE: River Left (L) and Right (R) as looking downstream & RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY (Per Bank) R (Most Predominant per Bank) Wide >10m 3-8 Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Moderate 5-10m Urban or Industrial Open Pasture, Row Narrow <5m Residential, Park, New Field Fenced Pasture None Mining or Construction COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Moist Channel, isolated pools, no flow (Intermittent) Stream Flowing Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): 1.0 2.0 None 2.5 1.5 0.5 STREAM GRADIENT ESTIMATE Flat (0 5 ft/100 ft) S Flat to Moderate ☐ Moderate (2 ft/100 ft) Moderate to Severe Severe (10 ft/100 ft)

# Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3):

ı	-	
	10	п
	160	- 1
		- 1

SITE NAME/LOCATION	SITE NUMBER		_ RIVER BA	SIN		DF	RAINAGE AREA (mi²) <u></u>	1 vuide
LENGTH OF STREAM R	SCORER David Kul	LAT. <u>39.8</u>	1523 LON MENTS	ig. <u>-83</u>	.3346 RIVE	R CODE _	RIVER MILE	
NOTE: Complete Al	l Items On This Form	n - Refer to	"Field Eva	luation	Manual for C	hio's PHV	VH Streams" for Instr	uctions
STREAM CHANNEL MODIFICATIONS:	NONE/NAT	URAL CHAP	NNEL   RI	ECOVER	ED RECO	VERING (	RECENT OR NO RECO	OVERY
(Max of 40). Add  TYPE BLDR SLAB BOULDER (: BEDROCK COBBLE (65) GRAVEL (2- SAND (<2 m	S [16 pts]	ant substrate	types found  TYPE  N  O  O  O  (A)	(Max of 8) SILT [3 LEAF PA FINE DE CLAY OF MUCK [ ARTIFIC	. Final metric s pt] ACKWOODY [ ETRITUS [3 pt HARDPAN [6 0 pts] CIAL [3 pts]	ocore is sum DEBRIS [3 p	of boxes A & B.  PERCENT  50	HHEI Metric Points Substrat Max = 40
2. Maximum Pool evaluation. Avoi > 30 centimeters > 22.5 - 30 cm [3 > 10 - 22.5 cm [5]	30 pts]	aximum pod i culverts or	ol depth with storm water p	ipes) (0 > 5 cm < 5 cm	meter (200 ft) Check ONLY or - 10 cm [15 pt [5 pts] ATER OR MOI	ne box):		Pool Dep Max = 3
COMMENTS_					MAXIMUM PO	OL DEPTH	(centimeters):	
> 4.0 meters (> 13 > 3.0 m - 4.0 m (	> 9' 7" - 13') [25 pts] > 4' 8" - 9' 7") [20 pts]		53	> 1.0 m ≤ 1.0 m	- 1.5 m (> 3' 3 n (≤ 3' 3") [5 pt	s]	ptsj	Bankful Width Max=30
COMMENTS_					AVERAGE BA	NKFULL W	DTH (meters)	3
	AN ZONE AND FLOODF	LAIN QUAL		OTE: Rive	be completed r Left (L) and R		looking downstream ಚಿ	
	Bank)	L R	(Most Predo			L R	Consequetion Tillage	
	>10m rate 5-10m		Mature Fore				Conservation Tillage Urban or Industrial	
	w <5m	00	Field Residential,	Park, Nev	v Field	00	Open Pasture, Row	
☐ ☐ None		00	Fenced Pas		.,,,,,,	00	Crop Mining or Construction	_
Stream F Subsurfa	REGIME (At Time of Eve lowing ce flow with isolated poo NTS	ls (Interstitia	0 0100	ne box):	Dry channel, i			)
SINUOS None 0.5	Number of bends p	er 61 m (200 1.0 1.5	ft) of channe	Q	k <i>ONLY</i> one b 2.0 2.5	ox): [	3.0 33	
STREAM GRAD	Flat to Moderate	Mode	erate (2 ft/100 ft)	(	☐ Moderate to	Severe	Severe (10 ft/1	00 ft)

# Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3):



	STREAM REACH (ft)	LAT. 39,	2521 LON	IG83-336 Z RIV	ER CODE		
	mplete All Items On This						uctions
						RECENT OR NO RECO	_
DDIFICA		, NATORAL OF	WHEL COR	ECOVERED D'REC	OVENING L	RECENT ON NO RECO	VEICT
SUB	STRATE (Estimate percent o	f every type of	substrate pres	sent, Check ONLY two	predominant s	substrate TYPE boxes	
(Max	of 40). Add total number of sig	gnificant substra	e types found			of boxes A & B.	HH Met
PE B	BLDR SLABS [16 pts]	PERCENT	TYPE	SILT [3 pt]		PERCENT	Poi
В	SOULDER (>256 mm) [16 pts]			LEAF PACKWOODY		ts]	Subs
	BEDROCK [16 pt]			FINE DETRITUS [3]			Max
	COBBLE (65-256 mm) [12 pts] GRAVEL (2-64 mm) [9 pts]			CLAY or HARDPAN MUCK [0 pts]	[u bt]	50	-
_	SAND (<2 mm) [6 pts]			ARTIFICIAL [3 pts]			15
	Total of Percentages of	-	(A)			(B)	A+
	Slabs, Boulder, Cobble, Bedroo WO MOST PREDOMINATE S		3 Es: 3	TOTAL NUMBER	R OF SUBSTI	RATE TYPES:	
	mum Pool Depth (Measure ti						Pool I
	mum Pool Depth (Measure ti lation. Avoid plunge pools from					ach at the time of	Max
> 30 c	centimeters [20 pts]			> 5 cm - 10 cm [15 p			
	5 - 30 cm [30 pts] - 22.5 cm [25 pts]		8	< 5 cm [5 pts] NO WATER OR MO	IST CHANNE	L [0 pts]	16
COM	MENTS					centimeters):	
		Alexandra di	12.4 magazira	MAXIMUM PO	OOL DEPTH (	centimeters):	Pont
BANI	MENTS K FULL WIDTH (Measured as meters (> 13') [30 pts]	s the average o	i 3-4 measurei	MAXIMUM PO	OOL DEPTH (	centimeters):	
BANI > 4.0 n > 3.0 n	K FULL WIDTH (Measured as meters (> 13') [30 pts] m - 4.0 m (> 9' 7" - 13') [25 pts]		i 3-4 measurei ☐ ☑	MAXIMUM PO	DOL DEPTH ( k <i>ONLY</i> one t 3" - 4'8") [15 p	centimeters):	Ban Wid Max
BANS > 4.0 n > 3.0 n > 1.5 n	K FULL WIDTH (Measured as meters (> 13') [30 pts] m - 4.0 m (> 9' 7" - 13') [25 pts] m - 3.0 m (> 4' 8" - 9' 7") [20 pts	  s	Ø	MAXIMUM PC  ments) (Checl > 1.0 m - 1.5 m (> 3' ≤ 1.0 m (≤ 3' 3") [5 p	OOL DEPTH (  k ONLY one k 3"- 4' 8") [15 pots]	pox):	Wid
BANS > 4.0 n > 3.0 n > 1.5 n	K FULL WIDTH (Measured as meters (> 13') [30 pts] m - 4.0 m (> 9' 7" - 13') [25 pts]	  s	Ø	MAXIMUM PC ments) (Checl	OOL DEPTH (  k ONLY one k 3"- 4' 8") [15 pots]	pox):	Wid
BANS > 4.0 n > 3.0 n > 1.5 n	K FULL WIDTH (Measured as meters (> 13') [30 pts] m - 4.0 m (> 9' 7" - 13') [25 pts] m - 3.0 m (> 4' 8" - 9' 7") [20 pts	s)	g 	MAXIMUM PC  ments) (Checl > 1.0 m - 1.5 m (> 3' ≤ 1.0 m (≤ 3' 3") [5 p	DOL DEPTH ( k ONLY one to 3" - 4' 8") [15 pots]  ANKFULL WII	pox):	Wid
BANS > 4.0 n > 3.0 n > 1.5 n	K FULL WIDTH (Measured as meters (> 13') [30 pts] n - 4.0 m (> 9' 7" - 13') [25 pts] n - 3.0 m (> 4' 8" - 9' 7") [20 pts] MENTS	This	Information n	MAXIMUM PC ments) (Checl > 1.0 m - 1.5 m (> 3' ≤ 1.0 m (≤ 3' 3") [5 p  AVERAGE BA  nust also be complete DTE: River Left (L) and	DOL DEPTH ( k ONLY one k 3" - 4' 8") [15 p ots]  ANKFULL WII	contimeters):  pox): pots]  DTH (meters)	Wid
BANS > 4.0 n > 3.0 n > 1.5 n	K FULL WIDTH (Measured as meters (> 13') [30 pts] m - 4.0 m (> 9' 7" - 13') [25 pts] m - 3.0 m (> 4' 8" - 9' 7") [20 pts] MENTS  RIPARIAN ZONE AND FLO	This DODPLAIN QUA	information multiple And PLAIN QUALIT	MAXIMUM PC  ments) (Checl > 1.0 m - 1.5 m (> 3' ≤ 1.0 m (≤ 3' 3") [5 p  AVERAGE BA  must also be complete  DTE: River Left (L) and	NOL DEPTH (  k ONLY one to the content of the conte	contimeters):  pox): pots]  DTH (meters)	Wid
BANS > 4.0 n > 3.0 n > 1.5 n	K FULL WIDTH (Measured as meters (> 13') [30 pts] m - 4.0 m (> 9' 7" - 13') [25 pts] m - 3.0 m (> 4' 8" - 9' 7") [20 pts] MENTS  RIPARIAN ZONE AND FLO RIPARIAN WIDTH R (Per Bank)	This DODPLAIN QUA	information multiple And PLAIN QUALIT	MAXIMUM PC ments) (Checl > 1.0 m - 1.5 m (> 3' ≤ 1.0 m (≤ 3' 3") [5 p  AVERAGE BA  nust also be complete DTE: River Left (L) and IY minant per Bank)	DOL DEPTH ( k ONLY one k 3" - 4' 8") [15 p ots]  ANKFULL WII	contimeters):  pox): pots]  DTH (meters)	Wid
BANI > 4.0 n > 3.0 n > 1.5 n	K FULL WIDTH (Measured as meters (> 13') [30 pts] n - 4.0 m (> 9' 7" - 13') [25 pts] n - 3.0 m (> 4' 8" - 9' 7") [20 pts] MENTS  RIPARIAN ZONE AND FLO RIPARIAN WIDTH R (Per Bank)  Wide >10m	This DODPLAIN QUA FLOOD L R	information <u>n</u> LITY	MAXIMUM PC ments) (Checl > 1.0 m - 1.5 m (> 3' ≤ 1.0 m (≤ 3' 3") [5 p  AVERAGE BA  nust also be complete DTE: River Left (L) and IY minant per Bank)	NOL DEPTH (  k ONLY one k 3" - 4' 8") [15 p  ots]  ANKFULL Will  dd  Right (R) as lo	oox): ots]  DTH (meters)	Wid
BANI > 4.0 n > 3.0 n > 1.5 n COM	K FULL WIDTH (Measured as meters (> 13') [30 pts] m - 4.0 m (> 9' 7" - 13') [25 pts] m - 3.0 m (> 4' 8" - 9' 7") [20 pts] MENTS  RIPARIAN ZONE AND FLO RIPARIAN WIDTH (Per Bank) Wide >10m  Moderate 5-10m	This DODPLAIN QUA FLOOD L R	Information number of the last	MAXIMUM PC ments) (Checl > 1.0 m - 1.5 m (> 3' ≤ 1.0 m (≤ 3' 3") [5 p  AVERAGE BA  must also be complete DTE: River Left (L) and TY minant per Bank) st, Wetland orest, Shrub or Old	NOL DEPTH (  k ONLY one to 3" - 4' 8") [15 pots]  ANKFULL WII  dd  Right (R) as k	contimeters):  DOTH (meters)  Conservation Tillage Urban or Industrial Open Pasture, Row	Wid
BANS > 4.0 m > 3.0 m > 1.5 m COM	K FULL WIDTH (Measured as meters (> 13') [30 pts] m - 4.0 m (> 9' 7" - 13') [25 pts] m - 3.0 m (> 4' 8" - 9' 7") [20 pts] MENTS  RIPARIAN ZONE AND FLO RIPARIAN WIDTH R (Per Bank) Wide >10m Moderate 5-10m  Narrow <5m	This DODPLAIN QUA FLOOD L R M M C	information nultry And PLAIN QUALI (Most Predo Mature Fore Immature Foreight Residential,	MAXIMUM PO ments) (Check > 1.0 m - 1.5 m (> 3' ≤ 1.0 m (≤ 3' 3") [5 p  AVERAGE BA  must also be complete DTE: River Left (L) and TY minant per Bank) st, Wetland crest, Shrub or Old  Park, New Field	NOL DEPTH (  k ONLY one to 3"- 4' 8") [15 pots]  ANKFULL WII  ad  Right (R) as lo	contimeters):  DOCK): DOCKITE  DOCKING MATERIAL  Conservation Tillage  Urban or Industrial  Open Pasture, Row  Crop	Wid
BANI > 4.0 n > 3.0 n > 1.5 n COM	K FULL WIDTH (Measured as meters (> 13') [30 pts] m - 4.0 m (> 9' 7" - 13') [25 pts] m - 3.0 m (> 4' 8" - 9' 7") [20 pts] MENTS  RIPARIAN ZONE AND FLO RIPARIAN WIDTH R (Per Bank) Wide >10m Moderate 5-10m  Narrow <5m	This DODPLAIN QUA FLOOD L R	Information number of the last	MAXIMUM PO ments) (Check > 1.0 m - 1.5 m (> 3' ≤ 1.0 m (≤ 3' 3") [5 p  AVERAGE BA  must also be complete DTE: River Left (L) and TY minant per Bank) st, Wetland crest, Shrub or Old  Park, New Field	NOL DEPTH (  k ONLY one k 3" - 4' 8") [15 p  ots]  ANKFULL WII  dd Right (R) as k	contimeters):  DOTH (meters)  Conservation Tillage Urban or Industrial Open Pasture, Row	Wid
BANI > 4.0 n	K FULL WIDTH (Measured as meters (> 13') [30 pts] m - 4.0 m (> 9' 7" - 13') [25 pts] m - 3.0 m (> 4' 8" - 9' 7") [20 pts] MENTS  RIPARIAN ZONE AND FLO RIPARIAN WIDTH Q (Per Bank)  Wide >10m  Moderate 5-10m  Narrow <5m  None	This podplain qual FLOOD	information number of the latest of the late	MAXIMUM POments) (Check > 1.0 m - 1.5 m (> 3' ≤ 1.0 m (≤ 3' 3") [5 p  AVERAGE BAN  Must also be complete DTE: River Left (L) and FY  minant per Bank) st, Wetland orest, Shrub or Old  Park, New Field ture	ANKFULL WII	centimeters):  cox): cots]  coxing downstream   Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction	Max 5
BANS > 4.0 m > 3.0 m > 1.5 m COM	K FULL WIDTH (Measured as meters (> 13') [30 pts] m - 4.0 m (> 9' 7" - 13') [25 pts] m - 3.0 m (> 4' 8" - 9' 7") [20 pts]  MENTS  RIPARIAN ZONE AND FLORIDARIAN WIDTH R (Per Bank) Wide >10m Moderate 5-10m  Narrow <5m None COMMENTS	This DODPLAIN QUA	Information In LITY AND PLAIN QUALITY (Most Predo Mature Fore Immature Fore Field Residential, Fenced Pas	MAXIMUM PO ments) (Checl > 1.0 m - 1.5 m (> 3' ≤ 1.0 m (≤ 3' 3") [5 p  AVERAGE BA  must also be complete DTE: River Left (L) and IY minant per Bank) st, Wetland orest, Shrub or Old  Park, New Field ture  me box):  Moist Chann	ANKFULL WII	centimeters):  cox): cots]  Cox):  Coxing downstream  Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction  cols, no flow (Intermittent)	Max 5
BANI > 4.0 n   > 3.0 n   > 1.5 n   COM	K FULL WIDTH (Measured as meters (> 13') [30 pts] m - 4.0 m (> 9' 7" - 13') [25 pts] m - 3.0 m (> 4' 8" - 9' 7") [20 pts] MENTS  RIPARIAN ZONE AND FLOR RIPARIAN WIDTH R (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None COMMENTS  FLOW REGIME (At Time of Stream Flowing Subsurface flow with isolated COMMENTS	This DODPLAIN QUARENT COORDINATE	Information notified the continuation of the c	MAXIMUM PC ments) (Checl > 1.0 m - 1.5 m (> 3' ≤ 1.0 m (≤ 3' 3") [5 p  AVERAGE BA  must also be complete DTE: River Left (L) and TY minant per Bank) est, Wetland prest, Shrub or Old  Park, New Field ture  Moist Chann Dry channel,	ANKFULL WII  Right (R) as to	centimeters):  cox): cots]  Cox):  Coxing downstream  Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction  cols, no flow (Intermittent)	Max 5
BANI > 4.0 n   > 3.0 n   > 1.5 n   COM	K FULL WIDTH (Measured as meters (> 13') [30 pts] m - 4.0 m (> 9' 7" - 13') [25 pts] m - 3.0 m (> 4' 8" - 9' 7") [20 pts] MENTS  RIPARIAN ZONE AND FLOR RIPARIAN WIDTH (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None COMMENTS  FLOW REGIME (At Time of Stream Flowing Subsurface flow with isolated	This DODPLAIN QUARENT COORDINATE	Information notified the continuation of the c	MAXIMUM PC ments) (Checl > 1.0 m - 1.5 m (> 3' ≤ 1.0 m (≤ 3' 3") [5 p  AVERAGE BA  must also be complete DTE: River Left (L) and TY minant per Bank) est, Wetland prest, Shrub or Old  Park, New Field ture  Moist Chann Dry channel,	ANKFULL WII  Right (R) as to	centimeters):  cox): cots]  Cox):  Coxing downstream  Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction  cols, no flow (Intermittent)	Max 5



TE_17_	STREAM REACH (ft)	Dovid Kul	AT. 39.5	<u> 1525 </u> LON MMENTS <u> </u>	IG. <u>~83,3397</u> RIN	/ER CODE _		
OTE: C	omplete All Items (	On This Form	- Refer to	o "Field Eva	luation Manual for	Ohio's PHV	VH Streams" for Instr	ucti
	CHANNEL &	J NONE / NATU	JRAL CHA	NNEL 🗆 RE	ECOVERED TREC	COVERING (	RECENT OR NO RECO	OVE
							substrate TYPE boxes	
(Ma YPE	ix of 40). Add total num		nt substrate	types found ( TYPE	Max of 8). Final metric	score is sum	of boxes A & B.  PERCENT	M
	BLDR SLABS [16 pts]		MOLIN !		SILT [3 pt]		_50_	P
	BOULDER (>256 mm)	[16 pts]			LEAF PACKWOOD		ots]	Su
	BEDROCK [16 pt]				FINE DETRITUS [3			M
	COBBLE (65-256 mm)				CLAY or HARDPAN	[0 pt]	50	
_	GRAVEL (2-64 mm) [9 SAND (<2 mm) [6 pts]				MUCK [0 pts] ARTIFICIAL [3 pts]		30	1
-	Total of Percentage		7	(A)			(B)	7
	Slabs, Boulder, Cobb	le, Bedrock		193			2	-
RE OF	TWO MOST PREDOM	INATE SUBST	RATE TYP	ES:	TOTAL NUMBE	R OF SUBST	RATE TYPES:	
	.5 - 30 cm [30 pts]				< 5 cm [5 pts]			
> 10	- 22.5 cm [25 pts]		_		NO WATER OR MO		5	
> 10	- 22.5 cm [25 pts]				NO WATER OR MO		5	
> 10 CO BA	MMENTSNK FULL WIDTH (Mea	asured as the a	verage of		MAXIMUM P	OOL DEPTH	(centimeters):	
> 10 CO BAI > 4.0 > 3.0	MMENTS	") [25 pts]	verage of		MAXIMUM P	OOL DEPTH	(centimeters):	1
> 10 CO BAI > 4.0 > 3.0	MMENTSNK FULL WIDTH (Mea	") [25 pts]	verage of		MAXIMUM P	OOL DEPTH	(centimeters):	1
> 10 CO BAI > 4.0 > 3.0 > 1.5	MMENTS  NK FULL WIDTH (Mea ) meters (> 13') [30 pts] ) m - 4.0 m (> 9' 7" - 13 6 m - 3.0 m (> 4' 8" - 9'	") [25 pts]		3-4 measuren		OOL DEPTH k ONLY one '3" - 4'8") [15 ots]	(centimeters):	1
BAI > 4.0 > 3.0 > 1.5	MMENTS  NK FULL WIDTH (Mea ) meters (> 13') [30 pts] ) m - 4.0 m (> 9' 7" - 13 6 m - 3.0 m (> 4' 8" - 9'	") [25 pts] 7") [20 pts]		3-4 measuren		OOL DEPTH k ONLY one '3" - 4'8") [15 ots] ANKFULL WI	(centimeters):	1
> 10 CO BAI > 4.0 > 3.0 > 1.5	MMENTS  NK FULL WIDTH (Mea ) meters (> 13') [30 pts] ) m - 4.0 m (> 9' 7" - 13 6 m - 3.0 m (> 4' 8" - 9'	i') [25 pts] 7") [20 pts]	This i	3-4 measuren		OOL DEPTH k ONLY one 3" - 4' 8") [15 ots] ANKFULL WI	(centimeters):  box): pts]  DTH (meters)	1
> 10 CO BAA > 4.C > 3.C > 1.5	MMENTS  NK FULL WIDTH (Mea ) meters (> 13') [30 pts] 0 m - 4.0 m (> 9' 7" - 13 5 m - 3.0 m (> 4' 8" - 9'  MMENTS  RIPARIAN ZONE   RIPARIAN WIDT	() [25 pts] 7") [20 pts] AND FLOODPL	This I	3-4 measuren		ool DEPTH k ONLY one 3" - 4' 8") [15 ots] ANKFULL WI ed Right (R) as I	(centimeters):	1
> 10 CO BAI > 4.C > 3.C > 1.E	MMENTS  NK FULL WIDTH (Mea ) meters (> 13') [30 pts] ) m - 4.0 m (> 9' 7" - 13 5 m - 3.0 m (> 4' 8" - 9'  MMENTS  RIPARIAN ZONE  RIPARIAN WIDT  R (Per Bank)	() [25 pts] 7") [20 pts] AND FLOODPL	This I	3-4 measuren  3-4 measuren  3-1 measuren  3-4 measuren  3-4 measuren  3-4 measuren  3-4 measuren  4 measuren  5 measuren  6 me	MAXIMUM Ponents) (Chect > 1.0 m - 1.5 m (> 3 ≤ 1.0 m (≤ 3'3") [5]  AVERAGE B  Bust also be completed  TE: River Left (L) and  Y  minant per Bank)	ool DEPTH k ONLY one 3" - 4' 8") [15 ots] ANKFULL WI ed Right (R) as I	(centimeters):  box): pts]  DTH (meters)	1
> 10 CO BAA > 4.C > 1.5 CO	MMENTS  NK FULL WIDTH (Mea ) meters (> 13') [30 pts] ) m - 4.0 m (> 9' 7" - 13 i m - 3.0 m (> 4' 8" - 9'  MMENTS  RIPARIAN ZONE  RIPARIAN WIDT  R (Per Bank)  Wide >10m	i') [25 pts] 7") [20 pts] AND FLOODPL	This I AIN QUAL FLOODF L R S S	3-4 measuren  3-6 measuren  1	MAXIMUM Ponents) (Chect > 1.0 m - 1.5 m (> 3 ≤ 1.0 m (≤ 3'3") [5] AVERAGE B  Bust also be complete DTE: River Left (L) and Y minant per Bank) st, Wetland	OOL DEPTH  K ONLY one  3" - 4' 8") [15  ots]  ANKFULL WI  ed  Right (R) as I	(centimeters):  box): pts]  DTH (meters)  cooking downstream  Conservation Tillage	1
> 10 CO BAI > 4.C > 3.C CO	MMENTS  NK FULL WIDTH (Mea ) meters (> 13') [30 pts] 0 m - 4.0 m (> 9' 7" - 13 5 m - 3.0 m (> 4' 8" - 9'  MMENTS  RIPARIAN ZONE  RIPARIAN WIDT  R (Per Bank)  Wide >10m	i') [25 pts] 7") [20 pts] AND FLOODPL	This I	3-4 measuren  3-6 measuren  1	MAXIMUM Ponents) (Chect > 1.0 m - 1.5 m (> 3 ≤ 1.0 m (≤ 3'3") [5]  AVERAGE B  Bust also be completed  TE: River Left (L) and  Y  minant per Bank)	ool DEPTH k ONLY one 3" - 4' 8") [15 ots] ANKFULL WI ed Right (R) as I	(centimeters):  box): pts]  DTH (meters)  cooking downstream  Conservation Tillage Urban or Industrial	1
BAA > 4.0 > 3.0 > 1.5 CO	MMENTS  NK FULL WIDTH (Mea ) meters (> 13') [30 pts] 0 m - 4.0 m (> 9' 7" - 13 i m - 3.0 m (> 4' 8" - 9'  MMENTS  RIPARIAN ZONE  RIPARIAN WIDT  R (Per Bank)  Wide >10m  Moderate 5-10m	i') [25 pts] 7") [20 pts] AND FLOODPL	This I AIN QUAL FLOODF L R S S	nformation material in the second of the sec	MAXIMUM Ponents) (Chect > 1.0 m - 1.5 m (> 3 ≤ 1.0 m (≤ 3'3") [5] AVERAGE B  Bust also be complete DTE: River Left (L) and Y minant per Bank) st, Wetland	OOL DEPTH  K ONLY one  3" - 4' 8") [15  ots]  ANKFULL WI  ed  Right (R) as I	(centimeters):  box): pts]  DTH (meters)  cooking downstream  Conservation Tillage Urban or Industrial Open Pasture, Row	1
> 10 CO BAA > 4.C > 3.C > 1.E	MMENTS  NK FULL WIDTH (Mean of the property of	i') [25 pts] 7") [20 pts] AND FLOODPL	This I	nformation material in the second of the sec	MAXIMUM Ponents) (Chect > 1.0 m - 1.5 m (> 3 ≤ 1.0 m (≤ 3' 3") [5]  AVERAGE B  Bust also be complete bTE: River Left (L) and Y minant per Bank) st, Wetland rest, Shrub or Old  Park, New Field	OOL DEPTH  RK ONLY one 3" - 4' 8") [15  ots]  ANKFULL WI  ed Right (R) as I	(centimeters):  box): pts]  DTH (meters)  cooking downstream  Conservation Tillage Urban or Industrial	1
> 10 CO BAA > 4.0 > 1.5 CO	MMENTS  NK FULL WIDTH (Mean of the property of	i') [25 pts] 7") [20 pts] AND FLOODPL	This I AIN QUAL FLOODF L R	nformation m. ITY ANO PLAIN QUALIT (Most Predor Mature Forest	MAXIMUM Ponents) (Chect > 1.0 m - 1.5 m (> 3 ≤ 1.0 m (≤ 3' 3") [5]  AVERAGE B  Bust also be complete bTE: River Left (L) and Y minant per Bank) st, Wetland rest, Shrub or Old  Park, New Field	OOL DEPTH  RK ONLY one  (3" - 4'8") [15  ots]  ANKFULL WI  ed  Right (R) as I	(centimeters):  box): pts]  DTH (meters)  cooking downstream  Conservation Tillage Urban or Industrial Open Pasture, Row Crop	1
> 10 CO BAA > 4.0 > 1.5 CO	MMENTS	i') [25 pts] 7") [20 pts] AND FLOODPL H	This is an Qualification of the property of th	nformation materials (Most Predor Mature Forest Immature Fores	MAXIMUM P nents) (Chec > 1.0 m - 1.5 m (> 3 ≤ 1.0 m (≤ 3'3") [5]AVERAGE B	OOL DEPTH  RK ONLY one  (3" - 4'8") [15  ots]  ANKFULL WI  ed  Right (R) as I	(centimeters):  box): pts]  DTH (meters)  cooking downstream  Conservation Tillage Urban or Industrial Open Pasture, Row Crop	1
> 10 CO BAA > 4.0 > 1.5 CO	MMENTS  NK FULL WIDTH (Mean of the property of	(i) [25 pts] 7") [20 pts]  AND FLOODPL H  At Time of Evalu	This is AIN QUAL FLOODS L R S S S S S S S S S S S S S S S S S	nformation material (Most Predor Mature Foreign Residential, Fenced Past	MAXIMUM Ponents) (Chect > 1.0 m - 1.5 m (> 3 ≤ 1.0 m (≤ 3'3") [5]  AVERAGE B  Bust also be complete DTE: River Left (L) and Y minant per Bank) st, Wetland rest, Shrub or Old  Park, New Field ure  box): Moist Chang	OOL DEPTH  K ONLY one 3" - 4' 8") [15  ots]  ANKFULL WI  ed Right (R) as I	centimeters):  box): pts]  DTH (meters)  cooking downstream  Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction	
> 10 CO BAA > 4.C > 1.5 CO	MMENTS  NK FULL WIDTH (Mean of the property of	T) [25 pts] T') [20 pts]  AND FLOODPL H  At Time of Evalu h isolated pools	This is AIN QUAL FLOODF L R S S C S C S C S C S C S C S C S C S C S	3-4 measuren  Information m. ITY ANO PLAIN QUALIT (Most Predor Mature Fores Immature Fo Field Residential, Fenced Past	MAXIMUM Ponents) (Chect > 1.0 m - 1.5 m (> 3 ≤ 1.0 m (≤ 3'3") [5]  AVERAGE B  Bust also be complete DTE: River Left (L) and Y minant per Bank) st, Wetland rest, Shrub or Old  Park, New Field ure  box):  Moist Chang Dry channel	ool DEPTH  k ONLY one 3" - 4' 8") [15  ots]  ANKFULL WI  d  Right (R) as I	centimeters):  box): pts]  DTH (meters)  cooking downstream  Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction	L <sub>m</sub>
BAA   > 4.0   > 4.0   > 4.0   > 4.0   > 1.5	MMENTS  NK FULL WIDTH (Mean of the property of	T) [25 pts] T') [20 pts]  AND FLOODPL H  At Time of Evalu h isolated pools	This is AIN QUAL FLOODF L R S S C S C S C S C S C S C S C S C S C S	3-4 measuren  Information m. ITY ANO PLAIN QUALIT (Most Predor Mature Fores Immature Fo Field Residential, Fenced Past	MAXIMUM Ponents) (Chect > 1.0 m - 1.5 m (> 3 ≤ 1.0 m (≤ 3'3") [5]  AVERAGE B  Bust also be complete DTE: River Left (L) and Y minant per Bank) st, Wetland rest, Shrub or Old  Park, New Field ure  box): Moist Chang	ool DEPTH  k ONLY one 3" - 4' 8") [15  ots]  ANKFULL WI  d  Right (R) as I	centimeters):  box): pts]  DTH (meters)  cooking downstream  Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction	BV

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ATE 121	16/10 SCORER DOVID	Kuhlmanroc	8527 LONG. 83, 3404 REDMMENTS		
	CHANNEL MONE/	NATURAL CHA	ANNEL RECOVERED REC	COVERING [	RECENT OR NO RECOVER
			substrate present. Check ONLY two		
TYPE		PERCENT	TYPE		PERCENT N
	BLDR SLABS [16 pts]		SILT [3 pt]  LEAF PACKWOOD	V DEDDIO 12 -4-	<u> </u>
35	BOULDER (>256 mm) [16 pts] BEDROCK [16 pt]		FINE DETRITUS [3		Su
55	COBBLE (65-256 mm) [12 pts]	· · · · · · · · · · · · · · · · · · ·	CLAY OF HARDPAN		
55	GRAVEL (2-64 mm) [9 pts]		MUCK [8 pts]	1-1-3	50
	SAND (<2 mm) [6 pts]		ARTIFICIAL [3 pts]		
-	Total of Percentages of	~	(A)		(B)
	r Slabs, Boulder, Cobble, Bedrock		"3		5
CORE OF	TWO MOST PREDOMINATE SU	BSTRATE TY	PES: TOTAL NUMBI	ER OF SUBSTR	ATE TYPES:
Ma	ximum Pool Depth (Measure the	e maximum po road culverts o	ool depth within the 61 meter (200 to r storm water pipes) (Check ONLY	ft) evaluation rea  'one box):	ch at the time of Po
	centimeters [20 pts]		> 5 cm - 10 cm [15	pts]	
	2.5 - 30 cm [30 pts] 2 - 22.5 cm [25 pts]		< 5 cm [5 pts] NO WATER OR M	OIST CHANNEL	ro ntsi
	EL.O OIII LO DIO				D DEC
	MAN - 144 A-				5
	MMENTS			POOL DEPTH (c	entlmeters):
СО	NK FULL WIDTH (Measured as I	he average of	MAXIMUM F	POOL DEPTH (c	DX): B
CO BA → 4.0	NK FULL WIDTH (Measured as i	the average of	MAXIMUM F  13-4 measurements) (Che	POOL DEPTH (c ck <i>ONLY</i> one bo 3' 3" - 4' 8") [15 pt	ox): B
BA > 4.0	NK FULL WIDTH (Measured as I 0 meters (> 13') [30 pts] 0 m - 4.0 m (> 9' 7" - 13') [25 pts]		MAXIMUM F	POOL DEPTH (c ck <i>ONLY</i> one bo 3' 3" - 4' 8") [15 pt	DX): B
BA > 4.0	NK FULL WIDTH (Measured as I 0 meters (> 13') [30 pts] 0 m - 4.0 m (> 9' 7" - 13') [25 pts] 5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]		MAXIMUM F f 3-4 measurements) (Che □ > 1.0 m - 1.5 m (> 3 ☑ ≤ 1.0 m (≤ 3' 3") [5	CK <i>ONLY</i> one bo 3' 3" - 4' 8") [15 pt pts]	ox): B M
BA > 4.0	NK FULL WIDTH (Measured as I 0 meters (> 13') [30 pts] 0 m - 4.0 m (> 9' 7" - 13') [25 pts]		MAXIMUM F f 3-4 measurements) (Che □ > 1.0 m - 1.5 m (> 3 ☑ ≤ 1.0 m (≤ 3' 3") [5	POOL DEPTH (c ck <i>ONLY</i> one bo 3' 3" - 4' 8") [15 pt	ox): B M
BA > 4.0	NK FULL WIDTH (Measured as i 0 meters (> 13') [30 pts] 0 m - 4.0 m (> 9' 7" - 13') [25 pts] 5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] MMENTS	This	MAXIMUM F    3-4 measurements	POOL DEPTH (cock ONLY one books 3' 3" - 4' 8") [15 pt pts]  BANKFULL WID	DX): s]  TH (meters)
BA > 4.0	NK FULL WIDTH (Measured as I 0 meters (> 13') [30 pts] 0 m - 4.0 m (> 9' 7" - 13') [25 pts] 5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	This	MAXIMUM F    3-4 measurements	POOL DEPTH (cock ONLY one books 3' 3" - 4' 8") [15 pt pts]  BANKFULL WID	DX): s]  TH (meters)
BA > 4.0   > 3.0   > 1.0   CO	NK FULL WIDTH (Measured as in the control of the co	This DDPLAIN QUA FLOOD L R	MAXIMUM F  13-4 measurements) (Che    > 1.0 m - 1.5 m (> 3)   ≤ 1.0 m (≤ 3' 3") [5]  AVERAGE E  Information must also be complet LITY ☆NOTE: River Left (L) and PLAIN QUALITY (Most Predominant per Bank)	ck ONLY one book on the pts]  BANKFULL WID  ad Right (R) as look	ox): s]  TH (meters)  Sking downstream  Ar
BA > 4.0   > 3.0   > 1.0   CO	NK FULL WIDTH (Measured as I 0 meters (> 13') [30 pts] 0 m - 4.0 m (> 9'.7" - 13') [25 pts] 5 m - 3.0 m (> 4'.8" - 9'.7") [20 pts]  MMENTS  RIPARIAN ZONE AND FLOC  RIPARIAN WIDTH  R (Per Bank)  Wide >10m	This DDPLAIN QUA FLOOD L R (3) (2)	MAXIMUM F  13-4 measurements) (Che    > 1.0 m - 1.5 m (> 3)   ≤ 1.0 m (≤ 3' 3") [6]  AVERAGE E  Information must also be complet LITY ☆NOTE: River Left (L) and PLAIN QUALITY (Most Predominant per Bank) Mature Forest, Wetland	POOL DEPTH (cock ONLY one books 3" - 4" 8") [15 pt pts]  BANKFULL WID  ed d Right (R) as loo	DX): s]  TH (meters)
BA > 4.0   > 3.0   > 1.0   CO	NK FULL WIDTH (Measured as in the control of the co	This DDPLAIN QUA FLOOD L R	MAXIMUM F  13-4 measurements) (Che    > 1.0 m - 1.5 m (> 3)   ≤ 1.0 m (≤ 3' 3") [5]  AVERAGE E  Information must also be complet LITY ☆NOTE: River Left (L) and PLAIN QUALITY (Most Predominant per Bank)	ck ONLY one book on the pts]  BANKFULL WID  ad Right (R) as look	ox): s]  TH (meters)  Sking downstream  Ar
BA > 4.0   > 3.0   > 1.0   CO	NK FULL WIDTH (Measured as in the control of the co	This DDPLAIN QUA FLOOD L R (3) (2)	MAXIMUM F    3-4 measurements   (Cher   > 1.0 m - 1.5 m (> 3     ≤ 1.0 m (≤ 3 3") [5     AVERAGE E    Information must also be completed by the completed by t	POOL DEPTH (cock ONLY one books 3" - 4" 8") [15 pt pts]  BANKFULL WID  ed d Right (R) as loo	ox):  s]  TH (meters)  oking downstream &  Conservation Tillage  Urban or Industrial  Open Pasture, Row
BA > 4.0 > 3.0 > 1.0 CO	NK FULL WIDTH (Measured as I 0 meters (> 13') [30 pts] 0 m - 4.0 m (> 9'.7" - 13') [25 pts] 5 m - 3.0 m (> 4'.8" - 9'.7") [20 pts]  MMENTS  RIPARIAN ZONE AND FLOC  RIPARIAN WIDTH  R (Per Bank)  Wide >10m	This DDPLAIN QUA FLOOD L R DD D	MAXIMUM F    3-4 measurements   (Cherical   1.0 m - 1.5 m (> 3	POOL DEPTH (cock ONLY one books 3'3" - 4'8") [15 pt pts]  BANKFULL WID  ad Right (R) as loo	TH (meters)  Sking downstream &  Conservation Tillage  Urban or Industrial
BA > 4.0 > 3.0 > 1.0 CO	NK FULL WIDTH (Measured as in others (> 13') [30 pts]  Dm - 4.0 m (> 9' 7" - 13') [25 pts]  5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]  MMENTS  RIPARIAN ZONE AND FLOOR RIPARIAN WIDTH  R (Per Bank)  Wide >10 m  Moderate 5-10 m  Narrow <5 m  None COMMENTS  FLOW REGIME (At Time of E	This DDPLAIN QUA FLOOD L R DS D	MAXIMUM F  13-4 measurements) (Chember 1.5 m (> 3	POOL DEPTH (cock ONLY one book 3'3" - 4'8") [15 pt pts]  BANKFULL WID  ad Right (R) as loo	Distriction Tillage  Urban or Industrial  Open Pasture, Row Crop Mining or Construction
BA > 4.0   > 3.0   CO	NK FULL WIDTH (Measured as in others (> 13') [30 pts]  0 m - 4.0 m (> 9'.7" - 13') [25 pts]  5 m - 3.0 m (> 4'.8" - 9'.7") [20 pts]  MMENTS  RIPARIAN ZONE AND FLOCE RIPARIAN WIDTH  R. (Per Bank)  Wide >10 m  Moderate 5-10 m  Narrow <5 m  None COMMENTS  FLOW REGIME (At Time of Extream Flowing Subsurface flow with isolated in COMMENTS	This DDPLAIN QUA FLOOD L R DD	MAXIMUM F  13-4 measurements) (Chember 1.5 m (> 3	eck ONLY one be 3'3" - 4'8") [15 pt pts]  BANKFULL WID  ad Right (R) as loc  L  R  D  D  D  D  D  D  D  D  D  D  D  D	Distriction Tillage  Urban or Industrial  Open Pasture, Row Crop Mining or Construction

1.11
5-1

	STREAM REACH (#)	RWC-13	river basin 8554 long. <u>-83,344Z</u> riv	DE CODE	RAINAGE AREA (mi²)
ATE 12/	16/16 SCORER David	Kuhlmann oc	DMMENTS	ER CODE	RIVER WILE
			to "Field Evaluation Manual for		
			ANNEL  RECOVERED  REC		
MODIFICA		NATURAL CHA	MINEL D'RECOVERED D'REC	OVERING L	J RECENT OR NO RECOVE
	THORIO,				
			substrate present. Check ONLY two		substrate TYPE boxes
(Ma	x of 40). Add total number of sig	prificant substrat	e types found (Max of 8). Final metric  TYPE	score is sum	of boxes A & B. PERCENT
	BLDR SLABS [16 pts]		SILT [3 pt]		P
	BOULDER (>256 mm) [16 pts]		LEAF PACKWOODY		ts] s
-	BEDROCK [16 pt] COBBLE (65-256 mm) [12 pts]		FINE DETRITUS [3]		
	GRAVEL (2-64 mm) [9 pts]		MUCK [0 pts]	[o bt]	
-	SAND (<2 mm) [6 pts]		ARTIFICIAL [3 pts]		
-	Total of Percentages of	-	(A)		(B)
	Slabs, Boulder, Cobble, Bedroo		12		2
CORE OF	TWO MOST PREDOMINATE S	UBSTRATE TYP	PES: TOTAL NUMBE	R OF SUBST	RATE TYPES:
			ol depth within the 61 meter (200 ft		each at the time of Po
		road culverts or	storm water pipes) (Check ONLY		M
-	centimeters [20 pts] 5 - 30 cm [30 pts]		> 5 cm - 10 cm [15 ;	ptsj	
	- 22.5 cm [25 pts]		□ NO WATER OR MC	IST CHANNE	L [0 pts]
COL	MMENTS		MAXIMIM PO	OOL DEPTH /	centimeters):
-					
	NK FULL WIDTH (Measured as meters (> 13') [30 pts]	the average of	3-4 measurements) (Chec > 1.0 m - 1.5 m (> 3'	k <i>ONLY</i> one b	
□ > 3.0	m - 4.0 m (> 9' 7" - 13') [25 pts]		≤ 1.0 m (≤ 3' 3") [5 p)		
> 1.5	m - 3.0 m (> 4' 8" - 9' 7") [20 pts	ş]			20 7
CON	MMENTS		AVERAGE BA	ANKFULL WII	DTH (meters)
	DIDABIAN TONE AND ELO		information must also be complete		W - 1 - 1 - 1
	RIPARIAN ZONE AND FLO RIPARIAN WIDTH		LITY &NOTE: River Left (L) and PLAIN QUALITY	Right (R) as it	ooking downstream ar
L	R (Per Bank)	L R	(Most Predominant per Bank)	L R	
			Mature Forest, Wetland		Conservation Tillage
	Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial
	☐ Narrow <5m		Residential, Park, New Field	00	Open Pasture, Row
			Fenced Pasture		Crop Mining or Construction
	None			~ ~ ~	
	None COMMENTS				
	COMMENTS	Evaluation) (C	heck ONLY one box):		
	COMMENTS  FLOW REGIME (At Time of Stream Flowing		Moist Chann		ols, no flow (Intermittent)
	FLOW REGIME (At Time of Stream Flowing Subsurface flow with isolated		Moist Chann	el, isolated po no water (Ep	
	FLOW REGIME (At Time of Stream Flowing Subsurface flow with isolated COMMENTS	l pools (Interstitie	Moist Chann Dry channel,	no water (Ep	
(X)	FLOW REGIME (At Time of Stream Flowing Subsurface flow with isolated COMMENTS  SINUOSITY (Number of ber	pools (Interstitie	Moist Chann Dry channel,  Offi) of channel) (Check ONLY one b	no water (Ep	hemeral)
	FLOW REGIME (At Time of Stream Flowing Subsurface flow with isolated COMMENTS	l pools (Interstitie	Moist Chann I) Dry channel,  Oft) of channel) (Check ONLY one the	no water (Ep	

ENGTH OF S	TREAM REACH (ft) 200	LAT 79	RIVER BA	ISIN	DI	RAINAGE AREA (mi²)	is the fam
ATE TELLE	16 SCORER David K	Lubinann Co	OMMENTS	NO. DEPOSIT	ZER GODE _	NIVER ISSUE	
	plete All Items On This Fo						uctions
TREAM CH		IATURAL CH	ANNEL  R	ECOVERED TREC	OVERING (	TRECENT OR NO REC	OVERY
	TRATE (Estimate percent of e						
(Max o	of 40). Add total number of signi	ficant substra	te types found TYPE	(Max of 8). Final metric	score is sum	of boxes A & B. PERCENT	HHE! Metric
DD BL	DR SLABS [16 pts]			SILT [3 pt]		50	Points
	OULDER (>256 mm) [16 pts]			LEAF PACKWOOD		ots]	Substrate
	DROCK [16 pt] DBBLE (65-256 mm) [12 pts]			FINE DETRITUS [3 CLAY or HARDPAN		50	Max = 40
	RAVEL (2-64 mm) [9 pts]			MUCK [0 pts]	fo brl	-17	/
	ND (<2 mm) [6 pts]			ARTIFICIAL [3 pts]			0
	Total of Percentages of	0	(A)			(B)	A+B
Bldr Sl	abs, Boulder, Cobble, Bedrock		3			3	ATD
OKE OF TW	O MOST PREDOMINATE SUE	SSIRAIETY	PES:	TOTAL NUMBE	R OF SUBST	RATE TYPES:	
	- 30 cm [30 pts]		g	< 5 cm [5 pts]			7.0
_J > 10 - 2 COMM	22.5 cm [25 pts]			NO WATER OR MO		(centimeters):	20
BANK > 4.0 me > 3.0 m	22.5 cm [25 pts]		Ō	NO WATER OR MO	DOL DEPTH ( k <i>ONLY</i> one 13" - 4'8") [15	(centimeters):	
BANK > 4.0 me > 3.0 m > 1.5 m	22.5 cm [25 pts]  ENTS  FULL WIDTH (Measured as theters (> 13') [30 pts]  - 4.0 m (> 9' 7" - 13') [25 pts]  - 3.0 m (> 4' 8" - 9' 7") [20 pts]	ne average of	f 3-4 measure	MAXIMUM Ponents) (Chec > 1.0 m - 1.5 m (> 3'	OOL DEPTH ( k <i>ONLY</i> one 3" - 4' 8") [15 ots]	(centimeters): 20 box): pts]	Bankfull Width
BANK > 4.0 me > 3.0 m > 1.5 m	22.5 cm [25 pts]  JENTS  FULL WIDTH (Measured as theters (> 13') [30 pts]  - 4.0 m (> 9' 7" - 13') [25 pts]  - 3.0 m (> 4' 8" - 9' 7") [20 pts]	ne average of	f 3-4 measure	NO WATER OR MC	NOOL DEPTH ( k ONLY one 3" - 4' 8") [15   ots]  ANKFULL WI	(centimeters): 20 box): pts]  DTH (meters)	Bankfull Width
BANK > 4.0 me > 3.0 m > 1.5 m	22.5 cm [25 pts]  ENTS  FULL WIDTH (Measured as theters (> 13') [30 pts]  - 4.0 m (> 9' 7" - 13') [25 pts]  - 3.0 m (> 4' 8" - 9' 7") [20 pts]	This DPLAIN QUA	f 3-4 measure	NO WATER OR MO  MAXIMUM Pe  ments) (Chec  > 1.0 m - 1.5 m (> 3'  ≤ 1.0 m (≤ 3' 3") [5 p  AVERAGE Bands also be complete  DTE: River Left (L) and	NOOL DEPTH (  k ONLY one 3" - 4' 8") [15    ots]  ANKFULL WI  od  Right (R) as I	(centimeters): 20 box): pts]  DTH (meters)	Bankfull Width
BANK > 4.0 me > 3.0 m  > 1.5 m  COMM	22.5 cm [25 pts]  IENTS  FULL WIDTH (Measured as theters (> 13') [30 pts] - 4.0 m (> 9' 7" - 13') [25 pts] - 3.0 m (> 4' 8" - 9' 7") [20 pts]  IENTS  RIPARIAN ZONE AND FLOOR RIPARIAN WIDTH (Per Bank)	This DPLAIN QUA  FLOOD L R	f 3-4 measure	NO WATER OR MO  MAXIMUM Po  nents) (Chec  > 1.0 m - 1.5 m (> 3'  ≤ 1.0 m (≤ 3' 3") [5 p  AVERAGE B,  nust also be complete  DTE: River Left (L) and Y  minant per Bank)	NOL DEPTH (  k ONLY one 3" - 4' 8") [15    sts]  ANKFULL WI  dd  Right (R) as I	(centimeters):  box): pts]  DTH (meters)  cooking downstream	Bankfull Width
BANK > 4.0 me > 3.0 m > 1.5 m COMM	22.5 cm [25 pts]  IENTS  FULL WIDTH (Measured as the eters (> 13') [30 pts] - 4.0 m (> 9' 7" - 13') [25 pts] - 3.0 m (> 4' 8" - 9' 7") [20 pts]  IENTS  RIPARIAN ZONE AND FLOOR RIPARIAN WIDTH (Per Bank) Wide >10m	This DPLAIN QUA FLOOD L R	information gulling Most Predo Mature Fore	MAXIMUM Poments) (Chec > 1.0 m - 1.5 m (> 3' ≤ 1.0 m (≤ 3' 3") [5 p  AVERAGE Bottler  AVERAGE Bottler  TE: River Left (L) and Y  minant per Bank) st, Wetland	NOOL DEPTH ( k ONLY one 3" - 4' 8") [15   sts]  ANKFULL WI  d Right (R) as I	(centimeters):  box): pts]  DTH (meters)  ∞oking downstream  Conservation Tillage	Bankfull Width
BANK > 4.0 me > 3.0 m  1.5 m  COMM	22.5 cm [25 pts]  IENTS  FULL WIDTH (Measured as theters (> 13') [30 pts] - 4.0 m (> 9' 7" - 13') [25 pts] - 3.0 m (> 4' 8" - 9' 7") [20 pts]  IENTS  RIPARIAN ZONE AND FLOOR RIPARIAN WIDTH (Per Bank)	This DPLAIN QUA  FLOOD L R	information gulling Most Predo Mature Fore	NO WATER OR MO  MAXIMUM Po  nents) (Chec  > 1.0 m - 1.5 m (> 3'  ≤ 1.0 m (≤ 3' 3") [5 p  AVERAGE B,  nust also be complete  DTE: River Left (L) and Y  minant per Bank)	NOL DEPTH (  k ONLY one 3" - 4' 8") [15    sts]  ANKFULL WI  dd  Right (R) as I	(centimeters):  box): pts]  DTH (meters)  cooking downstream  Conservation Tillage Urban or Industrial	Bankfull Width
BANK > 4.0 me > 3.0 m > 1.5 m  COMM	22.5 cm [25 pts]  JENTS  FULL WIDTH (Measured as theters (> 13') [30 pts] - 4.0 m (> 9' 7" - 13') [25 pts] - 3.0 m (> 4' 8" - 9' 7") [20 pts]  JENTS  RIPARIAN ZONE AND FLOOR RIPARIAN WIDTH (Per Bank) Wide >10m Moderate 5-10m	This DPLAIN QUA FLOOD L R	information gulity & No. PLAIN QUALITY (Most Predo Mature Fore Immature Fore Field	MAXIMUM Poments) (Chec > 1.0 m - 1.5 m (> 3' ≤ 1.0 m (≤ 3' 3") [5 p  AVERAGE Bottler  AVERAGE Bottler  TE: River Left (L) and Y  minant per Bank) st, Wetland	NOOL DEPTH ( k ONLY one 3" - 4' 8") [15   sts]  ANKFULL WI  d Right (R) as I	(centimeters):  box): pts]  DTH (meters)  cooking downstream  Conservation Tillage Urban or Industrial Open Pasture, Row	Bankfull Width
COMM  BANK > 4.0 me > 3.0 m  > 1.5 m  COMM	PULL WIDTH (Measured as the leters (> 13') [30 pts] - 4.0 m (> 9' 7" - 13') [25 pts] - 3.0 m (> 4' 8" - 9' 7") [20 pts]  PENTS  RIPARIAN ZONE AND FLOOR RIPARIAN WIDTH (Per Bank) Wide >10m Moderate 5-10m  Narrow <5m	This DPLAIN QUA  FLOOD L R	information gulity & No. PLAIN QUALITY (Most Predo Mature Fore Immature Fore Field	MAXIMUM Ponents) (Chec > 1.0 m - 1.5 m (> 3' ≤ 1.0 m (≤ 3' 3") [5 p AVERAGE Bonust also be complete DTE: River Left (L) and Y minant per Bank) st, Wetland grest, Shrub or Old Park, New Field	NOOL DEPTH (  k ONLY one 3" - 4' 8") [15    ots]  ANKFULL WI  d  Right (R) as I	(centimeters):  box): pts]  DTH (meters)  cooking downstream  Conservation Tillage Urban or Industrial	Bankfull Width
COMM  BANK > 4.0 me > 3.0 m > 1.5 m  COMM	PULL WIDTH (Measured as the eters (> 13') [30 pts] - 4.0 m (> 9' 7" - 13') [25 pts] - 3.0 m (> 4' 8" - 9' 7") [20 pts]  PENTS  RIPARIAN ZONE AND FLOOR RIPARIAN WIDTH (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None	This DPLAIN QUA	information gulity & Nost Predo Mature Fore Immature For Field Residential, Fenced Pas	MAXIMUM Poments) (Chec > 1.0 m - 1.5 m (> 3' ≤ 1.0 m (≤ 3' 3") [5 p  AVERAGE Bands also be completed by the complete by the c	NooL DEPTH ( k ONLY one 3" - 4' 8") [15   sts]  ANKFULL WI  Right (R) as I	(centimeters):  box): pts]  DTH (meters)  cooking downstream  Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction	Bankfull Width
COMM  BANK > 4.0 me > 3.0 m > 1.5 m  COMM	PULL WIDTH (Measured as the eters (> 13') [30 pts] - 4.0 m (> 9' 7" - 13') [25 pts] - 3.0 m (> 4' 8" - 9' 7") [20 pts]  PENTS  RIPARIAN ZONE AND FLOOR RIPARIAN WIDTH (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None COMMENTS  FLOW REGIME (At Time of Ex Stream Flowing Subsurface flow with isolated po	This DPLAIN QUA FLOOD L R	information gulity & No. PLAIN QUALITY (Most Predo Mature Fore Immature Fore Field Residential, Fenced Pas	MAXIMUM Ponents) (Chec > 1.0 m - 1.5 m (> 3' ≤ 1.0 m (≤ 3' 3") [5 p AVERAGE B. DTE: River Left (L) and Y minant per Bank) st, Wetland brest, Shrub or Old Park, New Field ture    Moist Chann Dry channel,	k ONLY one 3"- 4'8") [15   sts]  ANKFULL WI  Right (R) as I	(centimeters):  box): pts]  DTH (meters)  cooking downstream  Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction	Bankfull Width



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SITE NAME/LOCATION _							
						NAGE AREA (mi²) <u></u>	
LENGTH OF STREAM RE	EACH (ft) 100	LAT	LONG	RIVER (	CODE	RIVER MILE	
DATE 9/23/17							
NOTE: Complete All	Items On This Form	- Refer to "Fig	eld Evaluation	Manual for Ohi	o's PHWH	Streams" for Instru	ictions
STREAM CHANNEL	🖾 NONE / NAT	URAL CHANNEL	. RECOVER	RED RECOVE	RING DE	RECENT OR NO RECO	VERY
MODIFICATIONS:							
4 CURCEDATE /E	stimate percent of ever	artima of outpote	oto progont Ch	nak OM V two prod	lominant sub	entrata TVDE haves	
	total number of significa						HHEI
TYPE BLDR SLABS		RCENT 1	TYPE SILT [	R ntl		PERCENT	Metric Points
	256 mm) [16 pts]		J D LEAF	PACK/WOODY DE	BRIS [3 pts]		0
□ □ BEDROCK				DETRITUS [3 pts]			Substrate Max = 40
	-256 mm) [12 pts]			or HARDPAN [0 p	t]		
SAND (<2 m				ICIAL [3 pts]			19
(	ercentages of	(A)				(B)	A + B
Bldr Slabs, Bould	der, Cobble, Bedrock		12	3		2	ATD
SCORE OF TWO MOST	PREDOMINATE SUBST	TRATE TYPES:	Telephone Telephone	OTAL NUMBER O	F SUBSTRA	ATE TYPES:	
	Depth (Measure the ma					ch at the time of	Pool Dept
> 30 centimeters	l plunge pools from road [20 pts]	culverts or storm		m - 10 cm [15 pts]			Max = 30
> 22.5 - 30 cm [3				m [5 pts]	CHANNE	[0 ptc]	0
> 10 - 22.5 cm [2	5 pts]			VATER OR MOIST			
COMMENTS				MAXIMUM POOL	. DEPTH (ce	entimeters):	
	DTH (Measured as the	average of 3-4 m		•	NLY one bo		Bankfull
> 4.0 meters (> 13 > 3.0 m - 4.0 m (2)	') [30 pts] > 9' 7" - 13') [25 pts]			m - 1.5 m (> 3' 3" - m (≤ 3' 3") [5 pts]		5]	Width Max=30
	> 9' 7" - 4' 8") [20 pts]			, , , , , ,		6	5
COMMENTS				AVERAGE BANK	(FULL WID	ΓH (meters)	2
DIDADIA	N ZONE AND FLOODP			o be completed	ht (P) as loc	king downstream☆	
	AN WIDTH	FLOODPLAIN		er Leit (L) and Rig	ini (K) as ioc	King downstream A	
L R (Per E			st Predominant		L R	Conseque Tille	
₩ Wide			ture Forest, Wetl nature Forest, Sh			Conservation Tillage	
	rate 5-10m	Fiel	ld			Urban or Industrial  Open Pasture, Row	
	w <5m		sidential, Park, N	ew Field		Crop	
☐ ☐ None COMME	NTS	☐ ☐ Fen	nced Pasture			Mining or Construction	
_ FLOW R	EGIME (At Time of Eval	luation) (Check	ONLY one box):				
Stream F	lowing ce flow with isolated poo	la (Interstitial)	□ Ø	Moist Channel, Dry channel, no		ls, no flow (Intermittent)	)
COMME		io (interotitiai)	R	Dry chamier, no	water (Epi	omoral)	-3
SINUOS	ITY (Number of bends p	er 61 m (200 ft) c	of channel) (Ch	eck ONLY one box	:):		
None		1.0		2.0		3.0	
₩ 0.5		1.5		2.5		>3	
	DIENT ESTIMATE	Madazz	In Alloc (*)	☐ Moderate to S	OVOFO	Severe (10 ft/1	00 (t)
Flat (0 5 ft/100 ft)	Flat to Moderate	☐ Moderate	(2 ft/100 ft)	U IVIOGERATE (0 S	evere		טט ונן

ADDITIONAL STREAM INFORMATION (This Information Mu	st Also be Completed):
QHEI PERFORMED? - TYes X No QHEI Score	e (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	;
WWH Name:	Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING	THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name:	NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Madison	Township / City
MISCELLANEOUS	
Base Flow Conditions? (Y/N) Date of last precipitatio	Quantity:
Photograph Information: See attached 1	eport
Elevated Turbidity? (Y/N): Canopy (% open):	20
Were samples collected for water chemistry? (Y/N):(N	
Field Measures: Temp (°C) NIA Dissolved Oxygen (mg/	//) NA pH (S.U.) NA Conductivity (µmhos/cm) NA
	If not, please explain:
to the company readment of the stream (TM)	пто, россо охрані.
Additional comments/description of pollution impacts	
ID number. Include appropriate f Fish Observed? (Y/N) Voucher? (Y/N) Salamar	Voucher collections optional. NOTE: all voucher samples must be labeled with the site field data sheets from the Primary Headwater Habitat Assessment Manual)  nders Observed? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)
DRAWING AND NARRATIVE DESCRIP	PTION OF STREAM REACH (This <u>must</u> be completed):
Include important iandmarks and other features of inte	erest for site evaluation and a narrative description of the stream's location
FLOW OF SOME O	forestive of
7 2 2	

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	UC-15 RIVER BASIN	
DATE 9/18/17 SCORER David	LAT. LONG. RIVER  Kuli Procomments  m - Refer to "Field Evaluation Manual for Ol	
MODIFICATIONS:	TURAL CHANNEL    RECOVERED    RECOV	ERING LI RECENT OR NO RECOVERY
(Max of 32). Add total number of signific  TYPE BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts] BEDROCK [16 pt] COBBLE (65-256 mm) [12 pts]	31/4	PERCENT  BO  EBRIS [3 pts]  BU  Substrate  Max = 40
2. Maximum Pool Depth (Measure the mevaluation. Avoid plunge pools from roase > 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts]	maximum pool depth within the 61 meter (200 ft) end culverts or storm water pipes) (Check ONLY on 5 cm - 10 cm [15 pts 4 5 cm [5 pts] NO WATER OR MOIS	valuation reach at the time of e box):  T CHANNEL [0 pts]
		DL DEPTH (centimeters):
3. BANK FULL WIDTH (Measured as the > 4.0 meters (> 13') [30 pts]   3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]   > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	e average of 3-4 measurements) (Check  □ > 1.0 m - 1.5 m (≥ 3' 3") [5 pts	Max=30
COMMENTS	AVERAGE BAN	IKFULL WIDTH (meters)
RIPARIAN ZONE AND FLOOD RIPARIAN WIDTH	This information <u>must</u> also be completed  PLAIN QUALITY ☆NOTE: River Left (L) and R  FLOODPLAIN QUALITY	ight (R) as looking downstream☆
L R (Per Bank)	L R (Most Predominant per Bank)	L R
□ □ Wide >10m  ☑ ☑ Moderate 5-10m	Mature Forest, Wetland Immature Forest, Shrub or Old	☐ ☐ Conservation Tillage ☐ ☐ Urban or Industrial
	Field	Open Pasture, Row
☐ ☐ Narrow <5m ☐ ☐ None COMMENTS	Residential, Park, New Field Fenced Pasture	Crop Mining or Construction
FLOW REGIME (At Time of Even Stream Flowing Subsurface flow with isolated por COMMENTS		l, isolated pools, no flow (Intermittent) o water (Ephemeral)
	per 61 m (200 ft) of channel) (Check <i>ONLY</i> one be 1.0	0x): 3.0 >3
STREAM GRADIENT ESTIMATE  Flat (0 5 ft/100 ft)  Flat to Moderate	Moderate (2 ft/100 ft)	Severe Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Mu	ust Also be Completed):
QHEI PERFORMED? - TYes No QHEI Scor	e (If Yes, Attach Completed QHEI Form)
. DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	
U CWH Name:	
Ly Evvir Name.	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING	THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name:	NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Madison County	Township / City:
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Date of last precipitation	on:Quantity:
Photograph Information: See attacked To	port
Elevated Turbidity? (Y/N): N Canopy (% open): _	10
Were samples collected for water chemistry? (Y/N): (	Note lab sample no. or id. and attach results) Lab Number
Field Measures: Temp (°C) N Dissolved Oxygen (mg	g/l) NA pH (S.U.) NA Conductivity (µmhos/cm) NA
Is the sampling reach representative of the stream (Y/N)	
Additional comments to a spirition of wall stirry large	
Additional comments/description of pollution impacts:	
ID number. Include appropriate  Fish Observed? (Y/N) Voucher? (Y/N) Salama	Voucher collections optional. NOTE: all voucher samples must be labeled with the site field data sheets from the Primary Headwater Habitat Assessment Manual) anders Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)
	PTION OF STREAM REACH (This must be completed): terest for site evaluation and a narrative description of the stream's location

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SITE NAME/LOCATION WC-16		
	C-16 RIVER BASIN DRAINAGE AREA (mi²) 1.10	
LENGTH OF STREAM REACH (ft) 100 L	ATLONGRIVER CODERIVER MILE	_
	- Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructi	ione
STREAM CHANNEL ST NONE / NATURE MODIFICATIONS:	JRAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVE	RY
(Max of 32). Add total number of significant  TYPE  □ □ BLDR SLABS [16 pts] □ BOULDER (>256 mm) [16 pts] □ BEDROCK [16 pt] □ COBBLE (65-256 mm) [12 pts] □ GRAVEL (2-64 mm) [9 pts] □ SAND (<2 mm) [6 pts]	RCENT TYPE SILT [3 pt]	HHEI Metric Points Substrate Max = 40
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTR	2	A + B
2. Maximum Pool Depth (Measure the max evaluation. Avoid plunge pools from road of > 30 centimeters [20 pts]  > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts]	culverts or storm water pipes) (Check ONLY one box):    > 5 cm - 10 cm [15 pts]   < 5 cm [5 pts]   NO WATER OR MOIST CHANNEL [0 pts]	ool Depth Max = 30
COMMENTS	MAXIMUM POOL DEPTH (centimeters):	
3. BANK FULL WIDTH (Measured as the at > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	2 > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankfull Width Max=30
COMMENTS	AVERAGE BANKFULL WIDTH (meters)	>
RIPARIAN ZONE AND FLOODPL RIPARIAN WIDTH	This information <u>must</u> also be completed  LAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream分  FLOODPLAIN QUALITY	
L R (Per Bank) Wide >10m	L R (Most Predominant per Bank)  Mature Forest, Wetland  L R  Conservation Tillage	
Moderate 5-10m	Immature Forest, Shrub or Old Urban or Industrial	
□ □ Narrow <5m	Field  Residential, Park, New Field  Open Pasture, Row	
None COMMENTS	Fenced Pasture Crop Mining or Construction	
FLOW REGIME (At Time of Evalu Stream Flowing Subsurface flow with isolated pools COMMENTS	Moist Channel, isolated pools, no flow (Intermittent)	
SINUOSITY (Number of bends pe None 0.5	er 61 m (200 ft) of channel) (Check <i>ONLY</i> one box):  1.0	
STREAM GRADIENT ESTIMATE  Flat (0.5 fl/100 ft)  Flat to Moderate	Moderate (2 ft/100 ft)	it)

DDITIONAL STREAM INFORMATION (This Information Mo	ust Also be Completed):
QHEI PERFORMED? - TYes X No QHEI Scor	re(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
CWH Name:	
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING	THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
GS Quadrangle Name:	NRCS Soil Map Page: NRCS Soil Map Stream Order
unty: Madison	Township / City:
MISCELLANEOUS	
ase Flow Conditions? (Y/N): Date of last precipitation	on:Quantity:
otograph Information See allached F	cper
evated Turbidity? (Y/N): N Canopy (% open):	10
ere samples collected for water chemistry? (Y/N):(	Note lab sample no. or id. and attach results) Lab Number:
	g/l) NA pH (S.U.) NA Conductivity (µmhos/cm) NA
V	
the sampling reach representative of the stream (Y/N)	If not, please explain:
ID number. Include appropriate ish Observed? (Y/N) Salama	. Voucher collections optional. NOTE: all voucher samples must be labeled with the stated data sheets from the Primary Headwater Habitat Assessment Manual)  anders Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)
DRAWING AND NARRATIVE DESCRI	IPTION OF STREAM REACH (This <u>must</u> be completed):
Include important landmarks and other features of inf	terest for site evaluation and a narrative description of the stream's location
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LOW →	(1) MC-02
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PHWH Form Page - 2

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SITE NAME/LOCATION WC-17	1
SITE NUMBER WC-17 RIVER BASIN DRAINAGE AREA (mi²) 4.  LENGTH OF STREAM REACH (ft) 100 LAT. LONG. RIVER CODE RIVER MILE  DATE 911117 SCORER David KM MONMENTS	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruction	tions
STREAM CHANNEL WONE / NATURAL CHANNEL WRECOVERED WRECOVERING WRECENT OR NO RECOVER MODIFICATIONS:	ENI
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HHEI Metric
BLDR SLABS [16 pts]  SILT [3 pt]	Points
III BEDROCK [16 pt]	Substrate
□ □ COBBLE (65-256 mm) [12 pts] □ □ □ CLAY or HARDPAN [0 pt] 50	Max = 40
☐ ☐ GRAVEL (2-64 mm) [9 pts] ☐ ☐ MUCK [0 pts] ☐ ☐ SAND (<2 mm) [6 pts] ☐ ☐ ARTIFICIAL [3 pts]	5
Total of Percentages of (A) (B) Bldr Slabs, Boulder, Cobble, Bedrock	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES:	
	Pool Depth Max = 30
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	max = 30
□       > 22.5 - 30 cm [30 pts]       □       < 5 cm [5 pts]	0
0	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankfull Width
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	Max=30
[5]	5
COMMENTSAVERAGE BANKFULL WIDTH (meters)	
This information <u>must</u> also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆	
RIPARIAN WIDTH FLOODPLAIN QUALITY	
L R (Per Bank) L R (Most Predominant per Bank) L R  ☑ ☑ Wide >10m □ □ Mature Forest, Wetland □ □ Conservation Tillage	
Moderate 5-10m SLQ Immature Forest, Shrub or Old Urban or Industrial	
Narrow <5m	
None Comments Mining or Construction	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing Moist Channel, isolated pools, no flow (Intermittent)	
Subsurface flow with isolated pools (Interstitial)  COMMENTS  Dry channel, no water (Ephemeral)	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	
None     □ 1.0     □ 2.0     □ 3.0       □ 0.5     □ 1.5     □ 2.5     □ >3	
STREAM GRADIENT ESTIMATE	
☐ Flat (0 5 fl/100 ft) ☐ Flat to Moderate ☐ Moderate (2 fl/100 ft) ☐ Moderate to Severe ☐ Severe (10 fl/100	

ADDITIONAL STREAM INFORMATION (This In	nformation Must Also be Completed):
QHEI PERFORMED? - Yes V N	o QHEI Score(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S	S) •
WWH Name:	
	Distance from Evaluated Stream
BWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS	S, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name:	NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Noudison	Township / City:
MISCELLANEOUS	al - 1
	last precipitation: 9/17/17 Quantity: 400 v 0.5
Photograph Information: See affect	hed report
	oy (% open):
	(Note lab sample no. or id. and attach results) Lab Number
Field Measures: Temp (°C) N Dissolve	ed Oxygen (mg/l) NA pH (S.U.) NA Conductivity (µmhos/cm) NA
Is the sampling reach representative of the strea	m (Y/N) If not, please explain:
Additional comments/description of pollution Imp	acts:
ID number. Include Fish Observed? (Y/N) Voucher? (Y/N)	Il observations Voucher collections optional. NOTE: all voucher samples must be labeled with the site de appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  Salamanders Observed? (Y/N) Voucher? (Y/N) her? (Y/N) Voucher? (Y/N) Voucher? (Y/N)
	/E DESCRIPTION OF STREAM REACH (This <u>must</u> be completed): features of interest for site evaluation and a narrative description of the stream's location
A5	T 9, 9,
FLOW - Wetlan	I and swale we-17
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SITE NAME/LO		WC-		DIVED DAG	NIAI		DRAINAGE AREA (mi²)	300 /
ENGTH OF ST	DEAM REACH (ft)	100 L	T	_ RIVER BAS	G G	RIVER CODE	RIVER MILE	
DATE 9/11	117 SCORER	David Kuhl	MAHACO	MMENTS	0	NIVER OODE	TAVERVINEE	
							IWH Streams" for Instru	ıctions
							☐ RECENT OR NO RECO	
STREAM CH	·	FNONE / NATU	RAL CHA	NNEL DRE	COVERED D	RECOVERING	LI RECENT OR NO RECO	VERY
MODII IOATI								
							nt substrate TYPE boxes	
(Max o	f 32). Add total num		t substrate RCENT	e types found ( TYPE	Max of 8). Final r	netric score is su	m of boxes A & B.  PERCENT	HHEI Metric
☐ ☐ BL	DR SLABS [16 pts]		CLIVI	( <b>2</b> 1. 🗆	SILT [3 pt]		50	Points
	OULDER (>256 mm)	[16 pts]				DODY DEBRIS [3	pts]	Substrat
	DROCK [16 pt]				FINE DETRITU			Max = 40
	BBLE (65-256 mm) RAVEL (2-64 mm) <b>[9</b>			<b>3</b>	CLAY or HARD MUCK [0 pts]	PAN [U pt]	50	_
	ND (<2 mm) [6 pts]				ARTIFICIAL [3	pts]		5
_	Total of Percentages			(A)			(B)	A + B
Bldr Sl	abs, Boulder, Cobbl	e, Bedrock		3			2	ATB
SCORE OF TW	O MOST PREDOM	INATE SUBSTR	RATE TYP	ES:	TOTAL NU	JMBER OF SUBS	STRATE TYPES:	
2. Maxim	num Pool Depth (Me	easure the max	imum po	ol depth with	n the 61 meter (	200 ft) evaluation	reach at the time of	Pool Dep
	tion. Avoid plunge p	ools from road o	ulverts or	storm water p	ipes) (Check 0 > 5 cm - 10 cm			Max = 3
_	- 30 cm [30 pts]				< 5 cm [5 pts]		1.0	1
> 10 -	22.5 cm [25 pts]			Ø	NO WATER O	R MOIST CHAN	NEL [0 pts]	0
COMM	MENTS				MAXIM	UM POOL DEPT	H (centimeters):	
3. BANK	FULL WIDTH (Mea	sured as the a	erage of	3-4 measurer	nents)	Check ONLY on	e box):	Bankful
	elers (> 13') [30 pts]					n (> 3' 3" - 4' 8") [1	5 pts]	Width
	- 4.0 m (> 9' 7" - 13 - 3.0 m (> 9' 7" - 4' 8			Ø	≤ 1.0 m (≤ 3'	3") [5 pts]	177	Max=30
							5	5
COM	MENTS				AVERA	GE BANKFULL	WIDTH (meters)	
			This	information n	nust also be cor	nnleted		
	RIPARIAN ZONE		AIN QUA	LITY ☆NO	OTE: River Left (I		s looking downstream 🌣	
L R	(Per Bank)	Н		PLAIN QUALIT	<u>Y</u> minant per Bank	) LR		
<u> </u>	The second second second		òò	Mature Fore	•	ĎÔ	Conservation Tillage	
		n	M M	Immature Fo	orest, Shrub or O	ld 🗆 🗆	Urban or Industrial	
	Narrow <5m				Park, New Field		Open Pasture, Row	
				Fenced Pas			Crop Mining or Construction	
	COMMENTS						1000000	
_	FLOW REGIME (A	At Time of Evalu	ation) (C	heck ONLY or				
	Stream Flowing		0 1 00		CT		pools, no flow (Intermittent)	
	Subsurface flow wit	in isolated pools	(mierstiti	d1)	≥ Dry cr	nannel, no water	(шриеннеган)	
	SINUOSITY (Num	her of hends no	61 m (20	00 ft) of channe	el) (Check ONI	Y one box).		
	None		1.0	o ity of offatille	2.0	. one box).	3.0	
Ø.	0.5		1.5		2.5		□ >3	
STRE	AM GRADIENT EST	TIMATE						
☐ Flat (0.5 ft/1		Moderate	Mod Mod	erate (2 ft/100 ft)	☐ Mod	lerate to Severe	Severe (10 ft/1	00 ft)

DDITIONAL STREAM INFORMATION (This Inform	nation Must Also be Completed):
QHEIPERFORMED? - TYes X No C	QHEI Score(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
	Distance from Evaluated Stream
_	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INC	CLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
A.1	NRCS Soil Map Page: NRCS Soil Map Stream Order
county: Madison	Township / City:
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Date of last p	precipitation: 9/17/17 Quantity: ~ 0.5"
Photograph Information: See attach	
Elevated Turbidity? (Y/N): Canopy (%	
	(Note lab sample no. or id. and attach results) Lab Number:
	xygen (mg/l) NA pH (S.U.) NA Conductivity (µmhos/cm)
s the sampling reach representative of the stream (Y	//N) If not, please explain:
Additional comments/description of pollution impacts	
ID number. Include approximately include app	servations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ppropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  Salamanders Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)
Continuation to garding attack)	
DRAWING AND NARRATIVE I	DESCRIPTION OF STREAM REACH (This must be completed):
	ures of interest for site evaluation and a narrative description of the stream's location
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SITE NAME/LOCATION WC-1	G RIVER BASIN	DRAINAGE AREA (mi²) ∠ . O
DATE 9/18/17 SCORER DWILL	AT. LONG. RIVER COMMENTS - Refer to "Field Evaluation Manual for Oh	CODE RIVER MILE
	JRAL CHANNEL ☐ RECOVERED ☐ RECOV	
MODIFICATIONS:		
(Max of 32). Add total number of significal  TYPE PE  □ □ BLDR SLABS [16 pts] □ □ BOULDER (>256 mm) [16 pts] □ □ BEDROCK [16 pt] □ □ COBBLE (65-256 mm) [12 pts] □	y type of substrate present. Check ONLY two prent substrate types found (Max of 8). Final metric score.  RCENT TYPE: SILT [3 pt] LEAF PACKWOODY DE FINE DETRITUS [3 pts] CLAY or HARDPAN [0 pts] ARTIFICIAL [3 pts]  (A)  RATE TYPES: TOTAL NUMBER C	PERCENT 70  EBRIS [3 pts]  Description of boxes A & B.  PERCENT 70  Substrate Max = 40
2. Maximum Pool Depth (Measure the maevaluation. Avoid plunge pools from road > 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts]	cximum pool depth within the 61 meter (200 ft) even culverts or storm water pipes) (Check ONLY one storm - 10 cm [15 pts storm - 10 cm [5 pts] NO WATER OR MOIS	T CHANNEL [0 pts]
COMMENTS	MAXIMUM POO	L DEPTH (centimeters):
3. BANK FULL WIDTH (Measured as the a > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	average of 3-4 measurements) (Check 0  > 1.0 m - 1.5 m (> 3' 3")  ≤ 1.0 m (≤ 3' 3") [5 pts]	Max≡30
COMMENTS	AVERAGE BAN	KFULL WIDTH (meters)
RIPARIAN ZONE AND FLOODP RIPARIAN WIDTH	FLOODPLAIN QUALITY	ght (R) as looking downstream☆
L R (Per Bank)  Wide >10m  Moderate 5-10m	L R (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Shrub or Old Field	L R Conservation Tillage Urban or Industrial
□ □ Narrow <5m □ □ None COMMENTS	Residential, Park, New Field Fenced Pasture	Open Pasture, Row Crop Mining or Construction
FLOW REGIME (At Time of Eval Stream Flowing Subsurface flow with isolated pool	Moist Channel	, isolated pools, no flow (Intermittent) o water (Ephemeral)
SINUOSITY (Number of bends p None 0 5	er 61 m (200 ft) of channel) (Check ONLY one both 1.0	3.0 3.0 3.0
STREAM GRADIENT ESTIMATE  Flat (0.5 fl/100 ft)  Flat to Moderate	☐ Moderate (2 ft/100 ft)   ✓ Moderate to	Severe Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Me	ust Also be Completed):
QHEI PERFORMED? - TYes S No QHEI Scor	re(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	1
WWH Name:	Distance from Evaluated Stream
CWH Name:	
J EWH Name:	Distance from Evaluated Stream
	THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
A. In	NRCS Soil Map Page: NRCS Soil Map Stream Order
ounty: Madison	Township / City:
MISCELLANEOUS	1.7
ase Flow Conditions? (Y/N): Date of last precipitation	ion: 9/13/17 Quantity: ~ 0.5"
hotograph Information See attached r	x port
Elevated Turbidity? (Y/N): Canopy (% open): _	5
Vere samples collected for water chemistry? (Y/N):(	(Note lab sample no. or id. and attach results) Lab Number:
ield Measures: Temp (°C) MA Dissolved Oxygen (mg	g/l) NA pH (S.U.) NA Conductivity (µmhos/cm) NA
	If not, please explain:
s and dampining readilities of and datasili (1111)	_ Triot, please explain
dditional comments/description of pollution impacts:	
	. Voucher collections optional. NOTE: all voucher samples must be labeled with the site field data sheets from the Primary Headwater Habitat Assessment Manual)
rish Observed? (Y/N) Voucher? (Y/N) Salama	anders Observed? (Y/N) Voucher? (Y/N)  _ Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:	Aquatic Macrolifyertebrates Observed? (17/4)
continents Regarding Biology.	
DRAWING AND NARRATIVE DESCRI	IPTION OF STREAM REACH (This must be completed):
	terest for site evaluation and a narrative description of the stream's location
Fore	, />
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LOW WC-17	
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SITE NAME/LOCA		16-20 RIVER	R BASIN	DRAIN		.01
DATE 9/17/1	AM REACH (ft) 106  SCORER David KUN	COMMENTS				
NOTE: Comple	ete All Items On This Form	n - Refer to "Field	<b>Evaluation Manual for</b>	Ohlo's PHWH	Streams" for Instru	ctions
STREAM CHAN	,	URAL CHANNEL (	RECOVERED DREC	COVERING R	ECENT OR NO RECO	VERY
(Max of 32	SLABS [16 pts] DER (>256 mm) [16 pts] OCK [16 pt] SLE (65-256 mm) [12 pts] //EL (2-64 mm) [9 pts]	ant substrate types for ERCENT TYP	und (Max of 8). Final metric  SILT [3 pt] LEAF PACK/WOOD FINE DETRITUS [3 CLAY or HARDPAN MUCK [0 pts]	c score is sum of t Y DEBRIS [3 pts] pts] [0 pt]	PERCENT	HHEI Metric Points Substrat Max = 4
Tot Bldr Slabs	al of Percentages of s, Boulder, Cobble, Bedrock _ MOST PREDOMINATE SUBS	(A)	5] -	ER OF SUBSTRA	(B)	A + B
evaluation > 30 centle > 22.5 - 3	n Pool Depth (Measure the n n. Avoid plunge pools from roa meters [20 pts] 0 cm [30 pts] 5 cm [25 pts]	ax <b>imum pool depth</b> d culverts or storm W	ater pipes) (Check ONL)  > 5 cm - 10 cm [15  < 5 cm [5 pts]  NO WATER OR M	one box):  pts]	[0 pts] O	Pool Dep Max = 3
3, BANK FU > 4.0 mete > 3.0 m	JLL WIDTH (Measured as the rs (> 13') [30 pts] 4.0 m (> 9' 7" - 13') [25 pts] 3.0 m (> 9' 7" - 4' 8") [20 pts]		> 1.0 m - 1.5 m (> \( \sqrt{3} \) \( \leq 1.0 m (\leq 3' 3") [5]	pts]		Bankfu Width Max=30
			in the second			-
F	RIPARIAN ZONE AND FLOOD		tion must also be comple &NOTE: River Left (L) ar UALITY	ted nd Right (R) as loo	klng downstreamឋ⊁	
	(Por Bank) Wide >10m	☐ ☐ Matur	Predominant per Bank) e Forest, Wetland ture Forest, Shrub or Old		Conservation Tillage Urban or Industrial	
	Moderate 5-10m	Lieio	ential, Park, New Field		Open Pasture, Row	
	Narrow <5m None COMMENTS		ential, Park, New Field		Crop Mining or Construction	
☐ s	FLOW REGIME (At Time of Extream Flowing ubsurface flow with isolated pocomments		Moist Cha	annel, isolated pod nel, no water (Eph	ols, no flow (Intermitten nemeral)	t)
<b>☑</b> N	SINUOSITY (Number of bends one	per 61 m (200 ft) of 6 1.0 1.5	channel) (Check ONLY or 2.0 2.5	ne box):	3.0 >3	
STREAL  Flat (0.5 IV/100	M GRADIENT ESTIMATE	Moderate (2	(V100 ft) Modera	te to Severe	Severe (10 h	/100 ft)

ADDITIONAL STREAM INFORMATION (This Information	Must Also be Completed):
QHEI PERFORMED? - TYes X No QHEIS	Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDI	ING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name:	NRCS Soil Map Page: NRCS Soil Map Stream Order
Gounty Madison	Township / Gity:
MISCELLANEOUS	
Base Flow Conditions? (Y/N) Date of last precipi	itation: 9/17/17 Quantity: ~0.5``
Photograph Information: See attached	
Elevated Turbidity? (Y/N): Canopy (% open	): <u>5</u>
	(Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen	(mg/l) NA pH (S.U.) NA Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N)_	If not, please explain
	(
Additional comments/description of pollution impacts:	
PIOPIO FIVALUATION	
BIOTIC EVALUATION	
Performed? (Y/N): (If Yes, Record all observation	ons. Voucher collections optional. NOTE: all voucher samples must be labeled with the site
ID number. Include appropri	iate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) Voucher? (Y/N) Sala	amanders Observed? (Y/N) Voucher? (Y/N)
Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N)	Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:	
DRAWING AND MADRATINE DEGG	
	CRIPTION OF STREAM REACH (This <u>must</u> be completed):
Include important landmarks and other features of	f Interest for site evaluation and a narrative description of the stream's location
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TYPE   BLDR SLABS [16 pts]   SILT [3 pt]   TO     BOULDER (>256 mm) [16 pts]   LEAF PACK/WOODY DEBRIS [3 pts]     BEDROCK [16 pt]   FINE DETRITUS [3 pts]   Substrate Max = 40     GRAVEL (2-64 mm) [9 pts]   MUCK [0 pts]   ARTIFICIAL [3 pts]     Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock   SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:   TOTAL NUMBER OF SUBSTRATE TYPES:     Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes)   Check ONLY one box):   > 30 centimeters [20 pts]   > 5 cm - 10 cm [15 pts]   > 5 cm - 10 cm [15 pts]   > 10 - 22.5 cm [25 pts]   NO WATER OR MOIST CHANNEL [0 pts]   MAXIMUM POOL DEPTH (centimeters):	SITE NAME/LOCATION \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		
NOTE: Complete All terms On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions  STREAM CHANNEL   QLOODE / NATURAL CHANNEL   RECOVERED   RECOVERING   RECENT OR NO RECOVERY  MODIFICATIONS:  1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32), Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A 8 B.  TYPE   RECENT   TYPE   PERCENT   TYPE   SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32), Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A 8 B.  HHEI   Metric   Substrate   Substrate	SITE NUMBER	16-21 RIVER BASIN DRAINAGE AREA (mi²) 4	.01
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions  STREAM CHANNEL  AND NONE / NATURAL CHANNEL  RECOVERED RECOVERID RECOVERID RECENT OR NO RECOVERY  MODIFICATIONS:  1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY you predominant substrate TYPE boxes (Max of 32), Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A 8.8 (Max of 32), Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A 8.8 (Max of 32), Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A 8.8 (Max of 32), Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A 8.8 (Max of 32), Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A 8.8 (Max of 32), Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A 8.8 (Max of 32), Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A 8.8 (Max of 32), Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A 8.8 (Max of 32), Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A 8.8 (Max of 32), Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A 8.8 (Max of 8). Final metric score is sum of boxes A 8.8 (Max of 8). Final metric score is sum of boxes A 8.8 (Max of 8). Final metric score is sum of boxes A 8.8 (Max of 8). Final metric score is sum of boxes A 8.8 (Max of 8). Final metric score is sum of boxes A 8.8 (Max of 8). Final metric score is sum of boxes A 8.8 (Max of 8). Final metric score is sum of boxes A 8.8 (Max of 8). Final metric score is sum of boxes A 8.8 (Max of 8). Final metric score is sum of boxes A 8.8 (Max of 8). Final metric	DATE 9//8/17 SCORER DOWN K	LATLONGRIVER CODERIVER MILE _	
STREAM CHANNEL MODIFICATIONS:  1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32), Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. PERCENT TYPE SILT [3 pt]    GARDER (2-256 mm) [16 pts]	The state of the s		ructions
### SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  ### PERCENT			
Max of 32), Add total number of significant substrate types found (Max of 8), Final metric score is sum of boxes A & B.   Metric	· ·	URAL CHANNEL   DIRECOVERED   DIRECOVERING   DIRECENT OR NO REC	OVERY
BLDR SLABS [16 pts]	(Max of 32). Add total number of significal	nt substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HHEI
BEDROCK [16 pt]	BLDR SLABS [16 pts]	SILT [3 pt]	Points
COBBLE (65-256 mm) [12 pts]			Substrate
GRAVEL (2-64 mm) (9 pts]			Max = 40
Total of Percentages of Bild's Slabs, Boulder, Cobble, Bedrock  SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:    Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avrid plunge pools from road culverts or storm water pipes) (Check ONLY one box):   > 30 centimeters [20 pts]	☐ ☐ GRAVEL (2-64 mm) [9 pts]	☐ ☐ MUCK [0 pts]	1
Bild's Slabs, Boulder, Cobble, Bedrock  SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:    Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plungs pools from road culverts or storm water pipes) (Check ONLY one box):   > 30 centimeters [20 pts]	☐ ☐ SAND (<2 mm) [6 pts]	ARTIFICIAL [3 pts]	2
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:    Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check OALY one box):   > 30. centimeters (20 pts)   > 5 cm - 10 cm [15 pts]   > 5 cm - 10 cm [15 pts]   > 22.5 cm [25 pts]   NO WATER OR MOIST CHANNEL [0 pts]   > 10 - 22.5 cm [25 pts]   NO WATER OR MOIST CHANNEL [0 pts]   > 10 - 22.5 cm [25 pts]   NO WATER OR MOIST CHANNEL [0 pts]   > 4.0 meters (> 13) [30 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]   > 3.0 m - 4.0 m (> 9' 7" - 4' 8") [20 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]   > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]   > 1.0 m (> 9' 7" - 4		(A) 2 (B) 7	A + B
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):    3		RATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES:	
> 30 centimeters [20 pts]	2. Maximum Pool Depth (Measure the ma	eximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Depth
> 22.5 - 30 cm [30 pts]			Max = 30
BankfulL WIDTH (Measured as the average of 3-4 measurements)    A.0 meters (> 13) [30 pts]	> 22.5 - 30 cm [30 pts]	<pre>&lt; 5 cm [5 pts]</pre>	7
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts]	> 10 - 22.5 cm [25 pts]	NO WATER OR MOIST CHANNEL [0 pts]	,
> 4.0 meters (> 13) [30 pts]	COMMENTS	MAXIMUM POOL DEPTH (centimeters):	
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]		average of 3-4 measurements) (Check ONLY one box):	Bankfull
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆ RIPARIAN WIDTH FLOODPLAIN QUALITY  ROTE: River Left (L) and Right (R) as looking downstream☆ RIPARIAN WIDTH FLOODPLAIN QUALITY  RIPARIAN WIDTH FLOODPLAIN QUALITY  ROTE: River Left (L) and Right (R) as looking downstream☆ RIPARIAN WIDTH FLOODPLAIN QUALITY  RIPARIAN WIDTH FLOODPLAIN QUALITY  ROTE: River Left (L) and Right (R) as looking downstream☆ RIPARIAN WIDTH FLOODPLAIN QUALITY  ROTE: River Left (L) and Right (R) as looking downstream☆ RIPARIAN WIDTH FLOODPLAIN QUALITY  RIPARIAN WIDTH FLOODPLAIN QUALITY  Residentian, Park, New Field Open Pasture, Row Crop  None Fenced Pasture Mining or Construction  Moist Channel, isolated pools, no flow (Intermittent)  Subsurface flow with isolated pools (Interstitial)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel)  None 1.0 2.0 3.0	> 4.0 meters (> 13') [30 pts]		The Committee of the Co
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream of RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  L R (Most Predominant per Bank)  Mature Forest, Wetland  Moderate 5-10m  Mature Forest, Wetland  Moderate 5-10m  Residential, Park, New Field  Penced Pasture  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None  1.0  2.0  3.0  3.0  3.0  3.0  3.0  3.0  3		S 1.0 III (\$ 3.5 ) [5 pts]	Midx-30
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream of RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  L R (Most Predominant per Bank)  Mature Forest, Wetland  Moderate 5-10m  Mature Forest, Wetland  Moderate 5-10m  Residential, Park, New Field  Penced Pasture  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None  1.0  2.0  3.0  3.0  3.0  3.0  3.0  3.0  3	COMMENTS	AVERAGE BANKEULL WIDTH (meters)	5
RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  RIPARIAN WIDTH  RIPARIAN WIDTH  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  Moderate >10m  Moderate 5-10m  Moderate 5-10m  Residential, Park, New Field  Open Pasture, Row Crop  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None  1.0  2.0  3.0  STREAM GRADIENT ESTIMATE		, valviou by with the control of the	
R (Per Bank) Wide >10m Mature Forest, Wetland Moderate 5-10m Moderate 5-10m Moderate 5-10m Residential, Park, New Field Moderate Sequence Moderate Moderate Moderate Sequence		LAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆	
Wide >10m			
Narrow <5m		☐ ☐ Mature Forest, Wetland ☐ ☐ Conservation Tillage	
Narrow <5m	☐ ☐ Moderate 5-10m	Irban or industrial	
None COMMENTS   General Pasture   General Mining or Construction    FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing   Moist Channel, isolated pools, no flow (Intermittent)   Subsurface flow with isolated pools (Interstitial)   Dry channel, no water (Ephemeral)    COMMENTS   SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None   1.0   2.0   3.0   0.5   1.5   2.5   >3  STREAM GRADIENT ESTIMATE	☐ ☐ Narrow <5m	Residential, Park New Field Open Pasture, Row	
Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) None 1.0 0.5  STREAM GRADIENT ESTIMATE  Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)  (Check ONLY one box): 2.0 3.0 3.0 3.0 3.0 3.0			1
□ None       □ 1.0       □ 2.0       □ 3.0         ☑ 0.5       □ 1.5       □ 2.5       □ >3	Stream Flowing Subsurface flow with isolated pools	Moist Channel, isolated pools, no flow (Intermitten	t)
	None	1.0 2.0 3.0	
☐ Flat (0.5 1//100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)			
	☐ Flat (0.5 fl/100 ft) ☐ Flat to Moderate	☑ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/	100 ft)

ADDITIONAL STREAM INFORMATION (This Information	n Must Also be Completed):
QHEI PERFORMED? - 4 Yes X No QHEI	Score(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	
CWH Name:	Distance from Evaluated Stream  Distance from Evaluated Stream
	DING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
	NRCS Soil Map Page: NRCS Soil Map Stream Order
county: Madison	Township / City:
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Date of last preci	pitation: 9/17/17 Quantity: ~ 0.5"
Photograph Information: See attached G	
Elevated Turbidity? (Y/N): Canopy (% ope	
Vere samples collected for water chemistry? (Y/N): 🔼	(Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) VIA Dissolved Oxyge	n (mg/l) NA pH (S.U.) NA Conductivity (µmhos/cm) NA
s the sampling reach representative of the stream (Y/N)	V
s the sampling reach representative of the stream (Y/N)_	If not, please explain:
ID number. Include approp	tions. Voucher collections optional. NOTE: all voucher samples must be labeled with the priate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) Voucher? (Y/N) Sa Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N	alamanders Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:	
·	
	SCRIPTION OF STREAM REACH (This must be completed):
Include important landmarks and other features	of interest for site evaluation and a narrative description of the stream's location
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SITE NAME/LOCATION UC-22	RIVER BASIN DRAINAGE AREA (mi²)	21
LENGTH OF STREAM REACH (ft) 160 LAT	LONG. RIVER CODE RIVER MILE COMMENTS	
NOTE: Complete All Items On This Form - Re	efer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruct	tions
	CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVE	
1. SUBSTRATE (Estimate percent of every type (Max of 32). Add total number of significant substrated by the content of the con	NT TYPE SILT [3 pt] LEAF PACKWOODY DEBRIS [3 pts] FINE DETRITUS [3 pts] CLAY or HARDPAN [0 pt] MUCK [0 pts] ARTIFICIAL [3 pts]  (A) (B)	HHEI Metric Points Substrate Max = 40
evaluation. Avoid plunge pools from road culve > 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts]	in pool dopai main are or more (	ool Depth Max = 30
COMMENTS	MAXIMUM POOL DEPTH (centimeters):	
		D 16 H
3. BANK FULL WIDTH (Measured as the avera > 4.0 meters (> 13') [30 pts]   3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]   > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	age of 3-4 measurements) (Check <i>ONLY</i> one box):    > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]   \( \frac{7}{2} \) \( \leq 1.0 m (\leq 3' 3") [5 pts] \)	Bankfull Width Max=30
3. BANK FULL WIDTH (Measured as the avera > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
3. BANK FULL WIDTH (Measured as the avera > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  RIPARIAN ZONE AND FLOODPLAIN RIPARIAN WIDTH L R (Per Bank) L	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]  AVERAGE BANKFULL WIDTH (meters)  AVERAGE BANKFULL WIDTH (meters)  This information must also be completed QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆  LOODPLAIN QUALITY  R (Most Predominant per Bank)  Mature Forest, Wetland  Conservation Tillage	Width
3. BANK FULL WIDTH (Measured as the averal > 4.0 meters (> 13') [30 pts]     > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]     > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]     COMMENTS	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]  AVERAGE BANKFULL WIDTH (meters)  AVERAGE BANKFULL WIDTH (meters)  This information must also be completed I QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆  LOODPLAIN QUALITY  R (Most Predominant per Bank)  Mature Forest, Wetland  Mature Forest, Wetland  I Mature Forest, Shrub or Old  Field  Urban or Industrial	Width
3. BANK FULL WIDTH (Measured as the averal > 4.0 meters (> 13') [30 pts]     > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]     > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]     COMMENTS	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]  AVERAGE BANKFULL WIDTH (meters)  AVERAGE BANKFULL WIDTH (meters)  This information must also be completed QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆ LOODPLAIN QUALITY  R (Most Predominant per Bank)  Mature Forest, Wetland  Conservation Tillage Immature Forest, Shrub or Old	Width
3. BANK FULL WIDTH (Measured as the averal > 4.0 meters (> 13') [30 pts]   > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]   > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]    COMMENTS  RIPARIAN ZONE AND FLOODPLAIN RIPARIAN WIDTH  L R (Per Bank)   Wide > 10m   Moderate 5-10m   Narrow < 5m   None	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]  AVERAGE BANKFULL WIDTH (meters)  L R (Most Predominant per Left (L) and Right (R) as looking downstream A DOODPLAIN QUALITY  R (Most Predominant per Bank)  Mature Forest, Wetland  Mature Forest, Wetland  D With an or Industrial Field  Penced Pasture  Open Pasture, Row Crop  Mining or Construction  Moist Channel, isolated pools, no flow (Intermittent)	Width
3. BANK FULL WIDTH (Measured as the averal > 4.0 meters (> 13') [30 pts]   > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]   > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]    COMMENTS  RIPARIAN ZONE AND FLOODPLAIN RIPARIAN WIDTH   L R (Per Bank)   Wide > 10m   Moderate 5-10m   Narrow <5m   None   COMMENTS  FLOW REGIME (At Time of Evaluation Stream Flowing   Subsurface flow with isolated pools (In COMMENTS)  SINUOSITY (Number of bends per 64 None   None   None   SINUOSITY (Number of bends per 64 None	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]  AVERAGE BANKFULL WIDTH (meters)  L R (Most Predominant per Left (L) and Right (R) as looking downstream A DOODPLAIN QUALITY  R (Most Predominant per Bank)  Mature Forest, Wetland  Mature Forest, Wetland  D With an or Industrial Field  Penced Pasture  Open Pasture, Row Crop  Mining or Construction  Moist Channel, isolated pools, no flow (Intermittent)	Width

ADDITIONAL STREAM INFORMATION (This Information	n Must Also be Completed):
QHEI PERFORMED? - Tyes 20 No QHEI	Score(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUD	DING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
4.4	NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Madishn	Township / City:
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Date of last precip	oitation: 9/17/17 Quantity: ~0.5
Photograph Information See attached 1	
	n): 5
	(Note lab sample no. or id. and attach results) Lab Number.
vivere samples collected for water chemistry? (Y/N):	
	n (mg/l) N/A pH (S.U.) N/A Conductivity (µmhos/cm) N/A
Is the sampling reach representative of the stream (Y/N)_	If not, please explain:
Additional comments/description of pollution imposts	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
	ions. Voucher collections optional. NOTE: all voucher samples must be labeled with the s
ID number. Include appropri	riate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) Voucher? (Y/N) Sai	lamanders Observed? (Y/N) Voucher? (Y/N)
Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N	Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:	
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
DRAWING AND NARRATIVE DES	CRIPTION OF STREAM REACH (This must be completed):
	of interest for site evaluation and a narrative description of the stream's location
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FLOW WC-2-	
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	NC23 ITE NUMBER: WC-23 RIVER BASIN DRAINAGE AREA (mi²) < .01
LENGTH OF STREAM REACH DATE 9/13/17 SCOR	(ft) LAT. LONG. RIVER CODE RIVER MILE
	s On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions
STREAM CHANNEL MODIFICATIONS:	□ NONE / NATURAL CHANNEL □ RECOVERED □ RECOVERING □ RECENT OR NO RECOVERY
(Max of 32). Add total r  TYPE BLDR SLABS [16] BOULDER (>256 n BEDROCK [16 pt COBBLE (65-256 n GRAVEL (2-64 mm SAND (<2 mm) [6]	CLAY or HARDPAN [0 pt]
Total of Percenta Bldr Slabs, Boulder, Co SCORE OF TWO MOST PRED	
	○ < 5 cm [5 pts] ○ NO WATER OR MOIST CHANNEL [0 pts]
COMMENTS	MAXIMUM POOL DEPTH (centimeters)
BANK FULL WIDTH (I > 4.0 meters (> 13') [30 p > 3.0 m - 4.0 m (> 9' 7" > 1.5 m - 3.0 m (> 9' 7"	- 13') [25 pts]
COMMENTS	AVERAGE BANKFULL WIDTH (meters)
RIPARIAN ZOI RIPARIAN W	
L R (Per Bank)  Wide >10m	L R (Most Predominant per Bank) L R  Mature Forest, Wetland D Conservation Tillage
Moderate 5-	-10m P Immature Forest, Shrub or Old Urban or Industrial
☐ ☐ Narrow <5m	Residential Park New Field Open Pasture, Row
None COMMENTS	Fenced Pasture Crop Mining or Construction
Stream Flowing	(At Time of Evaluation) (Check ONLY one box):  Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)
SINUOSITY (N None 0.5	Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  1.0 2.0 3.0 1.5 2.5
STREAM GRADIENT  Flat (0.5 1//100 ft)  Flat	ESTIMATE at to Moderate

ADDITIONAL STREAM INFORMATION (This Info	rmation Must Also be Completed):
QHEI PERFORMED? - Tyes X No	QHEI Score(If Yes, Attach Completed QHEI, Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
	Distance from Evaluated Stream
BWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, I	NCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
A A .	NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Madison	Township / City:
MISCELLANEOUS	
	et precipitation: 9-17-17 Quantity: ~0.5
Photograph Information <u>Ser attach</u>	ed report
Elevated Turbidity? (Y/N): Canopy (	(% open):
	: Note lab sample no. or id. and attach results) Lab Number
Field Measures: Temp (*C) //// Dissolved	Oxygen (mg/l) N/A pH (S.U.) N/A Conductivity (µmhos/cm)
	2V
Is the sampling reach representative of the stream	(Y/N) If not, please explain
Additional comments/description of pollution Impac	ts:
BIOTIC EVALUATION	
	bservations Voucher collections optional. NOTE: all voucher samples must be labeled with the sappropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) Voucher? (Y/N) Frogs or Tadpoles Observed? (Y/N) Voucher	Salamanders Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:	
DRAWING AND NARRATIVE	DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):
Include important landmarks and other fea	atures of interest for site evaluation and a narrative description of the stream's location
	- Yes
Sore	v2×
200	· .
FLOW -	
FLOW 4	
WC-23	1 (0)
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### **ChieEPA**

### Primary Headwater Habitat Evaluation Form

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HHEI Score (sum of metrics 1, 2, 3) WUZU SITE NAME/LOCATION SITE NUMBER WC-24 DRAINAGE AREA (mi²) 0.7 Mi. RIVER BASIN RIVER CODE RIVER MILE LENGTH OF STREAM REACH (ft) 100 LONG. DATE 9/17/17 SCORER David Kurdin COMMENTS NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY STREAM CHANNEL **MODIFICATIONS:** SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes HHEI (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. Metric PERCENT PERCENT **Points** 7 0% 0% SILT [3 pt] BLDR SLABS [16 pts] 0% LEAF PACK/WOODY DEBRIS [3 pts] BOULDER (>256 mm) [16 pts] 0% Substrate 0% 0% FINE DETRITUS [3 pts] BEDROCK [16 pt] Max = 400% 20% CLAY or HARDPAN [0 pt] COBBLE (65-256 mm) [12 pts] 0% 0% MUCK [0 pts] GRAVEL (2-64 mm) [9 pts] 0% 0% ARTIFICIAL [3 pts] SAND (<2 mm) [6 pts] (B) obstation l'inventeur Total of Percentages of 0.00% A+B Bldr Slabs, Boulder, Cobble, Bedrock TOTAL NUMBER OF SUBSTRATE TYPES: 10.10 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: Pool Depth Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of Max = 30evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 5 cm - 10 cm [15 pts] > 30 centimeters [20 pts] < 5 cm [5 pts] > 22.5 - 30 cm [30 pts] NO WATER OR MOIST CHANNEL [0 pts] > 10 - 22.5 cm [25 pts] D MAXIMUM POOL DEPTH (centimeters): COMMENTS Bankfull BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): Width > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] > 4.0 meters (> 13') [30 pts] ≤ 1.0 m (<=3' 3") [5 pts] Max=30 > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] AVERAGE BANKFULL WIDTH (meters): COMMENTS This information must also be completed ☆NOTE: River Left (L) and Right (R) as looking downstream☆ RIPARIAN ZONE AND FLOODPLAIN QUALITY FLOODPLAIN QUALITY RIPARIAN WIDTH (Most Predominant per Bank) (Per Bank) Conservation Tillage Mature Forest, Wetland Wide >10m Immature Forest, Shrub or Old Moderate 5-10m Urban or Industrial Open Pasture, Row Crop Residential, Park, New Field Narrow <5m Mining or Construction Fenced Pasture None COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Moist Channel, isolated pools, no flow (Intermittent) Stream Flowing Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): 3.0 1.0 2.0 None >3 1.5 2.5 0.5 STREAM GRADIENT ESTIMATE Severe (10 ft/100 ft) Moderate to Severe Moderate (2 ft/100 ft) Flat (0.5 ft/100 ft) Flat to Moderate

ADDITIONAL STREAM INFORMATION (This Information I	Must Also be Completed):
QHEI PERFORMED? - Yes No QHEI So	core (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDIN	NG THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name:	NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Madisan	Township / City:
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipits	ation: 9/17/17 Quantity: 00005
	duting the state of the state o
Photograph Information: See attucked ru	
Elevated Turbidity? (Y/N): Canopy (% open):	0%
Were samples collected for water chemistry? (Y/N):	(Note lab sample no. or id. and attach results) Lab Number:
	mg/l) NA pH (S.U.) NA Conductivity (µmhos/cm)
The state of the s	
s the sampling reach representative of the stream (Y/N)	If not, please explain:
BIOTIC EVALUATION	
BIOTIC EVALUATION  Performed? (Y/N): (If Yes, Record all observation ID number. Include appropriate Voucher? (Y/N) Salan Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N)	is. Voucher collections optional. NOTE: all voucher samples must be labeled with the te field data sheets from the Primary Headwater Habitat Assessment Manual) manders Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)
Performed? (Y/N): (If Yes, Record all observation ID number. Include appropriation Voucher? (Y/N) Salan Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N)	te field data sheets from the Primary Headwater Habitat Assessment Manual)  manders Observed? (Y/N)
BIOTIC EVALUATION  Performed? (Y/N): (If Yes, Record all observation ID number. Include appropriate Voucher? (Y/N) Salan Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N)	te field data sheets from the Primary Headwater Habitat Assessment Manual)  manders Observed? (Y/N)
Performed? (Y/N): (If Yes, Record all observation ID number. Include appropriate Voucher? (Y/N) Salan Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N)	te field data sheets from the Primary Headwater Habitat Assessment Manual)  manders Observed? (Y/N)
BIOTIC EVALUATION  Performed? (Y/N):  (If Yes, Record all observation ID number. Include appropriate Voucher? (Y/N)  Fish Observed? (Y/N)  Frogs or Tadpoles Observed? (Y/N)  Comments Regarding Biology:	te field data sheets from the Primary Headwater Habitat Assessment Manual)  manders Observed? (Y/N)
BIOTIC EVALUATION  Performed? (Y/N):  (If Yes, Record all observation ID number. Include appropriate Voucher? (Y/N)  Fish Observed? (Y/N)  Frogs or Tadpoles Observed? (Y/N)  Comments Regarding Biology:  DRAWING AND NARRATIVE DESCR	te field data sheets from the Primary Headwater Habitat Assessment Manual) manders Observed? (Y/N)  V  Voucher? (Y/N)  V  V  V  V  V  V  V  V  V  V  V  V  V
BIOTIC EVALUATION  Performed? (Y/N): (If Yes, Record all observation ID number. Include appropriate Voucher? (Y/N) Salan Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Comments Regarding Biology:  DRAWING AND NARRATIVE DESCR Include Important landmarka and other features of Include Important landmarka and other features of Include Important landmarka and other features of Include Important landmarka.	te field data sheets from the Primary Headwater Habitat Assessment Manual) manders Observed? (Y/N) WA Voucher? (Y/N) WA VAAquatic Macroinvertebrates Observed? (Y/N) WA RIPTION OF STREAM REACH (This must be completed):
BIOTIC EVALUATION  Performed? (Y/N):  (If Yes, Record all observation ID number. Include appropriate Voucher? (Y/N)  Fish Observed? (Y/N)  Voucher? (Y/N)  Comments Regarding Biology:  DRAWING AND NARRATIVE DESCR	te field data sheets from the Primary Headwater Habitat Assessment Manual) manders Observed? (Y/N) NA Voucher? (Y/N) NA
BIOTIC EVALUATION  Performed? (Y/N): (If Yes, Record all observation ID number. Include appropriate Voucher? (Y/N) Salan Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Comments Regarding Biology:  DRAWING AND NARRATIVE DESCR Include Important landmarka and other features of Include Important landmarka Include Important landmarka Include Important landmarka Include Important Include Importa	te field data sheets from the Primary Headwater Habitat Assessment Manual) manders Observed? (Y/N) NA Voucher? (Y/N) NA
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BIOTIC EVALUATION  Performed? (Y/N):	te field data sheets from the Primary Headwater Habitat Assessment Manual) manders Observed? (Y/N) NA Voucher? (Y/N) NA
Performed? (Y/N):  (If Yes, Record all observation ID number. Include appropriate Voucher? (Y/N) Salan Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Comments Regarding Biology:  DRAWING AND NARRATIVE DESCR Includa Important landmarka and other features of Include Important landmarka and other features of Include Important landmarka and other features.	te field data sheets from the Primary Headwater Habitat Assessment Manual) manders Observed? (Y/N) NA Voucher? (Y/N) NA
BIOTIC EVALUATION  Performed? (Y/N):	NAAquatic Macroinvertebrates Observed? (Y/N) NA Voucher? (Y/N) NA
BIOTIC EVALUATION  Performed? (Y/N):	te field data sheets from the Primary Headwater Habitat Assessment Manual) manders Observed? (Y/N) NA Voucher? (Y/N) NA
BIOTIC EVALUATION  Performed? (Y/N):  (If Yes, Record all observation ID number. Include appropriate Voucher? (Y/N)  Fish Observed? (Y/N)  Frogs or Tadpoles Observed? (Y/N)  Comments Regarding Biology:  DRAWING AND NARRATIVE DESCR  Includa Important landmarka and other features of Include Important landmarka Include Include Important landmarka Include Impo	te field data sheets from the Primary Headwater Habitat Assessment Manual) manders Observed? (Y/N) NA Voucher? (Y/N) NA

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SITE NAME/LOCATION WC-25	
SITE NUMBER WC-75 RIVER BASIN DRAINAGE AREA (n	ni²) 4.0\
LENGTH OF STREAM REACH (ft) LONG. RIVER CODE RIVER M	ILE
DATE 9/17/17 SCORER David LANDMACOMMENTS	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for	Instructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO MODIFICATIONS:	RECOVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE box	xes
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE  PERCENT  TYPE  PERCENT	HHEI   Metric
□ BLDR SLABS [16 pts] 0% SILT [3 pt] 0%	Points
BOULDER (>256 mm) [16 pts]  BEDROCK [16 pt]  BEDROCK [16 pt]	Substrate
☐ ☐ COBBLE (65-256 mm) [12 pts]	Max = 40
GRAVEL (2-64 mm) [9 pts] 0% MUCK [0 pts] 0% SAND (-2 mm) [6 pts] 0% ARTIFICIAL [3 pts] 0%	5
SAND (<2 mm) [6 pts]	2
Total of Percentages of 0.00% (A) Bldr Slabs, Boulder, Cobble, Bedrock (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 33 TOTAL NUMBER OF SUBSTRATE TYPES: 1	-11
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):  > 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	Max = 30
> 22.5 - 30 cm [30 pts] < 5 cm [5 pts]	0
	- 0
COMMENTS MAXIMUM POOL DEPTH (centimeters):	>
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull Width
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ≤ 1.0 m (<=3' 3") [5 pts]	Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
COMMENTSAVERAGE BANKFULL WIDTH (meters):	795
This information <u>must</u> also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstrean	ns*
RIPARIAN WIDTH FLOODPLAIN QUALITY	
L R (Per Bank) L R (Most Predominant per Bank) L R  Wide >10m	200
Moderate 5-10m Immature Forest, Shrub or Old Urban or Industri	-
Field Open Pasture P	
Narrow <5m Residential, Park, New Field Mining or Constru	uction
COMMENTS	Bellott
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	
Stream Flowing  Moist Channel, isolated pools, no flow (Interr Subsurface flow with isolated pools (Interstitial)  Dry channel, no water (Ephemeral)	nittent)
COMMENTS Day Granner, no water (Epiterneral)	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	
None 1,0 2.0 3.0 >3 1.5 2.5 >3	
STREAM GRADIENT ESTIMATE	
Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe Severe	e (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must A	ilso be Completed):
QHEI PERFORMED? - Yes No QHEI Score	(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE	ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
JSGS Quadrangle Name:	NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Villandot Maulson To	wnship / City:
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation:	1/17/17 Quantity: 0.500 0.5
Photograph Information: see attacked repo	rr
Elevated Turbidity? (Y/N):   V   Canopy (% open):	0%
Nere samples collected for water chemistry? (Y/N): (Note	e lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) NA Dissolved Oxygen (mg/l)	pH (S.U.) WAA Conductivity (µmhos/cm)
s the sampling reach representative of the stream (Y/N) Y	not, please explain:
Additional comments/description of pollution impacts:	
p	
ID number. Include appropriete field	cher collections optional. NOTE: all voucher samples must be lebeled with the s data sheets from the Primary Headwater Habitat Assessment Manual) rs Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)
DRAWING AND NARRATIVE DESCRIPTION	ON OF STREAM REACH (This <u>must</u> be completed):
Include importent lendmerke end other feeturee of intereet	t for site evaluation and e nerrative description of the etreem'e locetion
forest	3
401.5	
FLOW WEEK	
FLOW WESTS	
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faco.	



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SITE NAME/LOCATION VC-76	
SITE NUMBER WC-26 RIVER BASIN DRAINAGE AREA (mi²) 4.1	
LENGTH OF STREAM REACH (ff) 700 LAT. LONG. RIVER CODE RIVER MILE	
DATE 9/7-117 SCORER David KUNIMING COMMENTS	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruction	ons
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECOVER MODIFICATIONS:	X1
	HEI
TYPE PERCENT TYPE PERCENT MO	letric oints
BLDR SLABS [16 pts]	סווונס
BEDDOCK (16 pt) 0% Sut	bstrate ax = 40
☐ COBBLE (65-256 mm) [12 pts]	1X = 40
GRAVEL (2-64 mm) [9 pts]  O%  MUCK [0 pts]  O%  ORAND (<2 mm) [6 pts]  O%  ARTIFICIAL (3 pts]	0
SAND (<2 mm) [6 pts] 0% ARTIFICIAL [3 pts]	
Total of Percentages of 0.00% (A) Bldr Slabs, Boulder, Cobble, Bedrock	4 + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 0 TOTAL NUMBER OF SUBSTRATE TYPES: 1	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	ol Depth
<ol> <li>Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):</li> </ol>	ax = 30
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts] < 5 cm [5 pts]	_
	0
COMMENTS MAXIMUM POOL DEPTH (centimeters):	
ballet of the and an an and an an and an an an and an an an and an	lankfull Width
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	lax=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	-
COMMENTSAVERAGE BANKFULL WIDTH (meters): 5	75
This information must also be completed	
RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆ RIPARIAN WIDTH FLOODPLAIN QUALITY	
L R (Per Bank) L R (Most Predominant per Bank) L R	
Wide >10m	
Field Field	
Narrow <5m Residential, Park, New Field Open Pasture, Row Crop	
None Fenced Pasture Mining or Construction	
COMMENTS:	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	
Stream Flowing  Subsurface flow with isolated pools (Interstitial)  Moist Channel, isolated pools, no flow (Intermittent)  Dry channel, no water (Ephemeral)	
COMMENTS	
Olivierio	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None 1.0 2.0 3.0	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None 1.0 2.0 3.0	

JOI HOMPLE OTTELFAIR THE STATE OF THE STATE	st Also be Completed):
QHEI PERFORMED? - Yes No QHEI Score	e (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream  Distance from Evaluated Stream
EWH Name:	
MAPPING: ATTACH COPIES OF MAPS, INCLUDING	THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
SGS Quadrangle Name:	NRCS Soil Map Page: NRCS Soil Map Stream Order
ounty: wystawn Madison	Township / City:
MISCELLANEOUS	
ase Flow Conditions? (Y/N)	on: 9/7/17 Quantity: -6.60 0.5"
Team II do to a se	
Slevated Turbidity? (Y/N): Canopy (% open):	
Vere samples collected for water chemistry? (Y/N):	(Note lab sample no. or id. and attach results) Lab Number:
ield Measures: Temp (°C) WIA Dissolved Oxygen (mg	pH (S.U.) A PA Conductivity (µmhos/cm)
120	If not, please explain:
s the sampling reach representative of the stream (Y/N)	11 Hot, please explaint:
*/	
Fish Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N)	. Voucher collections optionel. NOTE: all voucher samples must be labeled with the field deta sheets from the Primary Heedwater Habitet Assessment Menuel)  anders Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)
Fish Observed? (Y/N) Voucher? (Y/N)	4.110



SITE NAME/LOCATION WC-100	
SITE NUMBER RIVER BASIN DRAINAGE AREA (mi²)	1.12
LENGTH OF STREAM REACH (ft) 6,190 LAT. 39.82694 LONG83.32017 RIVER CODE RIVER MILE	
DATE 09/15/18 SCORER David K. COMMENTS	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Inst	ructions
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STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING RECOVERING RECENT OR NO RECOVERING RECENT OR NO RECOVERING RECOVERING RECENT OR NO RECOVERING RECENT OR NO RECOVERING RECOVERING RECENT OR NO RECOVERING RECOVERING RECENT OR NO RECOVERING RE	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	ı HHEI
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE  PERCENT  TYPE  PERCENT	Metri
□ □ BLDR SLABS [16 pts] □ ✓ SILT [3 pt] 40%	Points
BOULDER (>256 mm) [16 pts]  BEDROCK [16 pt]  D LEAF PACK/WOODY DEBRIS [3 pts]  0%  FINE DETRITUS [3 pts]  0%  0%	Substrat
COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPAN [0 pt] 0%	Max = 4
GRAVEL (2-64 mm) [9 pts] 40% MUCK [0 pts] 10%	16
SAND (<2 mm) [6 pts] 0% ARTIFICIAL [3 pts] 0%	
Total of Percentages of 10.00% (A) Substrate Percentage (B) Bldr Slabs, Boulder, Cobble, Bedrock (Check	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 TOTAL NUMBER OF SUBSTRATE TYPES: 4	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dep
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):  > 30 centimeters [20 pts]  > 5 cm - 10 cm [15 pts]	Max = 3
> 22.5 - 30 cm [30 pts] < 5 cm [5 pts]	
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	20
COMMENTS MAXIMUM POOL DEPTH (centimeters): 45	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankful
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]  ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	IVIAX-50
COMMENTS AVERAGE BANKFULL WIDTH (meters):	20
This information must also be completed	
RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆ RIPARIAN WIDTH FLOODPLAIN QUALITY	
L R (Per Bank) L R (Most Predominant per Bank) L R	
Wide >10m	
Moderate 5-10m	
Narrow <5m Residential, Park, New Field Open Pasture, Row Co	гор
None Fenced Pasture Mining or Construction	1 7
	_
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing Moist Channel, isolated pools, no flow (Intermitten	t)
Subsurface flow with isolated pools (Interstitial)  Dry channel, no water (Ephemeral)	1
COMMENTS_	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None  1.0  3.0	
0.5 1.5 2.5 >3	
STREAM GRADIENT ESTIMATE	
Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe Severe (10 ft/	
	100 ft)

	ion Must Also be Completed);	
QHEI PERFORMED? - Yes No QHE	El Score 40.0 (If Yes, Attach Completed QHEI Form)	
DOWNSTREAM DESIGNATED USE(S)		
WWH Name:	Distance from Evaluated Stream	Ţ.
CWH Name: _	_ Distance from Evaluated Stream _	4
EWH Name: _;	Distance from Evaluated Stream	
The same of the sa	UDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION	
SGS Quadrangle Name; see Wetland Delineation Ma		
county: Madison	Township / City Fairfield	
MISCELLANEOUS		
Base Flow Conditions? (Y/N):_N Date of last pre-	cipitation: 9-10-2018 Quantity: 0.41	
Photograph Information: See Wetland Delineation Photograph	otolog	
Elevated Turbidity? (Y/N): _N Canopy (% or	pen): 10%	
Were samples collected for water chemistry? (Y/N):	(Note lab sample no. or id. and attach results) Lab Number:	na van
Field Measures: Temp (°C) Dissolved Oxyg	en (mg/l)pH (S.U.) Conductivity (µmhos/cm)	
s the sampling reach representative of the stream (Y/N	Y if not, please explain:	
Additional comments/description of pollution impacts		
Fish Observed? (Y/N) Y Voucher? (Y/N) N S Frogs or Tadpoles Observed? (Y/N) Y Voucher? (Y/N) Comments Regarding Biology:	Salamanders Observed? (Y/N) Voucher?	
		_
DRAWING AND NARRATIVE DES	SCRIPTION OF STREAM REACH (This <u>must</u> be completed):	
	SCRIPTION OF STREAM REACH (This <u>must</u> be completed): s of interest for site evaluation and a narrative description of the stream's location of th	on
	s of interest for site evaluation and a narrative description of the stream's location of the st	on
	s of interest for site evaluation and a narrative description of the stream's location of the st	on
		on
Include important landmarks and other features	s of interest for site evaluation and a narrative description of the stream's location of the st	on
Include important landmarks and other features	s of interest for site evaluation and a narrative description of the stream's location of the st	¥
Include important landmarks and other features	s of interest for site evaluation and a narrative description of the stream's location of the st	¥
Include important landmarks and other features	s of interest for site evaluation and a narrative description of the stream's location of the st	on
Include important landmarks and other features	s of interest for site evaluation and a narrative description of the stream's location of the st	¥
Include important landmarks and other features	s of interest for site evaluation and a narrative description of the stream's location of the st	¥
FLOW	s of interest for site evaluation and a narrative description of the stream's location of the st	¥
Include important landmarks and other features	Ag  Ag  Ag	¥
Include important landmarks and other features	s of interest for site evaluation and a narrative description of the stream's location of the st	¥



SITE NAME/LOCATION WC-101	
SITE NAME/LOCATION SITE NUMBER RIVER BASIN DRAINAGE AREA (mi²)	.01
LENGTH OF STREAM REACH (ft) 50 LAT. 39.83550 LONG83.33840 RIVER CODE RIVER MILE	
DATE 09/15/18 SCORER David K. COMMENTS	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instr	uctions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING RECENT OR NO RECOVERING RECOVERING RECENT OR NO RECOVERING R	OVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	HHEI
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE  PERCENT  TYPE  PERCENT	Metri
□ □ BLDR SLABS [16 pts] □ □ SILT [3 pt] □ 0%	Points
BOULDER (>256 mm) [16 pts]	Substrat
COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPAN [0 pt] 100%	Max = 4
GRAVEL (2-64 mm) [9 pts] 0% MUCK [0 pts] 0%	1
SAND (<2 mm) [6 pts]	
Total of Percentages of 0.00% (A) Substrate Percentage (B) Check	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 0 TOTAL NUMBER OF SUBSTRATE TYPES: 1	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dep
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check <i>ONLY</i> one box):  > 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	Max = 3
> 22.5 - 30 cm [30 pts] < 5 cm [5 pts]	_
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	0
COMMENTS MAXIMUM POOL DEPTH (centimeters):	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankful
> 4.0 meters (> 13') [30 pts] > 4.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  ✓ ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Widx-50
COMMENTS AVERAGE BANKFULL WIDTH (meters): 1.00	5
This information <u>must</u> also be completed	
RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆ RIPARIAN WIDTH FLOODPLAIN QUALITY	
L R (Per Bank) L R (Most Predominant per Bank) L R	
Wide >10m Mature Forest, Wetland Conservation Tillage	
Field Field	
Narrow <5m Residential, Park, New Field Open Pasture, Row Cro	эр
None Fenced Pasture Mining or Construction COMMENTS	
	-
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing Moist Channel, isolated pools, no flow (Intermittent)	)
Subsurface flow with isolated pools (Interstitial)  ONMENTS  ONMENTS	
COMMENTS_	-
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None 1.0 2.0 3.0	
0.5 1.5 2.5 >3	
STREAM GRADIENT ESTIMATE	
STREAM GRADIENT ESTIMATE  Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/1	00 ft)

DOWNSTREAM DESIGNATED USE(S)  WWH Name:  CWH Name:  EWH Name:  MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATE  GGS Quadrangle Name: see Wetland Delineation report maps  NRCS Solunty:  Madison  Township / City:  MISCELLANEOUS  ase Flow Conditions? (Y/N):  potograph Information:  See photolog  evated Turbidity? (Y/N):  N Canopy (% open):  100%	Fairfield  Ouantity: NRCS Soil Map Stream Order  o. or id. and attach results) Lab Number:  S.U.) Conductivity (µmhos/cm)
WWH Name:  CWH Name:  EWH Name:  MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATE  SGS Quadrangle Name: see Wetland Delineation report maps  NRCS Solunty:  Madison  Township / City  MISCELLANEOUS  ase Flow Conditions? (Y/N):  potograph Information:  see photolog  evated Turbidity? (Y/N):  Canopy (% open):  (Note lab sample noted Measures:  Temp (°C)  Dissolved Oxygen (mg/l)  pH ()	Distance from Evaluated Stream Distance from Evaluated Stream ERSHED AREA. CLEARLY MARK THE SITE LOCATION  il Map Page: NRCS Soil Map Stream Order Fairfield  Ouantity: Output D. or id. and attach results) Lab Number: S.U.) Conductivity (µmhos/cm)
CWH Name: _  EWH Name: _  MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATE  GGS Quadrangle Name: _see Wetland Delineation report maps   NRCS Solution  NRCS Solution  MISCELLANEOUS  Itself Flow Conditions? (Y/N): _Y	Distance from Evaluated Stream Distance from Evaluated Stream ERSHED AREA. CLEARLY MARK THE SITE LOCATION  il Map Page: NRCS Soil Map Stream Order Fairfield  Ouantity: Output D. or id. and attach results) Lab Number: S.U.) Conductivity (µmhos/cm)
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATER  SGS Quadrangle Name: see Wetland Delineation report maps   NRCS Solution  MISCELLANEOUS  Issee Flow Conditions? (Y/N): Y   Date of last precipitation:   O - 201  Introduction   See Photolog  Revated Turbidity? (Y/N):   Canopy (% open):   100%  Rere samples collected for water chemistry? (Y/N):   (Note lab sample noted the dead Measures: Temp (°C)   Dissolved Oxygen (mg/l)   pH ()	Distance from Evaluated Stream  ERSHED AREA. CLEARLY MARK THE SITE LOCATION  il Map Page: NRCS Soil Map Stream Order  Fairfield  Quantity: O. O. or id. and attach results) Lab Number:  S.U.) Conductivity (µmhos/cm)
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATE  SGS Quadrangle Name: see Wetland Delineation report maps  NRCS Solutive: Madison  MISCELLANEOUS  Itself Flow Conditions? (Y/N): Y  Date of last precipitation: 100%  Interpretation of the second seed of the second second seed of the second second second seed of the second	il Map Page: NRCS Soil Map Stream Order .  Fairfield  Quantity:  o. or id. and attach results) Lab Number:  S.U.) Conductivity (µmhos/cm)
MISCELLANEOUS  Interpretation report maps  Interpretation	Fairfield  Ouantity: NRCS Soil Map Stream Order  o. or id. and attach results) Lab Number:  S.U.) Conductivity (µmhos/cm)
MISCELLANEOUS  ase Flow Conditions? (Y/N): Y Date of last precipitation: O O O O  notograph Information: See photolog  evated Turbidity? (Y/N): N Canopy (% open): 100%  ere samples collected for water chemistry? (Y/N): N (Note lab sample noted Measures: Temp (°C) Dissolved Oxygen (mg/l) pH ()	Ouantity: O.41"  o. or id. and attach results) Lab Number:  S.U.) Conductivity (µmhos/cm)
MISCELLANEOUS  ase Flow Conditions? (Y/N): Y Date of last precipitation: Q 10 - 2011  notograph Information: see photolog  evated Turbidity? (Y/N): N Canopy (% open): 100%  ere samples collected for water chemistry? (Y/N): N (Note lab sample noted Measures: Temp (°C) Dissolved Oxygen (mg/l) pH ()	o. or id. and attach results) Lab Number:
Date of last precipitation:    O - 201	o. or id. and attach results) Lab Number: S.U.) Conductivity (µmhos/cm)
evated Turbidity? (Y/N): N Canopy (% open): 100% ere samples collected for water chemistry? (Y/N): N (Note lab sample noted Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (	o. or id. and attach results) Lab Number: S.U.) Conductivity (µmhos/cm)
evated Turbidity? (Y/N): N Canopy (% open): 100%  ere samples collected for water chemistry? (Y/N): N (Note lab sample noted Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (	S.U.) Conductivity (µmhos/cm)
ere samples collected for water chemistry? (Y/N): N (Note lab sample noted Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (	S.U.) Conductivity (µmhos/cm)
eld Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (	S.U.) Conductivity (µmhos/cm)
0.00	
the sampling reach representative of the stream (V/N)	olain:
and damping reach representative of the stream (Title ) in the please exp	
only the beginning 50 ft of WC-101 extend into the Project Area. Stream of	characteristics offsite cannot be determined
	s optional. NOTE: all voucher samples must be labeled with the Primary Headwater Habitat Assessment Manual)  Y/N)  Voucher? (Y/N)  Voucher? (Y/N)  Voucher? (Y/N)
DRAWING AND NARRATIVE DESCRIPTION OF STR	
1/N	
LOW - WC-101	Ag

Roset Form



SITE NAME/LOCATION WC-102	
SITE NUMBER RIVER BASIN DRAINAGE AREA (mi²)	38
LENGTH OF STREAM REACH (ft) 10 LAT. 39.82613 LONG83.32000 RIVER CODE RIVER MILE	
DATE 09/15/18 SCORER David K. COMMENTS	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instr	uctions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO REC MODIFICATIONS:	OVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	HHEI
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE  PERCENT  TYPE  PERCENT	Metri
BLDR SLABS [16 pts]	Points
BEDROCK [16 pt]	Substrat
COBBLE (65-256 mm) [12 pts]	Max = 40
☐ GRAVEL (2-64 mm) [9 pts] ☐ MUCK [0 pts] ☐ SAND (<2 mm) [6 pts] ☐ ARTIFICIAL [3 pts] ☐ 0%	5
Title ( Part of the Control of the C	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock (A) Substrate Percentage (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3 TOTAL NUMBER OF SUBSTRATE TYPES: 2	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dep
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):  > 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	Max = 3
> 22.5 - 30 cm [30 pts]	5
	5
COMMENTS MAXIMUM POOL DEPTH (centimeters): 5	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankful Width
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ≤ 1.0 m (<=3' 3") [5 pts]	Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
COMMENTS AVERAGE BANKFULL WIDTH (meters): 1.50	15
This information <u>must</u> also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆	
RIPARIAN WIDTH FLOODPLAIN QUALITY	
L R (Per Bank) L R (Most Predominant per Bank) L R  Wide >10m Mature Forest, Wetland Conservation Tillage	
<del></del>	
Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial	
Field Orpan or industrial	ıρ
Field Orban or industrial  Narrow <5m Residential, Park, New Field Open Pasture, Row Cro	p
Field Orpan or industrial	op
None Field Orban of Industrial  Field Open Pasture, Row Cro  Mining or Construction	p
Narrow <5m Residential, Park, New Field Open Pasture, Row Cro None Fenced Pasture Mining or Construction COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermittent)	-
Narrow <5m Residential, Park, New Field Open Pasture, Row Cro None Fenced Pasture Mining or Construction COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	-
Narrow <5m Residential, Park, New Field Open Pasture, Row Cro None Fenced Pasture Mining or Construction COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial)  Field  Open Pasture, Row Cro Mining or Construction Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)	-
None Fenced Pasture Stream Flowing Subsurface flow with isolated pools (Interstitial)  SINUOSITY (Number of bends per 61 m (200 ft) of channel)  Field  Open Pasture, Row Cro  Mining or Construction  Mining or Construction  Moist Channel, isolated pools, no flow (Intermittent)  Dry channel, no water (Ephemeral)  Check ONLY one box):  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None  1.0  3.0	-
Narrow <5m	-
None Fenced Pasture Stream Flowing Subsurface flow with isolated pools (Interstitial)  SINUOSITY (Number of bends per 61 m (200 ft) of channel)  Field  Open Pasture, Row Cro  Mining or Construction  Mining or Construction  Moist Channel, isolated pools, no flow (Intermittent)  Dry channel, no water (Ephemeral)  Check ONLY one box):  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None  1.0  3.0	

QHEI PERFORMED? - Yes No QHEI Score	
	(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
CWH Name;	Distance from Evaluated Stream
EWH Name: _	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE	WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
SGS Quadrangle Name: see Wetland Delineation report maps	ICS Soil Map Page:NRCS Soil Map Stream Order
ounty: Madison Township	City: Fairfield
MISCELLANEOUS	
ase Flow Conditions? (Y/N): Y Date of last precipitation:_ 9-10	0-2018 Quantity: 0-41"
hotograph Information: see photolog	
levated Turbidity? (Y/N): _N Canopy (% open): _ 100%	
NI =	nple no. or id. and attach results) Lab Number:
ield Measures Temp (°C) Dissolved Oxygen (mg/l)	pH (S.U.)Conductivity (µmhos/cm)
the sampling reach representative of the stream (Y/N)	ase explain:
only the beginning 10 ft of WC-102 extend into the Project Area. Si	
and the additional field of the second state o	
additional comments/description of pollution impacts:	
ID number. Include appropriate field data sho	
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observeds or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic M	rved? (Y/N) N Voucher? (Y/N)
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observeds or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic M	voucher? (Y/N) N Vouche
Fish Observed? (Y/N) N Salamanders Observeds or Tadpoles Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Aquatic Moments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF	rved? (Y/N) N Voucher?
Fish Observed? (Y/N) N Salamanders Observeds or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic N Comments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF Include Important landmarks and other features of Interest for site	voucher? (Y/N) N Vouche
Fish Observed? (Y/N) N Salamanders Observeds or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic N Comments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF Include Important landmarks and other features of Interest for site	Voucher? (Y/N) N Vouche
Fish Observed? (Y/N) N Salamanders Observeds or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Momments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF Include Important landmarks and other features of Interest for site As	Voucher? (Y/N) N Vouche
DRAWING AND NARRATIVE DESCRIPTION OF Include Important landmarks and other features of Interest for site As	Voucher? (Y/N) N Vouche



SITE NAME/LOCATION WC-103	
SITE NUMBER RIVER BASIN DRAINAGE AREA (mi²)	.01
LENGTH OF STREAM REACH (ft) 140 LAT. 39.82524 LONG83.32065 RIVER CODE RIVER MILE	
DATE 09/15/18 SCORER David K. COMMENTS begin with tile outlet from adjacent field	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instr	uctions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING:	OVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HHEI
TYPE  PERCENT  TYPE  PERCENT	Metric
BLDR SLABS [16 pts]	Points
BEDROCK [16 pt]  BEDROCK [16 pt]  D'  D'  D'  D'  D'  D'  D'  D'  D'  D	Substrat Max = 4
COBBLE (65-256 mm) [12 pts]	Wax - 4
GRAVEL (2-64 mm) [9 pts]  SAND (<2 mm) [6 pts]  MUCK [0 pts]  ARTIFICIAL [3 pts]  0%	1
Total of Percentages of 0.00% (A) Substrate Percentage (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock	ATB
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):	Pool Dep Max = 3
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	
> 22.5 - 30 cm [30 pts]	0
COMMENTS MAXIMUM POOL DEPTH (centimeters): 0	
	Bankful
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  ✓ ≤ 1.0 m (<=3' 3") [5 pts]	Max=30
COMMENTS AVERAGE BANKFULL WIDTH (meters): 1.50	5
AVERAGE BARKI GEE WIDTH (Inicials).	
This information must also be completed	
RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆ RIPARIAN WIDTH FLOODPLAIN QUALITY	
L R (Per Bank) L R (Most Predominant per Bank) L R	
Wide >10m	
Wide >10m	<b>10</b>
Wide >10m  Mature Forest, Wetland  Immature Forest, Shrub or Old  Field  Narrow <5m  Mature Forest, Wetland  Conservation Tillage  Urban or Industrial  Open Pasture, Row Cro	qc
Wide >10m	qc -
Wide >10m	- -
Wide >10m	-
Wide >10m	- ) <u> </u>

ADDITIONAL STREAM INFORMAT	ION (This Information Must Also	be Completed):	
QHEI PERFORMED?	Yes / No QHEI Score	(If Yes, Attach	n Completed QHEI Form)
DOWNSTREAM DESIGN	ATED USE(S)		
WWH Name:			Distance from Evaluated Stream ,
CWH Name:			Distance from Evaluated Stream
EWH Name:		× - e	Distance from Evaluated Stream
		NTIRE WATERSHED A	REA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: see Wet	and Delineation report maps	NRCS Soil Map Pag	ge:NRCS Soil Map Stream Order .
County: Madison	▼ Town	ship / City: Fairfield	
MISCELLANEOUS			
Base Flow Conditions? (Y/N):_Y	_ Date of last precipitation:_ Q	-10 - 2018 _	Quantity: 0.41"
Photograph Information: _see photo	olog		
Elevated Turbidity? (Y/N): _N	Canopy (% open): 100	%	
	W-		
Vere samples collected for water of			d attach results) Lab Number:
Field Measures: Temp (°C)			Conductivity (µmhos/cm)
s the sampling reach representative	of the stream (Y/N)	, please explain:	
only the beginning 10 ft of WC	:-102 extend into the Project Are	a. Stream characteri	stics offsite cannot be determined
Fish Observed? (Y/N) Vou	umber_Include appropriate field dat cher? (Y/N) N Salamanders C	a sheets from the Prime	NOTE: all voucher samples must be labeled with the sary Headwater Habitat Assessment Manual)  Voucher? (Y/N)  Voucher? (Y/N)  Voucher? (Y/N)
	s and other features of interest fo		EACH (This must be completed): a narrative description of the stream's location
<b>V</b> · <b>v</b>	134	7	

Raw I From



### Primary Headwater Habitat Evaluation Form

	HHEI Score (sum of metrics 1, 2, 3):
SITE NAME/LOCATION WC-104	
	R BASIN DRAINAGE AREA (mi²) 0.01
ENGTH OF STREAM REACH (ft) 140 LAT. 39.82487	LONG83.32290 RIVER CODE RIVER MILE
	field drainage
	Evaluation Manual for Ohio's PHWH Streams" for Instructions
NOTE. Complete All Items On This Form - Refer to Freid I	Evaluation Manual for Office S Privaria Streams for instructions
	RECOVERED RECOVERING RECENT OR NO RECOVERY
MODIFICATIONS:	
SUBSTRATE (Estimate percent of every type of substrate parts)	present. Check ONLY two predominant substrate TYPE boxes
(Max of 32). Add total number of significant substrate types for	und (Max of 8). Final metric score is sum of boxes A & B.
TYPE PERCENT TYPE	- Dain
BLDR SLABS [16 pts] 0%	SILT [3 pt]  LEAF PACK/WOODY DEBRIS [3 pts]  0%
BEDROCK [16 pt] 0%	FINE DETRITUS [3 pts] 0% Substra
COBBLE (65-256 mm) [12 pts] 0%	CLAY or HARDPAN [0 pt] 100%
GRAVEL (2-64 mm) [9 pts] %	MUCK [0 pts]
SAND (<2 mm) [6 pts]	ARTIFICIAL [3 pts]
Total of Percentages of 0.00% (A)	Substrate Percentage (B) A + B
Bldr Slabs, Boulder, Cobble, Bedrock  CORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 0	TOTAL NUMBER OF SUBSTRATE TYPES: 1
OOKL OF INO MOST PREDOMINATE SUBSTRATE TIPES:	TOTAL NUMBER OF SUBSTRATE TIPES:
Maximum Pool Depth (Measure the maximum pool depth v	
evaluation. Avoid plunge pools from road culverts or storm wat > 30 centimeters [20 pts]	er pipes) (Check <i>ONLY</i> one box):  > 5 cm - 10 cm [15 pts]
> 22.5 - 30 cm [30 pts]	< 5 cm [5 pts]
> 10 - 22.5 cm [25 pts]	NO WATER OR MOIST CHANNEL [0 pts]
COMMENTS	MAXIMUM POOL DEPTH (centimeters): 0
DANK FILL MIDTH (Macaning day the groups of 2.4 mags	urements) (Check ONLY one box): Bankfi
BANK FULL WIDTH (Measured as the average of 3-4 meas > 4.0 meters (> 13') [30 pts]	<u>urements) (Check <i>ONL</i> Y one box):</u> Bankft  ≥ 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] Width
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	✓ ≤ 1.0 m (<=3' 3") [5 pts] <b>Max=3</b>
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
COMMENTS	AVERAGE BANKFULL WIDTH (meters): 1.50 5
This informa	ation must also be completed
	NOTE: River Left (L) and Right (R) as looking downstream ☆
RIPARIAN WIDTH         FLOODPLAIN QU/           L R (Per Bank)         L R (Most Pr	<u>ALITY</u> edominant per Bank) <u>L_R</u>
	Forest, Wetland Conservation Tillage
I II I Moderate 5-10m I II I	e Forest, Shrub or Old Urban or Industrial
Field	Open Pasture, Row Crop
	liai, Park, New Field
None Fenced F	Pasture
O IVIIVILITI O	<u></u>
FLOW REGIME (At Time of Evaluation) (Check ONL	
Stream Flowing Subsurface flow with isolated pools (Interstitial)	Moist Channel, isolated pools, no flow (Intermittent)  Dry channel, no water (Ephemeral)
COMMENTS_	
SINUOSITY (Number of bends per 61 m (200 ft) of cha	annel) (Check OM Vone hov):
None None 1.0	2.0
0.5	2.5 >3
STREAM GRADIENT ESTIMATE	
Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/10	Moderate to Severe Severe (10 ft/100 ft)
· ·	

ADDITIONAL STREAM INFORMATION (This Information Must A	Iso be Completed):
QHEI PERFORMED? - Yes V No QHEI Score	(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
CWH Name:	© Distance from Evaluated Stream
EWH Name: _	Distance from Evaluated Stream
	ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name see Wetland Delineation report maps	NRCS Soil Map Page:NRCS Soil Map Stream Order
County: Madison Tov	wnship / City: Fairfield
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation:	9-10-18 Quantity: 0.41"
hotograph Information: _see photolog	
Elevated Turbidity? (Y/N): _N Canopy (% open); 2	20%
Vere samples collected for water chemistry? (Y/N): N (Note	lab sample no. or id. and attach results) Lab Number
ield Measures: Temp (°C) Dissolved Oxygen (mg/l)	pH (S.U.) Conductivity (μmhos/cm)
s the sampling reach representative of the stream (Y/N)	not, please explain:
only the beginning 10 ft of WC-102 extend into the Project A	Area. Stream characteristics offsite cannot be determined
Additional comments/description of pollution impacts	
ID number Include appropriate field of	cher collections optional. NOTE: all voucher samples must be labeled with the data sheets from the Primary Headwater Habitat Assessment Manual) sobserved? (Y/N) Voucher? (
	ON OF STREAM REACH (This <u>must</u> be completed):
Include important landmarks and other features of Interest	t for site evaluation and a narrative description of the stream's location
A9	EC Gurl's
(112	0
WC-104	
Low -	
EN Forest	
Fuzz.	
. 1	
$\Lambda_{\mathcal{C}}$	
779	
PHW	VH Form Page - 2



SITE NAME/LOCATION WC-105	
SITE NUMBER	RIVER BASIN DRAINAGE AREA (mi²) 0.01
LENGTH OF STREAM REACH (ft) 460 LAT. 39.8	
	MMENTS field drainage
	"Field Evaluation Manual for Ohio's PHWH Streams" for Instructions
STREAM CHANNEL NONE / NATURAL CHAIMODIFICATIONS:	NNEL RECOVERED RECOVERING RECENT OR NO RECOVERY
	ubstrate present. Check ONLY two predominant substrate TYPE boxes bypes found (Max of 8). Final metric score is sum of boxes A & B. HHE
TYPE PERCENT	TYPE PERCENT Metric
BLDR SLABS [16 pts]  O%	SILT [3 pt] % Points
BOULDER (>256 mm) [16 pts]	LEAF PACK/WOODY DEBRIS [3 pts]  FINE DETRITUS [3 pts]  0%  0%  Substrat
COBBLE (65-256 mm) [12 pts] 0%	CLAY or HARDPAN [0 pt]
GRAVEL (2-64 mm) [9 pts] %  SAND (<2 mm) [6 pts] 0%	MUCK [0 pts]
SAND (<2 mm) [6 pts] 0%	ARTIFICIAL [3 pts]
Total of Percentages of 0.00% Bldr Slabs, Boulder, Cobble, Bedrock	(A) Substrate Percentage Check (B) A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYP	ES: 0 TOTAL NUMBER OF SUBSTRATE TYPES: 1 ▼
2. Maximum Pool Depth (Measure the maximum pool	ol depth within the 61 meter (200 ft) evaluation reach at the time of Pool Dep
evaluation. Avoid plunge pools from road culverts or > 30 centimeters [20 pts]	storm water pipes) (Check ONLY one box):  > 5 cm - 10 cm [15 pts]  Max = 3
> 22.5 - 30 cm [30 pts]	< 5 cm [5 pts]
> 10 - 22.5 cm [25 pts]	NO WATER OR MOIST CHANNEL [0 pts]
COMMENTS	MAXIMUM POOL DEPTH (centimeters): 0
3. BANK FULL WIDTH (Measured as the average of	3-4 measurements) (Check ONLY one box): Bankful
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] Width  ✓ 1.0 m (<=3' 3") [5 pts] Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	<u> </u>
COMMENTS	AVERAGE BANKFULL WIDTH (meters): 1.50 5
· · · · · · · · · · · · · · · · · · ·	
	s information <u>must</u> also be completed
RIPARIAN ZONE AND FLOODPLAIN QUAL RIPARIAN WIDTH FLOODP	ITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆ LAIN QUALITY
L R (Per Bank) L R	(Most Predominant per Bank) L R
Wide >10m	Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old
Moderate 5-10m	Field Urban or Industrial
✓ ✓ Narrow <5m	Residential, Park, New Field Open Pasture, Row Crop
None COMMENTS	Fenced Pasture Mining or Construction
OCIVIMENTO _	<del></del>
FLOW REGIME (At Time of Evaluation) (Ch Stream Flowing	eck ONLY one box):  Moist Channel, isolated pools, no flow (Intermittent)
Stream Flowing Subsurface flow with isolated pools (Interstitia	Moist Channel, isolated pools, no flow (Intermittent)
Stream Flowing Subsurface flow with isolated pools (Interstitia COMMENTS	Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)
Stream Flowing Subsurface flow with isolated pools (Interstitia COMMENTS  SINUOSITY (Number of bends per 61 m (200	Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)  Oft) of channel) (Check ONLY one box):
Stream Flowing Subsurface flow with isolated pools (Interstitia COMMENTS	Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)
Stream Flowing Subsurface flow with isolated pools (Interstitia COMMENTS  SINUOSITY (Number of bends per 61 m (200 None 1.0 0.5  STREAM GRADIENT ESTIMATE	Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)  Oft) of channel) (Check ONLY one box):  2.0 2.5 3.0 3.0 >3
Stream Flowing Subsurface flow with isolated pools (Interstitia COMMENTS  SINUOSITY (Number of bends per 61 m (200 None 0.5  STREAM GRADIENT ESTIMATE	Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)  Oft) of channel) (Check ONLY one box):

ADDITIONAL STREAM INFORMATION (This Information Must Also be Co	ompleted):
QHEI PERFORMED? - Yes V No QHEI Score	(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE	WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
SGS Quadrangle Name: see Wetland Delineation report maps NRC	S Soil Map Page: NRCS Soil Map Stream Order
ounty: Madison Township / C	Fairfield
MISCELLANEOUS	
ase Flow Conditions? (Y/N): Y Date of last precipitation: 9-10	0-18 Quantity: 0-41"
notograph Information: see photolog	
levated Turbidity? (Y/N): _N Canopy (% open): 20%	
	ole no. or id. and attach results) Lab Numbert
ield Measures: Temp (°C) Dissolved Oxygen (mg/l)	
the sampling reach representative of the stream (Y/N) If not, pleas	o evalain
only the beginning 10 ft of WC-102 extend into the Project Area. Stre	
ID number. Include appropriate field data sheet	ctions optional. NOTE: all voucher samples must be labeled with the strom the Primary Headwater Habitat Assessment Manual) ed? (Y/N) Voucher?
DRAWING AND NARRATIVE DESCRIPTION OF Some include important landmarks and other features of interest for site of the state	· —
N V	Jue Jue
Ay	
PHWH Form	Page - 2

Resal Form

October 24, 2002 Revision



SITE NAME/LOCATION WC-106	
SITE NUMBER RIVER BASIN DRAINAGE AREA (mi²) 0.	.01
LENGTH OF STREAM REACH (ft) 640 LAT. 39.83100 LONG. 83.32710 RIVER CODE RIVER MILE	
DATE 09/15/18 SCORER David K. COMMENTS field drainage	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instr	uctions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING.	OVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HHE
TYPE PERCENT TYPE PERCENT	Metric Points
BLDR SLABS [16 pts]	
BEDROCK [16 pt]	Substrat Max = 4
☐ COBBLE (65-256 mm) [12 pts]	
SAND (<2 mm) [6 pts]	1
Total of Percentages of 0.00% (A) Substrate Percentage (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock  SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 0  TOTAL NUMBER OF SUBSTRATE TYPES: 1	
	Pool Don
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):	Pool Dep Max = 3
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts] > 22.5 - 30 cm [30 pts] < 5 cm [5 pts]	
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	0
COMMENTS MAXIMUM POOL DEPTH (centimeters): 0	
BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	
	Bankful
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankful Width
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  > 1.0 m (<=3' 3") [5 pts]	
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	Width Max=30
	Width
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (meters): 1.50  This information must also be completed	Width Max=30
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (meters): 1.50  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆	Width Max=30
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (meters): 1.50  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream ANOTE: RIPARIAN WIDTH  RIPARIAN WIDTH  L R (Per Bank)  L R (Most Predominant per Bank)  L R	Width Max=30
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  L R (Per Bank)  L R (Most Predominant per Bank)  V ≤ 1.0 m (<=3' 3") [5 pts]  AVERAGE BANKFULL WIDTH (meters):  1.50  This information must also be completed  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  V Wide >10 m  V Mature Forest, Wetland  Conservation Tillage	Width Max=30
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (meters):  1.50  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ♣NOTE: River Left (L) and Right (R) as looking downstream ♣  RIPARIAN WIDTH  L R (Per Bank)  V Wide > 10m  Moderate 5-10m  L R (Most Predominant per Bank)  I R (Most Predominant per Bank)	Width Max=30
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (meters): 1.50  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆  RIPARIAN WIDTH  L R (Per Bank)  L R (Most Predominant per Bank)  V Wide > 10m  Moderate 5-10m  Moderate 5-10m  Immature Forest, Wetland  Urban or Industrial	Width Max=30
Solution	Width Max=30
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  L R (Per Bank)  Vide >10m (Yer School )  Wide >10m (Yer School )  Average Bank (Per Bank)  Wide >10m (Yer School )  Riparian Wide	Width Max=30
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  L R (Per Bank)  Vide >1.0 m (<=3' 3") [5 pts]  L R (Most Predominant per Bank)  Vide >1.0 m (<=3' 3") [5 pts]  AVERAGE BANKFULL WIDTH (meters):  1.50  This information must also be completed  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  Vide >10 m  Moderate 5-10 m  Moderate 5-10 m  Residential, Park, New Field  Narrow <5 m  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Moist Channel, isolated pools, no flow (Intermittent)	Width Max=30
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆  RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank) L R (Most Predominant per Bank) L R  Wide >10 m	Width Max=30
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Narrow <5m  Narrow <5m  None  COMMENTS  FLOW REGIME (At Time of Evaluation)  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS  AVERAGE BANKFULL WIDTH (meters):  1.50  AVER	Width Max=30
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  (Per Bank)  Wide >10 m (>9 10 m)  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation)  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel)  (Check ONLY one box):  None  SINUOSITY (Number of bends per 61 m (200 ft) of channel)  (Check ONLY one box):  None  SINUOSITY (Number of bends per 61 m (200 ft) of channel)  (Check ONLY one box):  None  1.0  AVERAGE BANKFULL WIDTH (meters):  1.50  AVERAGE BA	Width Max=30
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	Width Max=30
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  (Per Bank)  Wide >10 m (>9 10 m)  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation)  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel)  (Check ONLY one box):  None  SINUOSITY (Number of bends per 61 m (200 ft) of channel)  (Check ONLY one box):  None  SINUOSITY (Number of bends per 61 m (200 ft) of channel)  (Check ONLY one box):  None  1.0  AVERAGE BANKFULL WIDTH (meters):  1.50  AVERAGE BA	Width Max=30

ADDITIONAL STREAM INFORMATI	ON (This Information Must Also be Compl	leted):
QHEI PERFORMED? -	Yes No QHEI Score (If Y	Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNA	ATED USE(S)	
WWH Name:		Distance from Evaluated Stream ;
CWH Name:		Distance from Evaluated Stream  Distance from Evaluated Stream
_EWH Name:		_ Distance from Evaluated Stream 1
		ERSHED AREA. CLEARLY MARK THE SITE LOCATION
SGS Quadrangle Name		oil Map Page: NRCS Soil Map Stream Order
ounty: Madison	Township / City_	Fairfield
MISCELLANEOUS		
ase Flow Conditions? (Y/N):_Y	Date of last precipitation: 9-10-19	S Quantity: O. 41"
notograph Information: _see photo	olog	
levated Turbidity? (Y/N): _N 🔻	Canopy (% open): <b>20</b> %	
ere samples collected for water ch	M -	o. or id. and attach results) Lab Number:
ield Measures: Temp (°C)		(S.U.) Conductivity (µmhos/cm)
	e of the stream (Y/N)	
only the beginning to it of WC	-102 extend into the Project Area. Stream	characteristics offsite cannot be determined
dditional comments/description of p	pollution impacts:	
ID nu		s optional. NOTE: all voucher samples must be labeled with the om the Primary Headwater Habitat Assessment Manual)  (Y/N)  Voucher? (Y/N)  Voucher? (Y/N)  Voucher? (Y/N)
		REAM REACH (This <u>must</u> be completed): uation and a narrative description of the stream's location
· · · · · /	7 E. JE	
LOW -		
		1
	Fores*	1,72.110
	PHWH Form Page	e - 2







SITE NAME/LOCATION WC-107	
SITE NUMBER RIVER BASIN DRAINAGE AREA (mi²) 0	.51
LENGTH OF STREAM REACH (ft) 2,000 LAT. 39.82550 LONG83.32460 RIVER CODE RIVER MILE	
DATE 09/15/18 SCORER David K. COMMENTS	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instr	
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO REC MODIFICATIONS:	OVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HHE
TYPE         PERCENT         TYPE         PERCENT           □ □ □ BLDR SLABS [16 pts]         0%         □ ✓ SILT [3 pt]         30%	Metric
BOULDER (>256 mm) [16 pts] 0% LEAF PACK/WOODY DEBRIS [3 pts] 0%	Substrat
□       □       BEDROCK [16 pt]       20%       □       □       FINE DETRITUS [3 pts]       0%         □       □       COBBLE (65-256 mm) [12 pts]       0%       □       CLAY or HARDPAN [0 pt]       50%	Max = 4
GRAVEL (2-64 mm) [9 pts]	6
SAND (<2 mm) [6 pts]	
Total of Percentages of 20.00% (A) Substrate Percentage (B) Sldr Slabs, Boulder, Cobble, Bedrock	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3 TOTAL NUMBER OF SUBSTRATE TYPES: 3	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):	Pool Dep
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	IVIAX - 3
> 22.5 - 30 cm [30 pts]	20
COMMENTS MAXIMUM POOL DEPTH (centimeters): 0	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankful
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] \( \leq 1.0 m (<=3' 3") [5 pts]	
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
	Max=30
	Max=30
COMMENTS AVERAGE BANKFULL WIDTH (meters): 1.50  This information must also be completed	Max=30
AVERAGE BANKFULL WIDTH (meters): 1.50  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY \$NOTE: River Left (L) and Right (R) as looking downstream \$\frac{1}{2}\$  RIPARIAN WIDTH FLOODPLAIN QUALITY	Max=30
AVERAGE BANKFULL WIDTH (meters): 1.50  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY % NOTE: River Left (L) and Right (R) as looking downstream %	Max=30
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH  RIPARIAN WIDTH  L R (Per Bank)  L R (Most Predominant per Bank)  Wide >10m  Mature Forest, Wetland  Conservation Tillage  Immature Forest, Shrub or Old  Lirban or Industrial	Max=30
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream A  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  L R (Most Predominant per Bank)  Wide >10m  Mature Forest, Wetland  Conservation Tillage	Max=30
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream A  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Narrow <5m  Residential, Park, New Field  Mining or Construction	Max=30
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream A  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Narrow <5m  Residential, Park, New Field  To Narrow Cross  AVERAGE BANKFULL WIDTH (meters):  1.50  L R (Most Predominant per Bank)  Conservation Tillage  Wide >10m  Residential, Park, New Field  Open Pasture, Row Cross  Open Past	Max=30
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank) L R (Most Predominant per Bank) L R	20 20
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank) L R (Most Predominant per Bank) L R	20 20
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream  RIPARIAN WIDTH  FLOODPLAIN QUALITY  R (Per Bank)  Wide >10m  Mature Forest, Wetland  Immature Forest, Wetland  Woderate 5-10m  Residential, Park, New Field  Narrow <5m  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	20 20
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Immature Forest, Shrub or Old  Immature Forest, Shrub or Old  Immature Forest, New Field  Open Pasture, Row Cro  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS  Material Subsurface BankFull WIDTH (meters):  1.50  This information must also be completed  NOTE: River Left (L) and Right (R) as looking downstream  NOTE: River Left (L) and Right (R) as looking downstream  Residentian per Bank)  L R  Conservation Tillage  Urban or Industrial  Open Pasture, Row Cro  Mining or Construction  Moist Channel, isolated pools, no flow (Intermittent)  Dry channel, no water (Ephemeral)	20 20

	be Completed):
QHEI PERFORMED? - Yes V No QHEI Score	(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
	NTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
SGS Quadrangle Name see Wetland Delineation report maps	NRCS Soil Map Page. NRCS Soil Map Stream Order
ounty: Madison Town:	ship / City:_ Fairfield
MISCELLANEOUS	
ase Flow Conditions? (Y/N):_ Y Date of last precipitation:_ G	1-10-18 Quantity: 0.41"
hotograph Information: _see photolog	
levated Turbidity? (Y/N): _N Canopy (% open): _ 20°	%
3.100	b sample no. or id. and attach results) Lab Number:
ield Measures: Temp (°C). Dissolved Oxygen Ima/l)	pH (S.U.) Conductivity (µmhos/cm)
s the sampling reach representative of the stream (Y/N)	, please explain:
only the beginning 10 ft of WC-102 extend Into the Project Are	
ish Observed? (Y/N) Vaucher? (Y/N) Salamanders Crogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aqua	a sheets from the Primary Headwater Habitat Assessment Manual)  Observed? (Y/N) N Voucher? (Y/N)
ID number. Include appropriate field dat  Vaucher? (Y/N)  Salamanders C  rogs or Tadpoles Observed? (Y/N)  Comments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION	Observed? (Y/N) N Voucher? (Y/N) N
ID number. Include appropriate field date value of the control of	Sa sheets from the Primary Headwater Habitat Assessment Manual)  Observed? (Y/N) N Voucher?
ID number. Include appropriate field dat  Voucher? (Y/N)  Salamanders Comments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION  Include Important landmarks and other features of Interest for	Sa sheets from the Primary Headwater Habitat Assessment Manual)  Observed? (Y/N) N Voucher?

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October 24, 2002 Revision



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SITE NAME/LOCATION WC-108	
SITE NUMBER RIVER BASIN DRAINAGE AREA (mi²)	0.31
LENGTH OF STREAM REACH (ft) 560 LAT. 39.82780 LONG83.32620 RIVER CODE RIVER MILE	
DATE 09/15/18 SCORER David K. COMMENTS	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Ins	tructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO REMODIFICATIONS:	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	ı HHEI
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE  PERCENT  TYPE  PERCENT	Metric
BLDR SLABS [16 pts] 0% SILT [3 pt] 10% BOULDER (>256 mm) [16 pts] 0% LEAF PACK/WOODY DEBRIS [3 pts] 0%	Points
BEDROCK [16 pt]	Substrat
COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPAN [0 pt] 90%	Max = 40
GRAVEL (2-64 mm) [9 pts]    MUCK [0 pts]   MUCK [0 pts]   MUCK [0 pts]   MUCK [0 pts]   MUCK [0 pts]	2
Authorization ( 2 mm) [o pto]	
Total of Percentages of 0.00% (A) Substrate Percentage (B) Bldr Slabs, Boulder, Cobble, Bedrock Check	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 0 TOTAL NUMBER OF SUBSTRATE TYPES: 2	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dep
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):  > 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	Max = 30
> 22.5 - 30 cm [30 pts]	5
COMMENTS MAXIMUM POOL DEPTH (centimeters): 5	
	l
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankful Width
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]   > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]   ≤ 1.0 m (<=3' 3") [5 pts]	Bankful Width Max=30
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]   > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]   ≤ 1.0 m (<=3' 3") [5 pts]	Width
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (meters):  1.50	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (meters):  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ↑NOTE: River Left (L) and Right (R) as looking downstream ↑  RIPARIAN WIDTH  FLOODPLAIN QUALITY	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (meters):  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ♣ NOTE: River Left (L) and Right (R) as looking downstream ♣	Width Max=30
> 4.0 meters (> 13') [30 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]     > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]   ≤ 1.0 m (<=3' 3") [5 pts]     > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]       AVERAGE BANKFULL WIDTH (meters): 1.50      This information must also be completed     RIPARIAN ZONE AND FLOODPLAIN QUALITY	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (meters):  AVERAGE BANKFULL WIDTH (meters):  Indicates the second of the seco	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (meters):  AVERAGE BANKFULL WIDTH (meters):  Indicates the second of the seco	Width Max=30
> 4.0 meters (> 13') [30 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  NOTE: River Left (L) and Right (R) as looking downstream  RIPARIAN WIDTH  R (Per Bank)  Wide >10 m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Residential, Park, New Field  None  COMMENTS  PLOW REGIME (At Time of Evaluation) (Check ONLY one box):	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (<=3' 3") [5 pts]  COMMENTS   This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  NOTE: River Left (L) and Right (R) as looking downstream  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  Wide >10 m  Mature Forest, Wetland  Moderate 5-10m  None  None  Residential, Park, New Field  None  COMMENTS  None  Fenced Pasture  Mining or Construction  COMMENTS	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  NOTE: River Left (L) and Right (R) as looking downstream  RIPARIAN WIDTH  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  None  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Moist Channel, isolated pools, no flow (Intermitted)	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  NOTE: River Left (L) and Right (R) as looking downstream ↑  RIPARIAN WIDTH  L R (Most Predominant per Bank)  Wide >10 m  Mature Forest, Wetland  Moderate 5-10 m  Moderate 5-10 m  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream And RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank) Wide >10m Mature Forest, Wetland Moderate 5-10m Moderate 5-10m Residential, Park, New Field  Open Pasture, Row Completed  RIPARIAN WIDTH  FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream A	Width Max=30
> 4.0 meters (> 13') [30 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m (<=3' 3") [5 pts]   > 1.5 m - 3.0 m (> 9' 7" - 13') [25 pts]   > 1.5 m - 3.0 m (> 9' 7" - 14' 8") [20 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m · 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m · 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN WIDTH  ENDODPLAIN QUALITY  NOTE: River Left (L) and Right (R) as looking downstream Nature Forest, Wetland  Wide > 10m	Width Max=30  5

MISCELLANEOUS  ase Flow Conditions? (Y/N); Y Date of last precipitation: Q O & Quantity: Outline See photolog  evated Turbidity? (Y/N): N Canopy (% open): 20%  fere samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:  eld Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)  the sampling reach representative of the stream (Y/N) N If not, please explain:  ionly the beginning 10 ft of WC-102 extend into the Project Area. Stream characteristics offsite cannot be determined  dditional comments/description of pollution impacts:  BIOTIC EVALUATION  erformed? (Y/N): N (If Yes, Record all observations, Voucher collections optional, NOTE: all voucher samples must be labeled with the side of the sample of the stream of the primary Headwater Habitat Assessment Manual)  erformed? (Y/N): N (If Yes, Record all observations, Voucher collections optional, NOTE: all voucher samples must be labeled with the side observed? (Y/N) (Y/	DOWNSTREAM DESIGNATED USE(S)  WWH Name:  CWH Name:  Distance from Evaluated Stream  Distance from Evaluated Stream  Distance from Evaluated Stream  Distance from Evaluated Stream  MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION  SGS Quadrangle Name:  MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION  SGS Quadrangle Name:  MRCS Soil Map Page:  NRCS Soil Map Stream Order  Township / City:  Falfrield  MISCELLANEOUS  ase Plow Conditions? (Y/N):  Date of last precipitation:  G-O-(§ Quantity:  Ouantity:	DDITIONAL STREAM INFORMATION (This Information Must Also	be Completed):
DOWNSTREAM DESIGNATED USE(S)  WWH Name:  CWH Name:  Distance from Evaluated Stream  Distance from Evaluated Stream  Distance from Evaluated Stream  MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION  SGS Quadrangle Name:  See Wetland Delineation report maps  NRCS Soil Map Page:  NRCS Soil Map Stream Order  Township / City:  Fairtield  MISCELLANEOUS  ase Plow Conditions? (Y/N):  Date of last precipitation:  GENERAL TOWNship / City:  Fairtield  MISCELLANEOUS  Township / City:  Fairtield  Canopy (% open):  Disculved Oxygen (mai):  PH (S.U.)  Conductivity (µmhos/cm)  Thot, please explain:  only the beginning 10 ft of WC-102 extend into the Project Area. Stream characteristics offsite cannot be determined  dditional comments/description of pollution impacts:  BIOTIC EVALUATION  (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the signature of the stream of	DOWNSTREAM DESIGNATED USE(S)  WWH Name:  CWH Name:  Distance from Evaluated Stream  Distance from Evaluated Stream  Distance from Evaluated Stream  MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION  SGS Quadrangle Name: See Wetland Delineation report maps  NRCS Soil Map Page.  NRCS Soil Map Stream Order  NRCS Soil Map Stream Order  NRCS Soil Map Stream Order  Township / City:  Fairfield  MISCELLANEOUS  ase Flow Conditions? (Y/N):  Date of last precipitation:  G= 10-18  Cuantity:  Ouantity:  Ouan	QHEI PERFORMED? - Yes No QHEI Score	(If Yes, Attach Completed QHEI Form)
Distance from Evaluated Stream Oistance from Evaluated Stream Distance from Evaluated Stream MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION RIGS Couldrangle Name; see Wetland Delineation report maps NRCS Soil Map Page; NRCS Soil Map Page; NRCS Soil Map Stream Order Township / City; Fairfield  MISCELLANEOUS  Lise Flow Conditions? (Y/N); V Date of last precipitation; Of 10 18 Quantity; Ouantity;	Distance from Evaluated Stream MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION MISCELLANEOUS  Use Flow Conditions? (V/N): Pairfield  MISCELLANEOUS  Use Provided Provid		
CWH Name:  EWH Name:  MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION  MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION  MAPPING: MAGISON  MRCS Soil Map Page:  NRCS Soil Map Stream Order  Township / City:  Madison	CWH Name:  EWH Name:  Distance from Evaluated Stream  Distance from Evaluated Stream  Distance from Evaluated Stream  MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION  MAPPING: Madison  Township / City;  Madison  Township / City;  Madison  Township / City;  Miscellaneous  See Photolog  Evaluated Turbidity? (Y/N):  Canopy (% open):  Canopy (% open):  Canopy (% open):  Dissolved Oxygen (mg/l)  If not, please explain:  only the beginning 10 ft of WC-102 extend into the Project Area. Stream characteristics offsite cannot be determined  diditional comments/description of pollution impacts:  BIOTIC EVALUATION  Office of the Stream (Y/N)  Overlier? (Y/N)  Salamanders Observed? (Y/N)  Voucher? (Y/N)  Aquatic Macroinvertebrates Observed? (Y/N)  DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):  Include Important landmarks and other features of Interest for site evaluation and a narrative description of the stream's location  PAGWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):  Include Important landmarks and other features of Interest for site evaluation and a narrative description of the stream's location		Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION  SGS Quadrangle Name: See Wetland Delineation report maps  NRCS Soil Map Page:  NRCS Soil Map Stream Order  Township / City: Fairfield  Township / City: Fairfield  MISCELLANEOUS  See Flow Conditions? (Y/N): Y  Date of last precipitation: 9 - 10 - 18  Quantity: Quant	MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION  GGS Quadrangle Name; see Wetland Delineation report maps  NRCS Soil Map Page.  NRCS Soil Map Stream Order  Township / City:  Madison  Township / City:  Pairfield  Township / City:  Pairfield  Township / City:  Township / City:  Pairfield  Township / City:  Pairfield  Township / City:  Pairfield  Township / City:  Pairfield  Township / City:  Quantity:  Quanti		Distance from Evaluated Stream 3
Annoted the sampling reach representative of the stream (Y/N).    Selotional comments/description of pollution impacts:	AGS Quadrangle Name. See Wetland Delineation report maps  NRCS Soil Map Page: NRCS Soil Map Stream Order  Township / City: Fairfield  MISCELLANEOUS  See Flow Conditions? (Y/N): Y Date of last precipitation: Q \( \text{O} \) \( \text{N} \) \( \text{O} \) \( \tex	EWH Name: _	Distance from Evaluated Stream
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miscellaneous see Flow Conditions? (Y/N): Y Date of last precipitation: 9-10-18 Quantity:  otograph Information: see photolog evated Turbidity? (Y/N): N Canopy (% open): 20%  ore samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number;  old Measures: Temp (°C) Disstilved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)  the sampling reach representative of the stream (Y/N) if not, please explain:  only the beginning 10 ft of WC-102 extend into the Project Area. Stream characteristics offsite cannot be determined  didional comments/description of pollution impacts:  BIOTIC EVALUATION  orformed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site of note of the primary Headwater Habital Assessment Manual)  sh Observed? (Y/N) N (Voucher? (Y/N)) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N) N (Voucher? (Y/N)) Aquatic Macroinvertebrates Observed? (Y/N) N (Voucher? (Y/N)) N	MISCELLANEOUS see Flow Conditions? (Y/N): Y Date of last precipitation: Q O (& Quantity: Q V)  Dotograph Information: See photolog  avated Turbidity? (Y/N): N Canopy (% open): 20%  are samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number;  and Measures: Temp (°C) Disspived Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)  the sampling reach representative of the stream (Y/N) N (If not, please explain:  only the beginning 10 ft of WC-102 extend into the Project Area. Stream characteristics offsite cannot be determined  additional comments/description of pollution impacts:  BIOTIC EVALUATION  If rorred? (Y/N) N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the subship of the primary Headwater Habitat Assessment Manual)  sch Observed? (Y/N) N (Voucher? (Y/N) N (Voucher		ship / City: Fairfield
evated Turbidity? (Y/N): N Canopy (% open): 20%  are samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:  ald Measures: Temp (°C) Dissolved Oxygen (md/l) pH (S.U.) Conductivity (µmhos/cm)  the sampling reach representative of the stream (Y/N) If not, please explain:  only the beginning 10 ft of WC-102 extend into the Project Area. Stream characteristics offsite cannot be determined  diditional comments/description of pollution impacts:  BIOTIC EVALUATION  If yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the side of the samples o	evated Turbidity? (Y/N): No Canopy (% open): 20%  are samples collected for water chemistry? (Y/N): No (Note lab sample no. or id. and attach results) Lab Number;  ald Measures: Temp (°C) Dissolved Oxygen (md/l) pH (S.U.) Conductivity (µmhos/cm)  the sampling reach representative of the stream (Y/N) if not, please explain:  ionly the beginning 10 ft of WC-102 extend into the Project Area. Stream characteristics offsite cannot be determined  diditional comments/description of pollution impacts:  BIOTIC EVALUATION  If yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the sample of the stream of the Primary Headwater Habitat Assessment Manual)  sh Observed? (Y/N) No Salamanders Observed? (Y/N) No Voucher? (Y/N) No Voucher? (Y/N) No Observed? (Y/N) No Obse		
wated Turbidity? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:  If Measures: Temp (°C) Dissulved Oxygen (Mote lab sample no. or id. and attach results) Lab Number:  If Measures: Temp (°C) Dissulved Oxygen (Mote) pH (S.U.) Conductivity (µmhos/cm)  The sampling reach representative of the stream (Y/N) (If not, please explain:  Tonly the beginning 10 ft of WC-102 extend into the Project Area. Stream characteristics offsite cannot be determined ditional comments/description of pollution impacts:  BIOTIC EVALUATION  Tormed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the s ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) (If Yes, Record (Y/N)) (Youcher? (Y/N)) (Youc	wated Turbidity? (Y/N): N Canopy (% open): 20%  ore samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:  Id Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)  the sampling reach representative of the stream (Y/N) If not, please explain:  only the beginning 10 ft of WC-102 extend into the Project Area. Stream characteristics offsite cannot be determined  ditional comments/description of pollution impacts:  BIOTIC EVALUATION  rformed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the stream (Y/N) N (Note) Voucher? (Y	se Flow Conditions? (Y/N):	-10-18 Quantity: 0-41"
wated Turbidity? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:  If Measures: Temp (°C) Dissulved Oxygen (Mote lab sample no. or id. and attach results) Lab Number:  If Measures: Temp (°C) Dissulved Oxygen (Mote) pH (S.U.) Conductivity (µmhos/cm)  The sampling reach representative of the stream (Y/N) (If not, please explain:  Tonly the beginning 10 ft of WC-102 extend into the Project Area. Stream characteristics offsite cannot be determined ditional comments/description of pollution impacts:  BIOTIC EVALUATION  Tormed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the s ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) (If Yes, Record (Y/N)) (Youcher? (Y/N)) (Youc	wated Turbidity? (Y/N): N Canopy (% open): 20%  ore samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:  Id Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)  the sampling reach representative of the stream (Y/N) If not, please explain:  only the beginning 10 ft of WC-102 extend into the Project Area. Stream characteristics offsite cannot be determined  ditional comments/description of pollution impacts:  BIOTIC EVALUATION  rformed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the stream (Y/N) N (Note) Voucher? (Y		
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Dissolved Oxygen (mad/) pH (S.U.) Conductivity (µmhos/cm)  the sampling reach representative of the stream (Y/N)   If not, please explain:  ionly the beginning 10 ft of WC-102 extend into the Project Area. Stream characteristics offsite cannot be determined  diditional comments/description of pollution impacts:  BIOTIC EVALUATION  (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the s ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  sh Observed? (Y/N)   Voucher? (Y/N)   Salamanders Observed? (Y/N)   Voucher? (Y/N	bid Measures: Temp (°C) Dissulved Oxygen (mq/l) pH (S.U.) Conductivity (µmhos/cm)  the sampling reach representative of the stream (Y/N) if not, please explain:  only the beginning 10 ft of WC-102 extend into the Project Area. Stream characteristics offsite cannot be determined  diditional comments/description of pollution impacts:  BIOTIC EVALUATION  (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site of the primary Headwater Habitat Assessment Manual)  sh Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N) Vouc		b sample no. or id. and attach results) Lab Number:
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erformed? (Y/N):  (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the s ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  (Ish Observed? (Y/N) N Voucher? (Y/N) N	erformed? (Y/N):  (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the silb number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  ish Observed? (Y/N) N Voucher? (Y/N) N	dditional comments/description of politition impacts:	
Include Important landmarks and other features of Interest for site evaluation and a narrative description of the stream's location	Include Important landmarks and other features of Interest for site evaluation and a narrative description of the stream's location	ID number. Include appropriate field data ish Observed? (Y/N) N Voucher? (Y/N) Salamanders Crogs or Tadpoles Observed? (Y/N) Voucher? (Y/N); Aqua	ta sheets from the Primary Headwater Habitat Assessment Manual)  Observed? (Y/N) Voucher? (Y/N)
Include Important landmarks and other features of Interest for site evaluation and a narrative description of the stream's location	Include Important landmarks and other features of Interest for site evaluation and a narrative description of the stream's location		
Include Important landmarks and other features of Interest for site evaluation and a narrative description of the stream's location	Include Important landmarks and other features of Interest for site evaluation and a narrative description of the stream's location		
Include Important landmarks and other features of Interest for site evaluation and a narrative description of the stream's location	Include Important landmarks and other features of Interest for site evaluation and a narrative description of the stream's location	DRAWING AND NARRATIVE DESCRIPTION	LOE STREAM REACH (This must be completed):
Ag	Ag		
LOW WC-108	$\frac{1}{100} = \frac{1}{100} = \frac{1}$	Include Important landmarks and other leadures of interest to	in site evaluation and a manative description of the stream s location
LOW DO-108	$\frac{1}{100} \Rightarrow \frac{100}{100}$ $\frac{1}{100} \Rightarrow \frac{100}{100}$		$\wedge$
LOW \$\int \omega_{\text{LOW}} \tag{\text{\lambda}} \tag{\text{\lambda}}	LOW → ωc-108		/-(9
Low → WC-108	LOW WC-108	$\leftarrow 1$	
LOW TO S	LOW TO S	WC-10-	
As As	As As	LOW - 108	
As As	As Spino		
As As	As As		
As	As	03	1,4
As	As	32/	1 94
Als:	FIG	1	
		Alc	

Recal Form



SITE NAME/LOCATION WC-109		
SITE NUMBER	RIVER BASIN DRAINAGE AREA (mi²) 0.	02
F40		
LENGTH OF STREAM REAGH (II)		
DATE 09/15/18 SCORER David K.	COMMENTS field drainage	
NOTE: Complete All Items On This Forr	m - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	ıctions
STREAM CHANNEL NONE / NA MODIFICATIONS:	TURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECO	OVERY
SUBSTRATE (Estimate percent of ever	ery type of substrate present. Check ONLY two predominant substrate TYPE boxes	
	cant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HHE
,	PERCENT TYPE PERCENT	Metri
BLDR SLABS [16 pts]	0% SILT [3 pt] %	Point
BOULDER (>256 mm) [16 pts]	0% LEAF PACK/WOODY DEBRIS [3 pts] 0%	Substra
BEDROCK [16 pt]	0% FINE DETRITUS [3 pts]	Max = 4
COBBLE (65-256 mm) [12 pts]	0% CLAY or HARDPAN [0 pt]	
GRAVEL (2-64 mm) [9 pts]	% MUCK [0 pts] %	1
SAND (<2 mm) [6 pts]	0% ARTIFICIAL [3 pts] 0%	
Total of Percentages of	0.00% (A) Substrate Percentage (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock	Check	ATB
SCORE OF TWO MOST PREDOMINATE SUBS	STRATE TYPES: 0 TOTAL NUMBER OF SUBSTRATE TYPES: 1	
2. Maximum Pool Depth (Measure the m	maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dep
	ad culverts or storm water pipes) (Check ONLY one box):	Max = 3
> 30 centimeters [20 pts]	> 5 cm - 10 cm [15 pts]	
> 22.5 - 30 cm [30 pts]	< 5 cm [5 pts]	
> 10 - 22.5 cm [25 pts]	NO WATER OR MOIST CHANNEL [0 pts]	0
COMMENTS	MAXIMUM POOL DEPTH (centimeters): 0	
	III/ SAIIII OUT DE DE I TIT (CONTAINIOSIO).	
3. BANK FULL WIDTH (Measured as the		Bankfu
> 4.0 meters (> 13') [30 pts]	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	✓ ≤ 1.0 m (<=3' 3") [5 pts]	Max=30
2 1.5 m - 5.5 m (2 5 7 - 4 6 ) [20 pts]		
COMMENTS	AVERAGE BANKFULL WIDTH (meters): 1.50	5
	This information must also be completed	
RIPARIAN ZONE AND FLOODE		
RIPARIAN WIDTH	FLOODPLAIN QUALITY	
L R (Per Bank)	L R (Most Predominant per Bank) L R	
Wide >10m	Mature Forest, Wetland Conservation Tillage	
Moderate 5-10m	Immature Forest, Shrub or Old Urban or Industrial	
	Field Urban or Industrial	D
Moderate 5-10m  Narrow <5m	I II I Urban or Industrial	p
Narrow <5m	Field Urban or Industrial	р
✓ ✓ Narrow <5m	Field Orban or Industrial  Residential, Park, New Field Open Pasture, Row Cro	p
Narrow <5m None COMMENTS	Field Urban or Industrial  Residential, Park, New Field Open Pasture, Row Cro  Fenced Pasture Mining or Construction	p
Narrow <5m None COMMENTS	Field Orban or Industrial  Residential, Park, New Field Open Pasture, Row Cro	р
None COMMENTS  FLOW REGIME (At Time of Even Stream Flowing Subsurface flow with isolated poor	Field  Residential, Park, New Field  Fenced Pasture  Mining or Construction  Aduation) (Check ONLY one box):  Moist Channel, isolated pools, no flow (Intermittent)	p
Narrow <5m None COMMENTS  FLOW REGIME (At Time of Evaluations) Stream Flowing	Field  Residential, Park, New Field  Fenced Pasture  Mining or Construction  Aduation) (Check ONLY one box):  Moist Channel, isolated pools, no flow (Intermittent)	р
None COMMENTS  FLOW REGIME (At Time of Evaluation Stream Flowing Subsurface flow with isolated poor COMMENTS	Field  Residential, Park, New Field  Fenced Pasture  Mining or Construction  Moist Channel, isolated pools, no flow (Intermittent)  Dry channel, no water (Ephemeral)	p
None COMMENTS  FLOW REGIME (At Time of Evaluation Stream Flowing Subsurface flow with isolated poor COMMENTS	Field  Residential, Park, New Field  Fenced Pasture  Mining or Construction  Moist Channel, isolated pools, no flow (Intermittent)  Open Pasture, Row Cro  Mining or Construction  Moist Channel, isolated pools, no flow (Intermittent)  Obs (Interstitial)  Dry channel, no water (Ephemeral)	p
None COMMENTS  FLOW REGIME (At Time of Even Stream Flowing Subsurface flow with isolated poor COMMENTS  SINUOSITY (Number of bends poor Sinuosity)	Field  Residential, Park, New Field  Fenced Pasture  Mining or Construction  Moist Channel, isolated pools, no flow (Intermittent)  Open Pasture, Row Cro  Mining or Construction  Moist Channel, isolated pools, no flow (Intermittent)  Organ or Industrial  Open Pasture, Row Cro  Mining or Construction  Moist Channel, isolated pools, no flow (Intermittent)  Organ or Industrial  Open Pasture, Row Cro  Mining or Construction  Moist Channel, isolated pools, no flow (Intermittent)  Organ or Industrial  Open Pasture, Row Cro  Mining or Construction	p
None COMMENTS  FLOW REGIME (At Time of Evaluation Stream Flowing Subsurface flow with isolated poor COMMENTS  SINUOSITY (Number of bends property) None 0.5	Field  Residential, Park, New Field  Fenced Pasture  Mining or Construction  Moist Channel, isolated pools, no flow (Intermittent)  Dry channel, no water (Ephemeral)  per 61 m (200 ft) of channel) (Check ONLY one box):  1.0  3.0	p
None COMMENTS  FLOW REGIME (At Time of Evaluation Stream Flowing Subsurface flow with isolated poor COMMENTS  SINUOSITY (Number of bends processed in the control of the co	Field  Residential, Park, New Field  Fenced Pasture  Mining or Construction  Moist Channel, isolated pools, no flow (Intermittent)  Dry channel, no water (Ephemeral)  per 61 m (200 ft) of channel)  1.0  1.5  1.0  2.0  3.0  3.0  3.0  3.0  3.0  3.0  3	
None COMMENTS  FLOW REGIME (At Time of Evaluation Stream Flowing Subsurface flow with isolated poor COMMENTS  SINUOSITY (Number of bends property) None 0.5	Field  Residential, Park, New Field  Fenced Pasture  Mining or Construction  Moist Channel, isolated pools, no flow (Intermittent)  Dry channel, no water (Ephemeral)  per 61 m (200 ft) of channel) (Check ONLY one box):  1.0  3.0	

Photograph Information  See Photolog  Elevated Turbidity? (Y/N): N Canopy (% open): 20%  Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Numbert.  Field Measures: Temp (*C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm) to the sampling reach representative of the stream (Y/N). N If not, please explain:  only the beginning 10 ft of WC-102 extend into the Project Area. Stream characteristics offsite cannot be determined  Additional comments/description of pollution impacts:  BIOTIC EVALUATION  Performed? (Y/N): N Outher: (Y/N) N Salamanders Observed? (Y/N) N Outher samples must be labeled with the ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  Fish Observed? (Y/N) N Outher? (Y/N) N Acusto Macroinvertebrates Observed? (Y/N) N Outher? (Y/N) N Outh	ADDITIONAL STREAM INFORMATION (This Information	n Must Also be Completed):
WHY Name: CWH Name: Distance from Evaluated Stream Order Distance from Evaluated Stream Order Distance from Evaluation Distance from Evaluation Distance from Evaluated Stream Order Distance from Evaluation Distance from Evaluated Stream Order Distance from Evaluation And attach results Lab Number Distance from Evaluation And Distance from	QHEI PERFORMED? - Yes V No QHEI	Score (If Yes, Attach Completed QHEI Form)
Distance from Evaluated Stream Distance from Evaluated Stream MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION USGS Quadrangle Namer, See Wetland Delineation report maps NRCS Soil Map Page: NRCS Soil Map Stream Order: Ounty: Madison  MISCELLANEOUS Base Flow Conditions? (Y/N): Value of last precipitation: Out to display (No.)  Compay (% open):  County (% o	DOWNSTREAM DESIGNATED USE(S)	
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION USGS Quadrangle Name, See Wetland Delineation report maps  NRCS Soil Map Pages: NRCS Soil Map Stream Order County: Madison  Township / City: Fairfield  MISCELLANEOUS  Base Flow Conditions? (Y/N): Y  Date of last precipitation:  Genopy (% open):  Cernopy (	WWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION  JOSES Quadrangle Name; See Wetland Delineation report maps  NRCS Soil Map Page: NRCS Soil Map Stream Order country; Madison  Township / City: Fairfield  MISCELLANEOUS  Base Flow Conditions? (Y/N): Y Date of last precipitation: 9-10-18  Quantity: Out! The properties of the stream order chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:  Field Measures: Temp (*C): Dissolved Oxygen (mon) pH (S.U.) Conductivity (umhos/cm)  Is the sampling reach representative of the stream (Y/N)		The state of the s
Sase Quadrangle Name; see Wetland Delineation report maps  NRCS Soll Map Page:	EWH Name:	Distance from Evaluated Stream
Miscellaneous  Base Flow Conditions? (Y/N); Y Date of last precipitation: 9-10-18 Quantity: 94"  Photograph Information: See photolog  Elevated Turbidity? (Y/N); N Campy (% open): 20%  More samples collected for water chemistry? (Y/N); N (Note lab sample no. or id. and attach results) Lab Number:  Field Measures: Temp (*G) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µrnhos/cm)  If not, please explain:  only the beginning 10 ft of WC-102 extend into the Project Area. Stream characteristics offsite cannot be determined  Additional comments/description of pollution impacts:  BIOTIC EVALUATION  Performed? (Y/N) (if Yes, Record all observations, Voucher collections optional. NOTE; all voucher samples must be labeled with the ID number. Include appropriate field cate sheets from the Pimary Headward Habital Assessment Manual)  Fish Observed? (Y/N) (VIN) (		
Date of last preopitation: 9-10-18 Quantity: 041   Photograph Information: see photolog Elevated Turbidity? (Y/N): Note that the sample no. or Id. and attach results) Lab Number: Field Measures: Temp (*G) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm) Is the sampling reach representative of the stream (Y/N) only the beginning 10 ft of WC-102 extend into the Project Area. Stream characteristics offsite cannot be determined  Additional comments/description of pollution impacts:  BIOTIC EVALUATION Performed? (Y/N) (if Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the ID number. Include appropriate feld cata sheets from the Primary Headward Habital Assessment Manual) Fish Observed? (Y/N) (VIN) Voucher? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N) (Voucher? (Y/N)) Voucher? (Y/N) (Voucher? (Y/N))	JSGS Quadrangle Name: see Wetland Delineation repo	NRCS Soil Map Page: NRCS Soil Map Stream Order
Base Flow Conditions? (Y/N); Y Date of last precipitation; Q - 10 - 18 Quantity: Q - 41 - 18  Photograph Information: See Photolog Elevated Turbidity? (Y/N); N Q Canopy (% open); 20%  Were samples collected for water chemistry? (Y/N); N Q (Note lab sample no, or id, and attach results). Lab Number: Field Measures: Temp (*Q). Dissolved Oxygen (meyl)	County: Madison	Township / City: Fairfield
Photograph Information  See Photolog  Elevated Turbidity? (Y/N): N Canopy (% open): 20%  Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Numbert.  Field Measures: Temp (*C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm) to the sampling reach representative of the stream (Y/N). N If not, please explain:  only the beginning 10 ft of WC-102 extend into the Project Area. Stream characteristics offsite cannot be determined  Additional comments/description of pollution impacts:  BIOTIC EVALUATION  Performed? (Y/N): N Outher: (Y/N) N Salamanders Observed? (Y/N) N Outher samples must be labeled with the ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  Fish Observed? (Y/N) N Outher? (Y/N) N Acusto Macroinvertebrates Observed? (Y/N) N Outher? (Y/N) N Outh	MISCELLANEOUS	
Elevated Turbidity? (Y/N): N Canopy (% open): 20%  Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:  Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (jumhos/cm)  Is the sampling reach representative of the stream (Y/N) N (If not, please explain:  only the beginning 10 ft of WC-102 extend into the Project Area. Stream characteristics offsite cannot be determined  Additional comments/description of pollution impacts:  BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations, Voucher collections optional. NOTE: all voucher samples must be labeled with the 10 number. Include appropriate field data sheets from the Primary Headwater Habital Assessment Manual)  Fish Observed? (Y/N) N (Salamanders Observed? (Y/N) N (Voucher? (Y/N) N (	Base Flow Conditions? (Y/N):_ Y Date of last precip	oitation: 9-10-18 Quantity: 0-417
Were samples collected for water chemistry? (Y/N):    Indicate the sample of the stream of the strea	Photograph Information see photolog	
Were samples collected for water chemistry? (Y/N): \(\begin{array}{ c c c c c c c c c c c c c c c c c c c	Elevated Turbidity? (Y/N): _N Canopy (% open	n):20%
Is the sampling reach representative of the stream (Y/N)   Into, please explain; only the beginning 10 ft of WC-102 extend into the Project Area. Stream characteristics offsite cannot be determined Additional comments/description of pollution impacts:  BIOTIC EVALUATION  Performed? (Y/N):   Into   Into	NI a	(Note lab sample no. or id. and attach results) Lab Number:
Is the sampling reach representative of the stream (Y/N)   Into, please explain; only the beginning 10 ft of WC-102 extend into the Project Area. Stream characteristics offsite cannot be determined Additional comments/description of pollution impacts:  BIOTIC EVALUATION  Performed? (Y/N):   Into   Into	Field Measures: Temp (°C) Dissolved Oxygen	pH (S.U.) Conductivity (µmhos/cm)
Additional comments/description of pollution impacts:  BIOTIC EVALUATION  Performed? (Y/N):  Will Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the ID number. Include appropriate field data sheets from the Primary Headwater Habital Assessment Manual)  Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N) National Acquatic Macroinvertebrates Observed? (Y/N) National Acquational Acquatic Macroinvertebrates Observed? (Y/N) National Acquational Acquati		
BIOTIC EVALUATION  Performed? (Y/N):  (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the ID number. Include appropriate field data sheets from the Primary Headwater Habital Assessment Manual)  Voucher? (Y/N) Vouc		
BIOTIC EVALUATION  Performed? (Y/N):  (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  Voucher? (Y/N) Vouc	Additional comments/description of pollution imagets:	
Performed? (Y/N):    N	Additional comments/description of political impacts.	
Performed? (Y/N):    N		
Include Important landmarks and other features of interest for site evaluation and a narrative description of the stream's location  AS  LUC-105  FLOW  PHWH Form Page - 2		
Include Important landmarks and other features of interest for site evaluation and a narrative description of the stream's location  AS  LUC-105  FLOW  PHWH Form Page - 2		
FLOW DEC. 109  PHWH Form Page - 2	DRAWING AND NARRATIVE DESC	CRIPTION OF STREAM REACH (This must be completed):
FLOW FLOW  WC-109  WC-107  PHWH Form Page - 2	Include important landmarks and other features o	f interest for site evaluation and a narrative description of the stream's location
FLOW FLOW  WC-109  WC-107  PHWH Form Page - 2	Ac	
FLOW FLOW  WC-109  WC-107  PHWH Form Page - 2		WC-100
PHWH Form Page - 2		7-1
PHWH Form Page - 2	1.	
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He-11 = mm	October 24, 2002 Revision	PHWH Form Page - 2
		He II = mm



SHE NAME/ CLAHON 1440 110		
SITE NAME/LOCATION WC-110 SITE NUMBER	RIVER BASIN DRAINAGE AREA (mi²)	0.01
LENGTH OF STREAM REACH (ft) 280	LAT. 39.83060 LONG83.32680 RIVER CODE RIVER MILE	
DATE 09/15/18 SCORER David K.	COMMENTS field drainage	
NOTE: Complete All Items On This Form	n - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Inst	ructions
STREAM CHANNEL NONE / NAT MODIFICATIONS:	TURAL CHANNEL RECOVERED RECOVERING RECENT OR NO REC	COVERY
· · · · · · · · · · · · · · · · · · ·	ry type of substrate present. Check ONLY two predominant substrate TYPE boxes	
,	ant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HHEI   Metric
BLDR SLABS [16 pts]	ERCENT         TYPE         PERCENT           0%         SILT [3 pt]         %	Points
BOULDER (>256 mm) [16 pts]	0%  LEAF PACK/WOODY DEBRIS [3 pts]  0%  0%  0%	Substrate
BEDROCK [16 pt]  COBBLE (65-256 mm) [12 pts]	0% FINE DETRITUS [3 pts] 0% 100% 100%	Max = 40
GRAVEL (2-64 mm) [9 pts]	% MUCK [0 pts] %	
SAND (<2 mm) [6 pts]	0% ARTIFICIAL [3 pts] 0%	
Total of Percentages of 0	0.00% (A) Substrate Percentage (B) Check	A + B
Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBS		
2. Maximum Pool Depth (Measure the ma	paximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Depth
evaluation. Avoid plunge pools from road	d culverts or storm water pipes) (Check ONLY one box):	Max = 30
> 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts]	> 5 cm - 10 cm [15 pts] < 5 cm [5 pts]	
> 10 - 22.5 cm [25 pts]	NO WATER OR MOIST CHANNEL [0 pts]	0
COMMENTS	MAXIMUM POOL DEPTH (centimeters): 0	
3. BANK FULL WIDTH (Measured as the	average of 3-4 measurements) (Check ONLY one box):	Bankfull
> 4.0 meters (> 13') [30 pts]	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]  < 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]  ≤ 1.0 m (<=3' 3") [5 pts]  AVERAGE BANKFULL WIDTH (meters):  1.50  This information must also be completed	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]  ≤ 1.0 m (<=3' 3") [5 pts]  AVERAGE BANKFULL WIDTH (meters):  1.50  This information must also be completed	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  RIPARIAN ZONE AND FLOODP  RIPARIAN WIDTH  (Per Bank)	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]  ≤ 1.0 m (<=3' 3") [5 pts]  AVERAGE BANKFULL WIDTH (meters):  1.50  This information must also be completed PLAIN QUALITY  ♣ NOTE: River Left (L) and Right (R) as looking downstream ♣ FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  L R	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  RIPARIAN ZONE AND FLOODP RIPARIAN WIDTH  L R (Per Bank) Wide >10m	This information must also be completed  PLAIN QUALITY  L R (Most Predominant per Bank)  L R (Conservation Tillage)    Mature Forest, Wetland   Conservation Tillage	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  RIPARIAN ZONE AND FLOODP RIPARIAN WIDTH  L R (Per Bank)  V V Wide >10m  Moderate 5-10m	This information must also be completed  PLAIN QUALITY  L R (Most Predominant per Bank)  L R (Most Predominant per Bank)  Mature Forest, Wetland  Immature Forest, Shrub or Old  Field  Conservation Tillage  Urban or Industrial  From Conservation Flow Conservation  Open Pasture Row Conservation	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  RIPARIAN ZONE AND FLOODP RIPARIAN WIDTH (Per Bank) Wide > 10m Moderate 5-10m Narrow < 5m	This information must also be completed  PLAIN QUALITY  ♣ NOTE: River Left (L) and Right (R) as looking downstream ♣  FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  Mature Forest, Wetland  Immature Forest, Wetland  Immature Forest, Shrub or Old  Field  Residential, Park, New Field    Note of the predominant per Bank   Plant of the predominant pe	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  RIPARIAN ZONE AND FLOODP RIPARIAN WIDTH  L R (Per Bank)  V V Wide >10m  Moderate 5-10m	This information must also be completed  PLAIN QUALITY  L R (Most Predominant per Bank)  L R (Most Predominant per Bank)  Mature Forest, Wetland  Immature Forest, Shrub or Old  Field  Conservation Tillage  Urban or Industrial  From Conservation Flow Conservation  Open Pasture Row Conservation	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  RIPARIAN ZONE AND FLOODP  RIPARIAN WIDTH  (Per Bank)  Wide >10m  Moderate 5-10m  Narrow <5m  None  COMMENTS	This information must also be completed  PLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream  FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  Mature Forest, Wetland  Immature Forest, Wetland  Immature Forest, Shrub or Old  Field  Residential, Park, New Field  Fenced Pasture  NOTE: River Left (L) and Right (R) as looking downstream  Conservation Tillage  Urban or Industrial  Open Pasture, Row C  Mining or Construction	Width Max=30  5
> 4.0 meters (> 13') [30 pts]     > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]     > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]     COMMENTS	This information must also be completed  PLAIN QUALITY  ♣ NOTE: River Left (L) and Right (R) as looking downstream ♣  FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  Whature Forest, Wetland  Immature Forest, Wetland  Residential, Park, New Field  Residential, Park, New Field  Fenced Pasture  Moist Channel, isolated pools, no flow (Intermitten)  Moist Channel, isolated pools, no flow (Intermitten)	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  RIPARIAN ZONE AND FLOODP RIPARIAN WIDTH (Per Bank) Wide > 10m Moderate 5-10m Narrow < 5m None COMMENTS  FLOW REGIME (At Time of Eval	This information must also be completed  PLAIN QUALITY  ♣ NOTE: River Left (L) and Right (R) as looking downstream ♣  FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  Whature Forest, Wetland  Immature Forest, Wetland  Immature Forest, Shrub or Old  Field  Residential, Park, New Field  Fenced Pasture  Moist Channel, isolated pools, no flow (Intermitten)	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  RIPARIAN ZONE AND FLOODP RIPARIAN WIDTH (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None COMMENTS  FLOW REGIME (At Time of Evaluation of Eva	This information must also be completed  PLAIN QUALITY  ♣ NOTE: River Left (L) and Right (R) as looking downstream ♣  FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  Whature Forest, Wetland  Immature Forest, Shrub or Old  Field  Residential, Park, New Field  Residential, Park, New Field  Fenced Pasture  Moist Channel, isolated pools, no flow (Intermittentials (Interstitial))  Note This pits      1.50      1	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  RIPARIAN ZONE AND FLOODP RIPARIAN WIDTH (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None COMMENTS  FLOW REGIME (At Time of Eval Stream Flowing Subsurface flow with isolated pool COMMENTS  SINUOSITY (Number of bends pool None	This information must also be completed  PLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream   FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  ✓ Mature Forest, Wetland  ☐ Immature Forest, Shrub or Old ☐ Immature Forest, Shrub o	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  RIPARIAN ZONE AND FLOODP RIPARIAN WIDTH  (Per Bank)  Wide >10m  Moderate 5-10m  Narrow <5m  None COMMENTS  FLOW REGIME (At Time of Evaluation of Subsurface flow with isolated pool COMMENTS  SINUOSITY (Number of bends per subsurface)	This information must also be completed  PLAIN QUALITY  ♣ NOTE: River Left (L) and Right (R) as looking downstream ♣  FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  Whature Forest, Wetland  Immature Forest, Shrub or Old  Field  Residential, Park, New Field  Residential, Park, New Field  Residential, Park, New Field  Whining or Construction  Moist Channel, isolated pools, no flow (Intermittentials (Interstitial))  Wer 61 m (200 ft) of channel) (Check ONLY one box):	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  RIPARIAN ZONE AND FLOODP RIPARIAN WIDTH (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None COMMENTS  FLOW REGIME (At Time of Eval Stream Flowing Subsurface flow with isolated pool COMMENTS  SINUOSITY (Number of bends pool None	This information must also be completed  PLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream   FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  ✓ Mature Forest, Wetland  ☐ Immature Forest, Shrub or Old ☐ Immature Forest, Shrub o	Width Max=30  5

ADDITIONAL STREAM INFORMATION (This Information Must Also be	Completed):
QHEI PERFORMED? - Yes V No QHEI Score	(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: '	_ Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream  Distance from Evaluated Stream
EWH Name:	
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIR	E WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
	RCS Soil Map Page: NRCS Soil Map Stream Order
County: Madlson Township	/ City: Fairfield
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation: 9-1	0-18 Quantity: 0-41"
Photograph Information: see photolog	
Elevated Turbidity? (Y/N): N Canopy (% open): 20%	
W.C.	mple no. or id. and attach results) Lab Number:
	pH (S.U.) Conductivity (μmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, ple	
only the beginning 10 ft of WC-102 extend into the Project Area. S	itream characteristics offsite cannot be determined
Additional comments/description of pollution impacts:	
	elections optional. NOTE: all voucher samples must be labeled with the states from the Primary Headwater Habitat Assessment Manual)  Brived? (Y/N) Voucher?
DRAWING AND NARRATIVE DESCRIPTION O	F STREAM REACH (This <u>must</u> be completed):
Include Important landmarks and other features of Interest for sl	te evaluation and a narrative description of the stream's location
TN Forese	
14	
FLOW -	
FLOW -	
FLOW -> WC-110	Lake now Ac
FLOW ->  WC-1(C)	Junio As
FLOW -> WC-1(C)	Nucros As
FLOW - CO	As As



SITE NAME/I							
	OCATION WC-111						
	SITE NUMBER		RIVER BAS	IN	DF	RAINAGE AREA (mi²) 0	.01
LENGTH OF S	STREAM REACH (ft) 250	LAT. 39.830	20 LONG	- <b>83.31960</b> R	IVER CODE	RIVER MILE	
DATE <b>09/15</b>		K. COMM	MENTS				
	mplete All Items On This Fo			ation Manual fo	r Obio'o BUM	'U Stroomo" for Instr	uotion
NOTE. COI	ilpiete Ali items Oli Tilis Fo	iiii - Reiei to	rieiu Evaiu	ation Manual 10	I OIIIO S PHW	n Streams for mist	uction
STREAM CH MODIFICAT		ATURAL CHANN	IEL REC	COVERED RE	COVERING	RECENT OR NO REC	OVERY
	STRATE (Estimate percent of e						
•	of 32). Add total number of signi-	•		lax of 8). Final met	ric score is sum		HH Met
TYPE BI	LDR SLABS [16 pts]	PERCENT 0%	TYPE	SILT [3 pt]		PERCENT %	Poi
	OULDER (>256 mm) [16 pts]	0%		EAF PACK/WOOL	OY DEBRIS [3 p		
□□ В	EDROCK [16 pt]	%		FINE DETRITUS [3	3 pts]	0%	Subst Max
	OBBLE (65-256 mm) [12 pts]	0%		CLAY or HARDPAN	l [0 pt]	100%	
	RAVEL (2-64 mm) [9 pts]	%		MUCK [0 pts]		0%	1
	AND (<2 mm) [6 pts]	0%		ARTIFICIAL [3 pts]		0%	
District.	Total of Percentages of	0.00%		Substrate Percentage Check		(B)	A +
	Slabs, Boulder, Cobble, Bedrock WO MOST PREDOMINATE SUB				ER OF SUBSTF	RATE TYPES: 1	
. Maxir	mum Pool Depth (Measure the	maximum pool	depth within	the 61 meter (200	oft) evaluation re	each at the time of	Pool
	ation. Avoid plunge pools from ro	oad culverts or sto	orm water pip	, ,			Max
	centimeters [20 pts] 5 - 30 cm [30 pts]		H	> 5 cm - 10 cm [15 < 5 cm [5 pts]	pts]		
	- 22.5 cm [25 pts]		✓	NO WATER OR M	IOIST CHANNE	L [0 pts]	o
COM	MENTS			MAYIMI IM	DOOL DEDTH (	centimeters):	
COIVII	WIENIS			WAXIMUW I	POOL DEPTH (	centimeters).	
	K FULL WIDTH (Measured as the	he average of 3-4	1 measurem	, ,	ck ONLY one b	-	Banl
	meters (> 13') [30 pts] m - 4.0 m (> 9' 7" - 13') [25 pts]		7	> 1.0 m - 1.5 m (> ≤ 1.0 m (<=3' 3") [5	/ • ·	otsj	Wid Max
	m - 3.0 m (> 9' 7" - 4' 8") [20 pts]			(	. 11		
COM	MENTS			AVERACE	DANKEIIII WII	OTH (meters): 1.00	<sub>5</sub>
COIVII	MENIS			AVERAGE	BANKFULL WII	orn (meters):	'  <sup>3</sup>
	RIPARIAN ZONE AND FLOOI		-	must also be com	•	ooking downstream ☆	
	RIPARIAN WIDTH		IN QUALITY	, ,	iu rigiii (ix) as ii	Joking downstream A	
	(D D I-)						
<u>L</u> R	R (Per Bank)	<u> </u>	viosi Predomi	nant per Bank)	LK		
L R	<b>¬</b> ` ′	✓✓ M	lature Forest,	Wetland		Conservation Tillage	
	<b>-</b>		lature Forest, nmature Fore			Conservation Tillage Urban or Industrial	
	Wide >10m Moderate 5-10m	☑☑ M □□ Im Fi	lature Forest, nmature Fore ield	Wetland est, Shrub or Old			op
	Wide >10m  Moderate 5-10m  Narrow <5m	☑	lature Forest, nmature Fore ield esidential, Pa	Wetland est, Shrub or Old ark, New Field		Urban or Industrial Open Pasture, Row Cre	op
	Wide >10m Moderate 5-10m	☑	lature Forest, nmature Fore ield	Wetland est, Shrub or Old ark, New Field		Urban or Industrial	op
	Wide >10m  Moderate 5-10m  Narrow <5m  None  COMMENTS	M In	lature Forest, nmature Fore ield esidential, Pa enced Pastur	Wetland est, Shrub or Old ark, New Field e		Urban or Industrial Open Pasture, Row Cre	op -
	Wide >10m  Moderate 5-10m  Narrow <5m  None  COMMENTS  FLOW REGIME (At Time of E	M In	lature Forest, nmature Fore ield esidential, Pa enced Pastur	Wetland est, Shrub or Old ark, New Field e		Urban or Industrial Open Pasture, Row Cro Mining or Construction	_
	Wide >10m  Moderate 5-10m  Narrow <5m  None  COMMENTS	✓ ✓ M Im Fi Ri Ri Fi Fi Civaluation) (Chec	lature Forest, nmature Fore ield esidential, Pa enced Pastur	Wetland est, Shrub or Old erk, New Field e box): Moist Char	nnel, isolated poel, no water (Ep	Urban or Industrial Open Pasture, Row Cro Mining or Construction ols, no flow (Intermittent	_
	Wide >10m  Moderate 5-10m  Narrow <5m  None COMMENTS  FLOW REGIME (At Time of E Stream Flowing	✓ ✓ M Im Fi Ri Ri Fe	lature Forest, nmature Fore ield esidential, Pa enced Pastur	Wetland est, Shrub or Old erk, New Field e box): Moist Char		Urban or Industrial Open Pasture, Row Cro Mining or Construction ols, no flow (Intermittent	_
	Wide >10m  Moderate 5-10m  Narrow <5m  None  COMMENTS  FLOW REGIME (At Time of E Stream Flowing Subsurface flow with isolated p COMMENTS	M In In Fi	lature Forest, nmature Fore ield esidential, Pa enced Pastur ek ONLYone	wetland est, Shrub or Old erk, New Field e box): Moist Char	el, no water (Ep	Urban or Industrial Open Pasture, Row Cro Mining or Construction ols, no flow (Intermittent	_
	Wide >10m  Moderate 5-10m  Narrow <5m  None  COMMENTS  FLOW REGIME (At Time of E Stream Flowing Subsurface flow with isolated p COMMENTS  SINUOSITY (Number of bends None	waluation) (Checools (Interstitial)  s per 61 m (200 ft)  1.0	lature Forest, nmature Fore ield esidential, Pa enced Pastur ek ONLYone	Wetland est, Shrub or Old erk, New Field e box): Moist Char Dry channe (Check ONLY one 2.0	el, no water (Ep	Urban or Industrial Open Pasture, Row Cro Mining or Construction ols, no flow (Intermittent hemeral)  3.0	_
	Wide >10m  Moderate 5-10m  Narrow <5m  None  COMMENTS  FLOW REGIME (At Time of E Stream Flowing Subsurface flow with isolated p COMMENTS  SINUOSITY (Number of bends	Waluation) (Checools (Interstitial)	lature Forest, nmature Fore ield esidential, Pa enced Pastur ek ONLYone	wetland est, Shrub or Old erk, New Field e box):     Moist Char     Dry channe (Check ONLY one	el, no water (Ep	Urban or Industrial Open Pasture, Row Cre Mining or Construction ols, no flow (Intermittent hemeral)	_
	Wide >10m  Moderate 5-10m  Narrow <5m  None  COMMENTS  FLOW REGIME (At Time of E Stream Flowing Subsurface flow with isolated p COMMENTS  SINUOSITY (Number of bends None	waluation) (Checools (Interstitial)  s per 61 m (200 ft)  1.0	lature Forest, nmature Fore ield esidential, Pa enced Pastur ek ONLYone	Wetland est, Shrub or Old erk, New Field e box): Moist Char Dry channe (Check ONLY one 2.0	el, no water (Ep	Urban or Industrial Open Pasture, Row Cro Mining or Construction ols, no flow (Intermittent hemeral)  3.0	_

ADDITIONAL STREAM INFORMATION (This Information Must A	Also be Completed):
QHEI PERFORMED? Yes V No QHEI Score	(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
	ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
JSGS Quadrangle Name: see Wetland Delineation report maps	NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Madison To	wnship / City:_FairfleId
MISCELLANEOUS	
Base Flow Conditions? (Y/N):_Y Date of last precipitation:_	9-10-18 Quantity: 0.41"
Photograph Information: _see photolog	
Elevated Turbidity? (Y/N): N Canopy (% open):	20%
N Section 1	e lab sample no. or id. and attach results) Lab Number
Field Measures: Temp (°C) Dissolved Oxygen (mg/l)	pH (S.U.) Conductivity (µmhes/cm)
s the sampling reach representative of the stream (Y/N)	not, please explain
only the beginning 10 ft of WC-102 extend into the Project	Area. Stream characteristics offsite cannot be determined
ID number Include appropriate field  Fish Observed? (Y/N) N Salamander	ocher collections optional. NOTE: all voucher samples must be labeled with the solution data sheets from the Primary Headwater Habital Assessment Manual) are Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)
Include Important landmarks and other features of Interest	ON OF STREAM REACH (This <u>must</u> be completed): t for site evaluation and a narrative description of the stream's location
=LOW → WC ///	
NS	forest
,	







## **Appendix C**

**Wetland and Watercourse Photo Points** 

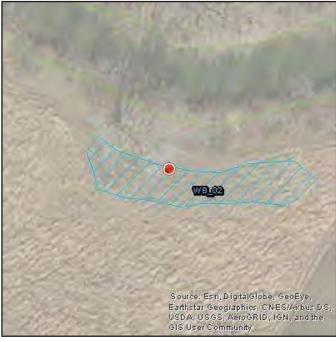






Attributes	
Locked	Wetland
Wetland ID	WB-01







Attributes	
Locked	Wetland
Wetland ID	WB-02







Attributes	
Locked	Wetland
Wetland ID	WB-03







Attributes	
Locked	Wetland
Wetland ID	WB-04







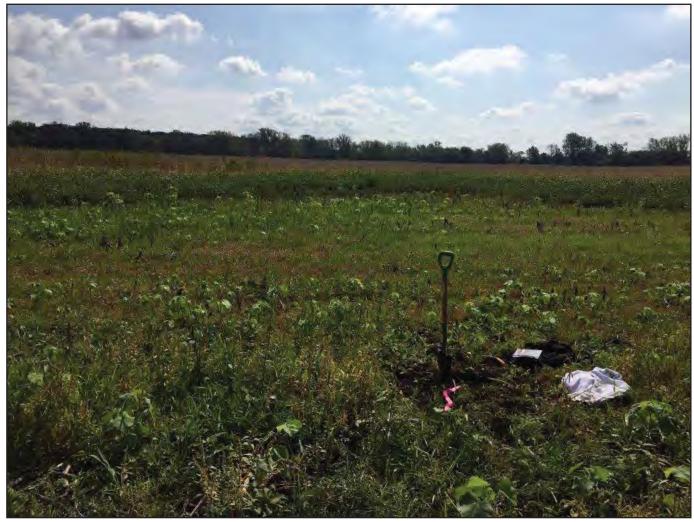
Attributes	
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Wetland ID	WB-05







Attributes	
Locked	Wetland
Wetland ID	WB-06







Attributes	
Locked	Wetland
Wetland ID	WB-07







Attributes	
Locked	Wetland
Wetland ID	WB-08







Attributes	
Locked	Wetland
Wetland ID	WB-09







Attributes	
Locked	Wetland
Wetland ID	WB_09







Attributes	
Locked	Wetland
Wetland ID	WB_09







Attributes	
Locked	Wetland
Wetland ID	WB_09







Attributes	
Locked	Wetland
Wetland ID	WB-09







Attributes	
Locked	Wetland
Wetland ID	WB-10



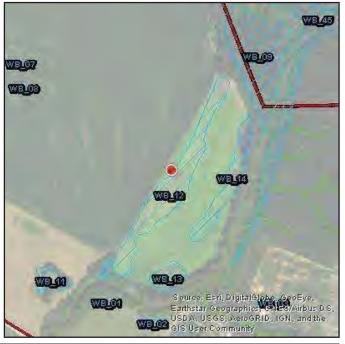




Attributes	
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Wetland ID	WB-11







Attributes	
Locked	Wetland
Wetland ID	WB-12

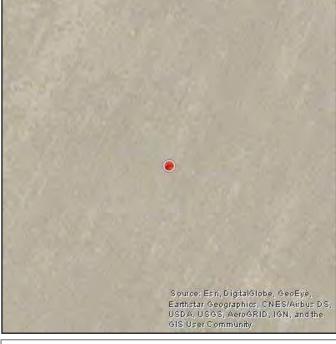






Attributes	
Locked	Wetland
Wetland ID	WB-13 and 14







Attributes	
Locked	Wetland
Wetland ID	WB-16







Attributes	
Locked	Wetland
Wetland ID	WB-16







Attributes	
Locked	Wetland
Wetland ID	WB-17







Attributes	
Locked	Wetland
Wetland ID	WB_17







Attributes	
Locked	Wetland
Wetland ID	WB_18







Attributes	
Locked	Wetland
Wetland ID	WB_19







Attributes	
Locked	Wetland
Wetland ID	WB_20







Attributes	
Locked	Wetland
Wetland ID	WB_21







Attributes	
Locked	Wetland
Wetland ID	WB_22







	Attributes	
L	ocked	Wetland
٧	Vetland ID	WB_24







Attributes	
Locked	Wetland
Wetland ID	WB_25







Attributes	
Locked	Wetland
Wetland ID	WB_25







Attributes	
Locked	Wetland
Wetland ID	WB_26







Attributes	
Locked	Wetland
Wetland ID	WB_28







Attributes	
Locked	Wetland
Wetland ID	WB_29







Attributes	
Locked	Wetland
Wetland ID	P13







Attributes	
Locked	Wetland
Wetland ID	WB_30







	Attributes	
	Locked	Wetland
,	Wetland ID	WB_31







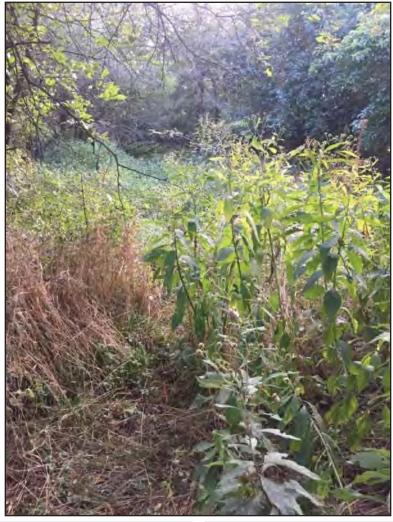
Attributes	
Locked	Wetland
Wetland ID	WB_32







Attributes	
Locked	Wetland
Wetland ID	WB_33







Attributes	
Locked	Wetland
Wetland ID	WB_34







Attributes	
Locked	Wetland
Wetland ID	WB_35







Attributes	
Locked	Wetland
Wetland ID	WB35







Attributes	
Locked	Wetland
Wetland ID	WB_35







Attributes	
Locked	Wetland
Wetland ID	WB_36

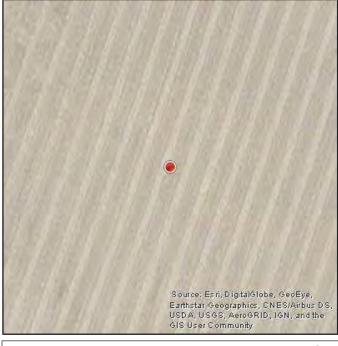






Attributes	
Locked	Wetland
Wetland ID	WB_36







Attributes	
Locked	Wetland
Wetland ID	WB_37







Attributes	
Locked	Wetland
Wetland ID	WB_37

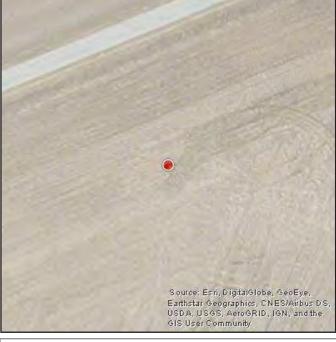






Attributes	
Locked	Wetland
Wetland ID	WB_38







Attributes	
Locked	Wetland
Wetland ID	WB_39







Attributes	
Locked	Wetland
Wetland ID	WB_40

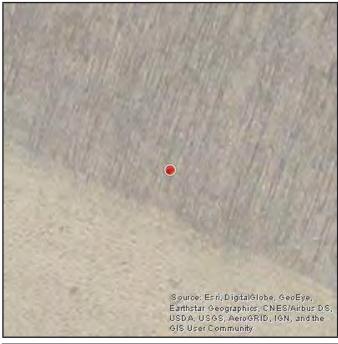






Attributes	
Locked	Wetland
Wetland ID	WB_41







Attributes	
Locked	Wetland
Wetland ID	WB_42







Attributes	
Locked	Wetland
Wetland ID	WB_43







Attributes	
Locked	Wetland
Wetland ID	WB_43







Attributes	
Locked	Wetland
Wetland ID	WB_44







Attributes	
Locked	Wetland
Wetland ID	WB_45







Attributes	
Locked	Wetland
Wetland ID	WB_45







Attributes	
Locked	Wetland
Wetland ID	Stormwater Pond







Attributes	
Locked	Wetland
Wetland ID	Stormwater Pond

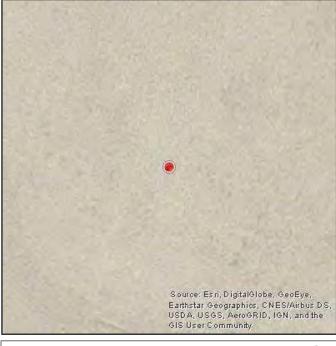






Attributes	
Locked	Wetland
Wetland ID	WB_46



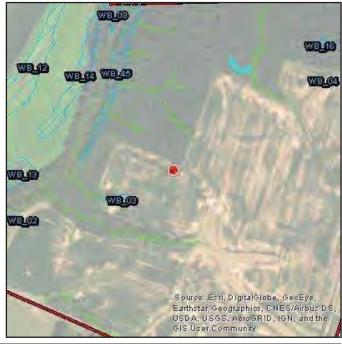




Attributes	
Locked	Wetland
Wetland ID	WB_47







Attributes	
Locked	Wetland
Wetland ID	WB_48







Attributes	
Locked	Wetland
Wetland ID	WB_49







Attributes	
Locked	Wetland
Wetland ID	WB_51







Attributes	
Locked	Wetland
Wetland ID	WB_52







Attributes	
Locked	Wetland
Wetland ID	WB_52







Attributes	
Locked	Wetland
Wetland ID	WB_52







Attributes	
Locked	Wetland
Wetland ID	WB_53







Attributes	
Locked	Wetland
Wetland ID	WB_53







Attributes	
Locked	Wetland
Wetland ID	WB_54







Attributes	
Locked	Wetland
Wetland ID	WB_54







Attributes	
Locked	Wetland
Wetland ID	WB_55







Attributes	
Locked	Wetland
Wetland ID	WB_58







Attributes	
Locked	Wetland
Wetland ID	WB_58



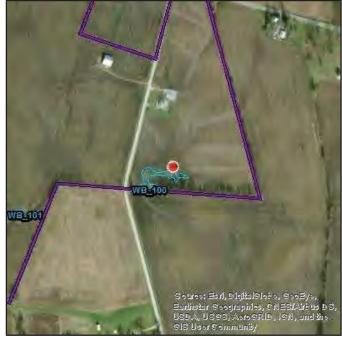




Attributes	
Locked	Wetland
Wetland ID	WB-100

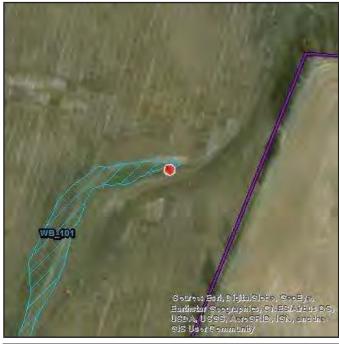






Attributes	
Locked	Wetland
Wetland ID	WB-100



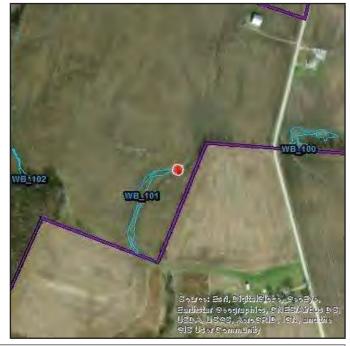




Attributes	
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Wetland ID	WB-101



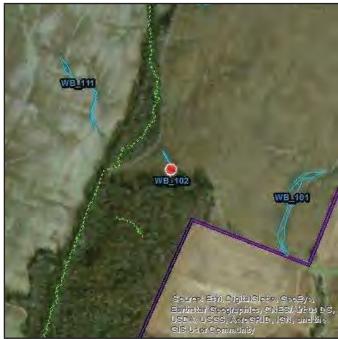




Attributes	
Locked	Wetland
Wetland ID	WB-101







Attributes	
Locked	Wetland
Wetland ID	WB-102







Attributes	
Locked	Wetland
Wetland ID	WB-102



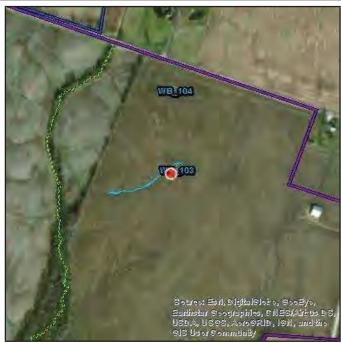




Attributes	
Locked	Wetland
Wetland ID	WB-103







Attributes	
Locked	Wetland
Wetland ID	WB-103



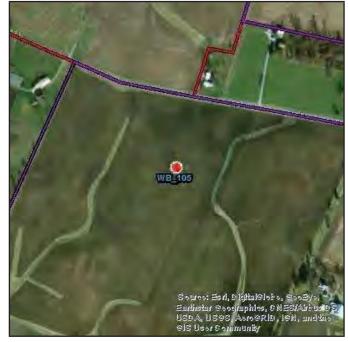




Attributes	
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Wetland ID	WB-104



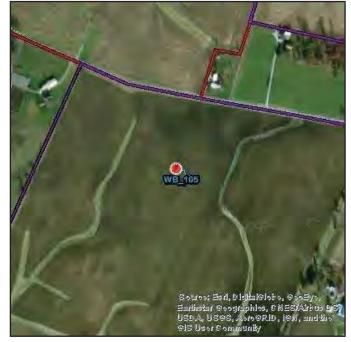




Attributes	
Locked	Wetland
Wetland ID	WB-105



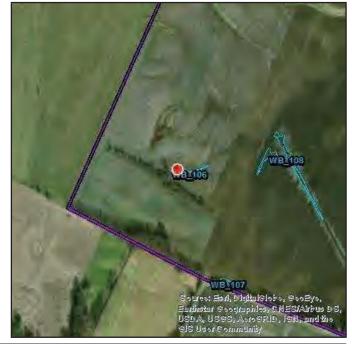




Attributes	
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Wetland ID	WB-105

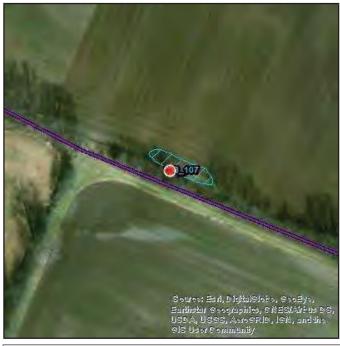






Attributes	
Locked	Wetland
Wetland ID	WB-106

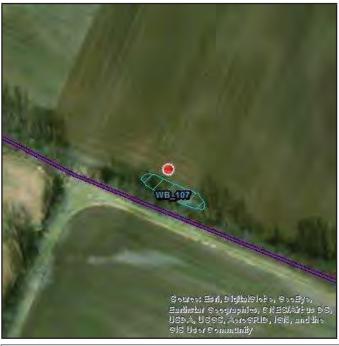


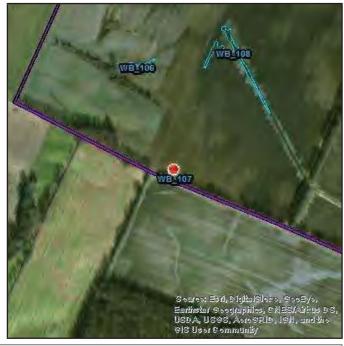




Attributes	
Locked	Wetland
Wetland ID	WB-107



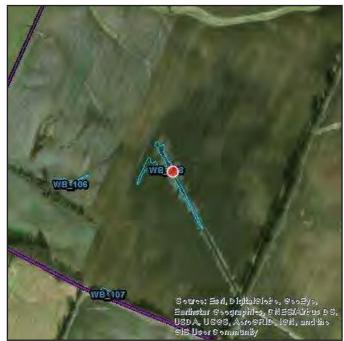




Attributes	
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Wetland ID	WB-107







Attributes	
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Wetland ID	WB-108



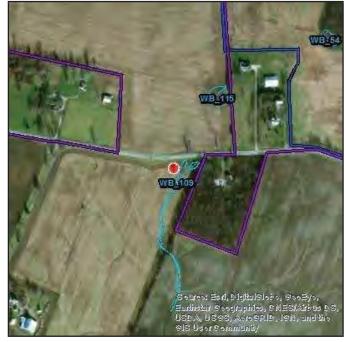




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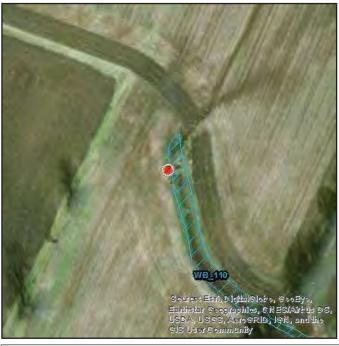


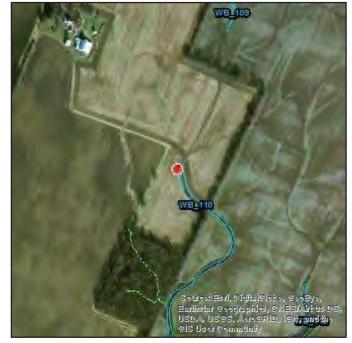




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Wetland ID	WB-109	



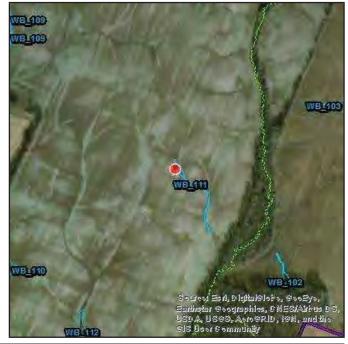




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Attributes		
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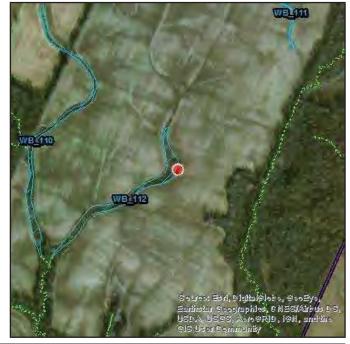




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V	Vetland ID	WB-104	



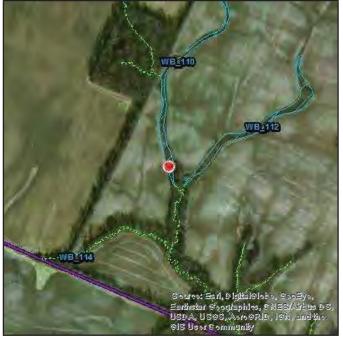




Attributes		
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Wetland ID	WB-112	



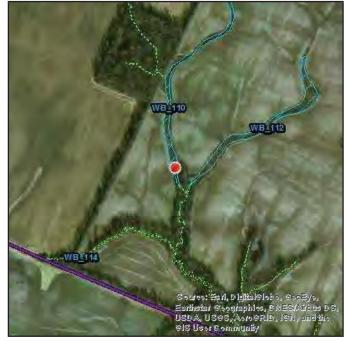




Attributes		
Locked	Wetland	
Wetland ID	WB-113	



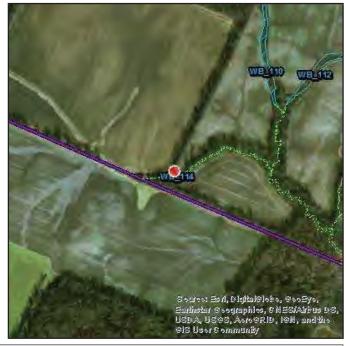




Attributes	
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Wetland ID	WB-113



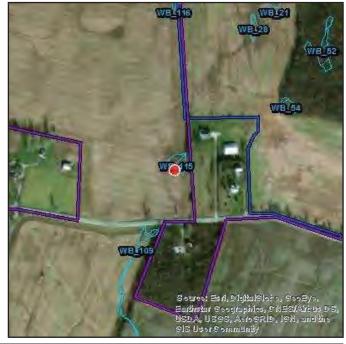




Attributes		
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Wetland ID	WB-114	







Attributes		
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Wetland ID	WB-115	



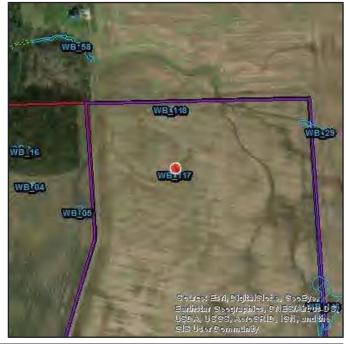




Attributes		
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Wetland ID	WB-116	







Attributes		
Locked	Wetland	
Wetland ID	WB-117	







Attributes	
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Feature ID	WC_15







Attributes	
Locked	Watercourse
Feature ID	WC_16







Attributes	
Locked	Watercourse
Feature ID	WC-17



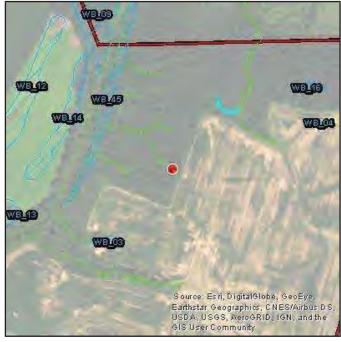




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Feature ID	WC-18







Attributes	
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Feature ID	WC-19



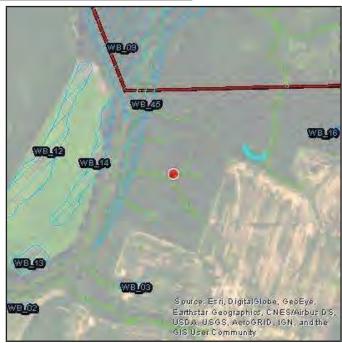




Attributes	
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Feature ID	WC-20







Attributes	
Locked	Watercourse
Feature ID	WC-21







Attributes	
Locked	Watercourse
Feature ID	WC-22







Attributes	
Locked	Watercourse
Feature ID	WC-24







Attributes	
Locked	Watercourse
Feature ID	WC-24







Attributes	
Locked	Watercourse
Feature ID	WC-25







Attributes	
Locked	Watercourse
Feature ID	WC-26

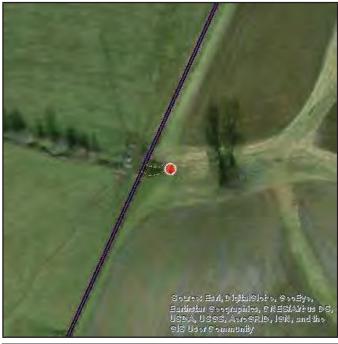


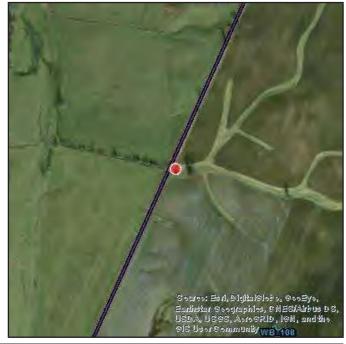




Attributes	
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Feature ID	WC-26







Attributes	
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Feature ID	WC-100







Attributes	
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Feature ID	WC-101



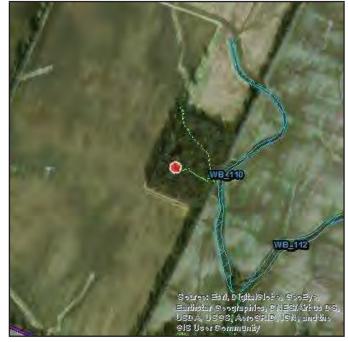




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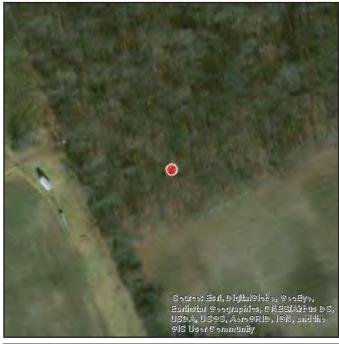






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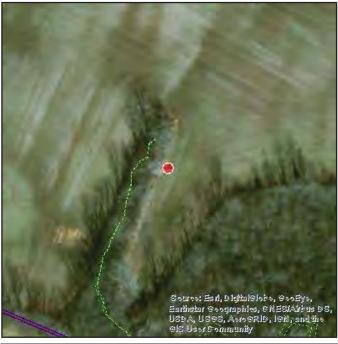


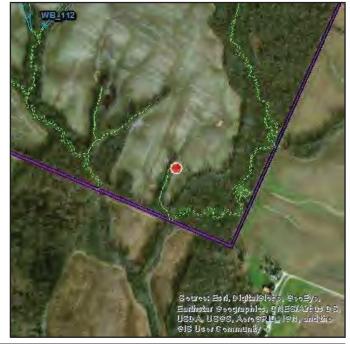




Attributes	
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Feature ID	WC-104







Attributes	
Locked	Watercourse
Wetland ID	Bat area by wc 104







Attributes	
Locked	Watercourse
Feature ID	WC-105







Attributes	
Locked	Watercourse
Feature ID	WC-106







Attributes	
Locked	Watercourse
Feature ID	WC-107



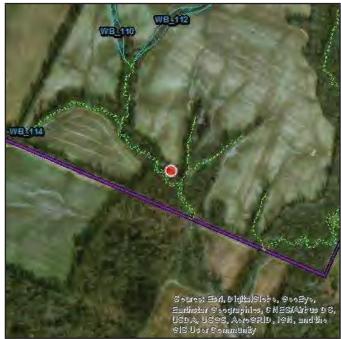




Attributes	
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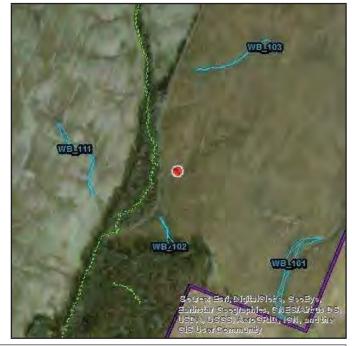




Attributes	
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Feature ID	WC-109







Attributes	
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Wetland ID	NW-100







Attributes	
Locked	Non-wetland
Wetland ID	NW-101



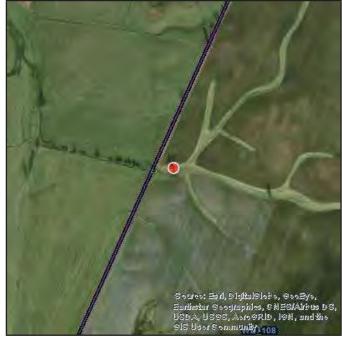




Attributes	
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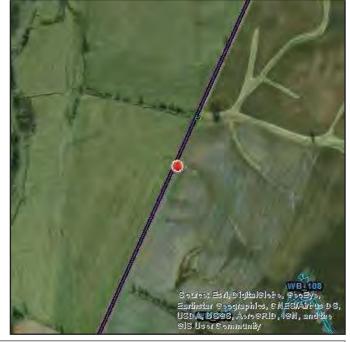




Attributes	
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Wetland ID	NW-103

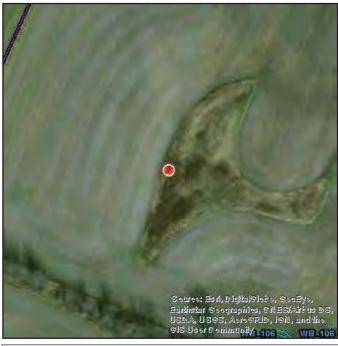


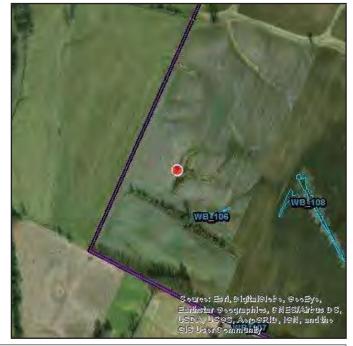




Attributes	
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Wetland ID	NW-104

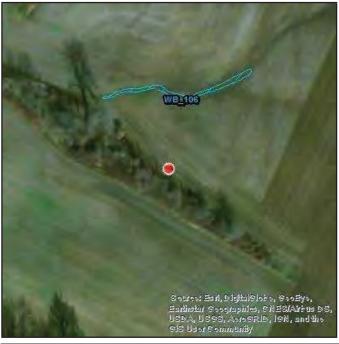


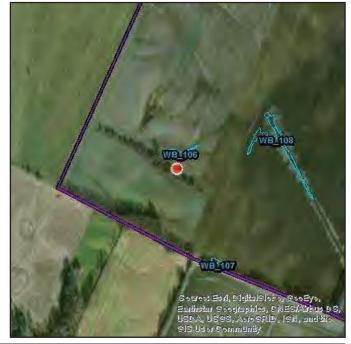




Attributes	
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Wetland ID	NW-105



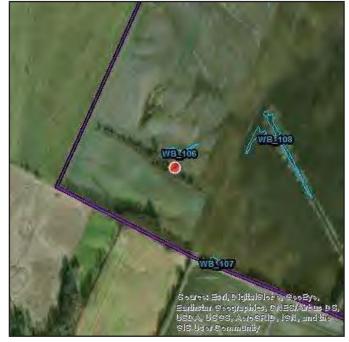




Attributes	
Locked	Non-wetland
Wetland ID	NW-106







Attributes	
Locked	Non-wetland
Wetland ID	NW-106



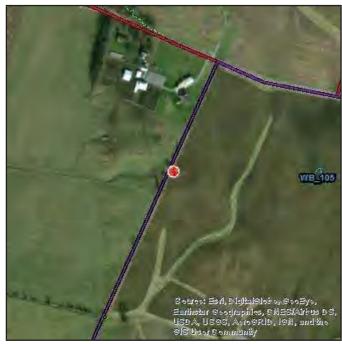




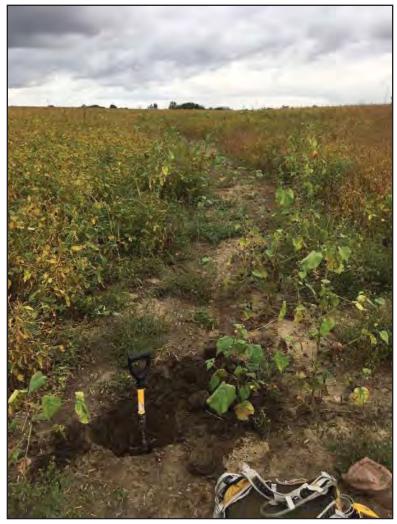
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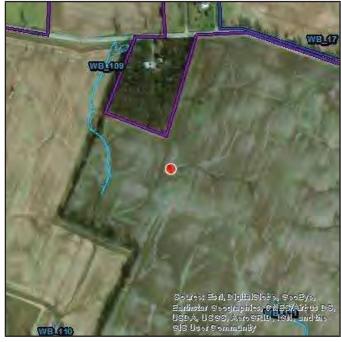




Attributes	
Locked	Non-wetland
Wetland ID	NW-108



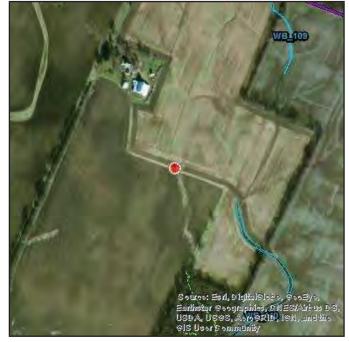




Attributes	
Locked	Non-wetland
Wetland ID	NW-109



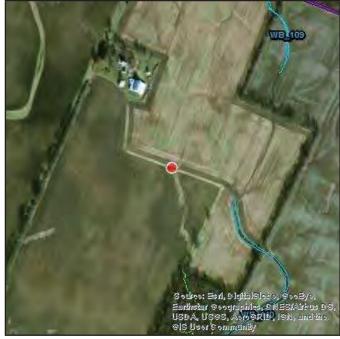




Attributes	
Locked	Not-wetland
Wetland ID	NW-110

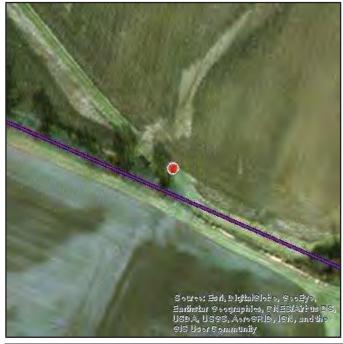


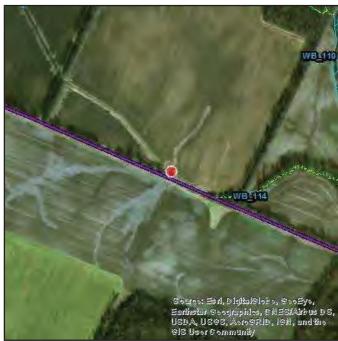




Attributes	
Locked	Not-wetland
Wetland ID	NW-110



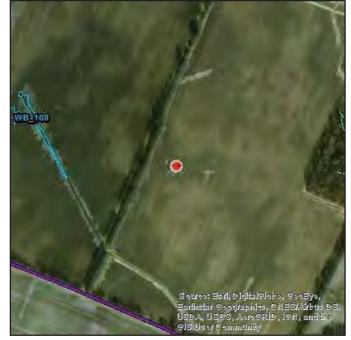




Attributes	
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Wetland ID	NW-111



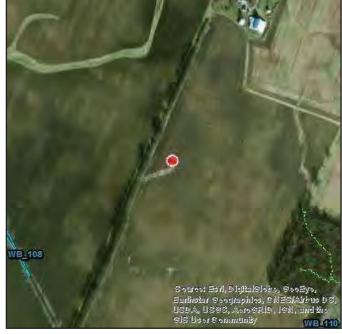




Attributes	
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Wetland ID	NW-112







Attributes		
L	ocked	Not-wetland
\	Wetland ID	NW-113



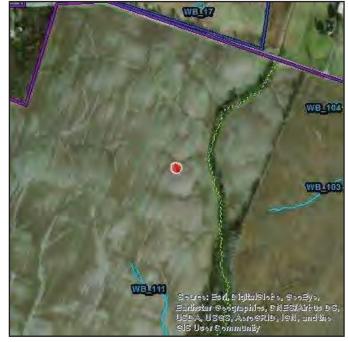




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Wetland ID	NW-114



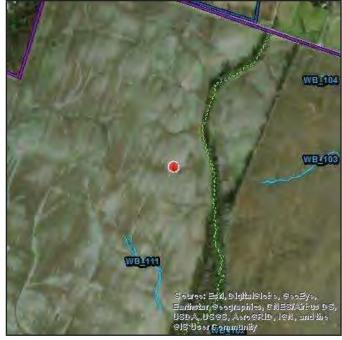




Attributes	
Locked	Not-wetland
Wetland ID	NW-115







Attributes	
Locked	Not-wetland
Wetland ID	NW-116







Attributes	
Locked	Not-wetland
Wetland ID	NW-117







Attributes	
Locked	Not-wetland
Wetland ID	NW-118







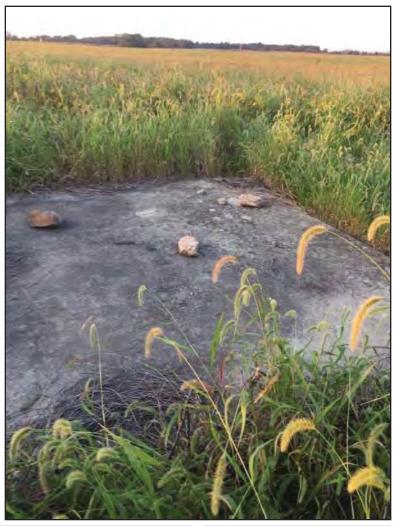
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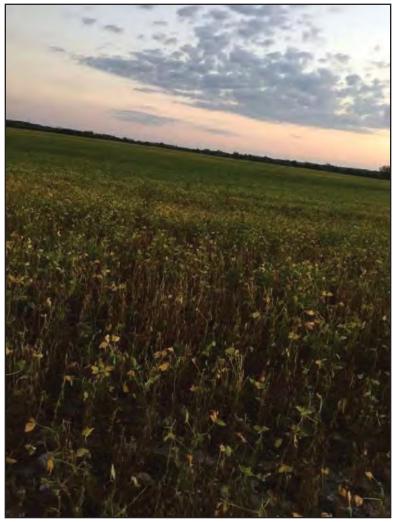
Attributes	
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Wetland ID	A1







Attributes	
Locked	Wetland
Wetland ID	A2







Attributes	
Locked	Wetland
Wetland ID	A5







Attributes	
Locked	Wetland
Wetland ID	A2







Attributes	
Locked	Wetland
Wetland ID	A3







Attributes	
Locked	Wetland
Wetland ID	A\$







Attributes	
Locked	Wetland
Wetland ID	A6







Attributes	
Locked	Wetland
Wetland ID	A7







Attributes	
Locked	Wetland
Wetland ID	A7







Attributes	
Locked	Wetland
Wetland ID	A8







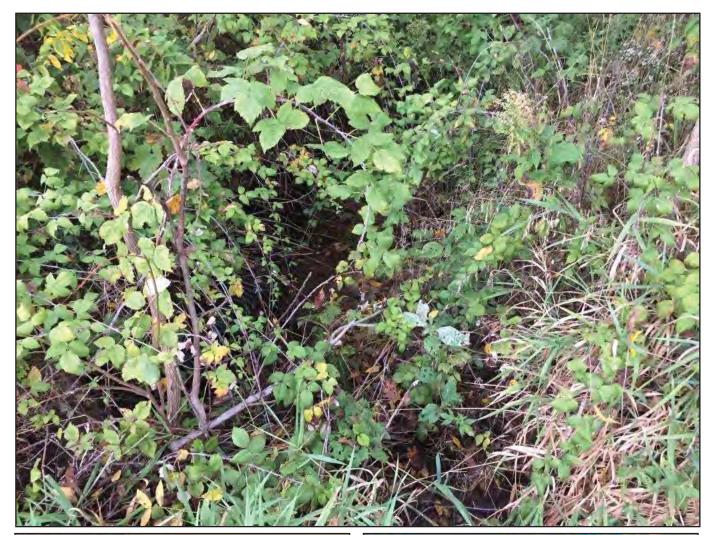
Attributes	
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Wetland ID	A8







Attributes	
Locked	Wetland
Wetland ID	A-10







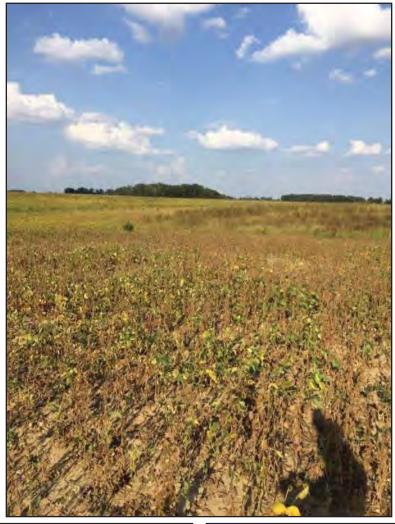
Attributes	
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Attributes	
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Attributes	
Parcel ID	
Site ID	A12



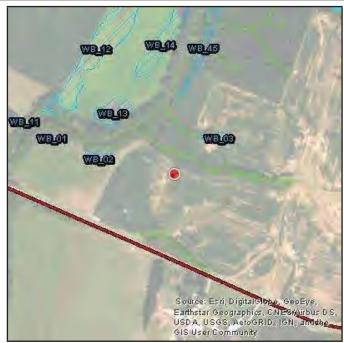




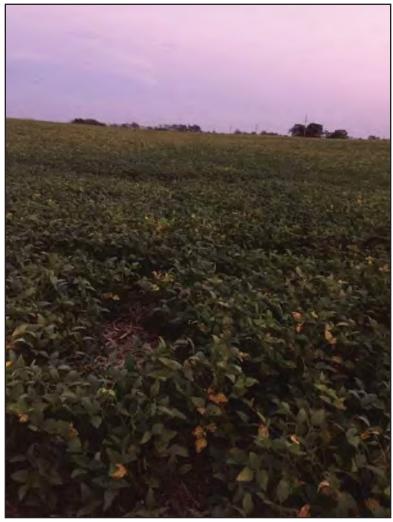
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Attributes	
Locked	Wetland
Wetland ID	A-20







Attributes	
Locked	Wetland
Wetland ID	A21







Attributes	
Locked	Wetland
Wetland ID	A22







Attributes	
Locked	Wetland
Wetland ID	A-22







Attributes	
Wetland ID	WB-201
Cir 39 Wetland Type at Photo Point	Type 1
Cowardin	PEMA



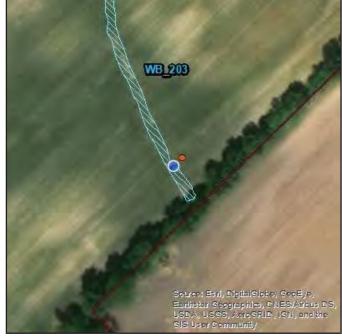




Attributes	
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Cir 39 Wetland Type at Photo Point	Type 1
Cowardin	PEMA







Attributes	
Wetland ID	WB-203
Cir 39 Wetland Type at Photo Point	Type 1
Cowardin	PEMA







Attributes	
Wetland ID	NW-202
Cir 39 Wetland Type at Photo Point	Upland
Cowardin	Upland







Attributes	
Wetland ID	NW-202
Cir 39 Wetland Type at Photo Point	Upland
Cowardin	Upland







Attributes	
Wetland ID	WB-204
Cir 39 Wetland Type at Photo Point	Type 1
Cowardin	PEMA







Attributes	
Wetland ID	WB-204
Cir 39 Wetland Type at Photo Point	Type 1
Cowardin	PEMA







Attributes	
Wetland ID	WB-204
Cir 39 Wetland Type at Photo Point	Type 1
Cowardin	PEMA







Attributes	
Wetland ID	NW203
Cir 39 Wetland Type at Photo Point	Upland
Cowardin	Upland







Attributes	
Wetland ID	WB-206
Cir 39 Wetland Type at Photo Point	Type 1
Cowardin	PEMA



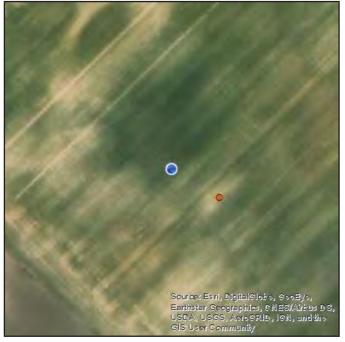




Attributes	
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Cowardin	PEMA



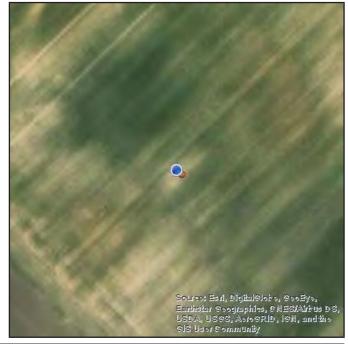




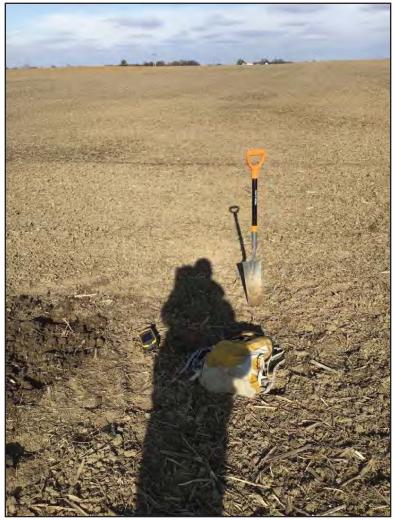
Attributes	
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Cir 39 Wetland Type at Photo Point	Upland
Cowardin	Upland







Attributes	
Wetland ID	NW-204
Cir 39 Wetland Type at Photo Point	Upland
Cowardin	Upland







Attributes	
Wetland ID	WB-207
Cir 39 Wetland Type at Photo Point	Type 1
Cowardin	PEMA







Attributes	
Wetland ID	WB-207
Cir 39 Wetland Type at Photo Point	Type 1
Cowardin	PEMA







Attributes	
Wetland ID	WB-205
Cir 39 Wetland Type at Photo Point	Type 1
Cowardin	PEMA







Attributes	
Wetland ID	WB-205
Cir 39 Wetland Type at Photo Point	Type 1
Cowardin	PEMA







Attributes		
Wetland ID	NW-201	
Cir 39 Wetland Type at Photo Point	Upland	
Cowardin	Upland	







Attributes		
Wetland ID	NW-201	
Cir 39 Wetland Type at Photo Point	Upland	
Cowardin	Upland	

### Westwood

# **Appendix D**

**Custom Soils Report** 





Natural Resources Conservation Service A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

# Custom Soil Resource Report for Madison County, Ohio



#### **Preface**

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2 053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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#### Custom Soil Resource Report

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### **How Soil Surveys Are Made**

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

#### Custom Soil Resource Report

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

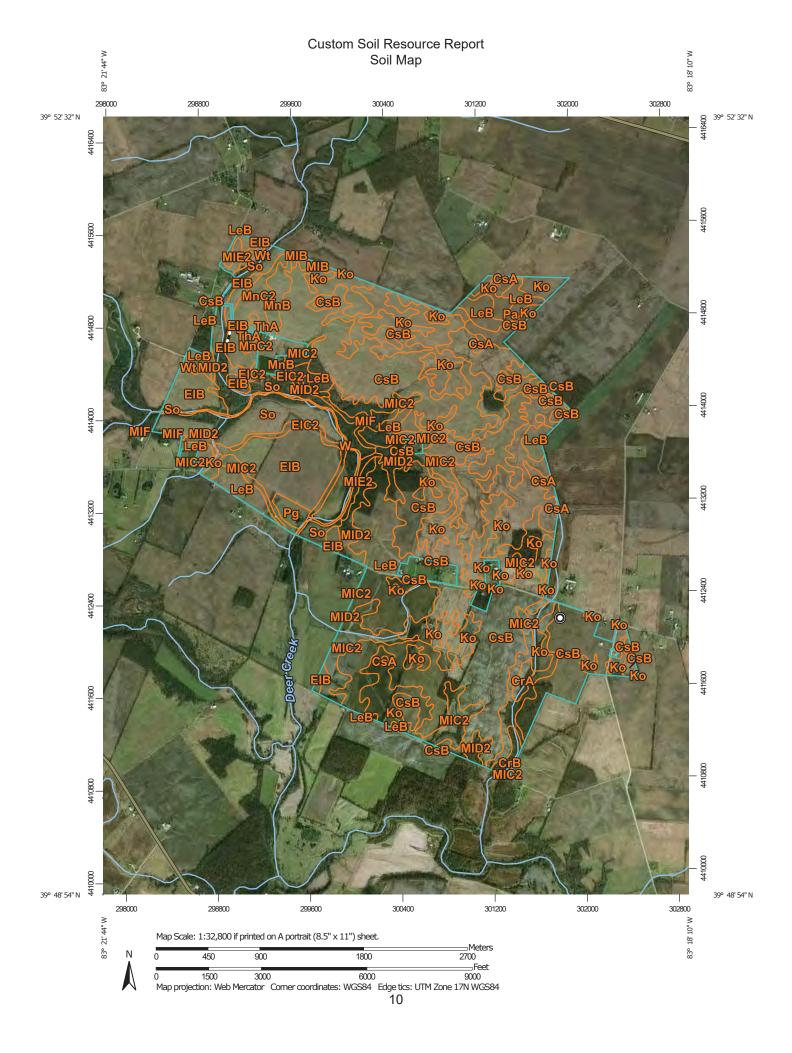
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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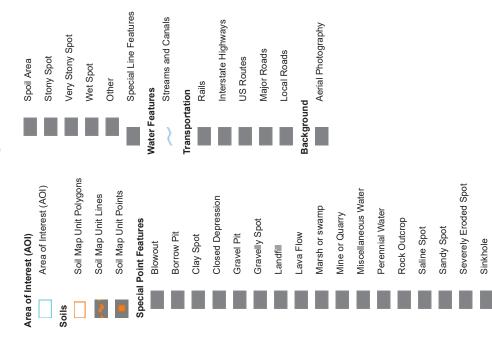
identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

### Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.



# MAP LEGEND



# MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Madison County, Ohio Survey Area Data: Version 18, Sep 16, 2019 Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 5, 2012—Mar 4, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Slide or Slip

Sodic Spot

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Summary: Application Exhibit I (Part 2-3) electronically filed by Mr. Michael J. Settineri on behalf of Big Plain Solar, LLC