Narrative Rating

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 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 41812 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	Go to Question 3
3	Documented High Quality Wetland. 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 Concentration 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	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	Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> 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	Fens. 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

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible Category 3 status.	Go to Question 9a
	Laborated and tolk of an order day to the contract of the	Go to Question 9a	410
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	YES	NO
	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?	Wetland should be evaluated for possible Category 3 status	Go to Question 9c
		Go to Question 10	
9с	Are Lake Erie water levels the wetland's primary hydrological influence,	YES	NO
	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.	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	Mathematics of October	0 - 1 - 0 1 0 -
	native species can also be present?	Wetland is a Category 3 wetland	Go to Question 9e
		Go to Question 10	
9e	Does the wetland have a predominance of non-native or disturbance	YES	NO
	tolerant native plant species 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 Counties and can the wetland be	YES	NO
	characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within	Wetland is a Category 3 wetland.	Go to Question 11
	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.	Go to Question 11	
11	Relict Wet Prairies. Is the wetland a relict wet prairie community	YES	(NO)
	dominated by some or all of the species in Table 1. Extensive prairies	Matianal ab - : 1 d l -	Complete
	were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion	Wetland should be evaluated for possible	Complete Quantitative
	Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,	Category 3 status	Rating
	Montgomery, Van Wert etc.).	Complete Quantitative Rating	

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceum
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddellii
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: ∖\	/etland	2 Rater(s): Nathan Renaudin Date: 4/4/17
1	1	Metric 1. Wetland Area (size).
max 6 pts.	subtotal	Select one size class and assign score. >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)
3	4	Metric 2. Upland buffers and surrounding land use.
max 14 pts.	subtotal	2a. Calculate average buffer width. Select only one and assign score. Do not double check. 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) 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) HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)
8	12	Metric 3. Hydrology.
max 30 pts.	subtotal	3a. Sources of Water. Score all that apply. High pH groundwater (5) Other groundwater (3) X Precipitation (1) Seasonal/Intermittent surface water (3) Perennial surface water (lake or stream) (5) 3c. Maximum water depth. Select only one and assign score. >0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 27.6in) (2) X Seasonally saturated in upper 30cm (12in) (1) 3e. Modifications to natural hydrologic regime. Score one or double check and average.
	ı	Recovered (7) X Recovering (3) Recent or no recovery (1) Reconstruction of the content of the
6	18	Metric 4. Habitat Alteration and Development.
max 20 pts.	subtotal	4a. Substrate disturbance. Score one or double check and average. None or none apparent (4) Recovered (3) X 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.
	18	None or none apparent (9) Recovered (6) X Recovering (3) Recent or no recovery (1)
last revised	i 1 ⊦ebrua	ry 2001 jjm

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		<u> </u>			
Site: ⋈	/etland	Rater	(s): Natha	n Renaudin	Date: 4/4/17
su	18 ubtotal first pa] Metric 5. Special Wetlar	nde		
0	18	Metric 3: Opeciai Wetiai	143.		
max 10 pts.	subtotal	Check all that apply and score as indicated. Bog (10) Fen (10) Old growth forest (10) Mature forested wetland (5) Lake Erie coastal/tributary wetland-Lake Erie coastal/tributary wetland-Lake Plain Sand Prairies (Oak Oper Relict Wet Prairies (10) Known occurrence state/federal thre Significant migratory songbird/water Category 1 Wetland. See Question	restricted hydronings) (10) eatened or endar fowl habitat or 1 Qualitative R	angered species (10) r usage (10) Rating (-10)	
2	20	Metric 6. Plant commun	ities, int	erspersion, microto	pography.
max 20 pts.	subtotal] 6a. Wetland Vegetation Communities.	Vegetation	Community Cover Scale	
max 20 pto:	oubtota	Score all present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.24	471 acres) contiguous area
		O Aquatic bed	1	Present and either comprises small	
		1 Emergent		vegetation and is of moderate of	
		0 Shrub		significant part but is of low qua	
		o Forest	2	Present and either comprises sign	
		0 Mudflats		vegetation and is of moderate of	quality or comprises a small
		Open water		part and is of high quality	
		O Other	3	Present and comprises significant	
		6b. horizontal (plan view) Interspersion.		vegetation and is of high quality	1
		Select only one.	Normative D	Description of Variation Quality	
		High (5) Moderately high(4)	low	Description of Vegetation Quality Low spp diversity and/or predomi	nance of nonnative or
		Moderate (3)	IOW	disturbance tolerant native spec	
		Moderately low (2)	mod	Native spp are dominant compon	
		Low (1)		although nonnative and/or distu	_
		X None (0)		can also be present, and specie	
		6c. Coverage of invasive plants. Refer		moderately high, but generally v	•
		to Table 1 ORAM long form for list. Add		threatened or endangered spp	
		or deduct points for coverage	high	A predominance of native species	
		Extensive >75% cover (-5)		and/or disturbance tolerant nativ	
		Moderate 25-75% cover (-3)		absent, and high spp diversity a	
		Sparse 5-25% cover (-1) Nearly absent <5% cover (0)		the presence of rare, threatened	a, or endangered spp
		x Absent (1)	Mudflat and	d Open Water Class Quality	
		6d. Microtopography.	0	Absent <0.1ha (0.247 acres)	
		Score all present using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 to 2.47 ac	cres)
		Vegetated hummucks/tussucks	2	Moderate 1 to <4ha (2.47 to 9.88	
		O Coarse woody debris >15cm (6in)	3	High 4ha (9.88 acres) or more	
		o Standing dead >25cm (10in) dbh		·	
		Amphibian breeding pools	Microtopog	graphy Cover Scale	
			0	Absent	
			1	Present very small amounts or if of marginal quality	more common
			2	Present in moderate amounts, bu quality or in small amounts of h	
			3	Present in moderate or greater ar	
				and of highest quality	
20					

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle 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 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	
3	Metric 2. Buffers and surrounding land use	3	
	Metric 3. Hydrology	8	
	Metric 4. Habitat	6	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	2	
	TOTAL SCORE	20	Category based on score breakpoints 1

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle 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 No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> 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 under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	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 undercategorized 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 undercategorized 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, loca 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 determination should be provided.

Final Category				
Choose one	Category 1	Category 2	Category 3	

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Metho 10 Page Form for Wetland Cat			
X7 · 50	Background Information			
Version 5.0	Scoring Boundary Worksheet			
	Narrative Rating	Ohio EPA, Division of Surface Water		
	Field Form Quantitative Rating	Final: February 1, 2001		
	ORAM Summary Worksheet			
	Wetland Categorization Worksheet			

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

name:			
	Mathan	Ponai	ıdin

Date:

4/4/17

Affiliation: TRC Solutions

Address: 2200 Liberty Avenue, Suite 100, Pittsburgh PA, 15222

Phone Number:

412.713.7127

e-mail address:

nrenaudin@trcsolutions.com

Name of Wetland: Wetland 3

Vegetation Communit(ies): PEM/PSS

HGM Class(es): Depressional

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

See attached map

Lat/Long or UTM Coordinate	39.276106 -82.449888
USGS Quad Name	Zaleski
County	Vinton
Township	Mcarthur
Section and Subsection	NA
Hydrologic Unit Code	050901010205
Site Visit	4/4/17
National Wetland Inventory Map	See Report
Ohio Wetland Inventory Map	See Report
Soil Survey	See Report
Delineation report/map	See Report

Name of Wetland: Wetland 3		
Wetland Size (acres, hectares): 0.21		Acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zones	s, etc.	
Sketch: Include north arrow, relationship with other surface waters, vegetation zones. See Wetland report.	s, etc.	Acres
Comments, Narrative Discussion, Justification of Category Changes:		
Final score: 27	Category:	1

Scoring Boundary Worksheet

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.	X	
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.	X	
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.	X	
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.	Х	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		
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.	Х	

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

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 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 41812 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	Go to Question 3
3	Documented High Quality Wetland. 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 Concentration 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	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	Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> 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	Fens. 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

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible Category 3 status.	Go to Question 9a
	Laborated and tolk of an order day to the contract of the	Go to Question 9a	410
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	YES	NO
	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?	Wetland should be evaluated for possible Category 3 status	Go to Question 9c
		Go to Question 10	
9с	Are Lake Erie water levels the wetland's primary hydrological influence,	YES	NO
	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.	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	Mathematics of October	0 - 1 - 0 1 0 -
	native species can also be present?	Wetland is a Category 3 wetland	Go to Question 9e
		Go to Question 10	
9e	Does the wetland have a predominance of non-native or disturbance	YES	NO
	tolerant native plant species 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 Counties and can the wetland be	YES	NO
	characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within	Wetland is a Category 3 wetland.	Go to Question 11
	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.	Go to Question 11	
11	Relict Wet Prairies. Is the wetland a relict wet prairie community	YES	(NO)
	dominated by some or all of the species in Table 1. Extensive prairies	Matianal ab - : 1 d l -	Complete
	were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion	Wetland should be evaluated for possible	Complete Quantitative
	Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,	Category 3 status	Rating
	Montgomery, Van Wert etc.).	Complete Quantitative Rating	

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum	-	Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceum
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddellii
	Salix serissima	Xyris difformis		_
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: We	tland :	3 Ra	ter(s): Nathan Renau	din	Date: 4/4/17
1 1		Metric 1. Wetland Area	a (size).		
max 6 pts. s	subtotal (Select one size class and assign score. >50 acres (>20.2ha) (6 pts) 25 to <50 acres (10.1 to <20.2ha 10 to <25 acres (4 to <10.1ha) (4 3 to <10 acres (1.2 to <4ha) (3 pt 0.3 to <3 acres (0.12 to <1.2ha) (4 pt) X	ts) (2pts)		
5 6		Metric 2. Upland buffe	rs and surroundi	ng land use.	
max 14 pts. s		2a. Calculate average buffer width. Select WIDE. Buffers average 50m (16 MEDIUM. Buffers average 25m X NARROW. Buffers average 10m VERY NARROW. Buffers average 2b. Intensity of surrounding land use. Sel X VERY LOW. 2nd growth or olde X LOW. Old field (>10 years), shru X MODERATELY HIGH. Resident HIGH. Urban, industrial, open page	4ft) or more around wetland per to <50m (82 to <164ft) around wetland to <25m (32ft to <82ft) around ge <10m (<32ft) around wetland lect one or double check and aver forest, prairie, savannah, wildlub land, young second growth forial, fenced pasture, park, conse	rimeter (7) wetland perimeter (4) d wetland perimeter (1) d perimeter (0) erage. ife area, etc. (7) prest. (5) provation tillage, new fallo	w field. (3)
11 1	7	Metric 3. Hydrology.			
max 30 pts. s	3	Ba. Sources of Water. Score all that apply High pH groundwater (5) Other groundwater (3) X Precipitation (1) X Seasonal/Intermittent surface wa Perennial surface water (lake or Bc. Maximum water depth. Select only on >0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 27.6in) (2) X <0.4m (<15.7in) (1) Be. Modifications to natural hydrologic region Recovered (7) X Recovering (3) Recent or no recovery (1)	ater (3) stream) (5) 3d. e and assign score.	Part of wetland/up Part of riparian or Duration inundation/satu Semi- to permane Regularly inundat X Seasonally inundat Seasonally satura	in (1) ake and other human use (1) bland (e.g. forest), complex (1) upland corridor (1) uration. Score one or dbl check. ently inundated/saturated (4) ed/saturated (3) ated (2) ated in upper 30cm (12in) (1) stormwater)
			weir stormwater input	dredging √ other_Historic Mi	
6 2	3	Metric 4. Habitat Altera	ation and Develo	pment.	
max 20 pts. s		4a. Substrate disturbance. Score one or d None or none apparent (4) Recovered (3) X Recovering (2) Recent or no recovery (1) 4b. Habitat development. Select only one 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	eck all disturbances observed mowing grazing clearcutting	shrub/sapling rem	
	tal this page		selective cutting woody debris removal toxic pollutants	dredging farming nutrient enrichme	nt
last revised 1 l	February	[,] 2001 jjm			

7

Age Community Cover Scale	Site: Wetland 3	F	Rater(s): Natha	n Renaudin	Date: 4/4/17
Bog (10) Fen (10) Old growth forest (10) Mature forested wetland (5) Lake Erie coastal/irbutary wetland-unrestricted hydrology (10) Lake Erie coastal/irbutary wetland-restricted hydrology (10) Lake Erie coastal/irbutary wetland-restricted hydrology (5) Lake Plain Sand Prizins (10) Known occurrence state/federal threatened or endangered species (10) Significant migratory songhird-water fowl habitat or usage (10) Category 1 Wetland. See Question 1 Qualitative Rating (-10) Metric 6. Plant communities, interspersion, microtopography. 4	subtotal first page	etric 5. Special We	etlands.		
Socre all present using 0 to 3 scale.		Bog (10) Fen (10) Old growth forest (10) Mature forested wetland (5) Lake Erie coastal/tributary w Lake Erie coastal/tributary w Lake Plain Sand Prairies (Oa Relict Wet Prairies (10) Known occurrence state/fede Significant migratory songbir Category 1 Wetland. See Qu	etland-unrestricted hydro etland-restricted hydro ik Openings) (10) eral threatened or enda d/water fowl habitat or uestion 1 Qualitative R	angered species (10) usage (10) ating (-10)	
Score all present using 0 to 3 scale. O Adquatic bed	$\begin{vmatrix} 4 & 27 \end{vmatrix}$	etric 6. Plant comr	nunities, int	erspersion, microt	opography.
Score all present using 0 to 3 scale. Aquatic bed 1 Present and either comprises scal 1nta (0.2471 acres) contiguous area 1 Present and either comprises small part of wetland's vegetation and is of moderate quality or comprises a significant part but is of low quality 0 Present and either comprises significant part out wetland's vegetation and is of moderate quality or comprises a significant part but is of low quality 0 Present and either or morprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality 1 Present and comprises significant part of wetland's vegetation and is of high quality 1 Present and comprises significant part, or more, of wetland's vegetation and is of high quality 1 Present and comprises significant part of wetland's vegetation and is of high quality 1 Present and comprises significant part of wetland's vegetation and is of high quality 1 Present and comprises significant part of wetland's vegetation and is of high quality 1 Present and comprises significant part of wetland's vegetation and is of high quality 1 Present and either comprises significant part of wetland's vegetation and is of high quality 1 Present and either comprises significant part of wetland's vegetation and is of high quality 1 Present and either comprises significant part of wetland's vegetation and is of high quality 1 Present in moderate quality or comprises as significant part of wetland's vegetation and is of high quality 1 Present in moderate quality, or comprises as significant part of wetland's vegetation and is of high quality 1 Present in moderate quality, or comprises as significant part of wetland's vegetation and is of high quality 1 Present in moderate armounts and is of high quality 1 Present in moderate quality or in small amounts of highest quality 1 Present in moderate armounts and of highest quality 1 Present in moderate armounts and part of wetland's vegetation and is of high quality 2 Present in moderate or greater amounts and of high	max 20 pts. subtotal 6a. V	Wetland Vegetation Communities.	Vegetation	Community Cover Scale	
Temergent Shrub		_			2471 acres) contiguous area
Shrub Significant part but is of low quality		0 Aquatic bed	1	Present and either comprises sn	nall part of wetland's
Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality 3		1 Emergent			
Open water		1 Shrub			
Dep water		o Forest	2	Present and either comprises sign	gnificant part of wetland's
6b. horizontal (plan view) Interspersion. Select only one. High (5) Moderately high(4) Moderately low (2) X Low (1) None (0) 6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage Extensive >75% cover (-5) Moderate 25-75% cover (-1) Nearly absent <5% cover (-1) Nearly absent <5% cover (0) X Absent (1) 6d. Microtopography. Score all present using 0 to 3 scale. 0 Vegetated hummucks/tussucks o Coarse woody debris >15cm (6in) o Standing dead >25cm (10in) dbh o Amphibian breeding pools Microtopography Cover Scale 0 Absent 1 Present and comprises significant part, or more, of wetland's vegetation and is of high quality Negratation and is of high quality Nearrative Description of Vegetation Quality Low spp diversity and/or predominance of nonnative or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp high A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp Mudflat and Open Water Class Quality 0 Absent <0.1 to <1 ho (0.247 to 2.47 acres) 1 Low 0.1 to <1 ho (0.247 to 2.47 acres) 2 Moderate 1 to <4 ho (0.247 to 9.88 acres) 3 High 4ha (9.88 acres) or more Microtopography Cover Scale 0 Absent 1 Present in moderate amounts, but not of highest quality 2 Present in moderate or greater amounts and of highest quality		0 Mudflats		_	quality or comprises a small
Select only one.		0 Open water			
Select only one. High (5) Moderately high(4) Moderately Narrative Description of Vegetation Quality low Low spp diversity and/or predominance of nonnative or disturbance tolerant native species Moderately low (2) Low (1) None (0) 6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage Extensive >75% cover (-5) Moderate 25-75% cover (-3) Sparse 5-25% cover (-1) Nearly absent <5% cover (0) Absent (1) 6d. Microtopography. Score all present using 0 to 3 scale. © Vegetated hummucks/tussucks © Coarse woody debris >15cm (6in) © Standing dead >25cm (10in) dbh © Amphibian breeding pools Microtopography Cover Scale Mudflat and Open Water Class Quality		0 Other	3	Present and comprises significant	nt part, or more, of wetland's
High (5) Moderately high(4) Moderately Nome (0) Low (1) None (0) Extensive >75% cover (-5) Nearly absent <5% cover (-1) Nearly absent (1) Absent (1) Gd. Microtopography. Score all present using 0 to 3 scale. O Vegetated hummucks/tussucks o Coarse woody debris >15cm (6in) o Standing dead >25cm (10in) dbh o Amphibian breeding pools Microtopography Cover Scale Marrative Description of Vegetation Quality low Low spp diversity and/or predominance of nonnative or disturbance tolerant native species. Moderately low (2) mod Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp high A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp Mudflat and Open Water Class Quality 0 Absent <1 Low 0.1 to <1ha (0.247 acres) 1 Low 0.1 to <4ha (2.47 to 9.88 acres) 3 High 4ha (9.88 acres) or more Microtopography Cover Scale 0 Absent 1 Present very small amounts or if more common of marginal quality 2 Present in moderate amounts, but not of highest quality or in small amounts of highest quality 3 Present in moderate or greater amounts and of highest quality	6b. r	norizontal (plan view) Interspersior	n	vegetation and is of high qualit	.ty
Moderately high(4) Moderately low (2) Moderately low (2) X Low (1) None (0) None (0)	Selec	ct only one.			
Moderate (3) Moderate (3) Moderately low (2) Low (1) Low (1) Altive spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp		High (5)	Narrative D	escription of Vegetation Quality	
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Low (1) Although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp		Moderate (3)		disturbance tolerant native spe	ecies
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or deduct points for coverage Extensive >75% cover (-5) Moderate 25-75% cover (-3) Sparse 5-25% cover (-1) Nearly absent <5% cover (0) X Absent (1) 6d. Microtopography. Score all present using 0 to 3 scale. 0 Vegetated hummucks/tussucks 0 Coarse woody debris >15cm (6in) 0 Standing dead >25cm (10in) dbh 0 Amphibian breeding pools Microtopography Cover Scale 0 Absent 1 Present very small amounts or if more common of marginal quality 2 Present in moderate amounts, but not of highest quality 7 Present in moderate or greater amounts and of highest quality 8 Present in moderate or greater amounts 1 A predominance of native species, with nonnative spp and/or disturbance tolerant native spe and/or disturb				moderately high, but generally	w/o presence of rare
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6d. Microtopography. Score all present using 0 to 3 scale. O Vegetated hummucks/tussucks O Coarse woody debris >15cm (6in) O Standing dead >25cm (10in) dbh O Amphibian breeding pools O Absent O Ab		Nearly absent <5% cover (0)			
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Present very small amounts or if more common of marginal quality Present in moderate amounts, but not of highest quality or in small amounts of highest quality Present in moderate or greater amounts and of highest quality		0 Amphibian breeding pools		· ·	
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and of highest quality					
27			J	_	unouno
	27			and or highest quality	

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle 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 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	
Ü	Metric 2. Buffers and surrounding land use	5	
	Metric 3. Hydrology	11	
	Metric 4. Habitat	6	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	4	
	TOTAL SCORE	27	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle 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 No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> 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 under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	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 undercategorized 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 undercategorized 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, loca 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 determination should be provided.

Final Category					
Choose one	Category 1	Category 2	Category 3		

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization		
X7 · 50	Background Information		
Version 5.0	Scoring Boundary Worksheet		
	Narrative Rating	Ohio EPA, Division of Surface Water	
	Field Form Quantitative Rating	Final: February 1, 2001	
	ORAM Summary Worksheet		
	Wetland Categorization Worksheet		

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

mame:		
	Mathan	Renaudin

Date:

4/4/17

Affiliation: TRC Solutions

Address: 2200 Liberty Avenue, Suite 100, Pittsburgh PA, 15222

Phone Number:

412.713.7127

e-mail address:

nrenaudin@trcsolutions.com

Name of Wetland: Wetland 4

Vegetation Communit(ies): PEM

HGM Class(es): Depressional

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

See attached map

Lat/Long or UTM Coordinate	39.281122 -82.439165
USGS Quad Name	Zaleski
County	Vinton
Township	Mcarthur
Section and Subsection	NA
Hydrologic Unit Code	050901010205
Site Visit	4/4/17
National Wetland Inventory Map	See Report
Ohio Wetland Inventory Map	See Report
Soil Survey	See Report
Delineation report/map	See Report

Name of Wetland: Wetland 4		
Wetland Size (acres, hectares): 0.21		Acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zones,	etc.	
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, See wetland report.	etc.	Acres
Comments, Narrative Discussion, Justification of Category Changes:		
Final score: 20	Category:	1

Scoring Boundary Worksheet

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.	x	
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.	X	
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.	X	
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.	Х	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		
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.	Х	

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

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 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 41812 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	Go to Question 3
3	Documented High Quality Wetland. 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 Concentration 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	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	Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> 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	Fens. 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

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible Category 3 status.	Go to Question 9a
	Laborated and tolk of an order day to the contract of the	Go to Question 9a	410
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	YES	NO
	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?	Wetland should be evaluated for possible Category 3 status	Go to Question 9c
		Go to Question 10	
9с	Are Lake Erie water levels the wetland's primary hydrological influence,	YES	NO
	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.	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	Mathematics of October	0 - 1 - 0 1 0 -
	native species can also be present?	Wetland is a Category 3 wetland	Go to Question 9e
		Go to Question 10	
9e	Does the wetland have a predominance of non-native or disturbance	YES	NO
	tolerant native plant species 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 Counties and can the wetland be	YES	NO
	characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within	Wetland is a Category 3 wetland.	Go to Question 11
	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.	Go to Question 11	
11	Relict Wet Prairies. Is the wetland a relict wet prairie community	YES	(NO)
	dominated by some or all of the species in Table 1. Extensive prairies	Matianal ab - : 1 d l -	Complete
	were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion	Wetland should be evaluated for possible	Complete Quantitative
	Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,	Category 3 status	Rating
	Montgomery, Van Wert etc.).	Complete Quantitative Rating	

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum	-	Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceum
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddellii
	Salix serissima	Xyris difformis		_
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: Wetland	4 I	Rater(s): Nathan Renau	udin	Date: 4/4/17
1 1	Metric 1. Wetland Ar	ea (size).		
max 6 pts. subtotal	Select one size class and assign score >50 acres (>20.2ha) (6 pts) 25 to <50 acres (10.1 to <20.10 to <25 acres (4 to <10.1ha) 3 to <10 acres (1.2 to <4ha) 0.3 to <3 acres (0.12 to <1.2	.2ha) (5 pts) a) (4 pts) (3 pts) ha) (2pts)		
3 4	Metric 2. Upland buf	fers and surroundi	ing land use.	
max 14 pts. subtotal	MEDIUM. Buffers average 2 NARROW. Buffers average X VERY NARROW. Buffers average X VERY NARROW. Buffers average X VERY LOW. 2nd growth or of LOW. Old field (>10 years), X MODERATELY HIGH. Resident	(164ft) or more around wetland person to <50m (82 to <164ft) around 10m to <25m (32ft to <82ft) around verage <10m (<32ft) around wetlan	erimeter (7) wetland perimeter (4) d wetland perimeter (1) d perimeter (0) verage. life area, etc. (7) orest. (5) ervation tillage, new fallo	ow field. (3)
7 11	Metric 3. Hydrology.			
max 30 pts. subtotal	3a. Sources of Water. Score all that a High pH groundwater (5) Other groundwater (3) X Precipitation (1) Seasonal/Intermittent surface Perennial surface water (lake 3c. Maximum water depth. Select only >0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 27.6in) (3) X <0.4m (<15.7in) (1) 3e. Modifications to natural hydrologic None or none apparent (12) Recovered (7)	e water (3) e or stream) (5) done and assign score. 2) regime. Score one or double chec	Part of wetland/up Part of riparian or Duration inundation/satu Semi- to permane Regularly inundat X Seasonally inund Seasonally satura	in (1) lake and other human use (1) pland (e.g. forest), complex (1) r upland corridor (1) uration. Score one or dbl check. ently inundated/saturated (4) ted/saturated (3) ated (2) ated in upper 30cm (12in) (1)
	Recovering (3) Recent or no recovery (1)	tile dike weir stormwater input	filling/grading road bed/RR trac dredging other_Historic Mi	k
6 17	Metric 4. Habitat Alto	eration and Develo	pment.	
max 20 pts. subtotal	4a. Substrate disturbance. Score one None or none apparent (4) Recovered (3) X Recovering (2) Recent or no recovery (1) 4b. Habitat development. Select only (1) 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 do	ouble check and average.		
17 subtotal this pa	· .	Check all disturbances observed mowing grazing clearcutting selective cutting woody debris removal toxic pollutants	shrub/sapling rem herbaceous/aqua sedimentation dredging farming nutrient enrichme	ttic bed removal

7

Site: Wetland 4	Rater(s): Natha	n Renaudin	Date: 4/4/17
17 subtotal first page Metric 5. Special W	/etlands.		
max 10 pts. subtotal Check all that apply and score as income as	wetland-unrestricted hydro wetland-restricted hydro Oak Openings) (10) ederal threatened or enda bird/water fowl habitat or Question 1 Qualitative R	angered species (10) usage (10) lating (-10)	
Metric 6. Plant con	imunities, int	erspersion, microto	opograpny.
max 20 pts. subtotal 6a. Wetland Vegetation Communities	es. Vegetation	Community Cover Scale	
Score all present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.2	
0 Aquatic bed	1	Present and either comprises sm	
1 Emergent		vegetation and is of moderate of	
0 Shrub		significant part but is of low qua	-
0 Forest	2	Present and either comprises sig	
0 Mudflats		vegetation and is of moderate of	quality or comprises a small
0 Open water		part and is of high quality	
0 Other	3	Present and comprises significan	
6b. horizontal (plan view) Interspers	ion.	vegetation and is of high quality	/
Select only one.			
High (5)		escription of Vegetation Quality	
Moderately high(4)	low	Low spp diversity and/or predom	
Moderate (3)		disturbance tolerant native spe	
Moderately low (2)	mod	Native spp are dominant compor	=
<u>x</u> Low (1)		although nonnative and/or distu	
None (0)		can also be present, and specie	•
6c. Coverage of invasive plants. Re		moderately high, but generally	
to Table 1 ORAM long form for list.		threatened or endangered spp	
or deduct points for coverage	high	A predominance of native specie	· · · · · · · · · · · · · · · · · · ·
Extensive >75% cover (-5)		and/or disturbance tolerant nati	
Moderate 25-75% cover (-	3)	absent, and high spp diversity	-
Sparse 5-25% cover (-1)		the presence of rare, threatene	d, or endangered spp
Nearly absent <5% cover			
Absent (1)		d Open Water Class Quality	
6d. Microtopography.	0	Absent <0.1ha (0.247 acres)	
Score all present using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 to 2.47 a	
Vegetated hummucks/tuss		Moderate 1 to <4ha (2.47 to 9.88	3 acres)
O Coarse woody debris >15c	· · ·	High 4ha (9.88 acres) or more	
Standing dead >25cm (10			
0 Amphibian breeding pools		raphy Cover Scale	
	0	Absent	
	1	Present very small amounts or if of marginal quality	
	2	Present in moderate amounts, but quality or in small amounts of h	
	3	Present in moderate or greater a	
		and of highest quality	
20			

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle 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 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	
3	Metric 2. Buffers and surrounding land use	3	
	Metric 3. Hydrology	7	
	Metric 4. Habitat	6	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	3	
	TOTAL SCORE	20	Category based on score breakpoints 1

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle 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 No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> 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 under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	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 undercategorized 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 undercategorized 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, loca 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 determination should be provided.

Final Category			
Choose one	Category 1	Category 2	Category 3

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization		
Version 5.0	Background Information		
version 5.0	Scoring Boundary Worksheet		
	Narrative Rating	Ohio EPA, Division of Surface Water	
	Field Form Quantitative Rating	Final: February 1, 2001	
	ORAM Summary Worksheet		
	Wetland Categorization Worksheet		

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

mame:		
	Mathan	Renaudin

Date:

4/4/17

Affiliation: TRC Solutions

Address: 2200 Liberty Avenue, Suite 100, Pittsburgh PA, 15222

Phone Number:

412.713.7127

e-mail address:

nrenaudin@trcsolutions.com

Name of Wetland: Wetland 5

Vegetation Communit(ies): PEM

HGM Class(es): Depressional

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

See attached map

Lat/Long or UTM Coordinate	39.273748 -82.439297
USGS Quad Name	Zaleski
County	Vinton
Township	Mcarthur
Section and Subsection	NA
Hydrologic Unit Code	050901010205
Site Visit	4/4/17
National Wetland Inventory Map	See Report
Ohio Wetland Inventory Map	See Report
Soil Survey	See Report
Delineation report/map	See Report

Name of Wetland: Wetland 5		
Wetland Size (acres, hectares): 2.27		Acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zone	s, etc.	
See wetland report.		
Comments, Narrative Discussion, Justification of Category Changes:		
Final score: 30	Category:	2
1 33313 1 30	Jacogory.	_

Scoring Boundary Worksheet

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.	x	
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.	X	
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.	X	
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.	Х	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		
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.	Х	

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

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 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 41812 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	Go to Question 3
3	Documented High Quality Wetland. 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 Concentration 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	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	Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> 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	Fens. 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

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible Category 3 status.	Go to Question 9a
		Go to Question 9a	410
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	YES	NO
	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	Wetland should be	Go to Question 9c
	landward dikes or other hydrological controls?	evaluated for possible	Go to Question 90
	and and and an	Category 3 status	
		Go to Question 10	
9с	Are Lake Erie water levels the wetland's primary hydrological influence,	YES	NO
	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	Go to Question 9d	Go to Question 10
	include sandbar deposition wetlands, estuarine wetlands, river mouth		
	wetlands, or those dominated by submersed aquatic vegetation.		
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant	YES	NO
	native species can also be present?	Wetland is a Category	Go to Question 9e
		3 wetland	
		Go to Question 10	
9e	Does the wetland have a predominance of non-native or disturbance	YES	NO
	tolerant native plant species within its vegetation communities?	Wetland should be	Go to Question 10
		evaluated for possible	Oo to Question to
		Category 3 status	
		Go to Question 10	
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in	YES	(NO)
	Lucas, Fulton, Henry, or Wood Counties and can the wetland be	Mathematics of October	0 - 1 - 0 1 44
	characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within	Wetland is a Category 3 wetland.	Go to Question 11
	several inches of the surface, and often with a dominance of the		
	gramineous vegetation listed in Table 1 (woody species may also be	Go to Question 11	
	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.		
11	Relict Wet Prairies. Is the wetland a relict wet prairie community	YES	NO
	dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union	Wetland should be	Complete
	Counties), Sandusky Plains (Wyandot, Crawford, and Marion	evaluated for possible	Quantitative
	Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties),	Category 3 status	Rating
	and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,	Complete Oversites!	
	Montgomery, Van Wert etc.).	Complete Quantitative Rating	

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum	-	Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceum
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddellii
	Salix serissima	Xyris difformis		_
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: ∖\	/etland	5 Rater(s): Nathan Renaudin Date: 4/4/17
2	2	Metric 1. Wetland Area (size).
max 6 pts.	subtotal	Select one size class and assign score. >50 acres (>20.2ha) (6 pts)
5	7	Metric 2. Upland buffers and surrounding land use.
max 14 pts.	subtotal	2a. Calculate average buffer width. Select only one and assign score. Do not double check. WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7) MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4) X 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) X 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) HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)
10	17	Metric 3. Hydrology.
max 30 pts.	subtotal	3a. Sources of Water. Score all that apply. High pH groundwater (5) Other groundwater (3) X Precipitation (1) Seasonal/Intermittent surface water (3) Perennial surface water (lake or stream) (5) 3c. Maximum water depth. Select only one and assign score. >0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 27.6in) (2) X Between stream/lake and other human use (1) Part of wetland/upland (e.g. forest), complex (1) Part of riparian or upland corridor (1) Semi- to permanently inundated/saturated (4) X Regularly inundated/saturated (3) Seasonally inundated (2) 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) Recovered (7) Recovered (7) Resources of Water. Score all that apply. 100 year floodplain (1) X Between stream/lake and other human use (1) Part of wetland/upland (e.g. forest), complex (1) Part of vetland/upland (e.g. forest), complex (1) Part of vetland/upland (e.g. forest), complex (1) Part of wetland/upland (e.g. forest), complex (1) Semi-to permanently inundated/saturated (3) Seasonally inundated (2) Seasonally saturated in upper 30cm (12in) (1) Seasonally saturated in upper 30cm (12in) (1) Recovered (7) Recovered (7)
		x Recovering (3) Recent or no recovery (1) tile dike road bed/RR track dredging stormwater input filling/grading road bed/RR track dredging other Historic Mining/Cow Field
8	24	Metric 4. Habitat Alteration and Development.
max 20 pts.	subtotal	4a. Substrate disturbance. Score one or double check and average. None or none apparent (4) Recovered (3) X 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) x Fair (3) Poor to fair (2) Poor (1)
	24 Libtotal this pa	
last revised	i 1 Februa	ry 2001 jjm

Site: Wetlar	nd 5	ater(s): Natha	n Renaudin	Date: 4/4/17
24 subtotal first 0 24	Metric 5. Special Wet	lands.		
max 10 pts. subtota	Bog (10) Fen (10) Old growth forest (10) Mature forested wetland (5) Lake Erie coastal/tributary wetl Lake Erie coastal/tributary wetl Lake Plain Sand Prairies (Oak Relict Wet Prairies (10) Known occurrence state/federa Significant migratory songbird/ Category 1 Wetland. See Que	land-unrestricted hydro land-restricted hydro Openings) (10) al threatened or enda water fowl habitat or estion 1 Qualitative R	angered species (10) usage (10) tating (-10)	
6 30	Metric 6. Plant comm	unities, int	erspersion, microt	opograpny.
max 20 pts. subtota	our rrotturia rogotution communitori	Vegetation	Community Cover Scale	
	Score all present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.	
	0 Aquatic bed	1	Present and either comprises sr	
	1 Emergent		vegetation and is of moderate	
	1 Shrub		significant part but is of low qu	-
	0 Forest	2	Present and either comprises si	
	0 Mudflats		vegetation and is of moderate	quality or comprises a small
	Open water		part and is of high quality	
	Other	3	Present and comprises significa	
	6b. horizontal (plan view) Interspersion.		vegetation and is of high quali	ity
	Select only one.			
	High (5)		escription of Vegetation Quality	
	Moderately high(4)	low	Low spp diversity and/or predon	
	Moderate (3)		disturbance tolerant native sp	
	Moderately low (2)	mod	Native spp are dominant compo	=
	x Low (1)		although nonnative and/or dis	
	None (0)		can also be present, and spec	-
	6c. Coverage of invasive plants. Refer		moderately high, but generally	
	to Table 1 ORAM long form for list. Add		threatened or endangered spp	
	or deduct points for coverage	high	A predominance of native speci	
	Extensive >75% cover (-5)		and/or disturbance tolerant na	
	Moderate 25-75% cover (-3)		absent, and high spp diversity	
	Sparse 5-25% cover (-1)	-	the presence of rare, threaten	ed, or endangered spp
	Nearly absent <5% cover (0)			
	X Absent (1)	Mudflat and	d Open Water Class Quality	
	6d. Microtopography.	0	Absent <0.1ha (0.247 acres)	
	Score all present using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 to 2.47 a	
	Vegetated hummucks/tussucks		Moderate 1 to <4ha (2.47 to 9.8	38 acres)
	O Coarse woody debris >15cm (6	· -	High 4ha (9.88 acres) or more	
	O Standing dead >25cm (10in) d			
	1 Amphibian breeding pools		graphy Cover Scale	
		0	Absent	
		1	Present very small amounts or i of marginal quality	f more common
		2		out not of highest
		2	Present in moderate amounts, to	
			quality or in small amounts of	
		3	Present in moderate or greater	amounts
30			and of highest quality	
100				

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle 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 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	2	
Ü	Metric 2. Buffers and surrounding land use	5	
	Metric 3. Hydrology	10	
	Metric 4. Habitat	8	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	6	
	TOTAL SCORE	30	Category based on score breakpoints 2

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle 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 No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> 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 under-categorized 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?	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 undercategorized 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 undercategorized 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 determination should be provided.

	Fin	al Category	
Choose one	Category 1	Category 2	Category 3

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization		
Version 5.0	Background Information		
version 5.0	Scoring Boundary Worksheet		
	Narrative Rating	Ohio EPA, Division of Surface Water	
	Field Form Quantitative Rating	Final: February 1, 2001	
	ORAM Summary Worksheet		
	Wetland Categorization Worksheet		

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

name:			
	Mathan	Popoudi	r

Date:

4/4/17

Affiliation: TRC Solutions

Address: 2200 Liberty Avenue, Suite 100, Pittsburgh PA, 15222

Phone Number:

412.713.7127

e-mail address:

nrenaudin@trcsolutions.com

Name of Wetland: Wetland 6

Vegetation Communit(ies): PEM

HGM Class(es): Depressional

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

See attached map

Lat/Long or UTM Coordinate	39.274811 -82.441962
USGS Quad Name	Zaleski
County	Vinton
Township	Mcarthur
Section and Subsection	NA
Hydrologic Unit Code	050901010205
Site Visit	4/4/17
National Wetland Inventory Map	See Report
Ohio Wetland Inventory Map	See Report
Soil Survey	See Report
Delineation report/map	See Report

Name of Wetland: Wetland 6	
Wetland Size (acres, hectares): 0.87	Acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zone	s, etc.
See wetland report.	
Output Name the Discount of the Control of the Cont	
Comments, Narrative Discussion, Justification of Category Changes:	
Final score : 34	Category: 2
1 11101 30010 1 34	2 2

Scoring Boundary Worksheet

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.	X	
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.	X	
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.	X	
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.	Х	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		
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.	Х	

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

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 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 41812 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	Go to Question 3
3	Documented High Quality Wetland. 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 Concentration 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	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	Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> 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	Fens. 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

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible Category 3 status.	Go to Question 9a
	Laborated and tolk of an order day to the contract of the	Go to Question 9a	410
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	YES	NO
	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?	Wetland should be evaluated for possible Category 3 status	Go to Question 9c
		Go to Question 10	
9с	Are Lake Erie water levels the wetland's primary hydrological influence,	YES	NO
	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.	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	Mathematics of October	0 - 1 - 0 1 0 -
	native species can also be present?	Wetland is a Category 3 wetland	Go to Question 9e
		Go to Question 10	
9e	Does the wetland have a predominance of non-native or disturbance	YES	NO
	tolerant native plant species 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 Counties and can the wetland be	YES	NO
	characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within	Wetland is a Category 3 wetland.	Go to Question 11
	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.	Go to Question 11	
11	Relict Wet Prairies. Is the wetland a relict wet prairie community	YES	(NO)
	dominated by some or all of the species in Table 1. Extensive prairies	Matianal ab - : 1 d l -	Complete
	were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion	Wetland should be evaluated for possible	Complete Quantitative
	Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,	Category 3 status	Rating
	Montgomery, Van Wert etc.).	Complete Quantitative Rating	

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceum
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddellii
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: ∖\	/etland	6 Rater(s): Nathan Renaudin Date: 4/4/17
1	1	Metric 1. Wetland Area (size).
max 6 pts.	subtotal	Select one size class and assign score. >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) x
4	5	Metric 2. Upland buffers and surrounding land use.
max 14 pts.	subtotal	2a. Calculate average buffer width. Select only one and assign score. Do not double check. WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7) MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4) X 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) X MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3) HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)
14	19	Metric 3. Hydrology.
max 30 pts.	subtotal	3a. Sources of Water. Score all that apply. High pH groundwater (5)
	ı	X Recovering (3) Recent or no recovery (1) Itile Idike Idik
8	27	Metric 4. Habitat Alteration and Development.
max 20 pts.	subtotal	4a. Substrate disturbance. Score one or double check and average. None or none apparent (4) Recovered (3) X Recovering (2) Recent or no recovery (1)
		4b. Habitat development. Select only one and assign score. Excellent (7)
	27	4c. Habitat alteration. Score one or double check and average. None or none apparent (9) Recovered (6) X Recovering (3) Recent or no recovery (1) Recent or no recovery (1) Recovering (3) Recent or no recovery (1)
last revised	ubtotal this pa	ge
		· / === · //···

7

Site: Wetland 6	Rater(s): Natha	n Renaudin	Date: 4/4/17
27 subtotal first page Metric 5. Special We	etlands.		
Check all that apply and score as indices as	wetland-unrestricted hydro wetland-restricted hydro lak Openings) (10) deral threatened or enda ird/water fowl habitat or Question 1 Qualitative R	angered species (10) usage (10) ating (-10)	
Metric 6. Plant com	munities, int	erspersion, microto	opograpny.
max 20 pts. subtotal 6a. Wetland Vegetation Communities	. Vegetation	Community Cover Scale	
Score all present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.2	
0 Aquatic bed	1	Present and either comprises sm	
1 Emergent		vegetation and is of moderate of	
1 Shrub		significant part but is of low qua	•
0 Forest	2	Present and either comprises sig	
0 Mudflats		vegetation and is of moderate of	quality of comprises a small
Open water		part and is of high quality	t want an manne of westlandle
0 Other	_ 3	Present and comprises significan	
6b. horizontal (plan view) Interspersion	on.	vegetation and is of high quality	У
Select only one.	Nametica D	and the second s	
High (5)		escription of Vegetation Quality	
Moderately high(4)	low	Low spp diversity and/or predom	
Moderate (3)		disturbance tolerant native spe	
X Moderately low (2)	mod	Native spp are dominant compor	_
Low (1)		although nonnative and/or distu	
None (0)		can also be present, and specie	•
 Coverage of invasive plants. Refetor Table 1 ORAM long form for list. A 		moderately high, but generally	
or deduct points for coverage		threatened or endangered spp A predominance of native specie	
Extensive >75% cover (-5)	high	and/or disturbance tolerant nati	• •
Moderate 25-75% cover (-3)	١	absent, and high spp diversity	
Sparse 5-25% cover (-1))	the presence of rare, threatene	
Nearly absent <5% cover (0		the presence of fare, threatene	a, or oridarigored app
x Absent (1)		Open Water Class Quality	
6d. Microtopography.	0	Absent <0.1ha (0.247 acres)	
Score all present using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 to 2.47 a	cres)
Vegetated hummucks/tussu		Moderate 1 to <4ha (2.47 to 9.88	
0 Coarse woody debris >15cr		High 4ha (9.88 acres) or more	<u> </u>
0 Standing dead >25cm (10in	` '		
1 Amphibian breeding pools		raphy Cover Scale	
	0	Absent	
	1	Present very small amounts or if	more common
	,	of marginal quality	
	2	Present in moderate amounts, bu	ut not of highest
	~	quality or in small amounts of h	
	3	Present in moderate or greater a	
	O .	and of highest quality	
34	-	1a agas alacut)	

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle 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 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	
Ü	Metric 2. Buffers and surrounding land use	4	
	Metric 3. Hydrology	14	
	Metric 4. Habitat	8	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	7	
	TOTAL SCORE	34	Category based on score breakpoints 2

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle 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 No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> 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 under-categorized 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?	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 undercategorized 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 undercategorized 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 determination should be provided.

Final Category			
Choose one	Category 1	Category 2	Category 3

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization		
X7 · 50	Background Information		
Version 5.0	Scoring Boundary Worksheet		
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Background Information

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Date:

4/4/17

Affiliation: TRC Solutions

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Phone Number:

412.713.7127

e-mail address:

nrenaudin@trcsolutions.com

Name of Wetland: Wetland 7

Vegetation Communit(ies): PEM

HGM Class(es): Depressional

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

See attached map

Lat/Long or UTM Coordinate	39.276214 -82.437901
USGS Quad Name	Zaleski
County	Vinton
Township	Mcarthur
Section and Subsection	NA
Hydrologic Unit Code	050901010205
Site Visit	4/4/17
National Wetland Inventory Map	See Report
Ohio Wetland Inventory Map	See Report
Soil Survey	See Report
Delineation report/map	See Report

Name of Wetland: Wetland 7		
Wetland Size (acres, hectares): 4.89		Acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc. See wetland report.		
Comments Narrative Discussion Justification of Category Changes		
Comments, Narrative Discussion, Justification of Category Changes: Final score: 33 Cat	tegory:	2

Scoring Boundary Worksheet

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.	x	
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.	X	
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.	X	
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.	Х	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		
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.	Х	

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

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 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 41812 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	Go to Question 3
3	Documented High Quality Wetland. 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 Concentration 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	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	Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> 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	Fens. 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

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible Category 3 status.	Go to Question 9a
	Laborated and tolk of an order day to the contract of the	Go to Question 9a	410
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	YES	NO
	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?	Wetland should be evaluated for possible Category 3 status	Go to Question 9c
		Go to Question 10	
9с	Are Lake Erie water levels the wetland's primary hydrological influence,	YES	NO
	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.	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	Mathematics of October	0 - 1 - 0 1 0 -
	native species can also be present?	Wetland is a Category 3 wetland	Go to Question 9e
		Go to Question 10	
9e	Does the wetland have a predominance of non-native or disturbance	YES	NO
	tolerant native plant species 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 Counties and can the wetland be	YES	NO
	characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within	Wetland is a Category 3 wetland.	Go to Question 11
	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.	Go to Question 11	
11	Relict Wet Prairies. Is the wetland a relict wet prairie community	YES	(NO)
	dominated by some or all of the species in Table 1. Extensive prairies	Matianal ab - : 1 d l -	Complete
	were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion	Wetland should be evaluated for possible	Complete Quantitative
	Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,	Category 3 status	Rating
	Montgomery, Van Wert etc.).	Complete Quantitative Rating	

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum	-	Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceum
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddellii
	Salix serissima	Xyris difformis		_
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: Wetland	7 R	Rater(s): Nathan Renau	ıdin	Date: 4/4/17
3 3	Metric 1. Wetland Arc	ea (size).		
max 6 pts. subtotal	Select one size class and assign score. >50 acres (>20.2ha) (6 pts) 25 to <50 acres (10.1 to <20.2 10 to <25 acres (4 to <10.1ha X 3 to <10 acres (1.2 to <4ha) (3 0.3 to <3 acres (0.12 to <1.2h 0.1 to <0.3 acres (0.04 to <0.1 <0.1 acres (0.04ha) (0 pts)) (4 pts) 3 pts) a) (2pts)		
5 8	Metric 2. Upland buff	ers and surroundi	ng land use.	
max 14 pts. subtotal	MEDIUM. Buffers average 25 X NARROW. Buffers average 1 VERY NARROW. Buffers average 25 VERY NARROW. Buffers average 1 VERY LOW. 2nd growth or of 2 X LOW. Old field (>10 years), s X MODERATELY HIGH. Resid	(164ft) or more around wetland pe 5m to <50m (82 to <164ft) around 0m to <25m (32ft to <82ft) around erage <10m (<32ft) around wetland	rimeter (7) wetland perimeter (4) d wetland perimeter (1) d perimeter (0) rerage. ife area, etc. (7) prest. (5) provation tillage, new fallo	ow field. (3)
12 20	Metric 3. Hydrology.			
max 30 pts. subtotal	3a. Sources of Water. Score all that ap High pH groundwater (5) Other groundwater (3) X Precipitation (1) X Seasonal/Intermittent surface Perennial surface water (lake 3c. Maximum water depth. Select only >0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 27.6in) (2 X <0.4m (<15.7in) (1) 3e. Modifications to natural hydrologic r None or none apparent (12) Recovered (7) X Recovering (3) Recent or no recovery (1)	water (3) or stream) (5) 3d. one and assign score.	X Part of wetland/up Part of riparian or Duration inundation/satu Semi- to permane Regularly inundat X Seasonally inundat Seasonally satura	in (1) lake and other human use (1) pland (e.g. forest), complex (1) pland corridor (1) uration. Score one or dbl check. ently inundated/saturated (4) ted/saturated (3) ated (2) ated in upper 30cm (12in) (1) stormwater) k
7 27	Metric 4. Habitat Alte	eration and Develo	pment.	
max 20 pts. subtotal	4a. Substrate disturbance. Score one of None or none apparent (4) Recovered (3) X Recovering (2) Recent or no recovery (1) 4b. Habitat development. Select only of 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 dougle of the second content of th	ne and assign score.		
27 subtotal this pa	None or none apparent (9) Recovered (6) X Recovering (3) Recent or no recovery (1)	Check all disturbances observed mowing grazing clearcutting selective cutting woody debris removal toxic pollutants	shrub/sapling rem herbaceous/aqua sedimentation dredging farming nutrient enrichme	tic bed removal

7

Site: ∨	/etland	7	Rater	(s): Natha	n Renaudin	Date: 4/4/17
sı.	27 ubtotal first pa	1	ic 5. Special Wetlar	nds.		
max 10 pts.	subtotal	Check al	II that apply and score as indicated.			
		Na cir	Bog (10) Fen (10) Old growth forest (10) Mature forested wetland (5) Lake Erie coastal/tributary wetland-Lake Erie coastal/tributary wetland-Lake Plain Sand Prairies (Oak Oper Relict Wet Prairies (10) Known occurrence state/federal thre Significant migratory songbird/water Category 1 Wetland. See Question	restricted hydronings) (10) eatened or endar fowl habitat or 1 Qualitative R	angered species (10) susage (10) Rating (-10)	
6	33	wetr	ic 6. Plant commun	ities, int	erspersion, microto	opograpny.
max 20 pts.	subtotal	6a. Wet	land Vegetation Communities.	Vegetation	Community Cover Scale	
		Score all	I present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.2	471 acres) contiguous area
		0	Aquatic bed	1	Present and either comprises sm	all part of wetland's
		1	Emergent		vegetation and is of moderate of	quality, or comprises a
		0	Shrub		significant part but is of low qua	ality
		0	Forest	2	Present and either comprises sig	nificant part of wetland's
		0	Mudflats		vegetation and is of moderate of	quality or comprises a small
		0	Open water		part and is of high quality	
		0	Other	3	Present and comprises significan	t part, or more, of wetland's
		6b. horiz	zontal (plan view) Interspersion.		vegetation and is of high quality	
		Select or	nly one.			
			High (5)	Narrative D	escription of Vegetation Quality	
			Moderately high(4)	low	Low spp diversity and/or predomi	inance of nonnative or
			Moderate (3)		disturbance tolerant native spec	
			Moderately low (2)	mod	Native spp are dominant compon	ent of the vegetation,
		Х	Low (1)		although nonnative and/or distu	urbance tolerant native spp
			None (0)		can also be present, and specie	
		6c. Cove	erage of invasive plants. Refer		moderately high, but generally	
			1 ORAM long form for list. Add		threatened or endangered spp	
		or deduc	et points for coverage	high	A predominance of native species	
			Extensive >75% cover (-5)		and/or disturbance tolerant nati	ve spp absent or virtually
			Moderate 25-75% cover (-3)		absent, and high spp diversity a	and often, but not always,
			Sparse 5-25% cover (-1)		the presence of rare, threatene	
			Nearly absent <5% cover (0)			
		Х	Absent (1)	Mudflat and	d Open Water Class Quality	
		6d. Micr	otopography.	0	Absent <0.1ha (0.247 acres)	
			I present using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 to 2.47 ac	cres)
		2	Vegetated hummucks/tussucks	2	Moderate 1 to <4ha (2.47 to 9.88	<u> </u>
		0	Coarse woody debris >15cm (6in)	3	High 4ha (9.88 acres) or more	
		0	Standing dead >25cm (10in) dbh		Trage was (cree electe) or more	
		1	Amphibian breeding pools	Microtopoo	graphy Cover Scale	
		<u></u>	<u> </u>	0	Absent	
				1	Present very small amounts or if	more common
					of marginal quality	
				2	Present in moderate amounts, bu	ut not of highest
					quality or in small amounts of h	ighest quality
				3	Present in moderate or greater a	mounts
	1				and of highest quality	
33						

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle 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 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	3	
3	Metric 2. Buffers and surrounding land use	5	
	Metric 3. Hydrology	12	
	Metric 4. Habitat	7	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	6	
	TOTAL SCORE	33	Category based on score breakpoints 2

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle 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 No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> 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 under-categorized 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?	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 undercategorized 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 undercategorized 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 determination should be provided.

	Fin	al Category	
Choose one	Category 1	Category 2	Category 3

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization		
X7 · 50	Background Information		
Version 5.0	Scoring Boundary Worksheet		
	Narrative Rating	Ohio EPA, Division of Surface Water	
	Field Form Quantitative Rating	Final: February 1, 2001	
	ORAM Summary Worksheet		
	Wetland Categorization Worksheet		

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

name:		
	Mathan	Popoudi

Date:

4/5/17

Affiliation: TRC Solutions

Address: 2200 Liberty Avenue, Suite 100, Pittsburgh PA, 15222

Phone Number:

412.713.7127

e-mail address:

nrenaudin@trcsolutions.com

Name of Wetland: Wetland 8

Vegetation Communit(ies): PEM

HGM Class(es): Depressional

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

See attached map

Lat/Long or UTM Coordinate	39.254545 -82.450319
USGS Quad Name	Zaleski
County	Vinton
Township	Mcarthur
Section and Subsection	NA
Hydrologic Unit Code	050901010302
Site Visit	4/5/17
National Wetland Inventory Map	See Report
Ohio Wetland Inventory Map	See Report
Soil Survey	See Report
Delineation report/map	See Report

Name of Wetland: Wetland 8		
Wetland Size (acres, hectares): 0.04		Acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zone	es, etc.	
See wetland report.		
Comments, Narrative Discussion, Justification of Category Changes:		
Final agers :	Cotomo	
Final score: 22	Category:	1

Scoring Boundary Worksheet

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.	x	
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.	X	
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.	X	
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.	Х	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		
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.	Х	

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

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 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 41812 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	Go to Question 3
3	Documented High Quality Wetland. 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 Concentration 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	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	Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> 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	Fens. 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

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible Category 3 status.	Go to Question 9a
		Go to Question 9a	410
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	YES	NO
	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	Wetland should be	Go to Question 9c
	landward dikes or other hydrological controls?	evaluated for possible	Go to Question 90
	and and and an	Category 3 status	
		Go to Question 10	
9с	Are Lake Erie water levels the wetland's primary hydrological influence,	YES	NO
	i.e. the wetland is hydrologically unrestricted (no lakeward or upland	Go to Question 9d	
	border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These		Go to Question 10
	include sandbar deposition wetlands, estuarine wetlands, river mouth		
	wetlands, or those dominated by submersed aquatic vegetation.		
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant	YES	NO
	native species can also be present?	Wetland is a Category	Go to Question 9e
		3 wetland	
		Go to Question 10	
9e	Does the wetland have a predominance of non-native or disturbance	YES	NO
	tolerant native plant species within its vegetation communities?	Wetland should be	Go to Question 10
		evaluated for possible	Oo to Question to
		Category 3 status	
		Go to Question 10	
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in	YES	(NO)
	Lucas, Fulton, Henry, or Wood Counties and can the wetland be	Mathematics of October	0 - 1 - 0 1 44
	characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within	Wetland is a Category 3 wetland.	Go to Question 11
	several inches of the surface, and often with a dominance of the		
	gramineous vegetation listed in Table 1 (woody species may also be	Go to Question 11	
	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.		
11	Relict Wet Prairies. Is the wetland a relict wet prairie community	YES	NO
	dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union	Wetland should be	Complete
	Counties), Sandusky Plains (Wyandot, Crawford, and Marion	evaluated for possible	Quantitative
	Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties),	Category 3 status	Rating
	and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,	Complete Overtite!	
	Montgomery, Van Wert etc.).	Complete Quantitative Rating	

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum	-	Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceum
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddellii
	Salix serissima	Xyris difformis		_
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: ∖\	/etland	8 Rater(s): Nathan Renaudin Date: 4/5/17
0	0	Metric 1. Wetland Area (size).
max 6 pts.	subtotal	Select one size class and assign score. Solect one size class and assign score. Solect one size class and ass
5	5	Metric 2. Upland buffers and surrounding land use.
max 14 pts.	subtotal	2a. Calculate average buffer width. Select only one and assign score. Do not double check. WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7) MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4) X 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) X 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) HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)
8	13	Metric 3. Hydrology.
max 30 pts.	subtotal	3a. Sources of Water. Score all that apply. High pH groundwater (5) Other groundwater (3) X Precipitation (1) Seasonal/Intermittent surface water (3) Perennial surface water (lake or stream) (5) 3c. Maximum water depth. Select only one and assign score. >0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 27.6in) (2) X Seasonally inundated (2) X Seasonally saturated in upper 30cm (12in) (1) Seasonally corridor (1) Regularly inundated (2) Seasonally saturated in upper 30cm (12in) (1) Seasonally corridor (1) Seasonally saturated in upper 30cm (12in) (1) None or none apparent (12) Check all disturbances observed
1		Recovered (7) X Recovering (3) Recent or no recovery (1) Recovering (3) Recent or no recovery (1) A recovering (3) B recovering (3) C recovering (4) C recovering (4) C recovering (5) C recovering (4) C recovering (5) C recovering (5) C recovering (4) C recovering (5) C recovering (6) C recovering (7) C recovering (7) C recovering (8)
7	20	Metric 4. Habitat Alteration and Development.
max 20 pts.	subtotal	4a. Substrate disturbance. Score one or double check and average. None or none apparent (4) Recovered (3) X 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) Poor (1)
	20	4c. Habitat alteration. Score one or double check and average. None or none apparent (9) Recovered (6) X Recovering (3) Recent or no recovery (1)
SI	ubtotal this pa	toxic pollutants
last revised	l 1 Februa	ry 2001 jjm

7

Sito: \A	/ o tl o o d	0	Pator	(c): Noths	n Danaudin	Dato: 4/5/47
Site: W	<i>r</i> etiano	8	Rater	(s). Natha	n Renaudin	Date: 4/5/17
SI	20 ubtotal first pa	1	is F. Conneigl Modern	al a		
0	20	wetr	ic 5. Special Wetlan	ias.		
max 10 pts.	subtotal	Check all	that apply and score as indicated. Bog (10) Fen (10) Old growth forest (10) Mature forested wetland (5) Lake Erie coastal/tributary wetland-take Erie coastal/tributary wetland-take Plain Sand Prairies (Oak Oper Polici Wet Brairies (10)	estricted hydro	- ,	
2	22	Metr	Relict Wet Prairies (10) Known occurrence state/federal thre Significant migratory songbird/water Category 1 Wetland. See Question ic 6. Plant commun	fowl habitat or 1 Qualitative R	usage (10) Rating (-10)	ppography.
max 20 pts.	subtotal	Go Wet	and Vagatation Communities	Vegetetien	Community Cover Scale	
παλ 20 μιδ.	Subtotal		and Vegetation Communities. present using 0 to 3 scale.	vegetation 0	Community Cover Scale Absent or comprises <0.1ha (0.24)	171 acres) contiguous area
			Aquatic bed	1	Present and either comprises sm	
		1	Emergent		vegetation and is of moderate of	
		0	Shrub		significant part but is of low qua	
		0	Forest	2	Present and either comprises sign	nificant part of wetland's
		0	Mudflats		vegetation and is of moderate of	quality or comprises a small
		0	Open water		part and is of high quality	
		0	Other	3	Present and comprises significan	
			contal (plan view) Interspersion.		vegetation and is of high quality	1
		Select on	T	Normative D	acceptation of Vaccetation Quality	
		-	High (5) Moderately high(4)	low	Low spp diversity and/or predomi	nanco of nonnativo or
			Moderate (3)	IOW	disturbance tolerant native spec	
			Moderately low (2)	mod	Native spp are dominant compon	
		X	Low (1)		although nonnative and/or distu	=
			None (0)		can also be present, and specie	es diversity moderate to
			erage of invasive plants. Refer		moderately high, but generally	•
			1 ORAM long form for list. Add		threatened or endangered spp	
		or deduct	t points for coverage Extensive >75% cover (-5) Moderate 25-75% cover (-3) Sparse 5-25% cover (-1)	high	A predominance of native species and/or disturbance tolerant nati absent, and high spp diversity at the presence of rare, threatened	ve spp absent or virtually and often, but not always,
		Х	Nearly absent <5% cover (0)			a, a. oridarigorod opp
			Absent (1)	Mudflat and	d Open Water Class Quality	
		6d. Micro	otopography.	0	Absent <0.1ha (0.247 acres)	
			present using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 to 2.47 ac	cres)
		0	Vegetated hummucks/tussucks	2	Moderate 1 to <4ha (2.47 to 9.88	3 acres)
		0	Coarse woody debris >15cm (6in)	3	High 4ha (9.88 acres) or more	
		0	Standing dead >25cm (10in) dbh	Microtopoo	graphy Cover Scale	
		0	Amphibian breeding pools	0	Absent	
				1	Present very small amounts or if	more common
				'	of marginal quality	more commen
				2	Present in moderate amounts, bu quality or in small amounts of h	
	_			3	Present in moderate or greater ar	
22					and of highest quality	
	I					

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle 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 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	0	
J	Metric 2. Buffers and surrounding land use	5	
	Metric 3. Hydrology	8	
	Metric 4. Habitat	7	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	2	
	TOTAL SCORE	22	Category based on score breakpoints 1

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle 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 No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> 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 under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	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 undercategorized 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 undercategorized 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 determination should be provided.

Final Category					
Choose one	Category 1	Category 2	Category 3		

End of Ohio Rapid Assessment Method for Wetlands.

Version 5.0	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization		
	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet	Ohio EPA, Division of Surface Water Final: February 1, 2001	

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

mame:		
	Mathan	Renaudin

Date:

4/5/17

Affiliation: TRC Solutions

Address: 2200 Liberty Avenue, Suite 100, Pittsburgh PA, 15222

Phone Number:

412.713.7127

e-mail address:

nrenaudin@trcsolutions.com

Name of Wetland: Wetland 9

Vegetation Communit(ies): PEM

HGM Class(es): Depressional

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

See attached map

Lat/Long or UTM Coordinate	39.259318 -82.450941
USGS Quad Name	Zaleski
County	Vinton
Township	Mcarthur
Section and Subsection	NA
Hydrologic Unit Code	050901010302
Site Visit	4/5/17
National Wetland Inventory Map	See Report
Ohio Wetland Inventory Map	See Report
Soil Survey	See Report
Delineation report/map	See Report

Name of Wetland: Wetland 9		
Wetland Size (acres, hectares): 0.27		Acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zone	s, etc.	
See wetland report.		
Comments, Narrative Discussion, Justification of Category Changes:		
Final score: 25	Category:	1

Scoring Boundary Worksheet

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.	X	
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.	X	
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.	X	
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.	Х	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		
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.	Х	

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

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 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 41812 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	Go to Question 3
3	Documented High Quality Wetland. 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 Concentration 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	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	Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> 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	Fens. 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

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible Category 3 status.	Go to Question 9a
0-	Laborated and tolk of an order day to the contract of the	Go to Question 9a	410
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	YES	NO
	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?	Wetland should be evaluated for possible Category 3 status	Go to Question 9c
		Go to Question 10	
9с	Are Lake Erie water levels the wetland's primary hydrological influence,	YES	NO
	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.	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	Mathematics of October	0 - 1 - 0 1 0 -
	native species can also be present?	Wetland is a Category 3 wetland	Go to Question 9e
		Go to Question 10	
9e	Does the wetland have a predominance of non-native or disturbance	YES	NO
	tolerant native plant species 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 Counties and can the wetland be	YES	NO
	characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within	Wetland is a Category 3 wetland.	Go to Question 11
	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.	Go to Question 11	
11	Relict Wet Prairies. Is the wetland a relict wet prairie community	YES	(NO)
	dominated by some or all of the species in Table 1. Extensive prairies	Matianal ab - : 1 d l -	Complete
	were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion	Wetland should be evaluated for possible	Complete Quantitative
	Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,	Category 3 status	Rating
	Montgomery, Van Wert etc.).	Complete Quantitative Rating	

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceum
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddellii
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: ∖\	/etland	9 Rater(s): Nathan Renaudin Date: 4/5/17
1	1	Metric 1. Wetland Area (size).
max 6 pts.	subtotal	Select one size class and assign score. Solect one size class and assign score. Solect one size class and ass
4	5	Metric 2. Upland buffers and surrounding land use.
max 14 pts.	subtotal	2a. Calculate average buffer width. Select only one and assign score. Do not double check. WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7) MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4) X 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) X MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3) HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)
11	16	Metric 3. Hydrology.
max 30 pts.	subtotal	3a. Sources of Water. Score all that apply. High pH groundwater (5) Other groundwater (3) X Precipitation (1) X Seasonal/Intermittent surface water (3) Perennial surface water (lake or stream) (5) 3d. Duration inundation/saturation. Score one or dbl check samples in the permanently inundated/saturated (4) Seasonally inundated (2) X Seasonally inundated (2) X Seasonally saturated in upper 30cm (12in) (1) 3e. Modifications to natural hydrologic regime. Score one or double check and average. Check all disturbances observed Recovered (7) X Recovering (3) Recent or no recovery (1) Regularly inundated/saturated in upper 30cm (12in) (1) Seasonally saturated in upper 30cm (12in) (1) In point source (nonstormwater) In line
	1	weir dredging stormwater input other Historic Mining/Cow Field
7	23	Metric 4. Habitat Alteration and Development.
max 20 pts.	subtotal	4a. Substrate disturbance. Score one or double check and average. None or none apparent (4) Recovered (3) X 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) x Poor to fair (2) Poor (1)
	23	4c. Habitat alteration. Score one or double check and average. None or none apparent (9) Recovered (6) X Recovering (3) Recent or no recovery (1) Recent or no recovery (1) Recovering (3) Recovering (4) Recovering (4) Recovering (5) Recovering (6) Recovering (7) Recovering (7) Recovering (8) Recovering (9) Recov
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last revised	ıırebrua	ıy 2001 jjili

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Site: ₩	etland	9	Rat	er(s): Natha	n Renaudin	Date: 4/5/17
sul 0	23 btotal first pa	1	c 5. Special Wetl	ands.		
max 10 pts.	subtotal		that apply and score as indicated Bog (10) Fen (10) Old growth forest (10) Mature forested wetland (5) Lake Erie coastal/tributary wetlan Lake Erie coastal/tributary wetlan Lake Plain Sand Prairies (Oak C Relict Wet Prairies (10) Known occurrence state/federal Significant migratory songbird/wa Category 1 Wetland. See Quest	nd-unrestricted hydro nd-restricted hydro openings) (10) threatened or enda ater fowl habitat or tion 1 Qualitative R	angered species (10) usage (10) ating (-10)	
2	25			•	erspersion, microto	opograpny.
max 20 pts.	subtotal		and Vegetation Communities.	Vegetation	Community Cover Scale	
		0	oresent using 0 to 3 scale. Aquatic bed Emergent Shrub	1	Absent or comprises <0.1ha (0.2 Present and either comprises sm vegetation and is of moderate of significant part but is of low quality.	all part of wetland's quality, or comprises a
		0	Forest Mudflats Open water	2	Present and either comprises sig vegetation and is of moderate of part and is of high quality	nificant part of wetland's
		6b. horizo	Other ontal (plan view) Interspersion.	3	Present and comprises significar vegetation and is of high quality	
		Select onl	•	Normative D	accrimation of Variation Quality	
			High (5) Moderately high(4) Moderate (3)	low	Low spp diversity and/or predom disturbance tolerant native spe	
		Х	Moderately low (2) Low (1) None (0)	mod	Native spp are dominant compor although nonnative and/or distu can also be present, and speci	urbance tolerant native spp es diversity moderate to
		to Table 1	rage of invasive plants. Refer ORAM long form for list. Add	hiah	moderately high, but generally threatened or endangered spp	
			points for coverage Extensive >75% cover (-5) Moderate 25-75% cover (-3) Sparse 5-25% cover (-1)	high	A predominance of native specie and/or disturbance tolerant nat absent, and high spp diversity the presence of rare, threatene	ive spp absent or virtually and often, but not always,
		X	Nearly absent <5% cover (0)	Mudfleten	I Onen Weter Class Ovelity	
		Cal Miana	Absent (1)		Open Water Class Quality	
			topography. present using 0 to 3 scale.	0	Absent <0.1ha (0.247 acres) Low 0.1 to <1ha (0.247 to 2.47 a	oros)
			Vegetated hummucks/tussucks	2	Moderate 1 to <4ha (2.47 to 9.88	
			Coarse woody debris >15cm (6ii		High 4ha (9.88 acres) or more	o acres)
			Standing dead >25cm (10in) dbh	<i></i>	riigir ina (e.ee aeree) er mere	
			Amphibian breeding pools		raphy Cover Scale	
			,	0	Absent	
				1	Present very small amounts or if of marginal quality	more common
				2	Present in moderate amounts, but quality or in small amounts of h	ighest quality
25				3	Present in moderate or greater a and of highest quality	mounts
25						

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle 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 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	
Ü	Metric 2. Buffers and surrounding land use	4	
	Metric 3. Hydrology	11	
	Metric 4. Habitat	7	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	2	
	TOTAL SCORE	25	Category based on score breakpoints 1

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle 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 No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> 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 under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	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 undercategorized 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 undercategorized 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 determination should be provided.

Final Category			
Choose one	Category 1	Category 2	Category 3

End of Ohio Rapid Assessment Method for Wetlands.

	d for Wetlands egorization	
X7 · 50	Background Information	
Version 5.0	Scoring Boundary Worksheet	
	Narrative Rating	Ohio EPA, Division of Surface Water
	Field Form Quantitative Rating	Final: February 1, 2001
	ORAM Summary Worksheet	
	Wetland Categorization Worksheet	

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

Name:			
	Mathan	Rangudi	n

Date:

4/6/17

Affiliation: TRC Solutions

Address: 2200 Liberty Avenue, Suite 100, Pittsburgh PA, 15222

Phone Number:

412.713.7127

e-mail address:

nrenaudin@trcsolutions.com

Name of Wetland: Wetland 10

Vegetation Communit(ies): PEM/PSS

HGM Class(es):

Depressional/Riverine

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

See attached map

Lat/Long or UTM Coordinate	39.266278, -82.436575
USGS Quad Name	Zaleski
County	Vinton
Township	Mcarthur
Section and Subsection	NA
Hydrologic Unit Code	050901010205
Site Visit	4/6/17
National Wetland Inventory Map	See Report
Ohio Wetland Inventory Map	See Report
Soil Survey	See Report
Delineation report/map	See Report

Name of Wetland: Wetland 10		
Wetland Size (acres, hectares): 0.31		Acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zone	es, etc.	
See wetland report.		
Comments, Narrative Discussion, Justification of Category Changes:		
Final score: 32	Category:	2
	3 7.	4

Scoring Boundary Worksheet

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.	x	
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.	X	
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.	X	
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.	Х	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		
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.	Х	

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

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 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 41812 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	Go to Question 3
3	Documented High Quality Wetland. 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 Concentration 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	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	Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> 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	Fens. 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

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible Category 3 status.	Go to Question 9a
0-	Laborated and tolk of an order day to the contract of the	Go to Question 9a	410
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	YES	NO
	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?	Wetland should be evaluated for possible Category 3 status	Go to Question 9c
		Go to Question 10	
9с	Are Lake Erie water levels the wetland's primary hydrological influence,	YES	NO
	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.	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	Mathematics of October	0 - 1 - 0 1 0 -
	native species can also be present?	Wetland is a Category 3 wetland	Go to Question 9e
		Go to Question 10	
9e	Does the wetland have a predominance of non-native or disturbance	YES	NO
	tolerant native plant species 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 Counties and can the wetland be	YES	NO
	characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within	Wetland is a Category 3 wetland.	Go to Question 11
	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.	Go to Question 11	
11	Relict Wet Prairies. Is the wetland a relict wet prairie community	YES	(NO)
	dominated by some or all of the species in Table 1. Extensive prairies	Matianal ab - : 1 d l -	Complete
	were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion	Wetland should be evaluated for possible	Complete Quantitative
	Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,	Category 3 status	Rating
	Montgomery, Van Wert etc.).	Complete Quantitative Rating	

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum	-	Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceum
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddellii
	Salix serissima	Xyris difformis		_
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: ∖\	/etland	10 Rater(s): Nathan Renaudin Date: 4/6/17
		Motric 1 Wotland Area (size)
2	2	Metric 1. Wetland Area (size).
max 6 pts.	subtotal	Select one size class and assign score. >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)
4	6	Metric 2. Upland buffers and surrounding land use.
max 14 pts.	subtotal	2a. Calculate average buffer width. Select only one and assign score. Do not double check. WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7) MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4) X 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) X MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3) HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)
14	20	Metric 3. Hydrology.
max 30 pts.	subtotal	3a. Sources of Water. Score all that apply. High pH groundwater (5) Other groundwater (3) X Precipitation (1) Seasonal/Intermittent surface water (3) X Perennial surface water (lake or stream) (5) 3c. Maximum water depth. Select only one and assign score. >0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 27.6in) (2) X Seasonally inundated (2) X Seasonally saturated in upper 30cm (12in) (1) Seasonally corridor (1) X Part of wetland/upland (e.g. forest), complex (1) Part of riparian or upland corridor (1) Semi- to permanently inundated/saturated (4) Regularly inundated/saturated (3) X Seasonally saturated in upper 30cm (12in) (1) Seasonally saturated in upper 30cm (12in) (1) None or none apparent (12) Check all disturbances observed
	1	Recovered (7) X Recovering (3) Recent or no recovery (1) A ditch point source (nonstormwater) filling/grading road bed/RR track dredging other Historic Mining/Cow Field
9	29	Metric 4. Habitat Alteration and Development.
max 20 pts.	subtotal	4a. Substrate disturbance. Score one or double check and average. None or none apparent (4) Recovered (3) X Recovering (2) Recent or no recovery (1)
		4b. Habitat development. Select only one and assign score. Excellent (7) Very good (6) Good (5) X Moderately good (4) Fair (3) Poor to fair (2) Poor (1)
	29	4c. Habitat alteration. Score one or double check and average. None or none apparent (9) Recovered (6) X Recovering (3) Recent or no recovery (1) Recent or no recovery (1) Recovering (3) Recent or no recovery (1)
	ubtotal this pa	
last revised	i 1 Februa	ry 2001 jjm

0:1			Datas	/a\-\-		Determination
Site: ⋈	<u>/etland</u>	10	Rater	(\$) : Natha	n Renaudin	Date: 4/6/17
St	29 ubtotal first pa	1	is 5. One sigh Wedley	. da		
0	29	wetr	ic 5. Special Wetlan	ias.		
max 10 pts.	subtotal		that apply and score as indicated. Bog (10) Fen (10) Old growth forest (10) Mature forested wetland (5) Lake Erie coastal/tributary wetland-Lake Erie coastal/tributary wetland-Lake Plain Sand Prairies (Oak Oper Relict Wet Prairies (10) Known occurrence state/federal thre Significant migratory songbird/water Category 1 Wetland. See Question	restricted hydronings) (10) eatened or endate fowl habitat or 1 Qualitative R	angered species (10) t usage (10) Rating (-10)	
3	32	Metr	ic 6. Plant commun	ities, int	erspersion, microto	ppography.
max 20 pts.	subtotal	6a. Wetl	and Vegetation Communities.	Vegetation	Community Cover Scale	
			present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.24	471 acres) contiguous area
		0	Aquatic bed	1	Present and either comprises sm	
		1	Emergent		vegetation and is of moderate of	
		1	Shrub		significant part but is of low qua	lity
		0	Forest	2	Present and either comprises sign	
		0	Mudflats		vegetation and is of moderate of	uality or comprises a small
		0	Open water		part and is of high quality	
		0	Other	3	Present and comprises significan	t part, or more, of wetland's
			zontal (plan view) Interspersion.		vegetation and is of high quality	<u>, </u>
		Select or	¬`			
			High (5)		Description of Vegetation Quality	
			Moderately high(4)	low	Low spp diversity and/or predomi	
			Moderate (3)	mad	disturbance tolerant native spec	
		X	Moderately low (2)	mod	Native spp are dominant compon although nonnative and/or distu	_
			Low (1) None (0)		can also be present, and specie	
		6c Cov	erage of invasive plants. Refer		moderately high, but generally	•
			1 ORAM long form for list. Add		threatened or endangered spp	We presence of fale
			t points for coverage	high	A predominance of native species	s. with nonnative spp
			Extensive >75% cover (-5)	9	and/or disturbance tolerant nati	
		Х	Moderate 25-75% cover (-3)		absent, and high spp diversity a	
			Sparse 5-25% cover (-1)		the presence of rare, threatener	
			Nearly absent <5% cover (0)	Mudfleten	d Onen Meter Class Ovality	
		C4 M:	Absent (1)		d Open Water Class Quality	
			otopography. present using 0 to 3 scale.	0	Absent <0.1ha (0.247 acres) Low 0.1 to <1ha (0.247 to 2.47 acres)	eroe)
		JCOIE AII	Vegetated hummucks/tussucks	2	Moderate 1 to <4ha (2.47 to 9.88	
		0	Coarse woody debris >15cm (6in)	3	High 4ha (9.88 acres) or more	acres)
		0	Standing dead >25cm (10in) dbh		Trigit 4nd (5.00 deres) of more	
		1	Amphibian breeding pools	Microtopoo	graphy Cover Scale	
		'_	1b	0	Absent	
				1	Present very small amounts or if	more common
				-	of marginal quality	
				2	Present in moderate amounts, but	t not of highest
					quality or in small amounts of h	
				3	Present in moderate or greater ar	
	1				and of highest quality	
32						

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle 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 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	2	
3	Metric 2. Buffers and surrounding land use	4	
	Metric 3. Hydrology	14	
	Metric 4. Habitat	9	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	3	
	TOTAL SCORE	32	Category based on score breakpoints 2

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle 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 No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> 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 under-categorized 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?	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 undercategorized 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 undercategorized 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 determination should be provided.

Final Category				
Choose one	Category 1	Category 2	Category 3	
		$\overline{}$		

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Method 10 Page Form for Wetland Cat	
Version 5.0	Background Information	
version 5.0	Scoring Boundary Worksheet	
	Narrative Rating	Ohio EPA, Division of Surface Water
	Field Form Quantitative Rating	Final: February 1, 2001
	ORAM Summary Worksheet	
	Wetland Categorization Worksheet	

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

Name:			
	Mathan	Rangudin	

Date:

4/6/17

Affiliation: TRC Solutions

Address: 2200 Liberty Avenue, Suite 100, Pittsburgh PA, 15222

Phone Number:

412.713.7127

e-mail address:

nrenaudin@trcsolutions.com

Name of Wetland: Wetland 11

Vegetation Communit(ies): PEM

HGM Class(es): Depressional/Riverine

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

See attached map

Lat/Long or UTM Coordinate	39.269150, -82.440516
USGS Quad Name	Zaleski
County	Vinton
Township	Mcarthur
Section and Subsection	NA
Hydrologic Unit Code	050901010205
Site Visit	4/6/17
National Wetland Inventory Map	See Report
Ohio Wetland Inventory Map	See Report
Soil Survey	See Report
Delineation report/map	See Report

Name of Wetland: Wetland 11		
Wetland Size (acres, hectares): 2.28		Acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zone	es, etc.	
See wetland report.		
Comments, Narrative Discussion, Justification of Category Changes:		
Final score: 31	Category:	2

Scoring Boundary Worksheet

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.	x	
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.	X	
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.	X	
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.	Х	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		
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.	Х	

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

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 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 41812 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	Go to Question 3
3	Documented High Quality Wetland. 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 Concentration 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	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	Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> 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	Fens. 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

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible Category 3 status.	Go to Question 9a
0-	Laborated and tolk of an order day to the contract of the	Go to Question 9a	410
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	YES	NO
	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?	Wetland should be evaluated for possible Category 3 status	Go to Question 9c
		Go to Question 10	
9с	Are Lake Erie water levels the wetland's primary hydrological influence,	YES	NO
	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.	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	Mathematics of October	0 - 1 - 0 1 0 -
	native species can also be present?	Wetland is a Category 3 wetland	Go to Question 9e
		Go to Question 10	
9e	Does the wetland have a predominance of non-native or disturbance	YES	NO
	tolerant native plant species 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 Counties and can the wetland be	YES	NO
	characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within	Wetland is a Category 3 wetland.	Go to Question 11
	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.	Go to Question 11	
11	Relict Wet Prairies. Is the wetland a relict wet prairie community	YES	(NO)
	dominated by some or all of the species in Table 1. Extensive prairies	Matianal ab - : 1 d l -	Complete
	were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion	Wetland should be evaluated for possible	Complete Quantitative
	Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,	Category 3 status	Rating
	Montgomery, Van Wert etc.).	Complete Quantitative Rating	

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum	-	Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceum
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddellii
	Salix serissima	Xyris difformis		_
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: W	/etland	11	Rater(s): Nathan Renau	udin	Date: 4/6/17
2	2	Metric 1. Wetland A			
max 6 pts.	subtotal	Select one size class and assign scor >50 acres (>20.2ha) (6 pts) 25 to <50 acres (10.1 to <20) 10 to <25 acres (4 to <10.11) 3 to <10 acres (1.2 to <4ha) × 0.3 to <3 acres (0.12 to <1.20) 0.1 to <0.3 acres (0.04 to <1.20) <0.1 acres (0.04ha) (0 pts)	D.2ha) (5 pts) na) (4 pts) I (3 pts) 2ha) (2pts)		
4	6	Metric 2. Upland bu	ffers and surroundi	ing land use.	
max 14 pts.	subtotal	MEDIUM. Buffers average X NARROW. Buffers average VERY NARROW. Buffers average VERY NARROW. Buffers average VERY NARROW. Buffers average VERY LOW. 2nd growth or LOW. Old field (>10 years) X MODERATELY HIGH. Res	m (164ft) or more around wetland pe 25m to <50m (82 to <164ft) around a 10m to <25m (32ft to <82ft) around average <10m (<32ft) around wetland	erimeter (7) wetland perimeter (4) d wetland perimeter (1) d perimeter (0) verage. llife area, etc. (7) forest. (5) ervation tillage, new fallo	ow field. (3)
14	20	Metric 3. Hydrology		()	
max 30 pts.	subtotal	3a. Sources of Water. Score all that High pH groundwater (5) Other groundwater (3) X Precipitation (1) Seasonal/Intermittent surface X Perennial surface water (lake) 3c. Maximum water depth. Select on >0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 27.6in) X <0.4m (<15.7in) (1) 3e. Modifications to natural hydrological Recovered (7) X Recovering (3) Recent or no recovery (1)	ce water (3) te or stream) (5) 3d. ly one and assign score. (2) c regime. Score one or double checy Check all disturbances observed ditch tile dike weir stormwater input	X Part of wetland/up Part of riparian or Duration inundation/satu Semi- to permane Regularly inundat X Seasonally inundat Seasonally satura k and average. point source (non filling/grading road bed/RR track dredging other_Historic Mi	in (1) lake and other human use (1) pland (e.g. forest), complex (1) upland corridor (1) uration. Score one or dbl check. ently inundated/saturated (4) ted/saturated (3) ated (2) ated in upper 30cm (12in) (1) ustormwater)
9	29	Metric 4. Habitat Al	teration and Develo	pment.	
max 20 pts.	subtotal	4a. Substrate disturbance. Score one None or none apparent (4) Recovered (3) X Recovering (2) Recent or no recovery (1) 4b. Habitat development. Select only Excellent (7) Very good (6) Good (5) X Moderately good (4) Fair (3) Poor to fair (2) Poor (1) 4c. Habitat alteration. Score one or complete the secovered (6) Recovered (6) Recovering (3)	one and assign score. louble check and average. Check all disturbances observed mowing	shrub/sapling rem	
SU	29 ubtotal this pa	Recovering (3) Recent or no recovery (1)	grazing clearcutting selective cutting woody debris removal toxic pollutants	herbaceous/aqua sedimentation dredging farming nutrient enrichme	

7

last revised 1 February 2001 jjm

Site: Wetland 11	1 Rat	er(s): Natha	n Renaudin	Date: 4/6/17
subtotal first page 0 29	letric 5. Special Wetla	ands.		
	Bog (10) Fen (10) Old growth forest (10) Mature forested wetland (5) Lake Erie coastal/tributary wetlar Lake Plain Sand Prairies (Oak O Relict Wet Prairies (10) Known occurrence state/federal Significant migratory songbird/wa Category 1 Wetland. See Quest	nd-unrestricted hydro nd-restricted hydro penings) (10) threatened or enda ater fowl habitat or ion 1 Qualitative R	angered species (10) usage (10) ating (-10)	
2 31	letric 6. Plant commu	inities, int	erspersion, microt	opograpny.
	. Wetland Vegetation Communities.	Vegetation	Community Cover Scale	
Sco	ore all present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.2	
	0 Aquatic bed	1	Present and either comprises sr	
	1 Emergent		vegetation and is of moderate	
	1 Shrub		significant part but is of low qu	
	0 Forest	2	Present and either comprises si	
	0 Mudflats		vegetation and is of moderate	quality or comprises a small
	Open water		part and is of high quality	
	0 Other	3	Present and comprises significa	
	. horizontal (plan view) Interspersion.		vegetation and is of high quali	ty
Sel	le <u>ct only</u> one.			
	High (5)	Narrative D	escription of Vegetation Quality	
	Moderately high(4)	low	Low spp diversity and/or predon	
	Moderate (3)		disturbance tolerant native spe	
	X Moderately low (2)	mod	Native spp are dominant compo	=
	Low (1)		although nonnative and/or dis	
	None (0)		can also be present, and spec	-
	. Coverage of invasive plants. Refer		moderately high, but generally	
	Table 1 ORAM long form for list. Add		threatened or endangered spp	
or	deduct points for coverage	high	A predominance of native speci-	
	Extensive >75% cover (-5)		and/or disturbance tolerant na	
	X Moderate 25-75% cover (-3)		absent, and high spp diversity	
	Sparse 5-25% cover (-1)		the presence of rare, threaten	ed, or endangered spp
	Nearly absent <5% cover (0)			
	Absent (1)		d Open Water Class Quality	
	. Microtopography.	0	Absent <0.1ha (0.247 acres)	
Sco	ore all present using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 to 2.47 a	•
	Vegetated hummucks/tussucks	2	Moderate 1 to <4ha (2.47 to 9.8	38 acres)
	O Coarse woody debris >15cm (6ir		High 4ha (9.88 acres) or more	
	O Standing dead >25cm (10in) dbh			
	1 Amphibian breeding pools		raphy Cover Scale	
		0	Absent	
		1	Present very small amounts or i of marginal quality	f more common
		2	Present in moderate amounts, b	out not of highest
		2		
			quality or in small amounts of	
		3	Present in moderate or greater a	amounts
31			and of highest quality	
101				

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle 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 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	2	
J	Metric 2. Buffers and surrounding land use	4	
	Metric 3. Hydrology	14	
	Metric 4. Habitat	9	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	2	
	TOTAL SCORE	31	Category based on score breakpoints 2

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle 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 No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> 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 under-categorized 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?	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 undercategorized 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 undercategorized 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 determination should be provided.

Final Category				
Choose one	Category 1	Category 2	Category 3	
		$\overline{}$		

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization			
Version 5.0	Background Information Scoring Boundary Worksheet			
	Narrative Rating	Ohio EPA, Division of Surface Water Final: February 1, 2001		
	Field Form Quantitative Rating ORAM Summary Worksheet	Final. February 1, 2001		
	Wetland Categorization Worksheet			

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

Name:		
	Mathan	Renaudin

Date:

4/6/17

Affiliation: TRC Solutions

Address: 2200 Liberty Avenue, Suite 100, Pittsburgh PA, 15222

Phone Number:

412.713.7127

e-mail address:

nrenaudin@trcsolutions.com

Name of Wetland: Wetland 12

Vegetation Communit(ies): PEM

HGM Class(es): Depressional

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

See attached map

Lat/Long or UTM Coordinate	39.265649, -82.437574
USGS Quad Name	Zaleski
County	Vinton
Township	Mcarthur
Section and Subsection	NA
Hydrologic Unit Code	050901010205
Site Visit	4/6/17
National Wetland Inventory Map	See Report
Ohio Wetland Inventory Map	See Report
Soil Survey	See Report
Delineation report/map	See Report

Name of Wetland: Wetland 12	
Wetland Size (acres, hectares): 0.07	Acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zone	es, etc.
See wetland report.	
Comments, Narrative Discussion, Justification of Category Changes:	
Final score: 16	Category: 1

Scoring Boundary Worksheet

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.	X	
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.	X	
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.	X	
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.	Х	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		
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.	Х	

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

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 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 41812 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	Go to Question 3
3	Documented High Quality Wetland. 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 Concentration 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	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	Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> 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	Fens. 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

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible Category 3 status.	Go to Question 9a
0-	Laborated and tolk of an order day to the contract of the	Go to Question 9a	410
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	YES	NO
	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?	Wetland should be evaluated for possible Category 3 status	Go to Question 9c
		Go to Question 10	
9с	Are Lake Erie water levels the wetland's primary hydrological influence,	YES	NO
	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.	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	Mathematics of October	0 - 1 - 0 1 0 -
	native species can also be present?	Wetland is a Category 3 wetland	Go to Question 9e
		Go to Question 10	
9e	Does the wetland have a predominance of non-native or disturbance	YES	NO
	tolerant native plant species 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 Counties and can the wetland be	YES	NO
	characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within	Wetland is a Category 3 wetland.	Go to Question 11
	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.	Go to Question 11	
11	Relict Wet Prairies. Is the wetland a relict wet prairie community	YES	(NO)
	dominated by some or all of the species in Table 1. Extensive prairies	Matianal ab - : 1 d l -	Complete
	were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion	Wetland should be evaluated for possible	Complete Quantitative
	Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,	Category 3 status	Rating
	Montgomery, Van Wert etc.).	Complete Quantitative Rating	

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceum
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddellii
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Metric 1. Wetland Area (size). Select one size class and assign score. Solution Solution Select one size class and assign score. Solution Solu	
>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) x <0.1 acres (0.04ha) (0 pts) Metric 2. Upland buffers and surrounding land use. Metric 2. Upland buffers and surrounding land use.	
max 14 pts. subtotal 2a. Calculate average buffer width. Select only one and assign score. Do not double check. WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)	
WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)	
NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (4) × 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) HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)	
7 Metric 3. Hydrology.	
The subtotal subtotal and the subtotal and subtotal and the subtotal and the subtotal and the subtotal and s	nplex (1) dbl check ted (4)
None or none apparent (12) Recovered (7) X Recovering (3) Recent or no recovery (1) None or none apparent (12) Check all disturbances observed ditch Dittle	
6 16 Metric 4. Habitat Alteration and Development.	
Mone or none apparent (4) Recovered (3) X 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) Recovered (6) X Recovering (3) Recent or no recovery (1) 16 subtotal this page None or none apparent (9) Recovered (6) X Recovering (3) Recent or no recovery (1) In the page Recovering (3) Recent or no recovery (1) Recovering (3) Recent or no recovery (1) In the page Recovering (3) Recent or no recovery (1) In the page Recovering (3) Recent or no recovery (1) In the page Recovering (3) Recent or no recovery (1) In the page Recovering (3) Recent or no recovery (1) In the page Recovering (3) Recent or no recovery (1) In the page Recovering (3) Recent or no recovery (1) In the page Recovering (3) Recent or no recovery (1) In the page Recovering (3) Recent or no recovery (1) In the page Recovering (3) Recent or no recovery (1) In the page Recovering (3) Recent or no recovery (1) In the page Recovering (3) Recent or no recovery (1) In the page Recovering (3) Recent or no recovery (1) In the page Recovering (3) Recent or no recovery (1) In the page Recovering (4) Recovering (3) Recent or no recovery (1) In the page Recovering (4) Recovering (3) Recent or no recovery (1) In the page Recovering (4) Recovering (4) Recovering (4) Recovering (5) Recovering (6) Recover	

Site: ∖∖	/etland	12	Rater	(s): Natha	n Renaudin	Date: 4/6/17
sı.	16 btotal first pa	1	ic 5. Special Wetlar	nds.		
max 10 pts.	subtotal		Il that apply and score as indicated. Bog (10) Fen (10) Old growth forest (10) Mature forested wetland (5) Lake Erie coastal/tributary wetland- Lake Plain Sand Prairies (Oak Opel Relict Wet Prairies (10) Known occurrence state/federal thre Significant migratory songbird/water Category 1 Wetland. See Question	restricted hydro nings) (10) eatened or enda r fowl habitat or 1 1 Qualitative R	angered species (10) usage (10) Rating (-10)	
0	16	Metr	ic 6. Plant commun	iities, int	erspersion, microto	opography.
max 20 pts.	subtotal	6a. Wet	land Vegetation Communities.	Vegetation	Community Cover Scale	
		Score al	present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.2	
		0	Aquatic bed	1	Present and either comprises sm	
		1	Emergent		vegetation and is of moderate of	
		0	Shrub		significant part but is of low qua	-
		0	Forest	2	Present and either comprises sig	
		0	Mudflats		vegetation and is of moderate	quality or comprises a small
		0	Open water		part and is of high quality	t mant an arrange of continued and
		0	_Other	3	Present and comprises significan	
			zontal (plan view) Interspersion.		vegetation and is of high quality	/
		Select or	¬[Norretive D	acceptation of Vagatation Quality	
			High (5)		Description of Vegetation Quality	inance of nannative or
			Moderately high(4) Moderate (3)	low	Low spp diversity and/or predom disturbance tolerant native spe	
			Moderate (3) Moderately low (2)	mod	Native spp are dominant compor	
			Low (1)	mod	although nonnative and/or distu	
		X	None (0)		can also be present, and speci-	
			erage of invasive plants. Refer		moderately high, but generally	
			1 ORAM long form for list. Add		threatened or endangered spp	
			ct points for coverage	high	A predominance of native specie	
			Extensive >75% cover (-5)	J	and/or disturbance tolerant nat	
			Moderate 25-75% cover (-3)		absent, and high spp diversity	
		Х	Sparse 5-25% cover (-1)		the presence of rare, threatene	-
			Nearly absent <5% cover (0)		-	
			Absent (1)	Mudflat and	d Open Water Class Quality	
		6d. Micr	rotopography.	0	Absent <0.1ha (0.247 acres)	
		Score al	present using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 to 2.47 a	cres)
		0	Vegetated hummucks/tussucks	2	Moderate 1 to <4ha (2.47 to 9.88	3 acres)
		0	Coarse woody debris >15cm (6in)	3	High 4ha (9.88 acres) or more	
		0	Standing dead >25cm (10in) dbh			
		0	Amphibian breeding pools		graphy Cover Scale	
				0	Absent	
				1 	Present very small amounts or if of marginal quality	
				2	Present in moderate amounts, but quality or in small amounts of h	•
	-			3	Present in moderate or greater a	mounts
40					and of highest quality	
16						

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle 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 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	0	
J	Metric 2. Buffers and surrounding land use	3	
	Metric 3. Hydrology	7	
	Metric 4. Habitat	6	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	0	
	TOTAL SCORE	16	Category based on score breakpoints 1

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle 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 No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> 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 under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	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 undercategorized 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 undercategorized 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 determination should be provided.

Final Category				
Choose one	Category 1	Category 2	Category 3	
			<u> </u>	

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Method 10 Page Form for Wetland Cat	
Version 5.0	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet	Ohio EPA, Division of Surface Water Final: February 1, 2001

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

mame:		
	Mathan	Renaudin

Date:

4/6/17

Affiliation: TRC Solutions

Address: 2200 Liberty Avenue, Suite 100, Pittsburgh PA, 15222

Phone Number:

412.713.7127

e-mail address:

nrenaudin@trcsolutions.com

Name of Wetland: Wetland 13

Vegetation Communit(ies): PEM

HGM Class(es): Depressional

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

See attached map

Lat/Long or UTM Coordinate	39.270208 -82.449238
USGS Quad Name	Zaleski
County	Vinton
Township	Mcarthur
Section and Subsection	NA
Hydrologic Unit Code	050901010205
Site Visit	4/6/17
National Wetland Inventory Map	See Report
Ohio Wetland Inventory Map	See Report
Soil Survey	See Report
Delineation report/map	See Report

Wetland Size (acres, hectares): 0, 17 Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc. See wetland report. Comments, Narrative Discussion, Justification of Category Changes:	Name of Wetland: Wetland 13	
Comments, Narrative Discussion, Justification of Category Changes:	Wetland Size (acres, hectares): 0.17	Acres
Comments, Narrative Discussion, Justification of Category Changes:		es, etc.
	See wetland report.	
	Comments, Narrative Discussion, Justification of Category Changes:	
Final score: 18 Category: 4		
Final score: 18 Category: 4		
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Final score : 18 Category: 4		
Final score : 18 Category: 4		
Final score : 18 Category: 4		
Final score : 18 Category: 4		
Final score : 18 Category: 4		
	Final score: 18	Category: 1

Scoring Boundary Worksheet

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.	x	
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.	X	
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.	X	
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.	Х	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		
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.	Х	

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

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 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 41812 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	Go to Question 3
3	Documented High Quality Wetland. 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 Concentration 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	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	Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> 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	Fens. 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

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible Category 3 status.	Go to Question 9a
0-	Laborated and tolk of an order day to the contract of the	Go to Question 9a	410
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	YES	NO
	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?	Wetland should be evaluated for possible Category 3 status	Go to Question 9c
		Go to Question 10	
9с	Are Lake Erie water levels the wetland's primary hydrological influence,	YES	NO
	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.	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	Mathematics of October	0 - 1 - 0 1 0 -
	native species can also be present?	Wetland is a Category 3 wetland	Go to Question 9e
		Go to Question 10	
9e	Does the wetland have a predominance of non-native or disturbance	YES	NO
	tolerant native plant species 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 Counties and can the wetland be	YES	NO
	characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within	Wetland is a Category 3 wetland.	Go to Question 11
	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.	Go to Question 11	
11	Relict Wet Prairies. Is the wetland a relict wet prairie community	YES	(NO)
	dominated by some or all of the species in Table 1. Extensive prairies	Matianal ab - : 1 d l -	Complete
	were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion	Wetland should be evaluated for possible	Complete Quantitative
	Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,	Category 3 status	Rating
	Montgomery, Van Wert etc.).	Complete Quantitative Rating	

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum	-	Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceum
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddellii
	Salix serissima	Xyris difformis		_
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: \\	<u>/etland</u>	13 Rater(s): Nathan Renaudin Date: 4/6/17
1	1	Metric 1. Wetland Area (size).
max 6 pts.	subtotal	Select one size class and assign score. >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) x
3	4	Metric 2. Upland buffers and surrounding land use.
max 14 pts.	subtotal	2a. Calculate average buffer width. Select only one and assign score. Do not double check. 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) 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) HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)
4	8	Metric 3. Hydrology.
max 30 pts.	subtotal	3b. Connectivity. Score all that apply. High pH groundwater (5) Other groundwater (3) X Precipitation (1) Seasonal/Intermittent surface water (3) Perennial surface water (lake or stream) (5) 3c. Maximum water depth. Select only one and assign score. >0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 27.6in) (2) X <0.4m (<15.7in) (1) 3b. Connectivity. Score all that apply. 100 year floodplain (1) Part of wetland/upland (e.g. forest), complex (1) Part of riparian or upland corridor (1) Semi- to permanently inundated/saturated (4) Regularly inundated/saturated (3) Seasonally inundated (2) X Seasonally saturated in upper 30cm (12in) (1) Se. Modifications to natural hydrologic regime. Score one or double check and average.
		None or none apparent (12) Recovered (7) Recovering (3) X Recent or no recovery (1) Check all disturbances observed Dittermine title Diffilling/grading road bed/RR track Divermine title Diffilling/grading road bed/RR track Divermine title Diffilling/grading road bed/RR track Divermine title Divermin
3	11	Metric 4. Habitat Alteration and Development.
max 20 pts.	subtotal	4a. Substrate disturbance. Score one or double check and average. 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)
		Ac. Habitat alteration. Score one or double check and average. None or none apparent (9) Recovered (6) Recovering (3) X Recent or no recovery (1) None or none apparent (9) Recovering (3) Check all disturbances observed mowing grazing herbaceous/aquatic bed removal sedimentation dredging
SU	11 obtotal this pa	woody debris removal farming toxic pollutants nutrient enrichment
last revised	1 Februa	2001 jjm

7

			_			
Site: ⋈	/etland	13	Rater	(s): Natha	n Renaudin	Date: 4/6/17
sı	11 ubtotal first pa	1	is E. Special Wetler	, do		
0	16	wetr	ic 5. Special Wetlar	ius.		
max 10 pts.	subtotal	Check al	I that apply and score as indicated. Bog (10) Fen (10) Old growth forest (10) Mature forested wetland (5) Lake Erie coastal/tributary wetland-t Lake Erie coastal/tributary wetland-t Lake Plain Sand Prairies (Oak Oper Relict Wet Prairies (10) Known occurrence state/federal thre Significant migratory songbird/water	restricted hydro nings) (10) eatened or enda	angered species (10)	
			Category 1 Wetland. See Question			
2	18	Metr	ic 6. Plant commun		- · · · · · · · · · · · · · · · · · · ·	ppography.
max 20 pts.	subtotal		land Vegetation Communities.	Vegetation	Community Cover Scale	
		Score all	present using 0 to 3 scale. Aquatic bed Emergent	0 1	Absent or comprises <0.1ha (0.2- Present and either comprises sm vegetation and is of moderate of	all part of wetland's
		0	Shrub		significant part but is of low qua	-
		0	Forest Mudflats	2	Present and either comprises sig vegetation and is of moderate of	
		0	Open water		part and is of high quality	quality of comprises a small
		0	Other	3	Present and comprises significan	t part, or more, of wetland's
		6b. horiz	zontal (plan view) Interspersion.		vegetation and is of high quality	1
		Select or	⊐ 1			
			High (5) Moderately high(4)	low	Low spp diversity and/or predomi	nanco of nonnativo or
			Moderate (3)	iow	disturbance tolerant native spec	
			Moderately low (2)	mod	Native spp are dominant compon	
			Low (1)		although nonnative and/or distu	
		X	None (0)		can also be present, and specie	•
			erage of invasive plants. Refer 1 ORAM long form for list. Add		moderately high, but generally threatened or endangered spp	•
			t points for coverage	high	A predominance of native species	
			Extensive >75% cover (-5)		and/or disturbance tolerant nati	
			Moderate 25-75% cover (-3)		absent, and high spp diversity a	
			Sparse 5-25% cover (-1) Nearly absent <5% cover (0)		the presence of rare, threatene	a, or endangered spp
		X	Absent (1)	Mudflat and	d Open Water Class Quality	
		6d. Micr	otopography.	0	Absent <0.1ha (0.247 acres)	
		Score all	present using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 to 2.47 ac	
		0	Vegetated hummucks/tussucks	3	Moderate 1 to <4ha (2.47 to 9.88	3 acres)
		0	Coarse woody debris >15cm (6in) Standing dead >25cm (10in) dbh		High 4ha (9.88 acres) or more	
		0	Amphibian breeding pools	Microtopog	graphy Cover Scale	
			_ :	0	Absent	
				1	Present very small amounts or if of marginal quality	
				2	Present in moderate amounts, bu quality or in small amounts of h	ighest quality
	1			3	Present in moderate or greater and of highest quality	HOURIS
18					and or mynoor quality	

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle 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 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	
Ü	Metric 2. Buffers and surrounding land use	3	
	Metric 3. Hydrology	4	
	Metric 4. Habitat	3	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	2	
	TOTAL SCORE	18	Category based on score breakpoints 1

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle 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 No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> 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 under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	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 undercategorized 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 undercategorized 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 determination should be provided.

	Fir	nal Category	
Choose one	Category 1	Category 2	Category 3
			<u> </u>

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization		
X7 · 50	Background Information		
Version 5.0	Scoring Boundary Worksheet		
	Narrative Rating	Ohio EPA, Division of Surface Water	
	Field Form Quantitative Rating	Final: February 1, 2001	
	ORAM Summary Worksheet		
	Wetland Categorization Worksheet		

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

Name:		
	Mathan	Renaudin

Date:

4/6/17

Affiliation: TRC Solutions

Address: 2200 Liberty Avenue, Suite 100, Pittsburgh PA, 15222

Phone Number:

412.713.7127

e-mail address:

nrenaudin@trcsolutions.com

Name of Wetland: Wetland 14

Vegetation Communit(ies): PEM

HGM Class(es): Depressional

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

See attached map

Lat/Long or UTM Coordinate	39.265638 -82.448479
USGS Quad Name	Zaleski
County	Vinton
Township	Mcarthur
Section and Subsection	NA
Hydrologic Unit Code	050901010205
Site Visit	4/6/17
National Wetland Inventory Map	See Report
Ohio Wetland Inventory Map	See Report
Soil Survey	See Report
Delineation report/map	See Report

Name of Wetland: Wetland 14		
Wetland Size (acres, hectares): 0.60		Acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zone	es, etc.	
See wetland report.		
Comments, Narrative Discussion, Justification of Category Changes:		
Final score: 29	Category:	2

Scoring Boundary Worksheet

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.	x	
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.	X	
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.	X	
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.	Х	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		
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.	Х	

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

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 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 41812 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	Go to Question 3
3	Documented High Quality Wetland. 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 Concentration 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	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	Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> 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	Fens. 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

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible Category 3 status.	Go to Question 9a
0-	Laborated and tolk of an order day to the contract of the	Go to Question 9a	410
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	YES	NO
	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?	Wetland should be evaluated for possible Category 3 status	Go to Question 9c
		Go to Question 10	
9с	Are Lake Erie water levels the wetland's primary hydrological influence,	YES	NO
	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.	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	Mathematics of October	0 - 1 - 0 1 0 -
	native species can also be present?	Wetland is a Category 3 wetland	Go to Question 9e
		Go to Question 10	
9e	Does the wetland have a predominance of non-native or disturbance	YES	NO
	tolerant native plant species 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 Counties and can the wetland be	YES	NO
	characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within	Wetland is a Category 3 wetland.	Go to Question 11
	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.	Go to Question 11	
11	Relict Wet Prairies. Is the wetland a relict wet prairie community	YES	(NO)
	dominated by some or all of the species in Table 1. Extensive prairies	Matianal ab - : 1 d l -	Complete
	were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion	Wetland should be evaluated for possible	Complete Quantitative
	Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,	Category 3 status	Rating
	Montgomery, Van Wert etc.).	Complete Quantitative Rating	

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum	-	Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceum
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddellii
	Salix serissima	Xyris difformis		_
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: Wetland	14 F	Rater(s): Nathan Renau	udin	Date: 4/6/17
2 2	Metric 1. Wetland Ar	ea (size).		
max 6 pts. subtotal	Select one size class and assign score. >50 acres (>20.2ha) (6 pts) 25 to <50 acres (10.1 to <20. 10 to <25 acres (4 to <10.1ha 3 to <10 acres (1.2 to <4ha) (x	2ha) (5 pts) a) (4 pts) '3 pts) na) (2pts)		
4 6	Metric 2. Upland buf	fers and surroundi	ing land use.	
max 14 pts. subtotal	MEDIUM. Buffers average 2: X NARROW. Buffers average VERY NARROW. Buffers average VERY NARROW. Buffers average VERY LOW. 2nd growth or of LOW. Old field (>10 years), s X MODERATELY HIGH. Resident	(164ft) or more around wetland pe 5m to <50m (82 to <164ft) around 10m to <25m (32ft to <82ft) aroun erage <10m (<32ft) around wetlan	erimeter (7) wetland perimeter (4) d wetland perimeter (1) d perimeter (0) verage. life area, etc. (7) orest. (5) ervation tillage, new fallo	ow field. (3)
9 15	Metric 3. Hydrology.			
max 30 pts. subtotal	3a. Sources of Water. Score all that apply High pH groundwater (5) Other groundwater (3) X Precipitation (1) X Seasonal/Intermittent surface Perennial surface water (lake) 3c. Maximum water depth. Select only >0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 27.6in) (2) X <0.4m (<15.7in) (1) 3e. Modifications to natural hydrologic None or none apparent (12) Recovered (7) Recovering (3)	e water (3) or stream) (5) one and assign score. 2) regime. Score one or double check all disturbances observed ditch tile	× Part of wetland/up Part of riparian or Duration inundation/satu Semi- to permane Regularly inundat Seasonally inundat x Seasonally saturate k and average. point source (non filling/grading	in (1) lake and other human use (1) pland (e.g. forest), complex (1) pland corridor (1) uration. Score one or dbl check. ently inundated/saturated (4) led/saturated (3) ated (2) ated in upper 30cm (12in) (1) stormwater)
	x Recent or no recovery (1)	dike weir stormwater input	road bed/RR trac dredging other_Historic Mi	
8 23	Metric 4. Habitat Alte	eration and Develo	pment.	
max 20 pts. subtotal	4a. Substrate disturbance. Score one None or none apparent (4) Recovered (3) X Recovering (2) Recent or no recovery (1) 4b. Habitat development. Select only of Excellent (7) Very good (6) Good (5) Moderately good (4) X Fair (3) Recovered (6) Score one			
	Poor to fair (2) Poor (1) 4c. Habitat alteration. Score one or do	uble check and average.		
23 subtotal this pa	None or none apparent (9) Recovered (6) X Recovering (3) Recent or no recovery (1)	Check all disturbances observed mowing grazing clearcutting selective cutting woody debris removal toxic pollutants	shrub/sapling rem herbaceous/aqua sedimentation dredging farming nutrient enrichme	tic bed removal

7

Site: ∖∖	/etland	14	Rater(s	s): Natha	n Renaudin	Date: 4/6/17
	23 ubtotal first pa					
0	23	Metric 5. Specia	al Wetland	ds.		
max 10 pts.	subtotal	Check all that apply and score Bog (10) Fen (10) Old growth forest (10) Mature forested wetl Lake Erie coastal/trit Lake Plain Sand Pra Relict Wet Prairies (1) Known occurrence s Significant migratory Category 1 Wetland.	o) and (5) butary wetland-un butary wetland-re- iries (Oak Openir 10) tate/federal threa songbird/water fo	stricted hydro ngs) (10) tened or enda owl habitat or	angered species (10) usage (10)	
6	29	Metric 6. Plant of	communit	ties, int	erspersion, microt	opography.
max 20 pts.	subtotal	I 6a. Wetland Vegetation Comn	nunities.	Vegetation	Community Cover Scale	
		Score all present using 0 to 3 s		0	Absent or comprises <0.1ha (0.2	2471 acres) contiguous area
		0 Aquatic bed		1	Present and either comprises sm	
		1 Emergent			vegetation and is of moderate	
		1 Shrub			significant part but is of low qua	
		₀ Forest		2	Present and either comprises sig	
		₀ Mudflats			vegetation and is of moderate	
		0 Open water			part and is of high quality	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
		0 Other		3	Present and comprises significan	nt part, or more, of wetland's
		6b. horizontal (plan view) Inter	spersion		vegetation and is of high qualit	
		Select only one.	орогологи.		Togotation and is of riight qualit	,
		High (5)		Narrative D	escription of Vegetation Quality	
		Moderately high(4)		low	Low spp diversity and/or predom	inance of nonnative or
		Moderate (3)		IOW	disturbance tolerant native spe	
		x Moderately low (2)		mod	Native spp are dominant compor	
				mou		
		Low (1)			although nonnative and/or dist	
		None (0)	Defen		can also be present, and speci	
		6c. Coverage of invasive plant			moderately high, but generally	•
		to Table 1 ORAM long form for	list. Add	6.5 6	threatened or endangered spp	
		or deduct points for coverage	(-)	high	A predominance of native specie	
		Extensive >75% cov	` '		and/or disturbance tolerant nat	
		Moderate 25-75% co			absent, and high spp diversity	
		Sparse 5-25% cover	` '		the presence of rare, threatene	d, or endangered spp
		Nearly absent <5% of	cover (0)			
		X Absent (1)			d Open Water Class Quality	
		6d. Microtopography.		0	Absent <0.1ha (0.247 acres)	
		Score all present using 0 to 3 s		1	Low 0.1 to <1ha (0.247 to 2.47 a	
		Vegetated hummuck		2	Moderate 1 to <4ha (2.47 to 9.8	8 acres)
		Coarse woody debris	s >15cm (6in)	3	High 4ha (9.88 acres) or more	
		1 Standing dead >25c				
		0 Amphibian breeding	pools	Microtopog	raphy Cover Scale	
				0	Absent	
				1	Present very small amounts or if of marginal quality	more common
				2	Present in moderate amounts, be quality or in small amounts of h	
				3	Present in moderate or greater a	
	1			-	and of highest quality	
29					1 20 1 2 30000	

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle 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 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	2	
3	Metric 2. Buffers and surrounding land use	4	
	Metric 3. Hydrology	9	
	Metric 4. Habitat	8	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	6	
	TOTAL SCORE	29	Category based on score breakpoints 2

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle 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 No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> 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 under-categorized 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?	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 undercategorized 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 undercategorized 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 determination should be provided.

Final Category				
Choose one	Category 1	Category 2	Category 3	
		$\overline{}$		

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization			
Version 5.0	Background Information			
	Scoring Boundary Worksheet			
	Narrative Rating	Ohio EPA, Division of Surface Water		
	Field Form Quantitative Rating	Final: February 1, 2001		
	ORAM Summary Worksheet			
	Wetland Categorization Worksheet			

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

Name: Nathan Renaudin

Date:

4/6/17

Affiliation: TRC Solutions

Address: 2200 Liberty Avenue, Suite 100, Pittsburgh PA, 15222

Phone Number:

412.713.7127

e-mail address:

nrenaudin@trcsolutions.com

Name of Wetland: Wetland 15

Vegetation Communit(ies): PEM

HGM Class(es): Depressional

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

See attached map

Lat/Long or UTM Coordinate	39.265109 -82.449004
USGS Quad Name	Zaleski
County	Vinton
Township	Mcarthur
Section and Subsection	NA
Hydrologic Unit Code	050901010205
Site Visit	4/6/17
National Wetland Inventory Map	See Report
Ohio Wetland Inventory Map	See Report
Soil Survey	See Report
Delineation report/map	See Report

Name of Wetland: Wetland 15		
Wetland Size (acres, hectares): 0.13		Acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zone	s, etc.	
Sketch: Include north arrow, relationship with other surface waters, vegetation zone See wetland report.	s, etc.	ACIES
Comments, Narrative Discussion, Justification of Category Changes:		
	Category:	4
riliai score . 25	Calegory:	1

Scoring Boundary Worksheet

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.	X	
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.	Х	
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.	X	
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.	X	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		
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.	Х	

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

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 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 41812 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	Go to Question 3
3	Documented High Quality Wetland. 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 Concentration 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	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	Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> 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	Fens. 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

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible Category 3 status.	Go to Question 9a
	Laborated and tolk of an order day to the contract of the	Go to Question 9a	410
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	YES	NO
	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?	Wetland should be evaluated for possible Category 3 status	Go to Question 9c
		Go to Question 10	
9с	Are Lake Erie water levels the wetland's primary hydrological influence,	YES	NO
	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.	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	Mathematics of October	0 - 1 - 0 1 0 -
	native species can also be present?	Wetland is a Category 3 wetland	Go to Question 9e
		Go to Question 10	
9e	Does the wetland have a predominance of non-native or disturbance	YES	NO
	tolerant native plant species 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 Counties and can the wetland be	YES	NO
	characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within	Wetland is a Category 3 wetland.	Go to Question 11
	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.	Go to Question 11	
11	Relict Wet Prairies. Is the wetland a relict wet prairie community	YES	(NO)
	dominated by some or all of the species in Table 1. Extensive prairies	Matianal ab - : 1 d l -	Complete
	were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion	Wetland should be evaluated for possible	Complete Quantitative
	Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,	Category 3 status	Rating
	Montgomery, Van Wert etc.).	Complete Quantitative Rating	

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum		Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceum
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddellii
	Salix serissima	Xyris difformis		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: \\	etland/	15 Rater(s): Nathan Renaudin Date: 4/6/17
1	1	Metric 1. Wetland Area (size).
max 6 pts.	subtotal	Select one size class and assign score. >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)
4	6	Metric 2. Upland buffers and surrounding land use.
max 14 pts.	subtotal	2a. Calculate average buffer width. Select only one and assign score. Do not double check. 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) 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) HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)
8	14	Metric 3. Hydrology.
max 30 pts.	subtotal	3a. Sources of Water. Score all that apply. High pH groundwater (5) Other groundwater (3) X Precipitation (1) Seasonal/Intermittent surface water (3) Perennial surface water (lake or stream) (5) 3c. Maximum water depth. Select only one and assign score. >0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 27.6in) (2) X <0.4m (<15.7in) (1) 3e. Modifications to natural hydrologic regime. Score one or double check and average. 3b. Connectivity. Score all that apply. 100 year floodplain (1) X Part of wetland/upland (e.g. forest), complex (1) Part of riparian or upland corridor (1) 3d. Duration inundation/saturation. Score one or dbl checl Semi- to permanently inundated/saturated (4) Regularly inundated/saturated (3) X Seasonally saturated in upper 30cm (12in) (1)
•		None or none apparent (12) Recovered (7) X Recovering (3) X Recent or no recovery (1) Check all disturbances observed ditch lile liling/grading road bed/RR track weir dredging other_Historic Mining/Cow Field
8	22	Metric 4. Habitat Alteration and Development.
max 20 pts.	subtotal	4a. Substrate disturbance. Score one or double check and average. None or none apparent (4) Recovered (3) X 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) x Fair (3) Poor to fair (2) Poor (1) 4c. Habitat alteration. Score one or double check and average.
st last revised	22 Ibtotal this pa	None or none apparent (9) Recovered (6) Recovering (3) Recent or no recovery (1) Check all disturbances observed mowing grazing clearcutting selective cutting woody debris removal toxic pollutants Check all disturbances observed which is shrub/sapling removal herbaceous/aquatic bed removal sedimentation dredging farming nutrient enrichment
1001 1011560	i i ening	y 2001 jjili

Site: ∨	/etland	15	Rate	er(s): Nathai	n Renaudin	Date: 4/6/17
SI	22 ubtotal first pa	ge				
0	22	Metr	ic 5. Special Wetla	ands.		
max 10 pts.	subtotal		I that apply and score as indicated Bog (10) Fen (10) Old growth forest (10) Mature forested wetland (5) Lake Erie coastal/tributary wetlar Lake Erie coastal/tributary wetlar Lake Plain Sand Prairies (Oak O Relict Wet Prairies (10) Known occurrence state/federal t Significant migratory songbird/wa Category 1 Wetland. See Questi	nd-unrestricted hydro nd-restricted hydro penings) (10) threatened or enda ater fowl habitat or ion 1 Qualitative R	angered species (10) usage (10) ating (-10)	
3	25	Wetr	ic 6. Plant commu	inities, int	erspersion, microto	opograpny.
max 20 pts.	subtotal	6a. Wetl	and Vegetation Communities.	Vegetation	Community Cover Scale	
		Score all	present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.2	
		0	Aquatic bed	1	Present and either comprises sm	•
		1	Emergent		vegetation and is of moderate	
		0	Shrub		significant part but is of low qua	•
		0	Forest	2	Present and either comprises sig	
		0	Mudflats		vegetation and is of moderate	quality or comprises a small
		0	Open water		part and is of high quality	t a sat sa a sa sa sa face the salls
		0 Ch h a ri-	Other	3	Present and comprises significar	
			zontal (plan view) Interspersion.		vegetation and is of high quality	У
		Select or	¬*	Norrativa D	accription of Vacatation Quality	
			High (5) Moderately high(4)	low	escription of Vegetation Quality Low spp diversity and/or predom	inance of nonnative or
			Moderate (3)	IOW	disturbance tolerant native spe	
			Moderate (3) Moderately low (2)	mod	Native spp are dominant compor	
			Low (1)	11100	although nonnative and/or distr	_
			None (0)		can also be present, and speci	
		6c. Cove	erage of invasive plants. Refer		moderately high, but generally	
			1 ORAM long form for list. Add		threatened or endangered spp	
			t points for coverage	high	A predominance of native specie	
			Extensive >75% cover (-5)		and/or disturbance tolerant nat	
			Moderate 25-75% cover (-3)		absent, and high spp diversity	and often, but not always,
		Х	Sparse 5-25% cover (-1)		the presence of rare, threatene	
			Nearly absent <5% cover (0) Absent (1)	Mudflat and	I Open Water Class Quality	
		Ed Mior		0	Absent <0.1ha (0.247 acres)	
			otopography. present using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 to 2.47 a	cres)
		1	Vegetated hummucks/tussucks	2	Moderate 1 to <4ha (2.47 to 9.8)	
		0	Coarse woody debris >15cm (6in		High 4ha (9.88 acres) or more	s acres)
		0	Standing dead >25cm (10in) dbh	, <u> </u>	Trigit 4tta (9.00 acres) of thore	
		0	Amphibian breeding pools		raphy Cover Scale	
			1princian procaing pools	0	Absent	
				1	Present very small amounts or if	more common
				2	of marginal quality Present in moderate amounts, but	ut not of highest
				3	quality or in small amounts of h Present in moderate or greater a	
	1			3	and of highest quality	
25					and or mignost quality	

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle 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 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	
Ü	Metric 2. Buffers and surrounding land use	4	
	Metric 3. Hydrology	8	
	Metric 4. Habitat	8	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	3	
	TOTAL SCORE	25	Category based on score breakpoints

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle 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 No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> 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 under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	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 undercategorized 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 undercategorized 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, loca 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 determination should be provided.

Final Category				
Choose one	Category 1	Category 2	Category 3	

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization		
Version 5.0	Background Information		
version 5.0	Scoring Boundary Worksheet		
	Narrative Rating	Ohio EPA, Division of Surface Water	
	Field Form Quantitative Rating	Final: February 1, 2001	
	ORAM Summary Worksheet		
	Wetland Categorization Worksheet		

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

Name:			
	Mathan	Ranguldin	

Date:

4/7/17

Affiliation: TRC Solutions

Address: 2200 Liberty Avenue, Suite 100, Pittsburgh PA, 15222

Phone Number:

412.713.7127

e-mail address:

nrenaudin@trcsolutions.com

Name of Wetland: Wetland 16

Vegetation Communit(ies): PEM

HGM Class(es): Depressional

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

See attached map

Lat/Long or UTM Coordinate	39.273639 -82.434730
USGS Quad Name	Zaleski
County	Vinton
Township	Mcarthur
Section and Subsection	NA
Hydrologic Unit Code	050901010205
Site Visit	4/7/17
National Wetland Inventory Map	See Report
Ohio Wetland Inventory Map	See Report
Soil Survey	See Report
Delineation report/map	See Report

Name of Wetland: Wetland 16		
Wetland Size (acres, hectares): 0.04	-	Acres
	s, etc.	
Sketch: Include north arrow, relationship with other surface waters, vegetation zones. See Wetland report.	s, etc.	
Comments, Narrative Discussion, Justification of Category Changes:		
Final score: 14	Category:	•
rinai score : 14	Category:	1

Scoring Boundary Worksheet

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.	X	
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.	X	
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.	X	
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.	Х	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		
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.	Х	

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

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 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 41812 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	Go to Question 3
3	Documented High Quality Wetland. 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 Concentration 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	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	Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> 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	Fens. 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

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible Category 3 status.	Go to Question 9a
	Laborated and tolk of an order day to the contract of the	Go to Question 9a	410
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	YES	NO
	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?	Wetland should be evaluated for possible Category 3 status	Go to Question 9c
		Go to Question 10	
9с	Are Lake Erie water levels the wetland's primary hydrological influence,	YES	NO
	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.	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	Mathematics of October	0 - 1 - 0 1 0 -
	native species can also be present?	Wetland is a Category 3 wetland	Go to Question 9e
		Go to Question 10	
9e	Does the wetland have a predominance of non-native or disturbance	YES	NO
	tolerant native plant species 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 Counties and can the wetland be	YES	NO
	characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within	Wetland is a Category 3 wetland.	Go to Question 11
	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.	Go to Question 11	
11	Relict Wet Prairies. Is the wetland a relict wet prairie community	YES	(NO)
	dominated by some or all of the species in Table 1. Extensive prairies	Matianal ab - : 1 d l -	Complete
	were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion	Wetland should be evaluated for possible	Complete Quantitative
	Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,	Category 3 status	Rating
	Montgomery, Van Wert etc.).	Complete Quantitative Rating	

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum	-	Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceum
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddellii
	Salix serissima	Xyris difformis		_
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: Wetland	16 Rater(s): Nathan Renaudin Date: 4/7/17
0 0	Metric 1. Wetland Area (size).
max 6 pts. subtotal	Select one size class and assign score. >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)
3 3	Metric 2. Upland buffers and surrounding land use.
max 14 pts. subtotal	2a. Calculate average buffer width. Select only one and assign score. Do not double check. 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) 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) HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)
6 9	Metric 3. Hydrology.
max 30 pts. subtotal	3a. Sources of Water. Score all that apply. High pH groundwater (5) Other groundwater (3) X Precipitation (1) Seasonal/Intermittent surface water (3) Perennial surface water (lake or stream) (5) 3c. Maximum water depth. Select only one and assign score. >0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 27.6in) (2) X Ouration inundated/saturated in upper 30cm (12in) (1) 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) Recovered (7) X Recovering (3) Recent or no recovery (1) Check all disturbances observed ditch Tile Dilling/grading road bed/RR track dredging stormwater input Total disturbances observed ditch Tile Dilling/grading road bed/RR track dredging other Historic Mining/Cow Field
3 12	Metric 4. Habitat Alteration and Development.
max 20 pts. subtotal	4a. Substrate disturbance. Score one or double check and average. 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)
12 subtotal this pa	

7

Site: ∖∖	/etland	116	Rater(s): Nathar	n Renaudin	Date: 4/7/17
	12 subtotal first pa 12 subtotal	Check all that apply and score as india Bog (10) Fen (10) Old growth forest (10) Mature forested wetland (5) Lake Erie coastal/tributary v Lake Plain Sand Prairies (C) Relict Wet Prairies (10) Known occurrence state/fec	etlands. cated. vetland-unrestricted hyd vetland-restricted hydrol vetland-restricted hydrol vetland-restricted hydrol vetland-restricted hydrol vetland-restricted hydrol vetland-restricted hydrol vetland-restricted or enda	rology (10) ogy (5) ingered species (10)	
		Significant migratory songb	rd/water fowl habitat or	usage (10)	
2	14	Metric 6. Plant com		• ,	opography.
max 20 pts.	subtotal] 6a. Wetland Vegetation Communities	Vegetation (Community Cover Scale	
		Score all present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.2	471 acres) contiguous area
		0 Aquatic bed	1	Present and either comprises sm	
		1 Emergent		vegetation and is of moderate of	quality, or comprises a
		o Shrub		significant part but is of low qua	
		o Forest	2	Present and either comprises sig	nificant part of wetland's
		0 Mudflats		vegetation and is of moderate of	quality or comprises a small
		Open water		part and is of high quality	
		0 Other	_ 3	Present and comprises significan	t part, or more, of wetland's
		6b. horizontal (plan view) Interspersion	n	vegetation and is of high quality	/
		Select only one.	·		
		High (5)	Narrative De	escription of Vegetation Quality	
		Moderately high(4)	low	Low spp diversity and/or predomi	
		Moderate (3)		disturbance tolerant native spec	
		Moderately low (2)	mod	Native spp are dominant compon	_
		Low (1)		although nonnative and/or distu	
		X None (0)		can also be present, and specie	-
		6c. Coverage of invasive plants. Ref		moderately high, but generally	w/o presence of rare
		to Table 1 ORAM long form for list. A		threatened or endangered spp	
		or deduct points for coverage	high	A predominance of native species	
		Extensive >75% cover (-5)		and/or disturbance tolerant nati	'''
		Moderate 25-75% cover (-3)	absent, and high spp diversity a	-
		Sparse 5-25% cover (-1)		the presence of rare, threatene	a, or endangered spp
		Nearly absent <5% cover (0	,	Open Water Class Quality	
		x Absent (1)	0	Open Water Class Quality Absent <0.1ha (0.247 acres)	
		6d. Microtopography. Score all present using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 acres)	crae)
		Vegetated hummucks/tussu		Moderate 1 to <4ha (2.47 to 9.88	
		Coarse woody debris >15cr		High 4ha (9.88 acres) or more	s acres)
		o Standing dead >25cm (10in	• •	Trigit 4tta (5.56 acres) of thore	
		o Amphibian breeding pools	*	raphy Cover Scale	
			0	Absent	
			1	Present very small amounts or if of marginal quality	more common
			2	Present in moderate amounts, bu	it not of highest
				quality or in small amounts of h	
			3	Present in moderate or greater a	
				and of highest quality	

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle 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 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	0	
3	Metric 2. Buffers and surrounding land use	3	
	Metric 3. Hydrology	6	
	Metric 4. Habitat	3	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	2	
	TOTAL SCORE	14	Category based on score breakpoints 1

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle 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 No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> 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 under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	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 undercategorized 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 undercategorized 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 determination should be provided.

Final Category				
Choose one	Category 1	Category 2	Category 3	
			<u> </u>	

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Method 10 Page Form for Wetland Cat	
Version 5.0	Background Information Scoring Boundary Worksheet Narrative Rating Field Form Quantitative Rating ORAM Summary Worksheet Wetland Categorization Worksheet	Ohio EPA, Division of Surface Water Final: February 1, 2001

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

Name:		
	Mathan	Renaudin

Date:

4/7/17

Affiliation: TRC Solutions

Address: 2200 Liberty Avenue, Suite 100, Pittsburgh PA, 15222

Phone Number:

412.713.7127

e-mail address:

nrenaudin@trcsolutions.com

Name of Wetland: Wetland 17

Vegetation Communit(ies): PEM

HGM Class(es): Depressional

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

See attached map

Lat/Long or UTM Coordinate	39.273582 -82.434111
USGS Quad Name	Zaleski
County	Vinton
Township	Mcarthur
Section and Subsection	NA
Hydrologic Unit Code	050901010205
Site Visit	4/7/17
National Wetland Inventory Map	See Report
Ohio Wetland Inventory Map	See Report
Soil Survey	See Report
Delineation report/map	See Report

Name of Wetland: Wetland 17	
Wetland Size (acres, hectares): 0.20	Acres
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc. See wetland report.	
Comments Narrative Discussion Justification of Category Changes	
Comments, Narrative Discussion, Justification of Category Changes: Final score: 15	gory: 1

Scoring Boundary Worksheet

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.	x	
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.	X	
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.	X	
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.	Х	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		
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.	Х	

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

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 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 41812 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	Go to Question 3
3	Documented High Quality Wetland. 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 Concentration 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	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	Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> 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	Fens. 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

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of	YES	NO
	deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible Category 3 status.	Go to Question 9a
	Laborated and tolk of an order day to the contract of the	Go to Question 9a	410
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	YES	NO
	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?	Wetland should be evaluated for possible Category 3 status	Go to Question 9c
		Go to Question 10	
9с	Are Lake Erie water levels the wetland's primary hydrological influence,	YES	NO
	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.	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	Mathematics of October	0 - 1 - 0 1 0 -
	native species can also be present?	Wetland is a Category 3 wetland	Go to Question 9e
		Go to Question 10	
9e	Does the wetland have a predominance of non-native or disturbance	YES	NO
	tolerant native plant species 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 Counties and can the wetland be	YES	NO
	characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within	Wetland is a Category 3 wetland.	Go to Question 11
	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.	Go to Question 11	
11	Relict Wet Prairies. Is the wetland a relict wet prairie community	YES	(NO)
	dominated by some or all of the species in Table 1. Extensive prairies	Matianal ab - : 1 d l -	Complete
	were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion	Wetland should be evaluated for possible	Complete Quantitative
	Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami,	Category 3 status	Rating
	Montgomery, Van Wert etc.).	Complete Quantitative Rating	

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	Zygadenus elegans var. glaucus	Calla palustris	Carex cryptolepis	Calamagrostis canadensis
Myriophyllum spicatum	Cacalia plantaginea	Carex atlantica var. capillacea	Carex lasiocarpa	Calamogrostis stricta
Najas minor	Carex flava	Carex echinata	Carex stricta	Carex atherodes
Phalaris arundinacea	Carex sterilis	Carex oligosperma	Cladium mariscoides	Carex buxbaumii
Phragmites australis	Carex stricta	Carex trisperma	Calamagrostis stricta	Carex pellita
Potamogeton crispus	Deschampsia caespitosa	Chamaedaphne calyculata	Calamagrostis canadensis	Carex sartwellii
Ranunculus ficaria	Eleocharis rostellata	Decodon verticillatus	Quercus palustris	Gentiana andrewsii
Rhamnus frangula	Eriophorum viridicarinatum	Eriophorum virginicum	-	Helianthus grosseserratus
Typha angustifolia	Gentianopsis spp.	Larix laricina		Liatris spicata
Typha xglauca	Lobelia kalmii	Nemopanthus mucronatus		Lysimachia quadriflora
	Parnassia glauca	Schechzeria palustris		Lythrum alatum
	Potentilla fruticosa	Sphagnum spp.		Pycnanthemum virginianum
	Rhamnus alnifolia	Vaccinium macrocarpon		Silphium terebinthinaceum
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddellii
	Salix serissima	Xyris difformis		_
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: Wetland	Rater(s): Nathan Renaudin Date: 4/7/17
1 1	Metric 1. Wetland Area (size).
max 6 pts. subtotal	Select one size class and assign score. Solution
3 4	Metric 2. Upland buffers and surrounding land use.
max 14 pts. subtotal	2a. Calculate average buffer width. Select only one and assign score. Do not double check. 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) VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0) 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) HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)
6 10	Metric 3. Hydrology.
max 30 pts. subtotal	3a. Sources of Water. Score all that apply. High pH groundwater (5) Other groundwater (3) Precipitation (1) Seasonal/Intermittent surface water (3) Perennial surface water (lake or stream) (5) 3c. Maximum water depth. Select only one and assign score. >0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 27.6in) (2) X 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) Recovered (7) X Recovering (3) Recent or no recovery (1) Recovering (12) Recovering (3) Recent or no recovery (1)
3 13	Metric 4. Habitat Alteration and Development.
max 20 pts. subtotal	4a. Substrate disturbance. Score one or double check and average. 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.
13 subtotal this p last revised 1 Februa	

7

Site: ∖∖	/etland	17	Rater(s): Natha	n Renaudin	Date: 4/7/17
	4.0]			
	13				
su	btotal first pa	i	1-411-		
0	13	Metric 5. Special W	letlands.		
max 10 pts.	subtotal	Check all that apply and score as inc	dicated.		
		Bog (10) Fen (10)			
		Old growth forest (10)			
		Mature forested wetland (5	,		
		Lake Erie coastal/tributary Lake Erie coastal/tributary		· · · · · · · · · · · · · · · · · ·	
		Lake Plain Sand Prairies (· ·	nogy (o)	
		Relict Wet Prairies (10)	. 0, (,		
		Known occurrence state/fe			
		Significant migratory song Category 1 Wetland. See			
		1		• ,	otonography
2	15	Metric 6. Plant con	iiiiuiiiiles, iiii	erspersion, micro	otopograpny.
max 20 pts.	subtotal] 6a. Wetland Vegetation Communitie	es. Vegetation	Community Cover Scale	
		Score all present using 0 to 3 scale.	0		(0.2471 acres) contiguous area
		0 Aquatic bed	1	Present and either comprises	
		1 Emergent 0 Shrub		vegetation and is of modera significant part but is of low	
		0 Forest	2	Present and either comprises	
		0 Mudflats			ate quality or comprises a small
		0 Open water		part and is of high quality	
		Other6b. horizontal (plan view) Interspers	3	Present and comprises signification vegetation and is of high qu	icant part, or more, of wetland's
		Select only one.		vegetation and is of high qu	idility
		High (5)	Narrative D	escription of Vegetation Qual	-
		Moderately high(4)	low	Low spp diversity and/or pred	
		Moderate (3) Moderately low (2)	mod	disturbance tolerant native Native spp are dominant com	
		Low (1)	mod		disturbance tolerant native spp
		x None (0)			pecies diversity moderate to
		6c. Coverage of invasive plants. Re		moderately high, but general	
		to Table 1 ORAM long form for list. or deduct points for coverage	high	A predominance of native spe	
		Extensive >75% cover (-5)			native spp absent or virtually
		Moderate 25-75% cover (-	3)		sity and often, but not always,
		Sparse 5-25% cover (-1) Nearly absent <5% cover	(0)	the presence of rare, threat	ened, or endangered spp
		x Absent (1)	` '	d Open Water Class Quality	
		6d. Microtopography.	0	Absent <0.1ha (0.247 acres)	
		Score all present using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 to 2.4	
		0 Vegetated hummucks/tuss0 Coarse woody debris >150		Moderate 1 to <4ha (2.47 to High 4ha (9.88 acres) or mor	
		o Standing dead >25cm (10	· ' '	Trigit that (0.00 dolos) of mor	<u> </u>
		Amphibian breeding pools		graphy Cover Scale	
			0	Absent	
			1	Present very small amounts of marginal quality	or it more common
			2	Present in moderate amounts	s, but not of highest
				quality or in small amounts	of highest quality
ı	1		3	Present in moderate or great	er amounts
15				and of highest quality	

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle 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 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	
3	Metric 2. Buffers and surrounding land use	3	
	Metric 3. Hydrology	6	
	Metric 4. Habitat	3	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	2	
	TOTAL SCORE	15	Category based on score breakpoints 1

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle 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 No. 5	YES Wetland is categorized as a Category 1 wetland	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold <i>(including</i> 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 under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	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 undercategorized 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 undercategorized 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 determination should be provided.

Final Category			
Choose one	Category 1	Category 2	Category 3
			<u> </u>

End of Ohio Rapid Assessment Method for Wetlands.

Appendix E

Ohio EPA Stream Data Forms



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

SITE NAME/LOCATION Vinton Solar Energy Center Project	
SITE NUMBER Stream 1 RIVER BASIN Zaleski-Raccoon Creek DRAINAGE AREA (mi²) 0.	.01
LENGTH OF STREAM REACH (ft) 632 LAT. 39.27993 LONG82.43630 RIVER CODE RIVER MILE	
DATE 04/04/17 SCORER NDR COMMENTS Perennial Stream. Study area in active farm field	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	uctions
STREAM CHANNEL	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. TYPE PERCENT TYPE PERCENT	HHEI Metric
□ BLDR SLABS [16 pts] □ ✓ SILT [3 pt] 25%	Points
BOULDER (>256 mm) [16 pts]	Substrate
COBBLE (65-256 mm) [12 pts] 35% CLAY or HARDPAN [0 pt] 0%	Max = 40
GRAVEL (2-64 mm) [9 pts]	21
SAND (<2 mm) [6 pts]	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 45.00% (A) Substrate Percentage Check (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 TOTAL NUMBER OF SUBSTRATE TYPES: 6	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Depth
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]	45
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	15
COMMENTS Recent rain has increased pool depth. MAXIMUM POOL DEPTH (centimeters): 6	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	D 16 11
	Bankfull
> 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 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]	Width
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ≤ 1.0 m (<=3' 3") [5 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] COMMENTS Stream connect to two ponds. AVERAGE BANKFULL WIDTH (meters): 1.20	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] Stroom connect to two pends	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 Stream connect to two ponds. AVERAGE BANKFULL WIDTH (meters): 1.20 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	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 Stream connect to two ponds. 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 FLOODPLAIN QUALITY L R (Per Bank) L R (Most Predominant per Bank) L R	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 Stream connect to two ponds. 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 ANOTE: Riv	Width Max=30
Stream connect to two ponds. This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream A RIPARIAN WIDTH L R (Per Bank) Wide >10m Mature Forest, Wetland Moderate 5-10m Moderate 5-10m Stream connect to two ponds. AVERAGE BANKFULL WIDTH (meters): 1.20 1.20 L R (Most Predominant per Bank) Mature Forest, Wetland Urban or Industrial Field	Width Max=30
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] COMMENTS Stream connect to two ponds. AVERAGE BANKFULL WIDTH (meters): 1.20 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY	Width Max=30
Stream connect to two ponds. This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream A RIPARIAN WIDTH L R (Per Bank) Wide >10m Mature Forest, Wetland Moderate 5-10m Moderate 5-10m Stream connect to two ponds. AVERAGE BANKFULL WIDTH (meters): 1.20 1.20 L R (Most Predominant per Bank) Mature Forest, Wetland Urban or Industrial Field	Width Max=30
Stream connect to two ponds. Stream connect to two ponds. AVERAGE BANKFULL WIDTH (meters): 1.20	Width Max=30
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH RIPARIAN WIDTH	Width Max=30
Stream connect to two ponds. Stream connect to two ponds.	Width Max=30
Stream connect to two ponds. 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 Wide >10m Mature Forest, Wetland Moderate 5-10m Moderate 5-10m Residential, Park, New Field None COMMENTS Stream Flowing Subsurface flow with isolated pools (Interstitial) Stream Flowing Subsurface flow with isolated pools (Interstitial) AVERAGE BANKFULL WIDTH (meters): 1.20 AVERAGE BANKFULL WIDTH (meters): 1.20 L R (AVERAGE BANKFULL WIDTH (meters): 1.20 L R (AVERAGE BANKFULL WIDTH (meters): 1.20 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream AVERAGE BANKFULL WIDTH (meters): 1.20 This information must also be completed RIPARIAN WIDTH (meters): 1.20 This information must also be completed RIPARIAN WIDTH (meters): 1.20 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream AVERAGE BANKFULL WIDTH (meters): 1.20 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream AVERAGE BANKFULL WIDTH (meters): 1.20 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream AVERAGE BANKFULL WIDTH (meters): 1.20 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream AVERAGE BANKFULL WIDTH (meters): 1.20 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream AVERAGE BANKFULL WIDTH (meters): 1.20 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream AVERAGE BANKFULL WIDTH (meters): 1.20 This information must also be	Width Max=30
Stream connect to two ponds. This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH (Per Bank) Wide >10 m Mature Forest, Wetland Moderate 5-10m Moderate 5-10m Residential, Park, New Field None COMMENTS Strudy area is mostly located in an active cow grazing field. FLOW REGIME (At Time of Evaluation) COMMENTS Recent rains have increased current stream flow. SINUOSITY (Number of bends per 61 m (200 ft) of channel) None SINUOSITY (Number of bends per 61 m (200 ft) of channel) COMMENTS (Stream Flow): AVERAGE BANKFULL WIDTH (meters): 1.20 AVERAGE BA	Width Max=30
Stream connect to two ponds. This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream ↑ RIPARIAN WIDTH R (Per Bank) Wide >10m Moderate 5-10m Moderate 5-10m Residential, Park, New Field None COMMENTS Study area is mostly located in an active cow grazing field. FLOW REGIME (At Time of Evaluation) COMMENTS Recent rains have increased current stream flow. SINUOSITY (Number of bends per 61 m (200 ft) of channel) None 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.	Width Max=30
Stream connect to two ponds. This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH (Per Bank) Wide >10 m Mature Forest, Wetland Moderate 5-10m Moderate 5-10m Residential, Park, New Field None COMMENTS Strudy area is mostly located in an active cow grazing field. FLOW REGIME (At Time of Evaluation) COMMENTS Recent rains have increased current stream flow. SINUOSITY (Number of bends per 61 m (200 ft) of channel) None SINUOSITY (Number of bends per 61 m (200 ft) of channel) COMMENTS (Stream Flow): AVERAGE BANKFULL WIDTH (meters): 1.20 AVERAGE BA	Width Max=30

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Att.	ach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Raccoon Creek	Distance from Evaluated Stream 3.25
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHE	D AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Zaleski NRCS Soil Map I	Page: NRCS Soil Map Stream Order
County: Vinton Township / City: McArt	thur
MISCELLANEOUS	
Base Flow Conditions? (Y/N):_N _ Date of last precipitation:_ 04/03/17	Quantity: 1.00
Photograph Information: Photos taken up and downstream.	
Elevated Turbidity? (Y/N): N Canopy (% open): 70%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id.	and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.)	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N): Y (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pr	·
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebra	Voucher? (Y/N) N Voucher? (Y/N) N
Comments Regarding Biology:	
The stream has been influenced by the historic mining and current cow pasture. P	lease see wetland report for stream drawing.
DRAWING AND MARRATIVE DECORPTION OF CTREAM	DEACH (This must be so muletod)

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location







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

SITE NAME/LOCATION Vinton Solar Energy Center Project	
SITE NUMBER Stream 2 RIVER BASIN Zaleski-Raccoon Creek DRAINAGE AREA (mi²) 0.	01
LENGTH OF STREAM REACH (ft) 454 LAT. 39.28240 LONG82.44616 RIVER CODE RIVER MILE	
DATE 04/04/17 SCORER NDR COMMENTS Perennial Stream. Study area in active farm field.	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	ıctions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOMMODIFICATIONS:	OVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	ппе
(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] □ ✓ SILT [3 pt] 25%	Points
BOULDER (>256 mm) [16 pts]	Substrate
COBBLE (65-256 mm) [12 pts] 40% CLAY or HARDPAN [0 pt] 5%	Max = 40
GRAVEL (2-64 mm) [9 pts]	20
SAND (<2 mm) [6 pts] 20% ARTIFICIAL [3 pts] 0%	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 40.00% (A) Substrate Percentage Check (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 TOTAL NUMBER OF SUBSTRATE TYPES: 5	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Depth
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 = 30
> 22.5 - 30 cm [30 pts] < 5 cm [5 pts]	45
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	15
COMMENTS Recent rain has increased pool depth. MAXIMUM POOL DEPTH (centimeters): 6	
BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.0 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]	
COMMENTS Stream connects to two ponds. AVERAGE BANKFULL WIDTH (meters): 1.20	15
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 Mature Forest, Wetland Conservation Tillage	
Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial	
Field Open Pacture Pow Cro	D C
Residential, Park, New Field	
None Fenced Pasture Mining or Construction COMMENTS Study area is mostly located in an active cow grazing field.	
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 Recent rains have increased current stream flow.	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	
☐ None ☐ 1.0 ☐ 2.0 ☐ 3.0	
None 2.0 3.0 0.5 1.5 2.5 >3	
☐ None ☐ 1.0 ☐ 2.0 ☐ 3.0) ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes No QHEI Score (If Yes, Attac	h Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Raccoon Creek	Distance from Evaluated Stream 2.61
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: Zaleski NRCS Soil Map Pa	ge: NRCS Soil Map Stream Order
County: Vinton Township / City: McArthu	ur
MISCELLANEOUS	
Base Flow Conditions? (Y/N):_N Date of last precipitation:_ 04/03/17	Quantity: 1.00
Photograph Information: Photos taken up and downstream.	
Elevated Turbidity? (Y/N): N Canopy (% open): 80%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. ar	nd attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.)	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. ID number. Include appropriate field data sheets from the Prim	•
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrate	Voucher? (Y/N) N Voucher? (Y/N) N
Comments Regarding Biology:	
The stream has been influenced by the historic mining and current cow pasture. Plea	ase see wetland report for stream drawing.

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location







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

SITE NAME/LOCATION Vinton Solar Energy Center Project	
SITE NUMBER Stream 3 RIVER BASIN Headwaters Elk Fork DRAINAGE AREA (mi²) 0.	.01
LENGTH OF STREAM REACH (ft) 57 LAT. 39.24960 LONG82.45092 RIVER CODE RIVER MILE	
DATE 04/05/17 SCORER NDR COMMENTS Ephemeral Stream. Study area in active farm fiel	d.
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	uctions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOMMODIFICATIONS:	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. 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] Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock Bedrock (A) Substrate Percentage (A) Substrate Percentage (B)	HHEI Metric Points Substrate Max = 40 17
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 TOTAL NUMBER OF SUBSTRATE TYPES: 5	
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] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts] COMMENTS Recent rain has increased pool depth. MAXIMUM POOL DEPTH (centimeters): 4	Pool Depth Max = 30
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull
> 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
COMMENTS Stream drains down hillside AVERAGE BANKFULL WIDTH (meters): 1.10	15
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) L R Wide >10m Mature Forest, Wetland Conservation Tillage Moderate 5-10m Residential, Park, New Field Open Pasture, Row Cro None Fenced Pasture Mining or Construction COMMENTS Study area is mostly located in an active cow grazing field at the top and forest further.	
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY R (Per Bank) Wide >10m Mature Forest, Wetland Moderate 5-10m Residential, Park, New Field Varrow <5m Residential, Park, New Field None COMMENTS FLOW REGIME (At Time of Evaluation) COMMENTS Recent rains have increased current stream flow.	р
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m Residential, Park, New Field None COMMENTS Study area is mostly located in an active cow grazing field at the top and forest further. This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY L R (Most Predominant per Bank) L R (Most Predominant per Bank) L R (Conservation Tillage Immature Forest, Shrub or Old Urban or Industrial Open Pasture, Row Cro Mining or Construction COMMENTS Study area is mostly located in an active cow grazing field at the top and forest further. FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral)	р

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Atta	ach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Elk Creek	Distance from Evaluated Stream1.10
CWH Name:	Distance from Evaluated Stream
EWH Name: _	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHE	D AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Zaleski NRCS Soil Map I	Page: NRCS Soil Map Stream Order
County: Vinton Township / City: McArt	thur
MISCELLANEOUS	
Base Flow Conditions? (Y/N):_N _ Date of last precipitation:_ 04/03/17	Quantity: 1.00
Photograph Information: Photos taken up and downstream.	
Elevated Turbidity? (Y/N): N Canopy (% open): 40%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id.	and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.)	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N): Y (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pr	•
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebra	Voucher? (Y/N) N Voucher? (Y/N) N
Comments Regarding Biology:	
The stream has been influenced by the historic mining and current cow pasture. Pl	lease see wetland report for stream drawing.
DRAWING AND NARRATIVE DESCRIPTION OF STREAM I	DEACH (This must be a small (s.d.))

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location







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

SITE NAME/LOCATION Vinton Solar Energy Center Project	
SITE NUMBER Stream 4 RIVER BASIN Headwaters Elk Fork DRAINAGE AREA (mi²) 0	.01
LENGTH OF STREAM REACH (ft) 261 LAT. 39.25910 LONG82.45106 RIVER CODE RIVER MILE	
DATE 04/05/17 SCORER NDR COMMENTS Intermittent Stream. Study area in active farm fie	eld.
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	OVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	ппе
(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] 30%	Points
BOULDER (>256 mm) [16 pts] BEDROCK [16 pt] 0% LEAF PACK/WOODY DEBRIS [3 pts] 5% 0% FINE DETRITUS [3 pts]	Substrate
COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPAN [0 pt] 5%	Max = 40
GRAVEL (2-64 mm) [9 pts] 40% MUCK [0 pts] 0%	17
SAND (<2 mm) [6 pts] 20% ARTIFICIAL [3 pts] 0%	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock (A) Substrate Percentage Check (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 TOTAL NUMBER OF SUBSTRATE TYPES: 5	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Depth
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]	
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	5
COMMENTS Recent rain has increased pool depth. MAXIMUM POOL DEPTH (centimeters): 4	
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 (<=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]	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 Stream drains down hillside though field. 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 Stream drains down hillside though field. This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY AVERAGE BANKFULL WIDTH (meters): 1.50 This information must also be completed RIPARIAN WIDTH FLOODPLAIN QUALITY 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 Stream drains down hillside though field. This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY AVERAGE BANKFULL WIDTH (meters): 1.50 This information must also be completed RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) 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 Stream drains down hillside though field. 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 L R (Per Bank) L R (Most Predominant per Bank) Wide >10m Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Urban or Industrial	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 Stream drains down hillside though field. This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY PLOODPLAIN QUALITY L R (Per Bank) Wide >10m Mature Forest, Wetland Moderate 5-10m Note: River Left (L) and Right (R) as looking downstream Augure Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Immature Forest, Shrub or Old Urban or Industrial Field	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 Stream drains down hillside though field. This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: 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 Residential, Park, New Field Open Pasture, Row Cro	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 Stream drains down hillside though field. This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY PLOODPLAIN QUALITY L R (Per Bank) Wide >10m Mature Forest, Wetland Moderate 5-10m Note: River Left (L) and Right (R) as looking downstream Augure Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Immature Forest, Shrub or Old Urban or Industrial Field	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 Stream drains down hillside though field. This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH L R (Per Bank) Wide >10 m Mature Forest, Wetland Moderate 5-10m Moderate 5-10m Residential, Park, New Field None COMMENTS Stream is located in an active cow grazing field at the top and forest further down.	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 Stream drains down hillside though field. 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 ANOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH FLOODPLAIN QUALITY Moderate 5-10m Mature Forest, Wetland Moderate 5-10m Residential, Park, New Field Open Pasture, Row Crown None COMMENTS Stream is located in an active cow grazing field at the top and forest further down. FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermittent)	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 Stream drains down hillside though field. 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)	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 Stream drains down hillside though field. 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 >10 m Mature Forest, Wetland Moderate 5-10m Moderate 5-10m Residential, Park, New Field VI Narrow <5m None COMMENTS Stream is located in an active cow grazing field at the top and forest further down. FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS Recent rains have increased current stream flow.	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 4' 8") [20 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS Stream drains down hillside though field. 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 (Most Predominant	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' - 14' 8") [20 pts] COMMENTS Stream drains down hillside though field. This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE: River Left (L) and Right (R) as looking downstream Mining of Conservation Tillage RIPARIAN WIDTH FLOODPLAIN QUALITY Moters, Shrub or Old Urban or Industrial Wide >10m Mature Forest, Wetland Urban or Industrial None Residential, Park, New Field Open Pasture, Row Cro None Residential, Park, New Field Open Pasture Mining or Construction COMMENTS Stream is located in an active cow grazing field at the top and forest further down. FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral) COMMENTS Recent rains have increased current stream flow. 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 3.0 3.	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 4' 8") [20 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS Stream drains down hillside though field. 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 (Most Predominant	Width Max=30

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Atta	ach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Elk Creek	Distance from Evaluated Stream1.98
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED	O AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Zaleski NRCS Soil Map P	Page: NRCS Soil Map Stream Order
County: Vinton Township / City: McArth	nur
MISCELLANEOUS	
Base Flow Conditions? (Y/N):N Date of last precipitation:04/03/17	Quantity: 1.00
Photograph Information: Photos taken up and downstream.	
Elevated Turbidity? (Y/N): N Canopy (% open): 80%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. a	and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.)	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pri	·
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebrat	Voucher? (Y/N) N Voucher? (Y/N) N
Comments Regarding Biology:	
The stream has been influenced by the historic mining and current cow pasture. Ple	ease see wetland report for stream drawing.







SITE NAME/LOCATION Vinton Solar Energy Center Project	
SITE NUMBER Stream 5 RIVER BASIN Headwaters Elk Fork DRAINAGE AREA (mi²)	.01
LENGTH OF STREAM REACH (ft) 200 LAT. 39.26430 LONG82.43916 RIVER CODE RIVER MILE	
DATE 04/06/17 SCORER NDR COMMENTS Intermittent Stream. Study area in active farm fie	ld.
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 (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 Points
BLDR SLABS [16 pts]	1 01116
BEDROCK [16 pt] 0% FINE DETRITUS [3 pts]	Substrat Max = 40
COBBLE (65-256 mm) [12 pts]	
☐ ☐ GRAVEL (2-64 mm) [9 pts] ☐ MUCK [0 pts] ☐ 0% ☐ ARTIFICIAL [3 pts] ☐ 0% ☐ 0% ☐ 0% ☐ 0% ☐ 0% ☐ 0% ☐ 0% ☐ 0	7
Total of Percentages of 0.00% (A) Substrate Percentage 100% (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3 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):	Max = 30
> 30 centimeters [20 pts]	
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	15
COMMENTS Recent rain has increased pool depth. MAXIMUM POOL DEPTH (centimeters): 7	
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] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Max=30
COMMENTS Stream drains down hillside though forest AVERAGE BANKFULL WIDTH (meters): 1.50	15
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 Cro	Þ
None Fenced Pasture Mining or Construction COMMENTS Stream is located in an active cow grazing field at the top and forest further down.	
	•
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermittent)	
Stream Flowing Subsurface flow with isolated pools (Interstitial) Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)	
Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS Recent rains have increased current stream flow. SINUOSITY (Number of bends per 61 m (200 ft) of channel) None 1.0 Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral) (Check ONLY one box): 2.0 3.0	
Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS Recent rains have increased current stream flow. SINUOSITY (Number of bends per 61 m (200 ft) of channel) None 0.5 1.0 2.0 3.0 3.0 3.0 3.0 3.0 3.0 3	
Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS Recent rains have increased current stream flow. SINUOSITY (Number of bends per 61 m (200 ft) of channel) None 1.0 Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral) (Check ONLY one box): 2.0 3.0	-

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Atta	ach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Elk Creek	Distance from Evaluated Stream 0.60
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHEI	D AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Zaleski NRCS Soil Map F	Page: NRCS Soil Map Stream Order
County: Vinton Township / City: McArt	hur
MISCELLANEOUS	
Base Flow Conditions? (Y/N):_N Date of last precipitation:_ 04/06/17	Quantity: 1.00
Photograph Information: Photos taken up and downstream.	
Elevated Turbidity? (Y/N): N Canopy (% open): 30%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id.	and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.)	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	
Acid mine drainage found in the stream.	
BIOTIC EVALUATION Performed? (Y/N):Y (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Property of the Propert	·
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebra	Voucher? (Y/N) N Voucher? (Y/N) N
Comments Regarding Biology:	
The stream has been influenced by the historic mining and current cow pasture. Pl	lease see wetland report for stream drawing.







SITE NAME/LOCATION Vinton Solar Energy Center Project	
SITE NUMBER Stream 6 RIVER BASIN Headwaters Elk Fork DRAINAGE AREA (mi²) 0.	01
LENGTH OF STREAM REACH (ft) 516 LAT. 39.26389 LONG82.44035 RIVER CODE RIVER MILE	
DATE 04/06/17 SCORER NDR COMMENTS Perennial Stream. Study area in active farm field	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	ıctions
STREAM CHANNEL □ NONE / NATURAL CHANNEL □ RECOVERED □ RECOVERING □ RECENT OR NO RECOMMODIFICATIONS:	OVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	ппе
(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]	Points
BOULDER (>256 mm) [16 pts]	Substrate
COBBLE (65-256 mm) [12 pts] 20% CLAY or HARDPAN [0 pt] 40%	Max = 40
GRAVEL (2-64 mm) [9 pts]	17
SAND (<2 mm) [6 pts]	Ц.,
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 20.00% (A) Substrate Percentage Check 100% (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 TOTAL NUMBER OF SUBSTRATE TYPES: 5	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Depth
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]	15
COMMENTS Recent rain has increased pool depth. MAXIMUM POOL DEPTH (centimeters): 7	
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] ≤ 1.0 m (<=3' 3") [5 pts]	Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
	20
COMMENTS Stream drains down hillside though forest AVERAGE BANKFULL WIDTH (meters): 1.60	20
This information must also be completed	20
	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 LR (Per Bank) LR (Most Predominant per Bank) LR	20
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream ANOTE: RIPARIAN WIDTH L R (Per Bank) L R (Most Predominant per Bank) L R Wide >10m Mature Forest, Wetland Conservation Tillage	20
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream ANOTE: RIPARIAN WIDTH L R (Per Bank) Wide >10m Mature Forest, Wetland Moderate 5-10m To per Pasture Row Cro	
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 Residential, Park, New Field To Narrow <5m This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY L R (Most Predominant per Bank) L R Conservation Tillage Urban or Industrial Open Pasture, Row Cro	
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream ANOTE: RIPARIAN WIDTH L R (Per Bank) Wide >10m Mature Forest, Wetland Moderate 5-10m To per Pasture Row Cro	
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 Residential, Park, New Field V Narrow <5m Residential, Park, New Field None Fenced Pasture COMMENTS Stream is located in an active cow grazing field at the top and forest further down.	
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: 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 Residential, Park, New Field None COMMENTS Stream is located in an active cow grazing field at the top and forest further down. This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY L R (Most Predominant per Bank) L R (Most Predominant per Bank) L R (Conservation Tillage Immature Forest, Shrub or Old Field Open Pasture, Row Cro Mining or Construction COMMENTS Stream is located in an active cow grazing field at the top and forest further down. FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermittent)	
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 Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Urban or Industrial Moderate 5-10m Residential, Park, New Field Open Pasture, Row Cro None Residential, Park, New Field Mining or Construction COMMENTS Stream is located in an active cow grazing field at the top and forest further down. FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY & NOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH 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 Cro None COMMENTS Stream is located in an active cow grazing field at the top and forest further down. FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS Recent rains have increased current stream flow. SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	
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 >10m Mature Forest, Wetland Moderate 5-10m Moderate 5-10m Residential, Park, New Field Vir Narrow <5m Residential, Park, New Field None COMMENTS Stream is located in an active cow grazing field at the top and forest further down. FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS Recent rains have increased current stream flow.	
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) Wide >10m Mature Forest, Wetland Moderate 5-10m Residential, Park, New Field Open Pasture, Row Cro None COMMENTS Stream is located in an active cow grazing field at the top and forest further down. FLOW REGIME (At Time of Evaluation) COMMENTS Recent rains have increased current stream flow. SINUOSITY (Number of bends per 61 m (200 ft) of channel) None 1.0 2.0 3.0 3.0 3.0 3.0 3.0 3.0 3	
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: 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 Residential, Park, New Field Vi Narrow <5m Residential, Park, New Field Moderate Stream is located in an active cow grazing field at the top and forest further down. FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS Recent rains have increased current stream flow. SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None None One Mature Forest, Shrub or Old Durban or Industrial Conservation Tillage Urban or Industrial Dyen Pasture Mining or Construction Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral) COMMENTS Recent rains have increased current stream flow. SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None None None None None None None None None None	p

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Atta	ach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Elk Creek	Distance from Evaluated Stream 0.60
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHEI	D AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Zaleski NRCS Soil Map F	Page: NRCS Soil Map Stream Order
County: Vinton Township / City: McArt	hur
MISCELLANEOUS	
Base Flow Conditions? (Y/N):_N Date of last precipitation:_ 04/06/17	Quantity: 1.00
Photograph Information: Photos taken up and downstream.	
Elevated Turbidity? (Y/N): N Canopy (% open): 30%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id.	and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.)	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	
Acid mine drainage found in the stream.	
BIOTIC EVALUATION Performed? (Y/N):Y (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Property of the Propert	·
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebra	Voucher? (Y/N) N Voucher? (Y/N) N
Comments Regarding Biology:	
The stream has been influenced by the historic mining and current cow pasture. Pl	lease see wetland report for stream drawing.







BLDR SLABS [16 pts] 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%	
DATE 04/06/17 SCORE NDR COMMENTS Intermittent Stream. Study area in active farm field. 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 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 & B. PERCENT TYPE BLDR SLABS [16 pts] 9% 9% 12 LEAF PACK/WOODY DEBRIS [3 pts] 9% 10% 10% 10% 10% 10% 10% 10% 10% 10% 10	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions STREAM CHANNEL	LENGTH OF STREAM REACH (ft) 96 LAT. 39.26168 LONG82.44125 RIVER CODE RIVER 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. METRICAL (Bott) (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. METRICAL (Bott) (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. METRICAL (Bott) (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. METRICAL (Bott) (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. METRICAL (Bott) (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. METRICAL (Bott) (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. METRICAL (Bott) (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. METRICAL (Bott) (Max of 32). Add total number of significant substrate types in the sum of boxes A & B. METRICAL (Bott) (Check ONLY one box): (B) (Check ONLY one box): (Check ONLY one box	DATE 04/06/17 SCORER NDR COMMENTS Intermittent Stream. Study area in active farm field.
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. METRICAL (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. METRICAL (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. METRICAL (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. METRICAL (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. METRICAL (Max of 8). Final met	NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions
(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] PERCENT 30% LEAF PACKWOODY DEBRIS [3 pts] 0% LEAF PACKWOODY DEBRIS [3 pts] 0% 0% LEAF PACKWOODY DEBRIS [3 pts] 0% 0% 0% LEAF PACKWOODY DEBRIS [3 pts] 0% 0% 0% 0% 0% 0% 0% 0	
BOULDER (-256 mm) [16 pts]	TYPE PERCENT TYPE PERCENT Metric
BEDROCK [16 pt] COBBLE (65-256 mm) [12 pts] GRAVEL (2-64 mm) [9 pts] SAND (-2 mm) [6 pts] Total of Percentages of Bidr Stabs, 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 plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts] > 22. 5- 30 cm [30 pts] > 10 - 22.5 cm [25 pts] COMMENTS Recent rain has increased pool depth. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (> 13) [30 pts] > 1.5 m - 3.0 m (> 9' 7' - 13') [25 pts] COMMENTS Stream drains down hillside though forest This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream A giparture Forest, Wetland Wide >100% Substrate Proventage 100% (Check ONLY one box): > 1.30 This information must also be completed RIPARIAN WIDTH FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream Conservation Tillage Conservation Tillage Conservation Tillage	BEDIX SEADS [10 pts]
COBBLE (65-256 mm) [12 pts]	BEDROCK [16 pt] 0% Substrat Max = 4
ARTIFICIAL [3 pts] Total of Percentages of Bidd Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 TOTAL NUMBER OF SUBSTRATE TYPES: 5 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] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts] COMMENTS Recent rain has increased pool depth. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): > 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 Stream drains down hillside though forest This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY This information must also be completed RIPARIAN WIDTH ELOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream of the conservation Tillage lumpature Errorst, Shruh or Old Mature Forest, Welland Mature For	COBBLE (65-256 mm) [12 pts] 30% CLAY or HARDPAN [0 pt]
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 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):	20
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 2.	Total of Percentages of Occord (A) Substrate Percentage (B)
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] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts] COMMENTS Recent rain has increased pool depth. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): > 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' - 13') [25 pts] COMMENTS Stream drains down hillside though forest This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY \$\text{NOTE: River Left (L) and Right (R) as looking downstream \$\text{x}} RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank)	Bldr Slabs, Boulder, Cobble, Bedrock
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts] COMMENTS Recent rain has increased pool depth. BANK FULL WIDTH (Measured as the average of 3-4 measurements) Average Ave	
> 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts] COMMENTS Recent rain has increased pool depth. BANK FULL WIDTH (Measured as the average of 3-4 measurements) - 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 Stream drains down hillside though forest This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH - 1.5 m (-3 '3") [25 pts] - 2.5 cm - 10 cm [15 pts] - 3 cm [5 pts] - 4 cm [5 pts] - 5 cm [5 pts] -	
Solution Stream drains down hillside though forest Stream drains down hillside though forest Stream drains down hillside though forest L R (Per Bank) L R (Most Predominant per Bank) L R (Most Pred	> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): > 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 Stream drains down hillside though forest This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream ↑ RIPARIAN WIDTH L R (Per Bank) Wide >10 Mature Forest, Wetland Mature Forest, Shruh or Old I Mature Forest, Shruh or Old I Mature Forest, Shruh or Old	
BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): > 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 Stream drains down hillside though forest AVERAGE BANKFULL WIDTH (meters): 1.30 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 Wide >10m Mature Forest, Wetland Conservation Tillage	COMMENTS Recent rain has increased pool depth. MAXIMUM POOL DEPTH (centimeters): 3
> 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 Stream drains down hillside though forest This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream ANOTE: River Left (L) and River Left (L) and Right (R) as l	
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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) Wide >10m Mature Forest, Wetland D Conservation Tillage	AVERAGE BANKI GEE WIDTH (Meters).
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) Wide >10m Mature Forest, Wetland Conservation Tillage	This information must also be completed
L R (Per Bank) L R (Most Predominant per Bank) L R Wide >10m Mature Forest, Wetland Conservation Tillage	RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆
Immature Forest, Shrub or Old	
Madagata F 40ga [7] Illilliature Forest, Siliub di Olu	Importure Forcet Shrub or Old
Field Field	Field Field
Narrow <5m Residential, Park, New Field Open Pasture, Row Crop	Narrow <5m Residential, Park, New Field Open Pasture, Row Crop
None Fenced Pasture Mining or Construction	
COMMENTS Stream is located in an active cow grazing field at the top and forest further down.	
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 Recent rains have increased current stream flow.	Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral)
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	SINI IOSITY (Number of bends per 61 m (200 ft) of channel) (Check ON/ Vone box):
☐ None ☐ 1.0 ☐ 2.0 ☐ 3.0	ONCOON I (Number of ben <u>as per of in (200 it) of charmer) (Oncok ONE) one box).</u>
	☐ None ☐ 1.0 ☐ 2.0 ☐ 3.0
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)	None 2.0 3.0 3.0 0.5 1.5 2.5

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Atta	ach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Elk Creek	Distance from Evaluated Stream 0.60
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHEI	D AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Zaleski NRCS Soil Map F	Page: NRCS Soil Map Stream Order
County: Vinton Township / City: McArt	hur
MISCELLANEOUS	
Base Flow Conditions? (Y/N):_N Date of last precipitation:_ 04/06/17	Quantity: 1.00
Photograph Information: Photos taken up and downstream.	
Elevated Turbidity? (Y/N): N Canopy (% open): 30%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id.	and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.)	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	
Acid mine drainage found in the stream.	
BIOTIC EVALUATION Performed? (Y/N):Y (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Property of the Propert	·
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebra	Voucher? (Y/N) N Voucher? (Y/N) N
Comments Regarding Biology:	
The stream has been influenced by the historic mining and current cow pasture. Pl	lease see wetland report for stream drawing.







SITE NAME/LOCATION Vinton Solar Energy Center Project	
SITE NUMBER Stream 8 RIVER BASIN Headwaters Elk Fork DRAINAGE AREA (mi²) 0.	01
LENGTH OF STREAM REACH (ft) 146 LAT. 39.26177 LONG82.44138 RIVER CODE RIVER MILE	
DATE 04/06/17 SCORER NDR COMMENTS Intermittent Stream. Study area in active farm fie	ld.
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	ıctions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOMMODIFICATIONS:	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 Points
BLDR SLABS [16 pts]	1 Onnes
BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] 0%	Substrat Max = 40
COBBLE (65-256 mm) [12 pts] 10% CLAY or HARDPAN [0 pt] 40% MICK [0 pts] 25% MICK [0 pts] 0%	Max = 4
GRAVEL (2-64 mm) [9 pts] 25% MUCK [0 pts] 0% SAND (<2 mm) [6 pts] 15% ARTIFICIAL [3 pts] 0%	14
Total of Percentages of 10 00% (A) Substrate Percentage 100% (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 5	
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):	Max = 3
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts] > 5 cm [5 pts]	
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	5
COMMENTS Recent rain has increased pool depth. 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] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width Max=30
> 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]	IVIAX=30
COMMENTS Stream drains down hillside though forest AVERAGE BANKFULL WIDTH (meters): 1.30	15
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 Field Open Pasture, Row Cro	n
Narrow <5m Residential, Park, New Field D	ې
None Fenced Pasture Mining or Construction COMMENTS Stream is located in an active cow grazing field at the top and forest further down.	
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 Recent rains have increased current stream flow.	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	
None 2.0 3.0 3.0 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/10	O ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Atta	ach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Elk Creek	Distance from Evaluated Stream 0.60
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHEI	D AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Zaleski NRCS Soil Map F	Page: NRCS Soil Map Stream Order
County: Vinton Township / City: McArt	hur
MISCELLANEOUS	
Base Flow Conditions? (Y/N):_N Date of last precipitation:_ 04/06/17	Quantity: 1.00
Photograph Information: Photos taken up and downstream.	
Elevated Turbidity? (Y/N): N Canopy (% open): 30%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id.	and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.)	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	
Acid mine drainage found in the stream.	
BIOTIC EVALUATION Performed? (Y/N):Y (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Property of the Propert	·
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebra	Voucher? (Y/N) N Voucher? (Y/N) N
Comments Regarding Biology:	
The stream has been influenced by the historic mining and current cow pasture. Pl	lease see wetland report for stream drawing.







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SITE NAME/LOCATION Vinton Solar Energy Center Project SITE NUMBER Stream 9 RIVER BASIN Headwaters Elk Fork DRAINAGE AREA (mi²)	0.01
LENGTH OF STREAM REACH (ft) 143 LAT. 39.26374 LONG82.44410 RIVER CODE RIVER MILE	
DATE 04/06/17 SCORER NDR COMMENTS Intermittent Stream. Study area in active farm f	eld.
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Inst	ructions
STREAM CHANNEL	COVERY
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. TYPE PERCENT TYPE PERCENT	HHEI
BLDR SLABS [16 pts] 0% SILT [3 pt] 40%	Points
BOULDER (>256 mm) [16 pts]	Substrat
COBBLE (65-256 mm) [12 pts] 10% CLAY or HARDPAN [0 pt] 10%	Max = 40
GRAVEL (2-64 mm) [9 pts] MUCK [0 pts]	18
SAND (<2 mm) [6 pts]	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock (A) Substrate Percentage Check (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 TOTAL NUMBER OF SUBSTRATE TYPES: 6	
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):	Max = 30
> 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]	5
COMMENTS Recent rain has increased pool depth. 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] > 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] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Max=30
Ctroom during daying hillside though forest	
COMMENTS of gain arguing gown imposes modely forces. AVERAGE BANKFULL WILLIAM (meters): 1.30	15
COMMENTS Stream drains down nillside though forest AVERAGE BANKFULL WIDTH (meters): 1.30	15
This information <u>must</u> also be completed	15
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY \$\frac{1}{2}\text{NOTE: River Left (L) and Right (R) as looking downstream \$\frac{1}{2}\text{NOTE: River Left (L)} and Right (R) as looking downstream \$\frac{1}{2}\text{NOTE: River Left (L)} and Right (R) as looking downstream \$\frac{1}{2}\text{River Left (L)} and Right (R) as looking downstream \$\frac{1}{2}\text{River Left (L)} and Right (R) as looking downstream \$\frac{1}{2}\text{River Left (L)} and Right (R) as looking downstream \$\frac{1}{2}\text{River Left (L)} and Right (R) as looking downstream \$\frac{1}{2}\text{River Left (L)} and Right (R) as looking downstream \$\frac{1}{2}\text{River Left (L)} and Right (R) as looking downstream \$\frac{1}{2}\text{River Left (L)} and Right (R) as looking downstream \$\frac{1}{2}\text{River Left (L)} and Right (R) as looking downstream \$\frac{1}{2}\text{River Left (L)} and Right (R) as looking downstream \$\frac{1}{2}\text{River Left (L)} and Right (R) as looking downstream \$\frac{1}{2}\text{River River Left (L)} and Right (R) and Rig	15
This information <u>must</u> also be completed	15
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) Remotive Forest, Wetland Remotive Forest, Shrub er Old	15
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 LR (Per Bank) LR (Most Predominant per Bank) LR	15
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 Mature Forest, Wetland Conservation Tillage Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial	
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 Mature Forest, Wetland Conservation Tillage Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial V Narrow <5m Residential, Park, New Field Open Pasture, Row C None Fenced Pasture Mining or Construction	rop
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 Moderate 5-10m Moderate 5-10m Residential, Park, New Field This information must also be completed NOTE: River Left (L) and Right (R) as looking downstream ♣ RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Most Predominant per Bank) L R Conservation Tillage Immature Forest, Shrub or Old Field Open Pasture, Row C	rop
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 Moderate 5-10m Moderate 5-10m Residential, Park, New Field Open Pasture, Row C None COMMENTS Stream is located in an active cow grazing field at the top and forest further down. FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	rop
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream ANOTE: River Left (L) and Right (R) as looking downstream ANOTE: River Left (L) and Right (R) as looking downstream ANOTE: River Left (L) and Right (R) as looking downstream ANOTE: River Left (L) and Right (R) as looking downstream ANOTE: RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) Wide >10m Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Immature Forest, Shrub or Old Field Open Pasture, Row C None Residential, Park, New Field Open Pasture, Row C None COMMENTS Stream is located in an active cow grazing field at the top and forest further down. FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) Moist Channel, isolated pools, no flow (Intermitten Dry channel, no water (Ephemeral)	rop
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH L R (Per Bank) L R (Most Predominant per Bank) L R Wide >10m Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Urban or Industrial Field Narrow <5m Residential, Park, New Field Open Pasture, Row C None Fenced Pasture Mining or Construction COMMENTS Stream is located in an active cow grazing field at the top and forest further down. FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermitten	rop
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 Mature Forest, Wetland Conservation Tillage Moderate 5-10m	rop
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 >10m Mature Forest, Wetland Moderate 5-10m Mature Forest, Wetland Wide >10m Mature Forest, Shrub or Old Immature Forest, Shrub or Old Field Narrow <5m Residential, Park, New Field Open Pasture, Row C None COMMENTS Stream is located in an active cow grazing field at the top and forest further down. FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS Recent rains have increased current stream flow.	rop
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 >10m Mature Forest, Wetland Moderate 5-10m Moderate 5-10m Residential, Park, New Field Open Pasture, Row C None COMMENTS Stream is located in an active cow grazing field at the top and forest further down. FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS Recent rains have increased current stream flow. 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	rop
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) Wide >10m Mature Forest, Wetland Moderate 5-10m Residential, Park, New Field None Comments Stream is located in an active cow grazing field at the top and forest further down. FLOW REGIME (At Time of Evaluation) COMMENTS Recent rains have increased current stream flow. This information must also be completed RIPARIAN WIDTH ANOTE: River Left (L) and Right (R) as looking downstream Another Left (L) and Right (R) as looking downstream Another Left (L) and Right (R) as looking downstream Conservation Tillage Conservation Tillage Urban or Industrial Open Pasture, Row C Mining or Construction COMMENTS Stream is located in an active cow grazing field at the top and forest further down. FLOW REGIME (At Time of Evaluation) (Check ONL Y one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS Recent rains have increased current stream flow. SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONL Y one box): None 1.0 2.0 3.0	rop

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Atta	ach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Elk Creek	Distance from Evaluated Stream 0.60
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHEI	D AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Zaleski NRCS Soil Map F	Page: NRCS Soil Map Stream Order
County: Vinton Township / City: McArt	hur
MISCELLANEOUS	
Base Flow Conditions? (Y/N):_N Date of last precipitation:_ 04/06/17	Quantity: 1.00
Photograph Information: Photos taken up and downstream.	
Elevated Turbidity? (Y/N): N Canopy (% open): 30%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id.	and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.)	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	
Acid mine drainage found in the stream.	
BIOTIC EVALUATION Performed? (Y/N):Y (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Property of the Propert	·
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebra	Voucher? (Y/N) N Voucher? (Y/N) N
Comments Regarding Biology:	
The stream has been influenced by the historic mining and current cow pasture. Pl	lease see wetland report for stream drawing.







SITE NAME/LOCATION Vinton Solar Energy Center Project	
SITE NUMBER Stream 10 RIVER BASIN Headwaters Elk Fork DRAINAGE AREA (mi²)	.01
LENGTH OF STREAM REACH (ft) 108 LAT. 39.26483 LONG82.44418 RIVER CODE RIVER MILE	
DATE 04/06/17 SCORER NDR COMMENTS Intermittent Stream. Study area in active farm fie	eld.
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	uctions
STREAM CHANNEL	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. TYPE PERCENT TYPE PERCENT	HHEI Metric
□ □ BLDR SLABS [16 pts] 0% SILT [3 pt] 35%	Points
BOULDER (>256 mm) [16 pts]	Substrate
COBBLE (65-256 mm) [12 pts] 5% CLAY or HARDPAN [0 pt] 40%	Max = 40
GRAVEL (2-64 mm) [9 pts] 15% MUCK [0 pts] 0%	8
SAND (<2 mm) [6 pts] 0% ARTIFICIAL [3 pts] 0%	
Total of Percentages of 10.00% (A) Substrate Percentage 100% (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock	
	Pool Dept
 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 - 10 cm [5 pts]	
> 22.5 - 30 cm [30 pts]	5
COMMENTS Recent rain has increased pool depth. MAXIMUM POOL DEPTH (centimeters): 3	للسبا
BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONL Y 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] ≤ 1.0 m (<=3' 3") [5 pts]	Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
COMMENTS Stream drains down hillside though forest AVERAGE BANKFULL WIDTH (meters): 1.30	15
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 Mature Forest, Wetland Conservation Tillage	
Moderate 5-10m	
Field — Open Pasture Row Crr	nn
Narrow <5m Residential, Park, New Field	- P
None Fenced Pasture Mining or Construction COMMENTS Stream is located in an active cow grazing field at the top and forest further down.	
	_
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 Recent rains have increased current stream flow.	L
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 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0	
STREAM GRADIENT ESTIMATE	
Flat (0.5 ft/100 ft) Flat to Moderate Moderate Moderate (2 ft/100 ft) Moderate to Severe Severe (10 ft/10	00 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Atta	ach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Elk Creek	Distance from Evaluated Stream0.70
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHE	D AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Zaleski NRCS Soil Map I	Page: NRCS Soil Map Stream Order
County: Vinton Township / City: McArt	thur
MISCELLANEOUS	
Base Flow Conditions? (Y/N):_N _ Date of last precipitation:_ 04/06/17	Quantity: 1.00
Photograph Information: Photos taken up and downstream.	
Elevated Turbidity? (Y/N): N Canopy (% open): 30%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id.	and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.)	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	
Acid mine drainage found in the stream.	
BIOTIC EVALUATION Performed? (Y/N):Y (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Property of the Propert	·
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Aquatic Macroinvertebra	Voucher? (Y/N) N Voucher? (Y/N) N
Comments Regarding Biology:	
The stream has been influenced by the historic mining and current cow pasture. Pl	lease see wetland report for stream drawing.







SITE NAME/LOCATION Vinton Solar Energy Center Project	
SITE NUMBER Stream 11 RIVER BASIN Headwaters Elk Fork DRAINAGE AREA (mi²) 0	.01
LENGTH OF STREAM REACH (ft) 461 LAT. 39.26651 LONG82.43606 RIVER CODE RIVER MILE	
DATE 04/06/17 SCORER NDR COMMENTS Perennial Stream. Study area in active farm field	l
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	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 Points
BLDR SLABS [16 pts]	1 Onits
BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] 0%	Substrat Max = 40
COBBLE (65-256 mm) [12 pts] 10% CLAY or HARDPAN [0 pt] 10%	IVIAX = 41
☐ ☐ GRAVEL (2-64 mm) [9 pts] ☐ ☐ MUCK [0 pts] ☐ ☐ MUCK [0 pts] ☐ ☐ ARTIFICIAL [3 pts] ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	24
Tatalad Barandana d	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock (A) Substrate Percentage Check (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 19 TOTAL NUMBER OF SUBSTRATE TYPES: 5	
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 cm [5 pts]	
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	15
COMMENTS Recent rain has increased pool depth. MAXIMUM POOL DEPTH (centimeters): 9	
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
> 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]	IVIAX=30
COMMENTS Stream drains down hillside though forest AVERAGE BANKFULL WIDTH (meters): 1.30	30
7.7.3.0.5.2.7.1.0.3.3.7.	
This information must also be completed	
RIPARIAN ZONE AND FLOODPLAIN QUALITY \$\square\$NOTE: River Left (L) and Right (R) as looking downstream \$\square\$	
RIPARIAN WIDTH FLOODPLAIN QUALITY LR (Per Bank) LR (Most Predominant per Bank) LR	
Wide >10m Mature Forest, Wetland Conservation Tillage	
Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial	
Narrow <5m Residential, Park, New Field Open Pasture, Row Cro	pp
None Fenced Pasture Mining or Construction	
COMMENTS Stream is located in an active cow grazing field at the top and forest further down.	-
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	
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)	1
Stream Flowing Moist Channel, isolated pools, no flow (Intermittent)	-
Stream Flowing Subsurface flow with isolated pools (Interstitial) Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)	-
Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS Recent rains have increased current stream flow. SINUOSITY (Number of bends per 61 m (200 ft) of channel) None 1.0 Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral) (Check ONLY one box): 2.0 3.0	-
Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS Recent rains have increased current stream flow. SINUOSITY (Number of bends per 61 m (200 ft) of channel) None 1.0 2.0 3.0 0.5 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0	-
Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS Recent rains have increased current stream flow. SINUOSITY (Number of bends per 61 m (200 ft) of channel) None 1.0 Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral) (Check ONLY one box): 2.0 3.0	-

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Atta	ach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Elk Creek	Distance from Evaluated Stream0.50
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHE	D AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Zaleski NRCS Soil Map I	Page: NRCS Soil Map Stream Order
County: Vinton Township / City: McArt	thur
MISCELLANEOUS	
Base Flow Conditions? (Y/N):_N _ Date of last precipitation:_ 04/06/17	Quantity: 1.00
Photograph Information: Photos taken up and downstream.	
Elevated Turbidity? (Y/N): N Canopy (% open): 50%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id.	and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.)	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	
Acid mine drainage found in the stream.	
BIOTIC EVALUATION Performed? (Y/N): Y (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Propriate field data sheets from the	·
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebra	Voucher? (Y/N) N Voucher? (Y/N) N
Comments Regarding Biology:	
The stream has been influenced by the historic mining and current cow pasture. Pl	lease see wetland report for stream drawing.

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

FLOW -





SITE NAME/LOCATION Vinton Solar Energy Center Project	
SITE NUMBER Stream 12 RIVER BASIN Headwaters Elk Fork DRAINAGE AREA (mi²)	.01
LENGTH OF STREAM REACH (ft) 423 LAT. 39.26875 LONG82.44193 RIVER CODE RIVER MILE	
DATE 04/06/17 SCORER NDR COMMENTS Perennial Stream. Study area in active farm field	l
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. TYPE PERCENT TYPE PERCENT	HHEI Metric
BLDR SLABS [16 pts] 0% SILT [3 pt] 35%	Points
BOULDER (>256 mm) [16 pts]	Substrat
COBBLE (65-256 mm) [12 pts] 10% CLAY or HARDPAN [0 pt] 10%	Max = 40
GRAVEL (2-64 mm) [9 pts]	16
SAND (<2 mm) [6 pts]	
Total of Percentages of 10.00% (A) Substrate Percentage 100% (B)	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):	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]	5
COMMENTS Recent rain has increased pool depth. 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] > 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] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Max=30
COMMENTS Stream drains down hillside though forest AVERAGE BANKFULL WIDTH (meters): 1.70	20
7.13.11.03.27.11.01.01.07.11.01.01.07.11.01.01.07.11.01.01.07.11.01.01.01.01.01.01.01.01.01.01.01.01.	
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 Cro	op
None Fenced Pasture Mining or Construction	
COMMENTS Stream is located in a forest area surrounded by cow field.	-
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermittent)	١
Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral)	,
COMMENTS Recent rains have increased current stream flow.	-
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	
None 2.0 3.0 3.0 5 1.5 2.5 3.0	
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)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Att.	ach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Elk Creek	Distance from Evaluated Stream 0.80
CWH Name:	Distance from Evaluated Stream
EWH Name: _	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHE	D AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Zaleski NRCS Soil Map I	Page: NRCS Soil Map Stream Order
County: Vinton Township / City: McArt	thur
MISCELLANEOUS	
Base Flow Conditions? (Y/N):_N _ Date of last precipitation:_ 04/06/17	Quantity: 1.00
Photograph Information: Photos taken up and downstream.	
Elevated Turbidity? (Y/N): N Canopy (% open): 25%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id.	and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.)	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pr	•
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebra	Voucher? (Y/N) N Voucher? (Y/N) N
Comments Regarding Biology:	
The stream has been influenced by the historic mining and current cow pasture. P	lease see wetland report for stream drawing.
DRAWING AND NARDATIVE DECORPTION OF STREAM	DEACH (This must be sometisted):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

FLOW -





SITE NAME/LOCATION Vinton Solar Energy Center Project	
SITE NUMBER Stream 13 RIVER BASIN Headwaters Elk Fork DRAINAGE AREA (mi²)	.01
LENGTH OF STREAM REACH (ft) 1,538 LAT. 39.26809 LONG82.44871 RIVER CODE RIVER MILE	
DATE 04/06/17 SCORER NDR COMMENTS Intermittent Stream. Study area in active farm fie	eld.
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. TYPE PERCENT TYPE PERCENT	HHEI Metric
BLDR SLABS [16 pts] 0% SILT [3 pt] 35%	Points
BOULDER (>256 mm) [16 pts]	Substrate
COBBLE (65-256 mm) [12 pts] 20% CLAY or HARDPAN [0 pt] 0%	Max = 40
GRAVEL (2-64 mm) [9 pts]	16
SAND (<2 mm) [6 pts]	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock (A) Substrate Percentage Check (B)	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 = 30
> 22.5 - 30 cm [30 pts] < 5 cm [5 pts]	
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	5
COMMENTS Recent rain has increased pool depth. MAXIMUM POOL DEPTH (centimeters): 3	
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]	
COMMENTS Stream drains down hillside though forest AVERAGE BANKFULL WIDTH (meters): 1.10	15
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 Cro	р
None Fenced Pasture Mining or Construction	
COMMENTS Stream is located in an active cow grazing field at the top and forest further down.	-
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermittent)	1
Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral)	ı
COMMENTS Recent rains have increased current stream flow.	-
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	
None 1.0 2.0 3.0 3.0 5 1.5 7 2.5	
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)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Atta	ach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Elk Creek	Distance from Evaluated Stream 1.09
CWH Name:	_ Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHE	D AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Zaleski NRCS Soil Map F	Page: NRCS Soil Map Stream Order
County: Vinton Township / City: McArt	hur
MISCELLANEOUS	
Base Flow Conditions? (Y/N):_N _ Date of last precipitation:04/06/17	Quantity: 1.00
Photograph Information: Photos taken up and downstream.	
Elevated Turbidity? (Y/N): N Canopy (% open): 80%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id.	and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.)	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	
Acid mine drainage found in the stream.	
BIOTIC EVALUATION Performed? (Y/N): Y (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pr	•
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebra	Voucher? (Y/N) N
Comments Regarding Biology:	
The stream has been influenced by the historic mining and current cow pasture. Pl	lease see wetland report for stream drawing.







SITE NAME/LOCATION Vinton Solar Energy Center Project	
SITE NUMBER Stream 14 RIVER BASIN Headwaters Elk Fork DRAINAGE AREA (mi²)	.01
LENGTH OF STREAM REACH (ft) 263 LAT. 39.26528 LONG82.44822 RIVER CODE RIVER MILE	
DATE 04/06/17 SCORER NDR COMMENTS Intermittent Stream. Study area in active farm fie	ld.
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	uctions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERED RECOVERED RECOVERED RECOVERED RECENT OR NO RECOVERED R	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 Points
BLDR SLABS [16 pts]	Politic
BEDROCK [16 pt] O% FINE DETRITUS [3 pts]	Substrat Max = 40
COBBLE (65-256 mm) [12 pts] 40% CLAY or HARDPAN [0 pt]	IVIAX = 40
☐ GRAVEL (2-64 mm) [9 pts] 0% MUCK [0 pts] 0% ☐ SAND (<2 mm) [6 pts]	18
Title (Special Control	
Total of Percentages of 40.00% (A) Substrate Percentage Check 100% (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 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	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 cm [5 pts]	_
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	5
COMMENTS Recent rain has increased pool depth. MAXIMUM POOL DEPTH (centimeters): 4	
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] > 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]	Wax=00
COMMENTS Stream drains down hillside though forest AVERAGE BANKFULL WIDTH (meters): 1.60	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 Field With a control of the st, Sindb of Old Urban or Industrial	
Narrow <5m Residential, Park, New Field Open Pasture, Row Cro	p
None Fenced Pasture Mining or Construction	
COMMENTS Stream is located in an active cow grazing field at the top and forest further down.	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Maint Channel, isolated peels, no flow (Intermittent)	
Stream Flowing Subsurface flow with isolated pools (Interstitial) Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)	
COMMENTS Recent rains have increased current stream flow.	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	
None 2.0 3.0 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/10	O ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Atta	ach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Elk Creek	Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHEI	D AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Zaleski NRCS Soil Map F	Page: NRCS Soil Map Stream Order
County: Vinton Township / City: McArt	hur
MISCELLANEOUS	
Base Flow Conditions? (Y/N):_N Date of last precipitation:_ 04/06/17	Quantity: 1.00
Photograph Information: Photos taken up and downstream.	
Elevated Turbidity? (Y/N): N Canopy (% open): 80%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id.	and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.)	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	
Acid mine drainage found in the stream.	
BIOTIC EVALUATION Performed? (Y/N):Y	·
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebra	Voucher? (Y/N) N Voucher? (Y/N) N
Comments Regarding Biology:	
The stream has been influenced by the historic mining and current cow pasture. Pl	lease see wetland report for stream drawing.







SITE NAME/LOCATION Vinton Solar Energy Center Project	
SITE NUMBER Stream 15 RIVER BASIN Headwaters Elk Fork DRAINAGE AREA (mi²)	.01
LENGTH OF STREAM REACH (ft) 94 LAT. 39.27104 LONG82.44277 RIVER CODE RIVER MILE	
DATE 04/06/17 SCORER NDR COMMENTS Intermittent Stream. Study area in active farm fie	eld.
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instr	uctions
STREAM CHANNEL	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 Points
BLDR SLABS [16 pts]	1 Office
BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] 0%	Substrat Max = 40
COBBLE (65-256 mm) [12 pts] CLAY or HARDPAN [0 pt] CRAVEL (2-64 mm) [9 pts] 20% MUCK [0 pts] 0%	Mux = 4
GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts] MUCK [0 pts] ARTIFICIAL [3 pts] 0%	8
Total of Percentages of 10.00% (A) Substrate Percentage 100% (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock	
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 cm [5 pts]	<i>E</i>
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts] COMMENTS Recent rain has increased pool depth. MAXIMUM POOL DEPTH (centimeters): 4	5
COMMENTS_Recent rain has increased pool depth. MAXIMUM POOL DEPTH (centimeters): 4	
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] > 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] COMMENTS Stream drains down hillside though forest AVERAGE BANKFULL WIDTH (meters): 1.50	15
AVERAGE BANKI GEE WIDTH (Ineters).	13
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆	
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 ☐ Immature Forest, Shrub or Old ☐ Urban or Industrial	
Field —— Open Pasture Pow Crr	nn.
Narrow <5m Residential, Park, New Field	P
None Fenced Pasture Mining or Construction COMMENTS Stream is located in an active cow grazing field at the top and forest further down.	
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 Recent rains have increased current stream flow.	
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 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe Severe (10 ft/10	00 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes ✓ No QHEI Score (If Yes, Atta	ach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Elk Creek	Distance from Evaluated Stream0.90
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHEE	DAREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Zaleski NRCS Soil Map F	Page: NRCS Soil Map Stream Order
County: Vinton Township / City: McArtl	hur
MISCELLANEOUS	
Base Flow Conditions? (Y/N):_N _ Date of last precipitation:_ 04/06/17	Quantity: 1.00
Photograph Information: Photos taken up and downstream.	
Elevated Turbidity? (Y/N): N Canopy (% open): 50%	
Were samples collected for water chemistry? (Y/N): _N (Note lab sample no. or id. a	and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.)	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	
Acid mine drainage found in the stream.	
BIOTIC EVALUATION Performed? (Y/N):Y (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Principle.	•
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebrate	Voucher? (Y/N) N Voucher? (Y/N) N
Comments Regarding Biology:	
The stream has been influenced by the historic mining and current cow pasture. Pl	ease see wetland report for stream drawing.
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SITE NAME/LOCATION Vinton Solar Energy Center Project	
SITE NUMBER Stream 16 RIVER BASIN Headwaters Elk Fork DRAINAGE AREA (mi²) 0.	.01
LENGTH OF STREAM REACH (ft) 547 LAT. 39.27131 LONG82.43825 RIVER CODE RIVER MILE	
DATE 04/06/17 SCORER NDR COMMENTS Intermittent Stream. Study area in active farm fie	ld.
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	uctions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERED RECOVERED RECOVERED RECENT OR NO RECOVERED	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 Points
BLDR SLABS [16 pts]	1 Office
BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] 0%	Substrat Max = 40
COBBLE (65-256 mm) [12 pts] 5% CLAY or HARDPAN [0 pt] 10% MICK [0 pts] 55% MICK [0 pts] 0%	Mux = 4
GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts] 15% ARTIFICIAL [3 pts] 0% 0%	17
Total of Percentages of 5.00% (A) Substrate Percentage 100% (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 TOTAL NUMBER OF SUBSTRATE TYPES: 5	
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 = 30
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	IVIAX = 3
> 22.5 - 30 cm [30 pts]	5
COMMENTS Recent rain has increased pool depth. MAXIMUM POOL DEPTH (centimeters): 4	
MAXIMON 1 OOL DEL 111 (centimeters).	
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] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Max=30
COMMENTS Drains down hillside though forest into pond AVERAGE BANKFULL WIDTH (meters): 1.40	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	
Field ——	
Narrow <5m Residential, Park, New Field Open Pasture, Row Cro	ıρ
None Fenced Pasture Mining or Construction COMMENTS Stream is located in a forest area surrounded by cow fields.	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	
Stream Flowing Subsurface flow with isolated pools (Interstitial) OCMMENTS: Recent value have increased current stream flow.	
COMMENTS Recent rains have increased current stream flow. SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check OW V one box):	
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	
STREAM GRADIENT ESTIMATE	
Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe Severe (10 ft/10	

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):			
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Att.	ach Completed QHEI Form)		
DOWNSTREAM DESIGNATED USE(S)			
WWH Name: Elk Creek	Distance from Evaluated Stream 0.93		
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: Zaleski NRCS Soil Map I	Page: NRCS Soil Map Stream Order		
County: Vinton Township / City: McArt	thur		
MISCELLANEOUS			
Base Flow Conditions? (Y/N):_N _ Date of last precipitation:_ 04/06/17	Quantity: 1.00		
Photograph Information: Photos taken up and downstream.			
Elevated Turbidity? (Y/N): N Canopy (% open): 25%			
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number:			
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)			
Is the sampling reach representative of the stream (Y/N) If not, please explain:			
Additional comments/description of pollution impacts:			
BIOTIC EVALUATION			
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pr	•		
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebra	Voucher? (Y/N) N Voucher? (Y/N) N		
Comments Regarding Biology:			
The stream has been influenced by the historic mining and current cow pasture. Please see wetland report for stream drawing.			
DRAWING AND NARDATIVE DECORPTION OF STREAM	DEACH (This must be a smalleted).		

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

FLOW -





SITE NAME/LOCATION Vinton Solar Energy Center Project			
SITE NUMBER Stream 17 RIVER BASIN Zaleski-Raccoon Creek DRAINAGE AREA (mi²)	.01		
LENGTH OF STREAM REACH (ft) 177 LAT. 39.28240 LONG82.44616 RIVER CODE RIVER MILE			
DATE 04/07/17 SCORER NDR COMMENTS Intermittent Stream. Study area in active farm field.			
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 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. 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] Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 TOTAL NUMBER OF SUBSTRATE TYPES: 5	HHEI Metric Points Substrate Max = 40 17		
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	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] > 5 cm - 10 cm [5 pts]			
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	5		
COMMENTS Recent rain has increased pool depth. MAXIMUM POOL DEPTH (centimeters): 2			
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		
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]			
COMMENTS Drains down hillside from a pond. AVERAGE BANKFULL WIDTH (meters): 0.90	5		
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 Mature Forest, Wetland Conservation Tillage			
Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial			
Narrow <5m Residential, Park, New Field Open Pasture, Row Cro	p		
□□ None □□ Fenced Pasture □□ Mining or Construction			
COMMENTS Stream is located in a forest area surrounded by cow fields.			
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS Recent rains have increased current stream flow.			
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check <i>ONLY</i> one box): None 0.5 1.0 2.0 3.0 >3.0 >3.0 >3.0			
STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe Severe (10 ft/10	00 ft)		

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):			
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Att	ach Completed QHEI Form)		
DOWNSTREAM DESIGNATED USE(S)			
WWH Name: Elk Creek	Distance from Evaluated Stream 1.10		
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: Zaleski NRCS Soil Map	Page: NRCS Soil Map Stream Order		
County: Vinton Township / City: McArt	thur		
MISCELLANEOUS			
Base Flow Conditions? (Y/N):_N _ Date of last precipitation:_ 04/07/17	Quantity: 1.00		
Photograph Information: Photos taken up and downstream.			
Elevated Turbidity? (Y/N): N Canopy (% open): 25%			
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number:			
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)			
Is the sampling reach representative of the stream (Y/N) If not, please explain:			
Additional comments/description of pollution impacts:			
BIOTIC EVALUATION Performed? (Y/N): Y (If Yes, Record all observations. Voucher collections optionally)	al. NOTE: all voucher samples must be labeled with the sit		
ID number. Include appropriate field data sheets from the Pr	rimary Headwater Habitat Assessment Manual)		
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Solamanders Observed? (Y/N) Aquatic Macroinvertebra	Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)		
Comments Regarding Biology:			
The stream has been influenced by the historic mining and current cow pasture. Please see wetland report for stream drawing.			





This foregoing document was electronically filed with the Public Utilities

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7/6/2017 10:37:13 AM

in

Case No(s). 17-0774-EL-BGN

Summary: Application Part 4 of 5 (part 2 of 2) Exhibit F electronically filed by Christine M.T. Pirik on behalf of Pirik, Chris M.T.