	_	id Assessment Method for Wetlands orm for Wetland Categorization	
Version 5.0	Background Information		
V CI SIUII 3.U	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		
	8		

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: Angela Sjollema
Date: 7/9/2020
Affiliation: Stantec
Address: 1500 Lake Shore Dr., Suite 100, Columbus, OH
Phone Number: 614-643-440
e-mail address: angela.sjollema@stantec.com
Name of Wetland: Wetland 8c
Vegetation Communit(ies): PEM
HGM Class(es): Depression
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.
Brock Rd
Glacier * Edge And Park 23
Lat/Long or UTM Coordinate 40.160314, -83.190962
USGS Quad Name Shawnee Hills, OH
County Union Co.
Township Jerome Twp.
Section and Subsection N/A
Hydrologic Unit Code 50600011201
Site Visit 7/9/2020
National Wetland Inventory Map PEM1A
Ohio Wetland Inventory Map N/A
Soil Survey Union Co. Soil Map
Delineation report/map Wetland and Waterbody Delineation report; Figure 4

Name of Wetland: Wetland 8c		
Wetland Size (acres, hectares): 0.27		
Sketch: Include north arrow, relationship with other surface wa	Brock Rd	
Trail workered	(80)	
Comments, Narrative Discussion, Justification of Category Cha	anges:	
Final score: 47	Category:	

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.

Angela Sjollema Wetland 8c 7/9/2020 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. Identify the locations where there is physical evidence that hydrology Step 2 changes rapidly. Such evidence includes both natural and humaninduced 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. 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. 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

In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be

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,

where the hydrologic regime changes.

scored separately.

or for dual classifications.

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

Step 5

Step 6

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.

Wetland 8c Angela Sjollema 7/9/2020

#	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 So to Question 2
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	NO So 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 So 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	NO So to Question 5
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by Phalaris arundinacea, Lythrum salicaria, or Phragmites australis, or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	NO So 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 So 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 So 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?	Wetland is a Category 3 wetland. Go to Question 8b	NO So to Question 8b

Wetland 8c	Angela Sjollema		7/9/2020
8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible Category 3 status.	NO So to Question 9a
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	Go to Question 9a YES Go to Question 9b	NO X Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	YES Go to Question 9d	NO Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	Wetland is a Category 3 wetland Go to Question 10	NO Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 10
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	YES Wetland is a Category 3 wetland. Go to Question 11	NO Solution NO Sol
11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	NO 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 terebinthinaceun
	Rhynchospora capillacea	Vaccinium corymbosum		Sorghastrum nutans
	Salix candida	Vaccinium oxycoccos		Spartina pectinata
	Salix myricoides	Woodwardia virginica		Solidago riddelli
	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 8	Rater(s):Ar	ngela Sjollema	Date: 7/9/2020
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)		
12	13	Metric 2. Upland buffers and	surrounding land use	•
max 14 pts.	subtotal	2a. Calculate average buffer width. Select only one ar ✓ WIDE. Buffers average 50m (164ft) or more MEDIUM. Buffers average 25m to <50m (82 NARROW. Buffers average 10m to <25m (€ VERY NARROW. Buffers average <10m (€ 2b. Intensity of surrounding land use. Select one or d VERY LOW. 2nd growth or older forest, prai ✓ LOW. Old field (>10 years), shrub land, your MODERATELY HIGH. Residential, fenced p HIGH. Urban, industrial, open pasture, row of	around wetland perimeter (7) to <164ft) around wetland perimeter (4) 32ft to <82ft) around wetland perimeter (1 32ft) around wetland perimeter (0) ouble check and average. rie, savannah, wildlife area, etc. (7) ng second growth forest. (5) pasture, park, conservation tillage, new fal	
16	29	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 >0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 27.6in) (2) ✓ <0.4m (<15.7in) (1) 3e. Modifications to natural hydrologic regime. Score	Part of wetland/ Part of riparian of ripar	lain (1) n/lake and other human use (1) upland (e.g. forest), complex (1) or upland corridor (1) sturation. Score one or dbl check nently inundated/saturated (4) ated/saturated (3)
		None or none apparent (12) Recovered (7) Recovering (3) Recent or no recovery (1) Check all distu	rbances observed point source (no filling/grading road bed/RR tradredging other	·
17	46	Metric 4. Habitat Alteration a	nd Development.	
max 20 pts.	subtotal	4a. Substrate disturbance. Score one or double check ✓ None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1) 4b. Habitat development. Select only one and assign Excellent (7) Very good (6) Good (5) ✓ Moderately good (4) Fair (3) Poor to fair (2)		
		Poor (1) 4c. Habitat alteration. Score one or double check and		
su last revised	46 btotal this pa 1 Februa	Recovered (6) Recovering (3) Recent or no recovery (1) ge Recovered (6) mowing grazing clearcutti selective woody de toxic poll	ng sedimentation cutting dredging ebris removal farming	latic bed removal

Site: W	etland 8	Ra Ra	iter(s): Angela	Sjollema	Date: 7/9/2020
sul	46 btotal first pa	e	, , ,		
0	46	Metric 5. Special Wet	lands.		
max 10 pts.	subtotal	Check all that apply and score as indicate 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	and-unrestricted hyd and-restricted hydrol Openings) (10) al threatened or enda water fowl habitat or stion 1 Qualitative Ra	ngered species (10) usage (10) ating (-10)	
1	47	Metric 6. Plant comm	unities, inte	erspersion, microto	pography.
max 20 pts.	subtotal	6a. Wetland Vegetation Communities.	Vegetation (Community Cover Scale	
		Score all present using 0 to 3 scale. Aquatic bed Emergent	<u> </u>	Absent or comprises <0.1ha (0.24 Present and either comprises small vegetation and is of moderate quality in the comprise of	all part of wetland's uality, or comprises a
		Shrub Forest Mudflats Open water	2	significant part but is of low qual Present and either comprises sign vegetation and is of moderate q part and is of high quality	nificant part of wetland's
		Other 6b. horizontal (plan view) Interspersion.	3	Present and comprises significant vegetation and is of high quality	
		Select only one.			
		High (5) Moderately high(4) ✓ Moderate (3)	Narrative De	Low spp diversity and/or predomin disturbance tolerant native spec	
		Moderate (5) Moderately low (2) Low (1) None (0)	mod	Native spp are dominant compone although nonnative and/or disturcan also be present, and specie	ent of the vegetation, rbance tolerant native spp
		6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add		moderately high, but generally v threatened or endangered spp	v/o presence of rare
		or deduct 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 nativ absent, and high spp diversity a the presence of rare, threatened	ve spp absent or virtually and often, but not always,
		Nearly absent <5% cover (0)	Mudflet and	Onen Water Class Quality	
		Absent (1) 6d. Microtopography.	Mudflat and 0	Open Water Class Quality Absent <0.1ha (0.247 acres)	<u></u>
		Score all present using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 acres)	res)
		0 Vegetated hummucks/tussucks		Moderate 1 to <4ha (2.47 to 9.88	
		0 Coarse woody debris >15cm (6		High 4ha (9.88 acres) or more	
		O Standing dead >25cm (10in) dl	oh	raphy Cover Scale	
			0	Absent	
			1	Present very small amounts or if r of marginal quality	
			2	Present in moderate amounts, but quality or in small amounts of hi	ghest quality
47			3	Present in moderate or greater an and of highest quality	nounts
47					

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

Wetland 8c Angela Sjollema 7/9/2020

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	NO	If yes, Category 3.
	Question 4. Significant bird habitat	NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	NO	If yes, Category 1.
	Question 6. Bogs	NO	If yes, Category 3.
	Question 7. Fens	NO	If yes, Category 3.
	Question 8a. Old Growth Forest	NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	NO	If yes, Category 3
	Question 11. Relict Wet Prairies	NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	1	
Ū	Metric 2. Buffers and surrounding land use	12	
	Metric 3. Hydrology	16	
	Metric 4. Habitat	17	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	1	
	TOTAL SCORE	47	Category based on score breakpoints Category 2

Complete Wetland Categorization Worksheet.

Angela Sjollema Wetland Categorization Worksheet

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

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

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization		
Varaion 5 0	Background Information		
Version 5.0	Scoring Boundary Worksheet		
	Narrative Rating	Ohio EPA, Division of Surface Water	
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Background Information Name: Angela Sjollema Date: 3/30/2020 Affiliation: Stantec Consulting Services Inc. Address: 1500 Lake Shore Drive, Suite 100, Columbus, Oh 43024 Phone Number: 614-486-4384 e-mail address: angela.sjollema@stantec.com Name of Wetland: Wetland 9 Vegetation Communit(ies): HGM Class(es): Depression Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc. Brock Rel N * Glacier Ridge

Lat/Long or UTM Coordinate 40.159192, -83.198138	
USGS Quad Name Shawnee Hills	
County Union	
Township Jerome	
Section and Subsection	
Hydrologic Unit Code 050600011201	
Site Visit 3/30/20	
National Wetland Inventory Map Yes	
Ohio Wetland Inventory Map No	
Soil Survey Union County Soil Survey	
Delineation report/map Figure 4 - Wetland and Waterbody Delineation Report	

Name of Wetland: Wetland 9 Wetland Size (acres, hectares): 0.10 acre (0.04 ac. within the Project area) Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc. Multi-use Culvert. Wetland 9 OldField Comments, Narrative Discussion, Justification of Category Changes: No direct connection to other surface waters Wetland has a narrow portion, only 1.5ft. wide

Final score : 36 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.

Angela Sjollema 3/30/2020 Wetland 9 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. Identify the locations where there is physical evidence that hydrology Step 2 changes rapidly. Such evidence includes both natural and humaninduced 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. 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. 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. 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

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.

Wetland 9 Angela Sjollema 3/30/2020

#	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 So to Question 2
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	NO So 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 So 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	NO So to Question 5
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by Phalaris arundinacea, Lythrum salicaria, or Phragmites australis, or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	NO Go to Question 6
6	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 So 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 So 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?	Wetland is a Category 3 wetland. Go to Question 8b	NO So to Question 8b

Wetland 9	Angela Sjollema		3/30/2020
8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible Category 3 status.	NO Go to Question 9a
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this	YES	NO X
9b	elevation, or along a tributary to Lake Erie that is accessible to fish? Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	Go to Question 9b YES Wetland should be evaluated for possible Category 3 status Go to Question 10	Go to Question 10 NO Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	YES Go to Question 9d	NO Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	Wetland is a Category 3 wetland Go to Question 10	NO Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 10
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	YES Wetland is a Category 3 wetland. Go to Question 11	NO So to Question 11
11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	NO 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: W	/etland	Rater(s): Angela Sjollema Date: 3/30/2020
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)
11	12	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)
12	24	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) -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) 3d. Duration inundation/saturation. Score one or dbl check Semi- to permanently inundated/saturated (4) Regularly inundated/saturated (3) V 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) Recovering (3) Recent or no recovery (1) Check all disturbances observed J ditch J tile J filling/grading road bed/RR track weir J ditch J tile J filling/grading road bed/RR track dredging other other
10	34	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) 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)
		4c. Habitat alteration. Score one or double check and average. None or none apparent (9) Recovered (6) Recovering (3) Recent or no recovery (1) Check all disturbances observed shrub/sapling removal herbaceous/aquatic bed removal sedimentation
	34 ubtotal this pa	selective cutting woody debris removal toxic pollutants dredging farming nutrient enrichment
last revised	•	

7

Site: Wetland	9 R	ater(s): Angela	Sjollema	Date: 3/30/2020
34 subtotal first pa	Metric 5. Special We	tlands.		
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 wet Lake Erie coastal/tributary wet Lake Plain Sand Prairies (Oak Relict Wet Prairies (10) Known occurrence state/feder Significant migratory songbird. Category 1 Wetland. See Que	cland-unrestricted hydro cland-restricted hydro copenings) (10) al threatened or enda water fowl habitat or estion 1 Qualitative R	angered species (10) usage (10) ating (-10)	
2 36	Metric 6. Plant comm	iunities, int	erspersion, microto	opography.
max 20 pts. subtotal	6a. Wetland Vegetation Communities.	Vegetation	Community Cover Scale	
	Score all present using 0 to 3 scale. Aquatic bed 1 Emergent	0	Absent or comprises <0.1ha (0.2) Present and either comprises sm vegetation and is of moderate of	all part of wetland's
	Shrub		significant part but is of low qua	
	Forest	2	Present and either comprises sig	nificant part of wetland's
	Mudflats		vegetation and is of moderate of	
	Open water		part and is of high quality	
	Other	3	Present and comprises significan	t part, or more, of wetland's
	6b. horizontal (plan view) Interspersion.		vegetation and is of high quality	
	Select only one.			
	High (5)	Narrative D	escription of Vegetation Quality	
	Moderately high(4)	low	Low spp diversity and/or predom	inance of nonnative or
	Moderate (3)		disturbance tolerant native spe	
	Moderately low (2)	mod	Native spp are dominant compon	
	✓ Low (1)		although nonnative and/or distu	_
	None (0)		can also be present, and specie	
	6c. Coverage of invasive plants. Refer		moderately high, but generally	•
	to Table 1 ORAM long form for list. Add		threatened or endangered spp	, 6 p. 66666 6
	or deduct points for coverage	high	A predominance of native specie	s. with nonnative spp
	Extensive >75% cover (-5)	3	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	
	✓ Nearly absent <5% cover (0)		1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	, <u>J</u>
	Absent (1)	Mudflat and	l 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/tussuck		Moderate 1 to <4ha (2.47 to 9.88	
	Coarse woody debris >15cm (High 4ha (9.88 acres) or more	o acres)
	Standing dead >25cm (10in) of	· · ·	Trigit 4tta (5.00 acres) of thore	
	Amphibian breeding pools		raphy Cover Scale	
		0	Absent	
		1	Present very small amounts or if	more common
		ı	of marginal quality	more common
		2	Present in moderate amounts, bu	It not of highest
		۷	quality or in small amounts of h	
		3	Present in moderate or greater a	
		3	and of highest quality	mounto
36			and or mignest quality	
100				

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

Wetland 9 Angela Sjollema 3/30/2020

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	NO	If yes, Category 3.
	Question 4. Significant bird habitat	NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	NO	If yes, Category 1.
	Question 6. Bogs	NO	If yes, Category 3.
	Question 7. Fens	NO	If yes, Category 3.
	Question 8a. Old Growth Forest	NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	NO	If yes, Category 3
	Question 11. Relict Wet Prairies	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	11	
	Metric 3. Hydrology	12	
	Metric 4. Habitat	10	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	2	
	TOTAL SCORE	36	Category based on score breakpoints Category 2

Complete Wetland Categorization Worksheet.

Angela Sjollema **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 X	Is quantitative rating score <i>less</i> than the Category 2 scoring threshold (<i>excluding</i> 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	Wetland should be evaluated for possible Category 3 status	NO X	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	Wetland is categorized as a Category 1 wetland	NO X	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?	Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO X	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?	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 3		
Category 2			

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Metho 10 Page Form for Wetland Cat	
Varaion 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: Angela Sjollema	
Date: 3/30/2020	
Affiliation: Stantec Consulting Services Inc.	
Address: 1500 Lake Shore Drive, Suite 100, Columbus, Oh 43024	
Phone Number: 614-486-4384	
e-mail address: angela.sjollema@stantec.com	
Name of Wetland: Wetland 10	
Vegetation Communit(ies): PEM	
HGM Class(es): Depression	
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc. Brock R	0,
DIOUE P	et .
N	
* Glacier Ridge Park Park	Hyland-Croy
Lat/Long or UTM Coordinate 40.158715, -83.194937	
USGS Quad Name Shawnee Hills	
County Union	
Township Jerome	
Section and Subsection	
Hydrologic Unit Code 050600011201	
Site Visit 3/30/20	
National Wetland Inventory Map Yes	
Ohio Wetland Inventory Map	
NO	
Soil Survey Union County Soil Survey	

Name of Wetland: Wetland 10 Wetland Size (acres, hectares): 0.71 acre (0.52 ac. within the Project area) Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc. Pays Wetland 10 old Field Comments, Narrative Discussion, Justification Comments, Narrative Discussion, Justification of Category Changes: Wetland is not directly connection to other surface waters Final score: 39 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.

Wetland 10 Angela Sjollema 3/30/2020

#	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.	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.	X	
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.	X	

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.

Wetland 10 Angela Sjollema 3/30/2020

#	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 So to Question 2
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	NO So 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 So 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	NO So 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 <i>Phalaris arundinacea</i> , <i>Lythrum salicaria</i> , or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	NO Go to Question 6
6	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 So 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 So 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?	Wetland is a Category 3 wetland. Go to Question 8b	NO So to Question 8b

Wetland 10	Angela Sjollema		3/30/2020
8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible Category 3 status.	NO Go to Question 9a
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this	Go to Question 9a YES	NO X
9b	elevation, or along a tributary to Lake Erie that is accessible to fish? Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	Wetland should be evaluated for possible Category 3 status	Go to Question 10 NO Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	Go to Question 10 YES Go to Question 9d	NO Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	Wetland is a Category 3 wetland Go to Question 10	NO Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 10
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	YES Wetland is a Category 3 wetland. Go to Question 11	NO Solution NO Go to Question 11
11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	NO 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: Wetland	10 I	Rater(s):Angela Sjollema		Date: 3/30/2020
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 <10.1h 3 to <10 acres (1.2 to <4ha) ✓ 0.3 to <3 acres (0.12 to <1.2 0.1 to <0.3 acres (0.04 to <0 <0.1 acres (0.04ha) (0 pts)	.2ha) (5 pts) a) (4 pts) (3 pts) ha) (2pts)		
11 13	Metric 2. Upland buf	fers and surroundi	ng land use.	
max 14 pts. subtotal	MEDIUM. Buffers average 2 NARROW. Buffers average VERY NARROW. Buffers average VERY LOW. 2nd growth or of LOW. Old field (>10 years), MODERATELY HIGH. Resident	(164ft) or more around wetland per 25m to <50m (82 to <164ft) around v 10m to <25m (32ft to <82ft) around verage <10m (<32ft) around wetland	imeter (7) vetland perimeter (4) l wetland perimeter (1) l perimeter (0) erage. fe area, etc. (7) vrest. (5) rvation tillage, new fallo	ow field. (3)
11 24	Metric 3. Hydrology.			
max 30 pts. subtotal	3a. Sources of Water. Score all that a High pH groundwater (5) Other groundwater (3) 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) (J <0.4m (<15.7in) (1) 3e. Modifications to natural hydrologic	e water (3) e or stream) (5) 3d. I y one and assign score. 2)	Part of wetland/u Part of riparian or Duration inundation/sate Semi- to permane Regularly inundation/sate Seasonally inundation/seasonally saturation	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)
	None or none apparent (12) Recovered (7) Recovering (3) Recent or no recovery (1)	Check all disturbances observed ditch tile dike weir stormwater input	point source (non filling/grading road bed/RR trac dredging other_	
12 36	Metric 4. Habitat Alt	eration and Develo	pment.	
max 20 pts. subtotal	4a. Substrate disturbance. Score one None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1) 4b. Habitat development. Select only Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) Poor (1)	one and assign score.		
	4c. Habitat alteration. Score one or do None or none apparent (9) Recovered (6) Recovering (3)	Check all disturbances observed mowing grazing	shrub/sapling ren herbaceous/aqua	
36 subtotal this pa	Ĭ.	clearcutting selective cutting woody debris removal toxic pollutants	sedimentation dredging farming nutrient enrichme	ent

7

Site: Wetland	d 10 Ra	iter(s): Angela	Sjollema	Date: 3/30/2020
36 subtotal first	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	and-unrestricted hydro and-restricted hydro Openings) (10) al threatened or enda water fowl habitat or stion 1 Qualitative R	angered species (10) usage (10) ating (-10)	
3 39	Metric 6. Plant comm	unities, int	erspersion, microto	opograpny.
max 20 pts. subtota	cai irenaina regenanen cenimianneen	Vegetation	Community Cover Scale	
	Score all present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.2	
	Aquatic bed	1	Present and either comprises sm	•
	1 Emergent		vegetation and is of moderate of	
	Shrub		significant part but is of low qua	-
	Forest	2	Present and either comprises sig	
	Mudflats		vegetation and is of moderate of	quality or comprises a small
	Open water		part and is of high quality	
	Other	3	Present and comprises significan	
	6b. horizontal (plan view) Interspersion.		vegetation and is of high quality	<u>/</u>
	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 compon	_
	Low (1)		although nonnative and/or distu	
	None (0)		can also be present, and specie	•
	6c. Coverage of invasive plants. Refer		moderately high, but generally	
	to Table 1 ORAM long form for list. Add	le toda	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 a	
	✓ Sparse 5-25% cover (-1)		the presence of rare, threatene	d, or endangered spp
	Nearly absent <5% cover (0)	Mudfleten	LOwer Water Class Ovality	
	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)	
	1 Vegetated hummucks/tussucks		Moderate 1 to <4ha (2.47 to 9.88	s acres)
	Coarse woody debris >15cm (6	· ·	High 4ha (9.88 acres) or more	
	Standing dead >25cm (10in) d		ranhy Cayar Saala	
	Amphibian breeding pools		raphy Cover Scale	
		0	Absent	more commen
		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 a	
		3	_	nounts
39			and of highest quality	

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

Wetland 10 Angela Sjollema 3/30/2020

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	NO	If yes, Category 3.
	Question 4. Significant bird habitat	NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	NO	If yes, Category 1.
	Question 6. Bogs	NO	If yes, Category 3.
	Question 7. Fens	NO	If yes, Category 3.
	Question 8a. Old Growth Forest	NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	NO	If yes, Category 3
	Question 11. Relict Wet Prairies	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	11	
	Metric 3. Hydrology	11	
	Metric 4. Habitat	12	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	3	
	TOTAL SCORE	39	Category based on score breakpoints Category 2

Complete Wetland Categorization Worksheet.

Angela Sjollema **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 X	Is quantitative rating score <i>less</i> than the Category 2 scoring threshold (<i>excluding</i> 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	Wetland should be evaluated for possible Category 3 status	NO X	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	Wetland is categorized as a Category 1 wetland	NO X	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?	Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO X	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?	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	
Category 2				

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Metho 10 Page Form for Wetland Cat	
Varaion 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."

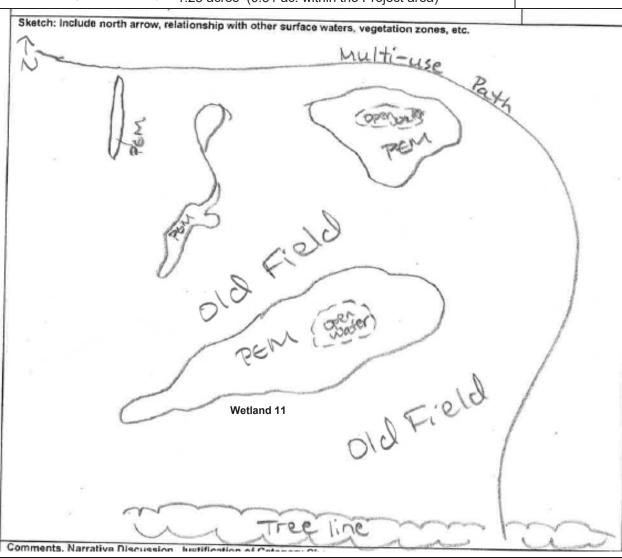
Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at: http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection.aspx

Background Information

Name: Angela Sjollema				
Date: 3/30/2020				
Affiliation: Stantec Consulting Services Inc.				
Address: 1500 Lake Shore Drive, Suite 100, Columbus, Oh 43024				
Phone Number: 614-486-4384				
e-mail address: angela.sjollema@stantec.com				
Name of Wetland: Wetland 11				
Vegetation Communit(ies): PEM				
HGM Class(es): Depression				
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc. Brock R	/ O ₂			
N	The state of the s			
* Glacier Ridge Park Park	Hyland-Croy			
Lat/Long or UTM Coordinate 40.157867, -83.194321				
USGS Quad Name Shawnee Hills				
County Union				
Township Jerome				
Section and Subsection				
Hydrologic Unit Code 050600011201				
Site Visit 3/30/20				
National Wetland Inventory Map Yes				
Ohio Wetland Inventory Map No				
Soil Survey Union County Soil Survey				
Delineation report/map Figure 4 - Wetland and Waterbody Delineation Report				

Name of Wetland: Wetland 11

Wetland Size (acres, hectares): 1.23 acres (0.31 ac. within the Project area)



Comments, Narrative Discussion, Justification of Category Changes:

No direct connection to other surface waters nearby.

Final score : 40 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.

Wetland 11 Angela Sjollema 3/30/2020

#	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.	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.	X	
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.	X	

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.

Wetland 11 Angela Sjollema 3/30/2020

#	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 So to Question 2
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	NO So 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 So 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	NO So 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 <i>Phalaris arundinacea</i> , <i>Lythrum salicaria</i> , or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	NO Go to Question 6
6	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 So 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 So 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?	Wetland is a Category 3 wetland. Go to Question 8b	NO So to Question 8b

Wetland 11	Angela Sjollema		3/30/2020
8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible Category 3 status.	NO Go to Question 9a
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this	YES	NO X
9b	elevation, or along a tributary to Lake Erie that is accessible to fish? Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	Go to Question 9b YES Wetland should be evaluated for possible Category 3 status Go to Question 10	Go to Question 10 NO Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	YES Go to Question 9d	NO Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	Wetland is a Category 3 wetland Go to Question 10	NO Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 10
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	YES Wetland is a Category 3 wetland. Go to Question 11	NO Solution NO Go to Question 11
11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	NO 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: Wet	tland 11	R	ater(s):Angela Sjollema		Date: 3/30/2020
2 2	2	Metric 1. Wetland Are	ea (size).		
max 6 pts. s	subtotal S	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) 3 to <10 acres (1.2 to <4ha) (3 ✓ 0.3 to <3 acres (0.12 to <1.2ha) 0.1 to <0.3 acres (0.04 to <0.1 <0.1 acres (0.04ha) (0 pts)) (4 pts) 3 pts) a) (2pts)		
11 1	13	Metric 2. Upland buff	ers and surroundi	ng land use.	
max 14 pts. s		MEDIUM. Buffers average 25 NARROW. Buffers average 1 VERY NARROW. Buffers average 1 VERY NARROW. Buffers average 1 VERY LOW. 2nd growth or ol J LOW. Old field (>10 years), si MODERATELY HIGH. Reside	164ft) or more around wetland per m to <50m (82 to <164ft) around v 0m to <25m (32ft to <82ft) around erage <10m (<32ft) around wetland	rimeter (7) vetland perimeter (4) I wetland perimeter (1) I perimeter (0) erage. ife area, etc. (7) orest. (5) rvation tillage, new fallo	ow field. (3)
13 2	26	Metric 3. Hydrology.			
max 30 pts. s	3	a. Sources of Water. Score all that apply production (1) Seasonal/Intermittent surface Perennial surface water (lake of the control of the c	water (3) or stream) (5) 3d. I one and assign score.	Part of wetland/up Part of riparian or Duration inundation/sate Semi- to permane Regularly inundat Seasonally inund Seasonally satura	in (1) lake and other human use (1) pland (e.g. forest), complex (1) rupland corridor (1) uration. Score one or dbl check ently inundated/saturated (4) ted/saturated (3) ated (2) ated in upper 30cm (12in) (1)
		Recent of no recovery (1)	weir stormwater input	dredging other_	
11 3	₃₇ I	Metric 4. Habitat Alte	ration and Develo	pment.	
max 20 pts. s		a. Substrate disturbance. Score one of None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1) B. Habitat development. Select only of Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2)			
	4	Poor (1) c. Habitat alteration. Score one or dou			
	37 otal this page February	Recovered (6) Recovering (3) Recent or no recovery (1)	Check all disturbances observed ✓ mowing grazing clearcutting selective cutting woody debris removal toxic pollutants	shrub/sapling ren herbaceous/aqua sedimentation dredging farming nutrient enrichme	tic bed removal

7

Site: W	Vetland	11 Rate	r(s): Angela	Siollema	Date: 3/30/2020
Oito. ·	votiana	rate	(3): Aligeia	Gjoliettia	Date: 0/00/2020
	37				
SU	ıbtotal first pa	ge			
0	37	Metric 5. Special Wetlar	nds.		
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-	•	ology (5)	
		Lake Plain Sand Prairies (Oak Ope Relict Wet Prairies (10)	nings) (10)		
		Known occurrence state/federal three	eatened or enda	angered species (10)	
		Significant migratory songbird/wate	r fowl habitat or	usage (10)	
		Category 1 Wetland. See Question		= : :	
3	40	Metric 6. Plant commun	iities, int	erspersion, microto	pography.
	40				
max 20 pts.	subtotal	6a. Wetland Vegetation Communities.		Community Cover Scale	
		Score all present using 0 to 3 scale. Aquatic bed	0	Absent or comprises <0.1ha (0.24) Present and either comprises small	
		1 Emergent	·	vegetation and is of moderate q	
		Shrub		significant part but is of low qua	•
		Forest	2	Present and either comprises sign	
		Mudflats Open water		vegetation and is of moderate q part and is of high quality	uality of comprises a small
		Other	3	Present and comprises significant	part, or more, of wetland's
		6b. horizontal (plan view) Interspersion.		vegetation and is of high quality	
		Select only one.	Norrativa D	accription of Vocatation Quality	
		High (5) Moderately high(4)	low	Low spp diversity and/or predomin	nance of nonnative or
		Moderate (3)		disturbance tolerant native spec	
		✓ Moderately low (2)	mod	Native spp are dominant compone	_
		Low (1) None (0)		although nonnative and/or distuction can also be present, and species	
		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) Moderate 25-75% cover (-3)		and/or disturbance tolerant native absent, and high spp diversity a	
		✓ Sparse 5-25% cover (-1)		the presence of rare, threatened	-
		Nearly absent <5% cover (0)			
		Absent (1)		d Open Water Class Quality	
		6d. Microtopography. Score all present using 0 to 3 scale.	<u>0</u> 1	Absent <0.1ha (0.247 acres) Low 0.1 to <1ha (0.247 to 2.47 acres)	erec)
		1 Vegetated hummucks/tussucks	2	Moderate 1 to <4ha (2.47 to 9.88	
		Coarse woody debris >15cm (6in)	3	High 4ha (9.88 acres) or more	
		Standing dead >25cm (10in) dbh			
		Amphibian breeding pools	Microtopog 0	raphy Cover Scale Absent	
			1	Present very small amounts or if r	more common
				of marginal quality	
			2	Present in moderate amounts, bu	
			3	quality or in small amounts of hi Present in moderate or greater an	<u> </u>
	l		J	and of highest quality	nounto
40				, , ,	

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

Wetland 11 Angela Sjollema 3/30/2020

		circle answer or insert	Result
		score	
Narrative Rating	Question 1 Critical Habitat	NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	NO	If yes, Category 3.
	Question 4. Significant bird habitat	NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	NO	If yes, Category 1.
	Question 6. Bogs	NO	If yes, Category 3.
	Question 7. Fens	NO	If yes, Category 3.
	Question 8a. Old Growth Forest	NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	NO	If yes, Category 3
	Question 11. Relict Wet Prairies	NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	2	
, and the second	Metric 2. Buffers and surrounding land use	11	
	Metric 3. Hydrology	13	
	Metric 4. Habitat	11	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	3	
	TOTAL SCORE	40	Category based on score breakpoints Category 2

Complete Wetland Categorization Worksheet.

Angela Sjollema **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	Wetland is categorized as a Category 3 wetland	NO X	Is quantitative rating score <i>less</i> 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	Wetland should be evaluated for possible Category 3 status	NO X	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	Wetland is categorized as a Category 1 wetland	NO X	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?	Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO X	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?	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		
Category 2					

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization			
Varaion 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: Angela Sjollema

Date: 3/30/2020

Affiliation:

Stantec Consulting Services Inc.

Address:

1500 Lake Shore Drive, Suite 100, Columbus, Oh 43024

Phone Number:

614-486-4384

e-mail address:

angela.sjollema@stantec.com

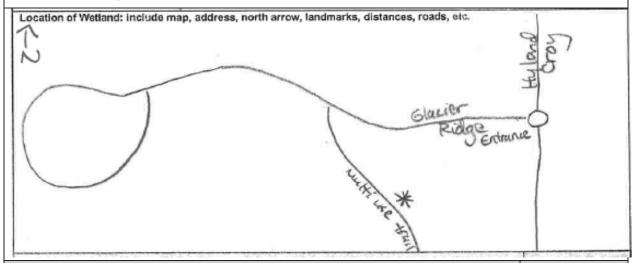
Name of Wetland: Wetland 12

Vegetation Communit(ies):

PEM

HGM Class(es):

Depression



Lat/Long or UTM Coordinate 40.155283, -83.190034	
USGS Quad Name Shawnee Hills	
County Union	
Township Jerome	
Section and Subsection	
Hydrologic Unit Code 050600011203	
Site Visit 3/30/20	
National Wetland Inventory Map Yes	
Ohio Wetland Inventory Map	
Soil Survey Union County Soil Survey	
Delineation report/map Figure 4 - Wetland and Waterbody Delineation Report	

Name of Wetland: Wetland 12 Wetland Size (acres, hectares): 0.06 acre Old Field Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc. Comments, Narrative Discussion, Justification of Category Changes: PEMs connected via culverts No direct connection to other surface water Final score: 26 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.

Wetland 12 Angela Sjollema 3/30/2020

#	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.	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.	X	
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.	X	

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.

Wetland 12 Angela Sjollema 3/30/2020

#	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 So to Question 2
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	NO So 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 So 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	NO So 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 <i>Phalaris arundinacea</i> , <i>Lythrum salicaria</i> , or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	NO Go to Question 6
6	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 So 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 So 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?	Wetland is a Category 3 wetland. Go to Question 8b	NO So to Question 8b

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: Wetland 12			Rater(s):Angela Sjollema		Date: 3/30/2020
0	0	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) 3 to <10 acres (1.2 to <4ha) (0.3 to <3 acres (0.12 to <1.2ha) 0.1 to <0.3 acres (0.04 to <0.3 acres (0.04 to <0.4 acres (0.04ha) (0 pts)	2ha) (5 pts) ı) (4 pts) 3 pts) ıa) (2pts)		
11	11	Metric 2. Upland buff	fers and surroundi	ng land use.	
max 14 pts.	subtotal	MEDIUM. Buffers average 25 NARROW. Buffers average 1 VERY NARROW. Buffers average 1 VERY NARROW. Buffers average 1 VERY LOW. 2nd growth or o JOW. Old field (>10 years), s MODERATELY HIGH. Resid	(164ft) or more around wetland per 5m to <50m (82 to <164ft) around w 10m to <25m (32ft to <82ft) around erage <10m (<32ft) around wetland	imeter (7) vetland perimeter (4) l wetland perimeter (1) l perimeter (0) erage. fe area, etc. (7) vrest. (5) rvation tillage, new fallo	ow field. (3)
11	22	Metric 3. Hydrology.			
max 30 pts.	subtotal	3a. Sources of Water. Score all that ap High pH groundwater (5) Other groundwater (3) ✓ 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) (2 ✓ <0.4m (<15.7in) (1) 3e. Modifications to natural hydrologic.	water (3) or stream) (5) one and assign score.	Part of wetland/u Part of riparian or Duration inundation/sate Semi- to permane Regularly inundation/sate Seasonally inundation/seasonally saturation	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)
		None or none apparent (12) Recovered (7) Recovering (3) Recent or no recovery (1)	Check all disturbances observed ditch tile dike weir stormwater input	point source (non filling/grading road bed/RR trac dredging other_	
7	29	Metric 4. Habitat Alte	eration and Develo	pment.	
max 20 pts.	subtotal	4a. Substrate disturbance. Score one of None or none apparent (4) Very 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) Poor to fair (2) Very Roor (1)	one and assign score.		
		4c. Habitat alteration. Score one or do None or none apparent (9) Recovered (6) Recovering (3) Recent or no recovery (1)	Check all disturbances observed / mowing grazing clearcutting selective cutting	shrub/sapling ren herbaceous/aqua sedimentation dredging	
sı	29 ubtotal this pa	ge	woody debris removal toxic pollutants	farming nutrient enrichme	ent
last revised	1 Februa	ry 2001 jjm			

7

Site: V	Vetland	12	Rater(s): Angela	Siollema	Date: 3/30/2020
Oite. v	veliana	12	Italei (3). Aligeia	Sjolieria	Date. 0/00/2020
]			
	29				
SI.	ubtotal first pa	ne.			
	l l l l l l l l l l l l l l l l l l l	i _	lotlondo		
0	29	Metric 5. Special W	vetianus.		
	<u> </u>]			
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	,	drology (10)	
		Lake Erie coastal/tributary	-	=	
		Lake Plain Sand Prairies (Oak Openings) (10)		
		Relict Wet Prairies (10)			
		Known occurrence state/fe			
		Significant migratory song Category 1 Wetland. See			
	l	1		• ,	
-3	26	wetric 6. Plant con	nmunities, int	erspersion, microto	pograpny.
max 20 pts.	subtotal	6a. Wetland Vegetation Communitie		Community Cover Scale	74
		Score all present using 0 to 3 scale. Aquatic bed	0	Absent or comprises <0.1ha (0.24) Present and either comprises small	
		1 Emergent	·	vegetation and is of moderate q	
		Shrub		significant part but is of low qual	•
		Forest	2	Present and either comprises sign	ificant part of wetland's
		Mudflats		vegetation and is of moderate q	uality or comprises a small
		Open water		part and is of high quality	
		Other	3	Present and comprises significant	
		6b. horizontal (plan view) Interspers Select only one.		vegetation and is of high quality	
		High (5)	Narrative D	escription of Vegetation Quality	
		Moderately high(4)	low	Low spp diversity and/or predomin	nance of nonnative or
		Moderate (3)		disturbance tolerant native spec	
		Moderately low (2)	mod	Native spp are dominant compone	•
		✓ Low (1)		although nonnative and/or distu	
		None (0)	ofor	can also be present, and specie	-
		6c. Coverage of invasive plants. Re to Table 1 ORAM long form for list.		moderately high, but generally v 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	nd often, but not always,
		Sparse 5-25% cover (-1)		the presence of rare, threatened	l, or endangered spp
		Nearly absent <5% cover	\ <i>\</i>	1 O Water Ola O !'te	
		Absent (1)		d Open Water Class Quality	
		6d. Microtopography. Score all present using 0 to 3 scale.	0	Absent <0.1ha (0.247 acres) Low 0.1 to <1ha (0.247 to 2.47 acres)	res)
		Vegetated hummucks/tuss		Moderate 1 to <4ha (2.47 to 9.88	
		Coarse woody debris >15		High 4ha (9.88 acres) or more	
		Standing dead >25cm (10		,	
		Amphibian breeding pools	Microtopog	raphy Cover Scale	
			0	Absent	
			1	Present very small amounts or if r	nore common
			2	of marginal quality Present in moderate amounts, but	t not of highest
			2	quality or in small amounts of hi	•
			3	Present in moderate or greater an	
	1		-	and of highest quality	
26				· · · · · · · · · · · · · · · · · · ·	

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

Wetland 12 Angela Sjollema 3/30/2020

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	NO	If yes, Category 3.
	Question 4. Significant bird habitat	NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	NO	If yes, Category 1.
	Question 6. Bogs	NO	If yes, Category 3.
	Question 7. Fens	NO	If yes, Category 3.
	Question 8a. Old Growth Forest	NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	NO	If yes, Category 3
	Question 11. Relict Wet Prairies	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	11	
	Metric 3. Hydrology	11	
	Metric 4. Habitat	7	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	-3	
	TOTAL SCORE	26	Category based on score breakpoints Category 1

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Angela Sjollema

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 X	Is quantitative rating score <i>less</i> 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	Wetland should be evaluated for possible Category 3 status	NO X	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	Wetland is categorized as a Category 1 wetland	NO X	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?	Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO X	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?	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	
Category 1				

End of Ohio Rapid Assessment Method for Wetlands.

	Ohio Rapid Assessment Method for Wetlands 10 Page Form for Wetland Categorization			
Varaion 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: Angela Sjollema

Date: 3/30/2020

Affiliation:

Stantec Consulting Services Inc.

Address:

1500 Lake Shore Drive, Suite 100, Columbus, Oh 43024

Phone Number:

614-486-4384

e-mail address:

angela.sjollema@stantec.com

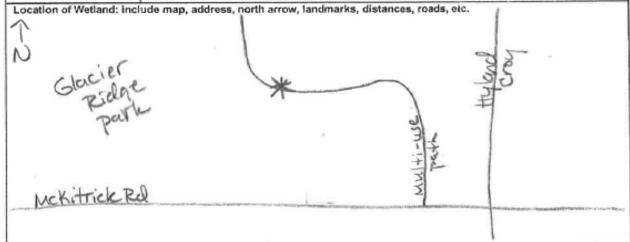
Name of Wetland: Wetland 13

Vegetation Communit(ies):

PEM

HGM Class(es):

Depression



Lat/Long or UTM Coordinate 40.152528, -83.18615	
USGS Quad Name Shawnee Hills	
County Union	
Township Jerome	
Section and Subsection	
Hydrologic Unit Code 050600011203	
Site Visit 3/30/20	
National Wetland Inventory Map Yes	
Ohio Wetland Inventory Map	
Soil Survey Union County Soil Survey	
Delineation report/map Figure 4 - Wetland and Waterbody Delineation Report	

Name of Wetland: Wetland 13 Wetland Size (acres, hectares): 0.83 acre (0.40 ac. within the Project area) Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc. Comments, Narrative Discussion Justification of Cal-

Comments, Narrative Discussion, Justification of Category Changes:

PEMs seperated by multi-use trail, but connected via culvert.

Water flows N to S, wetland feeds a man made pond.

Weltland is connected to stream that begins on N side of McKitrick Rd.

Final score: 36 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.

Wetland 13 Angela Sjollema 3/30/2020

#	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.	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.	X	
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.	X	

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.

Wetland 13 Angela Sjollema 3/30/2020

#	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 So to Question 2
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	NO So 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 So 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	NO So to Question 5
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by Phalaris arundinacea, Lythrum salicaria, or Phragmites australis, or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	NO Go to Question 6
6	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 So 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 So 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?	Wetland is a Category 3 wetland. Go to Question 8b	NO So to Question 8b

Wetland 13	Angela Sjollema		3/30/2020
8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	Wetland should be evaluated for possible Category 3 status.	NO So to Question 9a
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this	YES	NO X
9b	elevation, or along a tributary to Lake Erie that is accessible to fish? Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	Go to Question 9b YES Wetland should be evaluated for possible Category 3 status Go to Question 10	Go to Question 10 NO Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	YES Go to Question 9d	NO Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	Wetland is a Category 3 wetland Go to Question 10	NO Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 10
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	YES Wetland is a Category 3 wetland. Go to Question 11	NO Solution NO Sol
11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	NO 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: Wetland	Rater(s): Angela Sjollema Date: 3/30/2020
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)
8 9	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)
14 23	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) Modifications to natural hydrologic regime. Score one or double check and average. None or none apparent (12) Check all disturbances observed
	Recovered (7) Recovering (3) Recent or no recovery (1) ditch tile ditch filling/grading road bed/RR track weir stormwater input road bed/RR track dredging other
13 36	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) 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)
	4c. Habitat alteration. Score one or double check and average. ✓ None or none apparent (9) Check all disturbances observed
36 subtotal this pa	Recovered (6) Recovering (3) Recent or no recovery (1) Recent or no re

Site: W	/etland	13	Rater(s): Angela	Sjollema	Date: 3/30/2020
su	36 btotal first pa	ge	, , ,		
0	36	Metric 5. Special W	etlands.		
max 10 pts.	subtotal	Check all that apply and score as ind Bog (10) Fen (10) Old growth forest (10) Mature forested wetland (5 Lake Erie coastal/tributary Lake Erie coastal/tributary Lake Plain Sand Prairies (0 Relict Wet Prairies (10) Known occurrence state/fe Significant migratory songb) wetland-unrestricted hydro wetland-restricted hydro Dak Openings) (10) deral threatened or enda ird/water fowl habitat or	angered species (10) usage (10)	
0	36	Metric 6. Plant com	munities, int	erspersion, microto	pography.
max 20 pts.	subtotal	I 6a. Wetland Vegetation Communitie:	S. Vegetation	Community Cover Scale	
		Score all present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.24	71 acres) contiguous area
		Aquatic bed	1	Present and either comprises sma	
		1 Emergent		vegetation and is of moderate q	uality, or comprises a
		Shrub		significant part but is of low qual	
		Forest	2	Present and either comprises sign	ificant part of wetland's
		Mudflats		vegetation and is of moderate q	uality or comprises a small
		1 Open water		part and is of high quality	
		Other	3	Present and comprises significant	part, or more, of wetland's
		6b. horizontal (plan view) Interspersi	on	vegetation and is of high quality	
		Select only one.			
		High (5)	Narrative D	escription of Vegetation Quality	
		Moderately high(4)	low	Low spp diversity and/or predomin	nance of nonnative or
		Moderate (3)		disturbance tolerant native spec	ies
		Moderately low (2)	mod	Native spp are dominant compone	ent of the vegetation,
		✓ Low (1)		although nonnative and/or distu	rbance tolerant native spp
		None (0)		can also be present, and specie	s diversity moderate to
		6c. Coverage of invasive plants. Ref	er	moderately high, but generally v	v/o presence of rare
		to Table 1 ORAM long form for list. A	\dd	threatened or endangered spp	
		or deduct points for coverage	high	A predominance of native species	, with nonnative spp
		Extensive >75% cover (-5)		and/or disturbance tolerant nativ	e spp absent or virtually
		✓ Moderate 25-75% cover (-3	3)	absent, and high spp diversity a	nd often, but not always,
		Sparse 5-25% cover (-1)		the presence of rare, threatened	l, or endangered spp
		Nearly absent <5% cover (0)		
		Absent (1)	Mudflat and	l 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	res)
		Vegetated hummucks/tuss	ucks 2	Moderate 1 to <4ha (2.47 to 9.88	acres)
		Coarse woody debris >15c		High 4ha (9.88 acres) or more	
		Standing dead >25cm (10ii	•		
		Amphibian breeding pools	Microtopog	raphy Cover Scale	
			0	Absent	
			1	Present very small amounts or if r	nore common
				of marginal quality	
			2	Present in moderate amounts, but	
				quality or in small amounts of hi	-
			3	Present in moderate or greater an	nounts
				and of highest quality	
36					

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

Wetland 13 Angela Sjollema 3/30/2020

		circle answer or insert	Result
Narrative Rating	Question 1 Critical Habitat	score	If yes, Category 3.
Narrative Rating	Question i Chilical Habitat	NO	il yes, Category 5.
	Question 2. Threatened or Endangered Species	NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	NO	If yes, Category 3.
	Question 4. Significant bird habitat	NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	NO	If yes, Category 1.
	Question 6. Bogs	NO	If yes, Category 3.
	Question 7. Fens	NO	If yes, Category 3.
	Question 8a. Old Growth Forest	NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	NO	If yes, Category 3
	Question 11. Relict Wet Prairies	NO	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	1	
J	Metric 2. Buffers and surrounding land use	8	
	Metric 3. Hydrology	14	
	Metric 4. Habitat	13	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	0	
	TOTAL SCORE	36	Category based on score breakpoints Category 2

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Angela Sjollema

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 X	Is quantitative rating score <i>less</i> than the Category 2 scoring threshold (<i>excluding</i> 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 X	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 X	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 X	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?	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	
Category 2		$\overline{}$		

End of Ohio Rapid Assessment Method for Wetlands.

B.3 QHEI FORMS

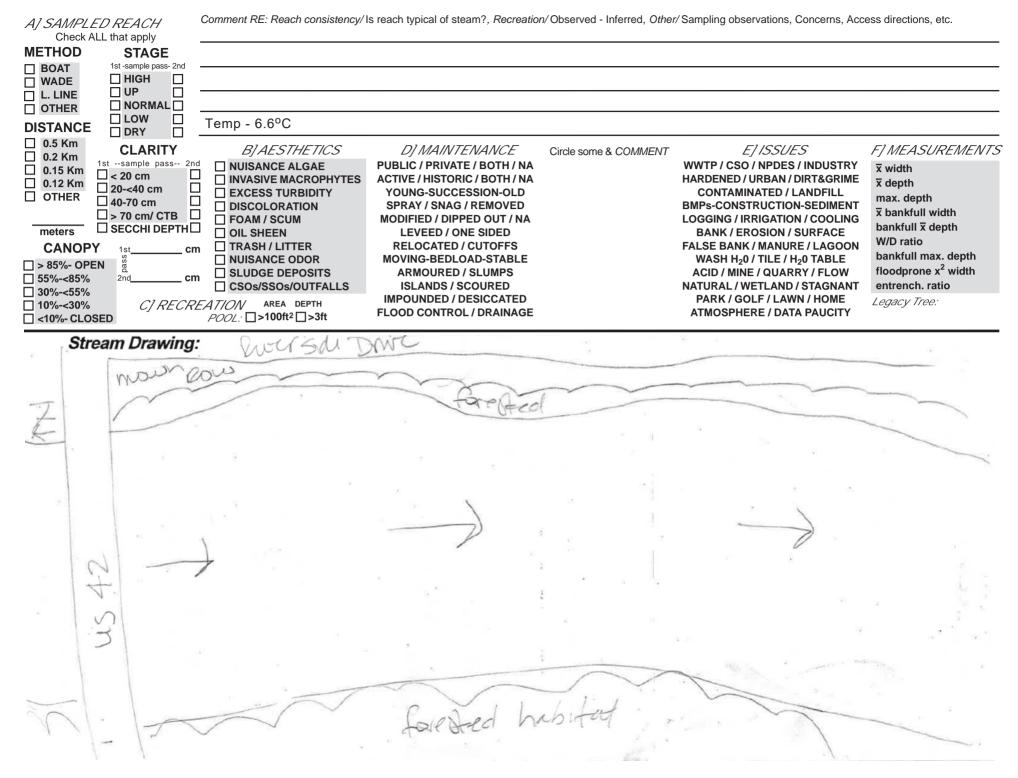




Qualitative Habitat Evaluation Index and Use Assessment Field Sheet



Stream & Location: RM: _155.3 Date: _11 _
Scorers Full Name & Affiliation:
River Code: STORET #: Lat./Long.: 40 .244562 /83 . 16632 Office verified location □
11 SUBSTRATE Check ONLY Two substrate TYPE BOXES;
estimate % or note every type present BEST TYPES POOL RIFFLE OTHER TYPES POOL RIFFLE ORIGIN QUALITY
☐ ☐ BLDR /SLABS [10] ☐ ☐ HARDPAN [4] ☐ ☐ LIMESTONE [1] ☐ HEAVY [-2]
□□ BOULDER [9] □□ DETRITUS [3] □□ □ TILLS [1] SILT □ MODERATE [-1] Substrate □□ COBBLE [8] □□ MUCK [2] □ WETLANDS [0]
CRAVEL [7] HAPDRAN [0]
SAND [6] SAND [6] SANDSTONE [0] SANDSTONE [0] EXTENSIVE [-2]
□ □ BEDROCK [5] (Score natural substrates; ignore □ RIP/RAP [0] □ MODERATE [-1] NUMBER OF BEST TYPES: □ 4 or more [2] sludge from point-sources) □ LACUSTURINE [0] □ NORMAL [0] 20
Comments 3 or less [0] SHALE [-1] NONE [1]
COAL FINES [-2]
2] ///STREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal AMOUNT
quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large Check ONE (Or 2 & average)
diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools. EXTENSIVE >75% [11]
UNDERCUT BANKS [1] POOLS > 70cm [2] OXBOWS, BACKWATERS [1] MODERATE 25-75% [7] OVERHANGING VEGETATION [1] ROOTWADS [1] AQUATIC MACROPHYTES [1] SPARSE 5-<25% [3]
SHALLOWS (IN SLOW WATER) [1] BOULDERS [1] LOGS OR WOODY DEBRIS [1] NEARLY ABSENT <5% [1]
ROOTMATS [1] Cover
Comments Maximum 20
3] CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average)
SINUOSITY DEVELOPMENT CHANNELIZATION STABILITY
☐ HIGH [4] ☐ EXCELLENT [7] ☐ NONE [6] ☐ HIGH [3]
□ MODERATE [3] □ GOOD [5] □ RECOVERED [4] □ MODERATE [2] □ LOW [2] □ FAIR [3] □ RECOVERING [3] □ LOW [1]
□ NONE [1] □ POOR [1] □ RECENT OR NO RECOVERY [1] Channel
Comments Maximum 20
A DANK FRACION AND DIDARIAN ZONES.
4] BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average) River right looking downstream RIPARIAN WIDTH FLOOD PLAIN QUALITY
EROSION WIDE > 50m [4] FOREST, SWAMP [3] CONSERVATION TILLAGE [1]
□ NONE / LITTLE [3] □ □ MODERATE 10-50m [3] □ □ SHRUB OR OLD FIELD [2] □ □ URBAN OR INDUSTRIAL [0]
□ □ MODERATE [2] □ □ NARROW 5-10m [2] □ □ RESIDENTIAL, PARK, NEW FIELD [1] □ □ MINING / CONSTRUCTION [0] □ HEAVY / SEVERE [1] □ □ VERY NARROW < 5m [1] □ □ FENCED PASTURE [1] □ Indicate predominant land use(s)
□ NONE [0] □ OPEN PASTURE, ROWCROP [0] past 100m riparian. Riparian
Comments Maximum
FI DOOL (CUIDE AND DIEFLE (DUN CUIALITY)
5] POOL / GLIDE AND RIFFLE / RUN QUALITY MAXIMUM DEPTH CHANNEL WIDTH CURRENT VELOCITY Recreation Potential
Check ONE (ONLY!) Check ONE (Or 2 & average) Check ALL that apply Primary Contact
□ > 1m [6] □ POOL WIDTH > RIFFLE WIDTH [2] □ TORRENTIAL [-1] □ SLOW [1] Secondary Contact □ 0.7-<1m [4] □ POOL WIDTH = RIFFLE WIDTH [1] □ VERY FAST [1] □ INTERSTITIAL [-1] (ricks one and comment on back)
□ 0.7-<1m [4] □ POOL WIDTH = RIFFLE WIDTH [1] □ VERY FAST [1] □ INTERSTITIAL [-1] □ (circle one and comment on back) □ 0.4-<0.7m [2] □ POOL WIDTH < RIFFLE WIDTH [0] □ FAST [1] □ INTERMITTENT [-2]
□ 0.2-<0.4m [1] □ MODERATE [1] □ EDDIES [1] Pool /
Comments Indicate for reach - pools and riffles. Current Maximum
Recent neavy rains have river flooded out of its panks.
Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Check ONE (Or 2 & average).
RIFFLE DEPTH RUN DEPTH RIFFLE / RUN SUBSTRATE RIFFLE / RUN EMBEDDEDNESS
☐ BEST AREAS > 10cm [2] ☐ MAXIMUM > 50cm [2] ☐ STABLE (e.g., Cobble, Boulder) [2] ☐ NONE [2]
The second secon
□ BEST AREAS 5-10cm [1] □ MAXIMUM < 50cm [1] □ MOD. STABLE (e.g., Large Gravel) [1] □ LOW [1] □ LOW [1] □ MODERATE [0] Riffle
□ BEST AREAS < 5cm □ UNSTABLE (e.g., Fine Gravel, Sand) [0] □ MODERATE [0] Riffle
□ BEST AREAS < 5cm □ UNSTABLE (e.g., Fine Gravel, Sand) [0] □ MODERATE [0] Riffle
□ BEST AREAS < 5cm □ UNSTABLE (e.g., Fine Gravel, Sand) [0] □ MODERATE [0] Riffle Run Maximum



B.4 HHEI FORMS





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

SITE NAME/LOCATION Northern Columbus Loop - Preferred Route	
SITE NUMBER Stream 1 RIVER BASIN DRAINAGE AREA (mi²)	0.59 mi ²
LENGTH OF STREAM REACH (ft) 200 LAT. 40.219167 LONG83.093948 RIVER CODE RIVER MILE	
DATE 02/20/20 SCORER A. Sjollema COMMENTS Intermittent	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Institute of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Ins	structions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO REMODIFICATIONS:	ECOVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	⊥ HHEI
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. TYPE PERCENT TYPE PERCENT	Metric
□ □ BLDR SLABS [16 pts] 0% SILT [3 pt] 80%	Points
BOULDER (>256 mm) [16 pts]	Substrat
COBBLE (65-256 mm) [12 pts]	Max = 40
GRAVEL (2-64 mm) [9 pts]	5
SAND (<2 mm) [6 pts]	
Total of Percentages of 0.00% (A) Substrate Percentage Check (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3 TOTAL NUMBER OF SUBSTRATE TYPES: 2	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dep
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	Max = 30
> 22.5 - 30 cm [30 pts] < 5 cm [5 pts]	4.5
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	15
COMMENTS 4 inches MAXIMUM POOL DEPTH (centimeters): 10	
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 (< 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] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 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]	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 Bankfull 5.5 width 0.8 height OHWM 4.5' width 0.5' hight This information must also be completed	Width Max=30
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS Bankfull 5.5 width 0.8 height OHWM 4.5' width 0.5' hight	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 Bankfull 5.5' width 0.8 height OHWM 4.5' width 0.5' hight 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 (Most Predominant 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 Bankfull 5.5' width 0.8 height OHWM 4.5' width 0.5' hight 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 (Most Predominant per Bank) Wide > 1.70 Conservation Tillage	Width Max=30
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS Bankfull 5.5' width 0.8 height OHWM 4.5' width 0.5' hight 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 Moderate 5-10m Moderate 5-10m L R (Most Predominant per Bank) Moderate 5-10m L R (Most Predominant per Bank) Moderate 5-10m Urban or Industrial	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 Bankfull 5.5' width 0.8 height OHWM 4.5' width 0.5' hight 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	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 Bankfull 5.5' width 0.8 height OHWM 4.5' width 0.5' hight 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 looking downstream ANOTE: River Left (L) and River Left (Width Max=30 20
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS Bankfull 5.5' width 0.8 height OHWM 4.5' width 0.5' hight This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream And RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) Wide >10m Moderate 5-10m Moderate 5-10m Residential, Park, New Field None COMMENTS Old field Signal 1.70 AVERAGE BANKFULL WIDTH (meters): 1.70 AVERAGE BANKFULL WIDTH (Width Max=30 20
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS Bankfull 5.5' width 0.8 height OHWM 4.5' width 0.5' hight 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 looking downstream ANOTE: River Left (L) and River Left (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 Bankfull 5.5 width 0.8 height OHWM 4.5' width 0.5' hight This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY 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 None COMMENTS Odd field FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) Moist Channel, isolated pools, no flow (Intermitted) Dry channel, no water (Ephemeral)	Width Max=30
Stream Flowing Subsurface flow with isolated pools (Interstitial) Stream Flowing Stream Flowin	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 Bankfull 5.5 width 0.8 height OHWM 4.5' width 0.5' hight This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE: River Left (L) and Right (R) as looking downstream in the conservation Tillage RIPARIAN WIDTH FLOODPLAIN QUALITY Wide > 10m Mature Forest, Wetland Moderate 5-10m Moderate 5-10m Moderate 5-10m Residential, Park, New Field Open Pasture, Row None COMMENTS Old field FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	Width Max=30
Stream Flowing Subsurface flow with isolated pools (Interstitial) Stream Flowing Stream Flowin	Width Max=30
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] COMMENTS Bankfull 5.5 width 0.8 height OHWM 4.5' width 0.5' hight 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 Wide >10m Moderate 5-10m None COMMENTS Old field FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 CORMERTS 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	Width Max=30
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] COMMENTS Bankfull 5.5 width 0.8 height OHWM 4.5' width 0.5' hight 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 Moderate 5-10m Moderate 5-10m Residential, Park, New Field None COMMENTS Old field FLOW REGIME (At Time of Evaluation) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) None SINUOSITY (Number of bends per 61 m (200 ft) of channel) None COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) None COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) None COMMENTS COMMEN	Width Max=30 20 Crop on nt)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)
WWH Name: Distance from Evaluated Stream
CWH Name: Distance from Evaluated Stream
EWH Name: Olentangy River Distance from Evaluated Stream 1.70 mi.
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Powell, OH NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Delaware Township / City: LibertyTownship
MISCELLANEOUS
Base Flow Conditions? (Y/N): Y Date of last precipitation: 02/14/20 Quantity: 0.07 in.
Photograph Information: upstream, downstream, substrates
Elevated Turbidity? (Y/N): N Canopy (% open): 100%
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) 6.00 Dissolved Oxygen (mg/l) pH (S.U.) 8.20 Conductivity (µmhos/cm) 0.64
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
Plastic culvert feeding into stream, potentially tiles from fields
BIOTIC EVALUATION
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the si ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) N Voucher? (Y/N) N
Comments Regarding Biology:
Commission regarding biology.
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location
J so Reld William grassy banks
FLOW THE WAR AND THE PARTY OF T
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302 Eigh



ChieFP Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3):

SITE NAME/LOCATION North Columbus Loop - Preferred Route	
SITE NUMBER Stream 2 RIVER BASIN Scioto DRAINAGE AREA (mi²)	0.09
LENGTH OF STREAM REACH (ft) 87 LAT. 40.244577 LONG. 83.145703 RIVER CODE RIVER MILE	-
DATE 03/03/20 SCORER M. Kearns COMMENTS Perennial; culverted	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Inst	tructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO REMODIFICATIONS:	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	
(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] 0%	Points
□ □ BOULDER (>256 mm) [16 pts] 10% LEAF PACK/WOODY DEBRIS [3 pts] 0% □ □ BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] 0%	Substrate
COBBLE (65-256 mm) [12 pts] 15% CLAY or HARDPAN [0 pt] 0%	Max = 40
GRAVEL (2-64 mm) [9 pts]	19
SAND (<2 mm) [6 pts] 40% ARTIFICIAL [3 pts] 0%	
Total of Percentages of 25.00% (A) Substrate Percentage 100% (B) Check	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 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 <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]	
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	15
COMMENTS 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]	Bankful Width Max=30
	Width
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ≤ 1.0 m (<=3' 3") [5 pts]	Width
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] > 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 BFW - 6', BFD - 1.5', OHWM W - 5.5', OHWM D - 1' 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 BFW - 6', BFD - 1.5', OHWM W - 5.5', OHWM D - 1' > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (<=3' 3") [5 pts] AVERAGE BANKFULL WIDTH (meters):	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 BFW - 6', BFD - 1.5', OHWM W - 5.5', OHWM D - 1' This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY L R (Per Bank) AVERAGE BANKFULL WIDTH (meters): 2.00 This information pust also be completed RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Most Predominant per Bank) L R	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS BFW - 6', BFD - 1.5', OHWM W - 5.5', OHWM D - 1' 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) ↓ R (Most Predominant per Bank) ↓ R (Most Predominant per Bank) ↓ Mature Forest, Wetland □ Conservation Tillage	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS BFW - 6', BFD - 1.5', OHWM W - 5.5', OHWM D - 1' This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream And RIPARIAN WIDTH L R (Per Bank) V Wide >10m Moderate 5-10m Noderate 5-10m	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS BFW - 6', BFD - 1.5', OHWM D - 1' This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY	Width Max=30 20
> 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 BFW - 6', BFD - 1.5', OHWM W - 5.5', OHWM D - 1' This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream And RIPARIAN WIDTH L R (Per Bank) V Wide >10m Moderate 5-10m Noderate 5-10m	Width Max=30 20
> 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 BFW - 6', BFD - 1.5', OHWM W - 5.5', OHWM D - 1' 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 Moderate 5-10m Narrow <5m Narrow <5m Residential, Park, New Field None COMMENTS > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] > 1.0 m (<=3' 3") [5 pts] > 1.0 m (<=3' 3") [5 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] > 1.0 m (<=3' 3") [5 pts] X NOTE: River Left (L) and Right (R) as looking downstream A NOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH L R (Most Predominant per Bank) Wide >10m Mature Forest, Wetland Description of Industrial Open Pasture, Row Completed None	Width Max=30 20
> 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 BFW - 6', BFD - 1.5', OHWM W - 5.5', OHWM D - 1' This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE: River Left (L) and Right (R) as looking downstream Nature Forest, Wetland RIPARIAN WIDTH L R (Per Bank) V Wide > 10m Moderate 5-10m Narrow < 5m Narrow < 5m Narrow < 5m Residential, Park, New Field Open Pasture, Row Completed Residential, Park, New Field None COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermitter)	Width Max=30 20
> 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 BFW - 6', BFD - 1.5', OHWM W - 5.5', OHWM D - 1' This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ↑ NOTE: River Left (L) and Right (R) as looking downstream ↑ RIPARIAN WIDTH L R (Per Bank) V Wide >10m Moderate 5-10m None None Residential, Park, New Field None COMMENTS FLOOM REGIME (At Time of Evaluation) (Check ONLY one box):	Width Max=30 20
> 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 BFW - 6', BFD - 1.5', OHWM W - 5.5', OHWM D - 1' This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY Wide >10m Wide >10m Wide >10m Wide >10m Wide >10m Residential, Park, New Field None COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS	Width Max=30 20
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 3.0 m - 4.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS BFW - 6', BFD - 1.5', OHWM W - 5.5', OHWM D - 1' This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY	Width Max=30 20
> 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 BFW - 6', BFD - 1.5', OHWM W - 5.5', OHWM D - 1' This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE: River Left (L) and Right (R) as looking downstream Network Predominant per Bank) RIPARIAN WIDTH L R (Most Predominant per Bank) Wide > 10 m Mature Forest, Wetland Moderate 5-10 m Moderate 5-10 m Residential, Park, New Field None COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	Width Max=30 20
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 3.0 m - 4.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS BFW - 6', BFD - 1.5', OHWM W - 5.5', OHWM D - 1' This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY	Width Max=30 20 Prop Int)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)
WWH Name: Scioto River Distance from Evaluated Stream 0.00
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: Shawnee Hills, OH NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Delaware Township / City: Concord Twp.
MISCELLANEOUS
Base Flow Conditions? (Y/N): N Date of last precipitation: 03/03/20 Quantity: 1.50
Photograph Information: Upstream, downstream, substrates
Elevated Turbidity? (Y/N): Y Canopy (% open): 20%
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) 7.20 Dissolved Oxygen (mg/l) pH (S.U.) 7.40 Conductivity (µmhos/cm) 170
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): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site
ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Vouc
Comments Regarding Biology:
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):
Include important landmarks and other features of Interest for site evaluation and a narrative description of the stream's location
I I and bookstal line
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8 A M
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FLOW TO DE DE
1.5
1.5
5
13



SITE NAME/LOCATION North Columbus Loop - Preferred Route	
SITE NUMBER Stream 4 RIVER BASIN Scioto DRAINAGE AREA (mi²) 0.35	5
LENGTH OF STREAM REACH (ft) 139 LAT. 40.241014 LONG83.150642 RIVER CODE RIVER MILE	-
DATE 03/03/20 SCORER M. Kearns COMMENTS Intermittent; culvert	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruc	tions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVER MODIFICATIONS:	/ERY
TYPE PERCENT TYPE PERCENT BLDR SLABS [16 pts] 0% SILT [3 pt] 0% BOULDER (>256 mm) [16 pts] 0% LEAF PACK/WOODY DEBRIS [3 pts] 0% BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] 0%	HHEI Metric Points Substrate Max = 40
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0.00% (A) SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 SUbstrate Percentage 100% (B) TOTAL NUMBER OF SUBSTRATE TYPES: 2	A + B
	Pool Dept Max = 30
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	
> 22.5 - 30 cm [30 pts]	20
COMMENTS MAXIMUM POOL DEPTH (centimeters): 31	
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankfull Width Max=30
COMMENTS BFW - 6', BFD - 1.5', OHWM W - 5', OHWM D - 1' AVERAGE BANKFULL WIDTH (meters):	20
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ♣NOTE: River Left (L) and Right (R) as looking downstream ♣ RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) L R (Most Predominant per Bank) L R Wide >10m Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Field Urban or Industrial Provided to the provided Bank Now Field Copen Pasture, Row Crop	
Narrow <5m Nesidential, Park, New Field None COMMENTS Residential, Park, New Field Mining or Construction	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS The control of Evaluation (Check ONLY one box): Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check <i>ONLY</i> one box): None 1.0 2.0 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 (2 ft/100 ft) Moderate to Severe Severe (10 ft/100 ft)	it)

DITIONAL STREAM INFORMATION (This Information M	ust Also be Completed):		
QHEI PERFORMED? - Yes V No QHEI Sco	re (If Yes, A	ttach Completed QHEI Form)	
DOWNSTREAM DESIGNATED USE(S) WWH Name: Scioto River CWH Name: EWH Name:		Distance from Evaluated Stream Distance from Evaluated Stream Distance from Evaluated Stream	
MAPPING: ATTACH COPIES OF MAPS, INCLUDING	THE ENTIRE WATERSHI		_
GS Quadrangle Name: Shawnee Hills, OH	NRCS Soil Map		
ounty: Delaware		cord Twp.	um order _
MISCELLANEOUS	Township / Oity		
se Flow Conditions? (Y/N):_N Date of last precipitati	on: 03/03/20	Quantity: 1.50 in.	
otograph Information: Upstream, downstream, substr		Quantity.	
evated Turbidity? (Y/N): Y Canopy (% open):	100%		J
v		. and attach results) Lab Number:	
eld Measures: Temp (°C) 9.10 Dissolved Oxygen (mg		7.30 Conductivity (µmhos/cm)	0.22
	If not, please explain:	Conductivity (µmmos/cm) [
the sampling reach representative of the stream (Y/N)	ıı not, piease explain		
ditional comments/description of pollution impacts:			
ID number. Include appropriate sh Observed? (Y/N) N Voucher? (Y/N) N Salama	· ·		Manual)
DRAWING AND NARRATIVE DESCRIPTION Include Important landmarks and other features of Interest			lon
FLOW TO THE STATE OF THE STATE	> 0	2 Soa per	*



SITE NAME/LOCATION Northern Columbus Loop - Preferred Route	
SITE NUMBER Stream 5 RIVER BASIN Scioto DRAINAGE AREA (mi²) 0.0	5
LENGTH OF STREAM REACH (ft) 200 LAT. 40.239341 LONG83.152911 RIVER CODE RIVER MILE	-
DATE 03/03/20 SCORER M. Kearns COMMENTS Intermittent; culverted	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruc	ctions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERED RECOVE	VERY
BLDR SLABS [16 pts]	HHEI Metric Points Substrate Max = 40
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: ARTIFICIAL [5 pis] ARTIFICIAL [5 pis] Substrate Percentage 100% TOTAL NUMBER OF SUBSTRATE TYPES: 4	A + B
	Pool Dept Max = 30
COMMENTS MAXIMUM POOL DEPTH (centimeters): 20	
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] (Check ONLY one box): > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (<=3' 3") [5 pts]	Bankfull Width Max=30
COMMENTS BFW-4.5', BFD-1', OHWM W-3.5', OHWM D-0.5' AVERAGE BANKFULL WIDTH (meters): 4.50	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 ✓ ✓ Mature Forest, Wetland ☐ Conservation Tillage ☐ Moderate 5-10m ☐ Immature Forest, Shrub or Old Field ☐ Narrow <5m ☐ Residential, Park, New Field ☐ Open Pasture, Row Crop ☐ None ☐ Fenced Pasture ☐ Mining or Construction	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	
Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	
None 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/100 ft)	ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Yes / No QHEI Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)
WWH Name: Scioto River Distance from Evaluated Stream 0.31mi.
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: Scioto River NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Delaware Township / City: Concord Twp.
MISCELLANEOUS
Base Flow Conditions? (Y/N): N Date of last precipitation: 03/03/20 Quantity: 1.50 in.
hotograph Information: Upstream, downstream, Substrates
llevated Turbidity? (Y/N): Y Canopy (% open): 100%
Vere samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number:
reid Measures. Temp (C) Dissolved Oxygen (mg/l) ph (5.0.) Conductivity (µmnos/cm)
the sampling reach representative of the stream (Y/N) If not, please explain:
dditional comments/description of pollution impacts:
Performed? (Y/N):N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) Fish Observed? (Y/N) N Voucher? (Y/N) N
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 US 42
FLOW FOREST
E Culvest
15 residential homes
PHWH Form Page - 2



SITE NAME/LOCATION Northern Columbus Loop - Preferred Route	
04	1.0
LENGTH OF STREAM REACH (ft) 146 LAT. 40.236763 LONG83.152786 RIVER CODE RIVER MILE	
DATE 05/14/20 SCORER A.Sjollema COMMENTS Ephemeral	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	ctions
STREAM CHANNEL	VERY
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	Metri
BLDR SLABS [16 pts]	Points
BEDROCK [16 pt]	Substrat
COBBLE (65-256 mm) [12 pts] 20% CLAY or HARDPAN [0 pt] 45%	Max = 4
GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts] MUCK [0 pts] ARTIFICIAL [3 pts] 0%	13
Total of Percentages of 25.00% (A) Substrate Percentage (Check Check Che	A + B
Bldr Slabs, Boulder, Cobble, Bedrock	
	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]	E
	5
COMMENTS 1.5" MAXIMUM POOL DEPTH (centimeters): 4	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankful Width
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Max=30
COMMENTS BF w-1.5' d-0.5' OHWM w-0.7' d 0.2' AVERAGE BANKFULL WIDTH (meters): 0.50	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 Wide >10m Madurate 5 40m Immature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old	
Moderate 5-10m	
✓ ✓ Narrow <5m	,
None Fenced Pasture Mining or Construction COMMENTS	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	
Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	
None 2.0 3.0 >3 1.5	
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)) ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Yes ✓ No QHEI Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)
WWH Name: Scioto River Distance from Evaluated Stream <1.00 mi.
CWH Name: Distance from Evaluated Stream 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: Shawnee Hills NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Delaware Township / City: Concord Twp.
MISCELLANEOUS
Base Flow Conditions? (Y/N): Y Date of last precipitation: 05/11/20 Quantity: 0.20 in.
Photograph Information: upstream, downstream, substrates
Elevated Turbidity? (Y/N): N Canopy (% open): 90%
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) 13.80 Dissolved Oxygen (mg/l) pH (S.U.) 7.50 Conductivity (µmhos/cm) 0
Is the sampling reach representative of the stream (Y/N) If not, please explain:
goes into forest outside project area
Additional comments/description of pollution impacts:
Additional confinents/description of politition impacts.
BIOTIC EVALUATION
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):
Include Important landmarks and other features of interest for site evaluation and a narrative description of the stream's location
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Primary Headwater Habitat Evaluation Form

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HHEI Score (sum of metrics 1, 2, 3): SITE NAME/LOCATION Northern Columbus Loop - Preferred Route SITE NUMBER Stream 7 RIVER BASIN Scioto DRAINAGE AREA (mi²) 0.13 LONG. -83.159714 LAT. 40.233024 LENGTH OF STREAM REACH (ft) RIVER CODE RIVER MILE DATE 02/25/20 **COMMENTS** Intermittent; recently culverted A. Sjollema SCORER NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY STREAM CHANNEL **MODIFICATIONS:** SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes HHEI (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. Metric **TYPE** PERCENT **PERCENT Points** BLDR SLABS [16 pts] SILT [3 pt] 0% 20% BOULDER (>256 mm) [16 pts] LEAF PACK/WOODY DEBRIS [3 pts] 0% 0% **Substrate** 0% 0% BEDROCK [16 pt] FINE DETRITUS [3 pts] Max = 40COBBLE (65-256 mm) [12 pts] <u>25</u>% CLAY or HARDPAN [0 pt] 35% 0% GRAVEL (2-64 mm) [9 pts] 10% MUCK [0 pts] 17 0% SAND (<2 mm) [6 pts] 10% ARTIFICIAL [3 pts] Total of Percentages of (B) 25.00% 100% A + BBldr Slabs, Boulder, Cobble, Bedrock 12 TOTAL NUMBER OF SUBSTRATE TYPES: 5 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 Pool Depth evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): Max = 30> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts] > 22.5 - 30 cm [30 pts] < 5 cm [5 pts] > 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts] 25 COMMENTS 6" 15 **MAXIMUM POOL DEPTH (centimeters):** BANK FULL WIDTH (Measured as the average of 3-4 measurements) Bankfull (Check ONLY one box): > 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] \leq 1.0 m (<=3' 3") [5 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] BFW: 3.5', BFD: 1', OHWM W: 3', OHWM D: 0.5' 15 1.06 COMMENTS **AVERAGE BANKFULL WIDTH (meters):** This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆ RIPARIAN WIDTH **FLOODPLAIN QUALITY** (Per Bank) R (Most Predominant per Bank) Wide >10m Mature Forest. Wetland Conservation Tillage Immature Forest, Shrub or Old Moderate 5-10m Urban or Industrial Field Open Pasture, Row Crop Narrow <5m Residential, Park, New Field Fenced Pasture None Mining or Construction COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermittent) Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0 0.5 15 >3 STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Severe (10 ft/100 ft)

ADDITIONAL STREAM INF	ORMATION (This Information Mus	t Also be Completed):		
QHEI PERFORM	ED? - Yes ✓ No QHEI Score	(If Yes. Atta	ach Completed QHEI Form)	
	DESIGNATED USE(S)	(1. 1. 55, 715	м. остроюч ст,	
WWH Name: Scioto R			_ Distance from Evaluated Stream _	0.63 mi.
			_ Distance from Evaluated Stream _	
EWH Name:			Distance from Evaluated Stream _	
MAPPING: ATTA	CH COPIES OF MAPS, INCLUDING	HE ENTIRE WATERSHED	O AREA. CLEARLY MARK THE SITE L	OCATION
USGS Quadrangle Name:	Shawnee Hills, OH	NRCS Soil Map F	Page: NRCS Soil Map Stream	n Order _
County: Delaware		Township / City: Conco	rd Twp.	
MISCELLANEOU	s			
Base Flow Conditions? (Y/N			Quantity: 0.42in.	
Photograph Information: _U	pstream, downstream, substrates			
Elevated Turbidity? (Y/N): _	N Canopy (% open):	20%		
Were samples collected for	water chemistry? (Y/N): (N	ote lab sample no. or id. a	and attach results) Lab Number:	
Field Measures: Temp (pH (S.U.)	7.40 Conductivity (µmhos/cm)	64
s the sampling reach repre	sentative of the stream (Y/N) N	If not, please explain:		
Headwaters	(' /			
Performed? (Y/N): N Fish Observed? (Y/N) Frogs or Tadpoles Observe Comments Regarding Biological	ID number. Include appropriate fix Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) N	•	I. NOTE: all voucher samples must be I mary Headwater Habitat Assessment M Voucher? (Y/N) N Voucher?	anual)
			REACH (This <u>must</u> be comple	-
Include important la	dmarks and other features of inter	est for site evaluation ar	nd a narrative description of the stre	am's locatio
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SITE NAME/LOCATION North Columbus Loop - Preferred Route	
SITE NUMBER Stream 7a RIVER BASIN DRAINAGE AREA (mi²)	<1
LENGTH OF STREAM REACH (ft) 200 LAT. 40.20275 LONG83.18980 RIVER CODE RIVER MILE	
DATE 06/17/20 SCORER C. Allen COMMENTS Intermittent	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Inst	tructions
STREAM CHANNEL	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	ı HHEI
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. TYPE PERCENT TYPE PERCENT	Metri
BLDR SLABS [16 pts] 0% SILT [3 pt] 0% 15AF BACK/MOODY DEPRIS [3 pts]	Points
BOULDER (>256 mm) [16 pts]	Substrat
COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPAN [0 pt] 0%	Max = 4
☐ GRAVEL (2-64 mm) [9 pts]	8
Table (Parameters of	
Bldr Slabs, Boulder, Cobble, Bedrock Check Check	A+B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 TOTAL NUMBER OF SUBSTRATE TYPES: 2	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):	Pool Dep Max = 3
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	
 > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts] 	15
COMMENTS MAXIMUM POOL DEPTH (centimeters): 8	
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
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ✓ ≤ 1.0 m (<=3' 3") [5 pts]	Width
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ✓ ≤ 1.0 m (<=3' 3") [5 pts]	
> 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 BFW - 3', BFD5', OHWM W - 2', OHWM D25' AVERAGE BANKFULL WIDTH (meters): 0.80	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 BFW - 3', BFD5', OHWM W - 2', OHWM D25' This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ↑ NOTE: River Left (L) and Right (R) as looking downstream ↑	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS BFW - 3', BFD5', OHWM W - 2', OHWM D25' 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 BFW - 3', BFD5', OHWM W - 2', OHWM D25' This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream ↑ RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) L R (Most Predominant per Bank) Wide >10m Mature Forest, Wetland Conservation Tillage	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS BFW - 3', BFD5', OHWM W - 2', OHWM D25' AVERAGE BANKFULL WIDTH (meters): This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆ RIPARIAN WIDTH FLOODPLAIN QUALITY 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 BFW - 3', BFD5', OHWM W - 2', OHWM D25' AVERAGE BANKFULL WIDTH (meters): This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ↑ NOTE: River Left (L) and Right (R) as looking downstream ↑ RIPARIAN WIDTH L R (Per Bank) L R (Most Predominant per Bank) Wide >10m Moderate 5-10m Moderate 5-10m V > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] > 1.0 m (<=3' 3") [5 pts] > 1.0 m (<=3' 3") [5 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] > 1.0 m (<=3' 3") [5 pts] > 1.0 m (<=3' 3") [5 pts] > 1.0 m (<=3' 3") [5 pts] V	Width Max=30
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] > 1.0 m (<=3' 3") [5 pts] > 1.0	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 BFW - 3', BFD5', OHWM W - 2', OHWM D25' AVERAGE BANKFULL WIDTH (meters): This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ↑NOTE: River Left (L) and Right (R) as looking downstream ↑ RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank)	Width Max=30
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ✓ 1.0 m (<=3' 3") [5 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS BFW - 3', BFD5', OHWM W - 2', OHWM D25' AVERAGE BANKFULL WIDTH (meters): 0.80 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 BFW - 3', BFD5', OHWM W - 2', OHWM D25' AVERAGE BANKFULL WIDTH (meters): This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH FLOODPLAIN QUALITY Wide >10 m Mature Forest, Wetland Wide >10 m Moderate 5-10 m Moderate 5-10 m Residential, Park, New Field V V Narrow <5 m Residential, Park, New Field None COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) No water (Ephemeral)	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 BFW - 3', BFD5', OHWM W - 2', OHWM D25' AVERAGE BANKFULL WIDTH (meters): This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE: River Left (L) and Right (R) as looking downstream NOTE: River Left (L) and Right (R) as looking downstream NoTE: River Left (L) and Right (R) as looking downstream NoTE: River Left (L) and Right (R) as looking downstream NoTE: River Left (L) and Right (R) as looking downstream NoTE: River Left (L) and Right (R) as looking downstream NoTE: River Left (L) and Right (R) as looking downstream NoTE: River Left (L) and Right (R) as looking downstream NoTE: River Left (L) and Right (R) as looking downstream NoTE: River Left (L) and Right (R) as looking downstream NoTE: River Left (L) and Right (R) as looking downstream NoTE: River Left (L) and Right (R) as looking downstream NoTE: River Left (L) and Right (R) as looking downstream NOTE: River Left (L) and Right (R) as looking downstream NOTE: River Left (L) and Right (R) as looking downstream NOTE: River Left (L) and Right (R) as looking downstream NOTE: River Left (L) and Right (R) as looking downstream NOTE: River Left (L) and Right (R) as looking downstream NOTE: River Left (L) and Right (R) as looking downstream NOTE: River Left (L) and Right (R) as looking downstream NOTE: River Left (L) and Right (R) as looking downstream NOTE: River Left (L) and Right (R) as looking downstream NOTE: River Left (L) and Right (R) as looking downstream NOTE: River Left (L) and Right (R) as looking downstream NOTE: River Left (L) and Right (R) as looking downstream NOTE: River Left (L) and Right (R) as looking downstream NOTE: River Left (L) and Right (R) as looking downstream NOTE: River Left (L) and Right (R) as looking downstream NOTE: River Left (L) and Right (R) as looking downstream NOTE: River Left (L) and Right (R) as looking downstream NOTE: River Left (L)	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 BFW - 3', BFD5', OHWM W - 2', OHWM D25' AVERAGE BANKFULL WIDTH (meters): This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH FLOODPLAIN QUALITY Wide >10 m Mature Forest, Wetland Wide >10 m Moderate 5-10 m Moderate 5-10 m Residential, Park, New Field V V Narrow <5 m Residential, Park, New Field None COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) No water (Ephemeral)	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 BFW - 3', BFD5', OHWM W - 2', OHWM D25' AVERAGE BANKFULL WIDTH (meters): D.80	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 BFW - 3', BFD5', OHWM W - 2', OHWM D25' AVERAGE BANKFULL WIDTH (meters): D.80	Width Max=30

ADDITIONAL STREA					
QHEI PER	FORMED? - Yes 🗸 No	o QHEI Score	(If Yes, Attach Co	ompleted QHEI Form)	
	REAM DESIGNATED USE(S	3)	D:		n 2.55
WWH Name: Ev	ersole Run		i i	stance from Evaluated Strear tance from Evaluated Strean	"
EWH Name:				tance from Evaluated Stream	
MAPPING	ATTACH COPIES OF MAPS	S INCLUDING THE ENT	IRF WATERSHED ARE	A. CLEARLY MARK THE SIT	F I OCATION
	ame: Shawnee Hills, OH		NRCS Soil Map Page:	NRCS Soil Map Str	
County: Union	a		ip / City: Mill Creek T		oam order <u>. </u>
MISCELLA	NEOUS		p / Oity.		
Base Flow Condition		ast precipitation:_	06/14/20	Quantity: 0.10	
	on: Upstream, downstrea				
Elevated Turbidity? (N	y (% open): 95%			
	ted for water chemistry? (Y/I	, <u> </u>	sample no orid and of	ttach results) Lab Number:	
			pH (S.U.) 7.10		550
	Dissolved		pH (S.U.)	Conductivity (µmhos/cm)	
s the sampling reach	representative of the stream	m (Y/N)	lease explain:		
	description of pollution impa	acts:			
BIOTIC E Performed? (Y/N): Fish Observed? (Y/N) Frogs or Tadpoles O	/ALUATION (If Yes, Record all ID number. Includ Voucher? (Y/N) oserved? (Y/N) Vouch	observations. Voucher o e appropriate field data s Salamanders Obs	sheets from the Primary	TE: all voucher samples must Headwater Habitat Assessmer 'oucher? (Y/N) Oserved? (Y/N)	
BIOTIC E Performed? (Y/N): Fish Observed? (Y/N) Frogs or Tadpoles O Comments Regardin	/ALUATION (If Yes, Record all ID number. Includ) Voucher? (Y/N) Deserved? (Y/N) Vouch Biology:	observations. Voucher of appropriate field data s Salamanders Obser? (Y/N) Aquation	sheets from the Primary served? (Y/N) Macroinvertebrates Of	Headwater Habitat Assessmer Youcher? (Y/N) Oserved? (Y/N) Vouche	t Manual) er? (Y/N)
BIOTIC E Performed? (Y/N): Fish Observed? (Y/N) Frogs or Tadpoles O Comments Regardin	/ALUATION (If Yes, Record all ID number. Includ) Voucher? (Y/N) Deserved? (Y/N) Vouch Biology:	observations. Voucher of appropriate field data s Salamanders Observer? (Y/N) Aquation DESCRIPTION (Features of interest for s	sheets from the Primary served? (Y/N) Macroinvertebrates Of	Headwater Habitat Assessmer /oucher? (Y/N) oserved? (Y/N) Vouche	t Manual) er? (Y/N)
BIOTIC E Performed? (Y/N): Fish Observed? (Y/N) Frogs or Tadpoles O Comments Regardin	/ALUATION (If Yes, Record all ID number. Includ) Voucher? (Y/N) Deserved? (Y/N) Vouch Biology:	observations. Voucher of appropriate field data s Salamanders Obser? (Y/N) Aquation	sheets from the Primary served? (Y/N) Macroinvertebrates Of	Headwater Habitat Assessmer Youcher? (Y/N) Oserved? (Y/N) Vouche	t Manual) er? (Y/N)
BIOTIC E Performed? (Y/N): Fish Observed? (Y/N) Frogs or Tadpoles O Comments Regardin	/ALUATION (If Yes, Record all ID number. Includ Voucher? (Y/N) Vouch Biology: G AND NARRATIVE ortant landmarks and other for the second seco	observations. Voucher of appropriate field data s Salamanders Observer? (Y/N) Aquation DESCRIPTION (Features of interest for s	sheets from the Primary served? (Y/N) Macroinvertebrates Of	Headwater Habitat Assessmer Youcher? (Y/N) Oserved? (Y/N) Vouche	t Manual) er? (Y/N)

National State Table



Primary Headwater Habitat Evaluation Form

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HHEI Score (sum of metrics 1, 2, 3): SITE NAME/LOCATION North Columbus Loop - Preferred Route SITE NUMBER Stream 8 RIVER BASIN Scioto DRAINAGE AREA (mi²) 0.26 200 LAT 40.203844 LONG -83.175908 LENGTH OF STREAM REACH (ft) RIVER CODE RIVER MILE **COMMENTS** Intermittent; culverted, channelized DATE 01/31/20 A. Sjollema SCORER NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY STREAM CHANNEL **MODIFICATIONS:** SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes HHEI (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. Metric **TYPE** PERCENT **PERCENT Points** BLDR SLABS [16 pts] SILT [3 pt] 60% BOULDER (>256 mm) [16 pts] LEAF PACK/WOODY DEBRIS [3 pts] 0% 0% Substrate 0% BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] Max = 400% 40% COBBLE (65-256 mm) [12 pts] CLAY or HARDPAN [0 pt] 0% 0% GRAVEL (2-64 mm) [9 pts] MUCK [0 pts] 5 0% 0% SAND (<2 mm) [6 pts] ARTIFICIAL [3 pts] Total of Percentages of (B) 0.00% 100% A + BBldr Slabs, Boulder, Cobble, Bedrock TOTAL NUMBER OF SUBSTRATE TYPES: 2 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of Pool Depth evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): Max = 30> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts] > 22.5 - 30 cm [30 pts] < 5 cm [5 pts] > 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts] 30 COMMENTS 23 **MAXIMUM POOL DEPTH (centimeters):** BANK FULL WIDTH (Measured as the average of 3-4 measurements) Bankfull (Check ONLY one box): > 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] \leq 1.0 m (<=3' 3") [5 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] **COMMENTS** BF 2.5', 0.8' 5 AVERAGE BANKFULL WIDTH (meters): 0.76 OHWM 2.0' width, 0.5' depth 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** (Per Bank) R (Most Predominant per Bank) Wide >10m Mature Forest. Wetland Conservation Tillage Immature Forest, Shrub or Old Moderate 5-10m Urban or Industrial Field Open Pasture, Row Crop Narrow <5m Residential, Park, New Field Fenced Pasture None Mining or Construction COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermittent) Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0 0.5 15 >3 STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Complete	ed):
QHEI PERFORMED? - Yes V No QHEI Score (If Yes	s, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Eversole Run	Distance from Evaluated Stream 2.20 mi.
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERS	SHED AREA. CLEARLY MARK THE SITE LOCATION
JSGS Quadrangle Name: Shawnee Hills, OH NRCS Soil M	
County: Union Township / City: Mi	lill Creek Twp.
MISCELLANEOUS	
Base Flow Conditions? (Y/N): N Date of last precipitation: 01/26/20	Quantity: 0.10 in.
Photograph Information: Upstream, downstream, substrates	
Elevated Turbidity? (Y/N): N Canopy (% open): 95%	
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. o	or id. and attach results) Lab Number:
Field Measures: Temp (°C) 5.20 Dissolved Oxygen (mg/l) pH (S.L	U.) 6.40 Conductivity (µmhos/cm) 520
is the sampling reach representative of the stream (Y/N) If not, please explain	n:
Additional comments/description of pollution impacts:	
Tiles likely empty into this stream	
ID number. Include appropriate field data sheets from the Fish Observed? (Y/N) N Salamanders Observed? (Y/N)	
DRAWING AND NARRATIVE DESCRIPTION OF STREA	
Include important landmarks and other features of interest for site evaluation	on and a narrative description of the stream's location
-N VICE	aulve
FLOW TIME OF COMMENTS	A STATE OF THE STA
	K T
	PEM



Primary Headwater Habitat Evaluation Form

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HHEI Score (sum of metrics 1, 2, 3): SITE NAME/LOCATION Northern Columbus Loop - Preferred Route SITE NUMBER Stream 9 RIVER BASIN DRAINAGE AREA (mi²) 0.57 LAT. 40.195945 LONG. -83.196003 RIVER CODE LENGTH OF STREAM REACH (ft) RIVER MILE DATE 01/30/20 SCORER A. Sjollema COMMENTS Intermittent NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY STREAM CHANNEL **MODIFICATIONS:** SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes HHEI (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. Metric **TYPE PERCENT PERCENT Points** BLDR SLABS [16 pts] SILT [3 pt] 80% BOULDER (>256 mm) [16 pts] LEAF PACK/WOODY DEBRIS [3 pts] 0% 0% Substrate 0% BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] Max = 4020% 0% COBBLE (65-256 mm) [12 pts] CLAY or HARDPAN [0 pt] 0% 0% GRAVEL (2-64 mm) [9 pts] MUCK [0 pts] 5 0% 0% SAND (<2 mm) [6 pts] ARTIFICIAL [3 pts] Total of Percentages of (B) 0.00% 100% A + BBldr Slabs, Boulder, Cobble, Bedrock TOTAL NUMBER OF SUBSTRATE TYPES: 2 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of Pool Depth evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): Max = 30> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts] > 22.5 - 30 cm [30 pts] < 5 cm [5 pts] > 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts] 25 5 inches COMMENTS 13 **MAXIMUM POOL DEPTH (centimeters):** BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): Bankfull > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] Width Max=30 > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] \leq 1.0 m (<=3' 3") [5 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS Bank full 5 feet width/ 1.5 feet height AVERAGE BANKFULL WIDTH (meters): 1.50 20 OHWM 2.5' width/ 1.0' height 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** (Per Bank) (Most Predominant per Bank) R Wide >10m Mature Forest. Wetland Conservation Tillage Immature Forest, Shrub or Old Moderate 5-10m Urban or Industrial Field Open Pasture, Row Crop Narrow <5m Residential, Park, New Field Fenced Pasture None Mining or Construction COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermittent) Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0 0.5 15 >3 STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) ✓ Flat to Moderate Moderate (2 ft/100 ft) Severe (10 ft/100 ft)

	D? - Yes ✓ No QHEI Score	e (If Yes, A	ttach Completed Q	HEI Form)	
DOWNSTREAM D	ESIGNATED USE(S)				
WWH Name: Scioto Riv	· ,		Distance from	Evaluated Stream	3.00 mi
CWH Name: _			_	Evaluated Stream _	
EWH Name:			Distance from	Evaluated Stream	
	H COPIES OF MAPS, INCLUDING	THE <u>ENTIRE</u> WATERSHI	ED AREA. CLEARL	Y MARK THE SITE L	OCATION
USGS Quadrangle Name:_S	hawnee Hills, OH	NRCS Soil Map	Page: NF	RCS Soil Map Stream	Order
County: Union		Township / City: Mill C	Creek Township		
MISCELLANEOUS					
Base Flow Conditions? (Y/N)	V	n:01/25/20	Quantity:	0.87 _{in} .	
Photograph Information: _up	stream, downstream, substrates				
Elevated Turbidity? (Y/N):	N Canopy (% open):	100%			
. , ,	V	loto lob occurrie :	and ottack	a) I ab Niverba	
Were samples collected for v	vater chemistry? (1/N)(N	lote lab sample no. or id			46
Field Measures: Temp (°	/	pH (S.U.)	7.20 Conduct	ivity (µmhos/cm) 0.4	40
Is the sampling reach repres	entative of the stream (Y/N) N	If not, please explain:_			
Upstream of culvert is					
Additional comments/descrip	tion of pollution imposts:				
BIOTIC EVALUA					
BIOTIC EVALUA Performed? (Y/N): N Fish Observed? (Y/N) Frogs or Tadpoles Observed Comments Regarding Biolog	(If Yes, Record all observations. \ ID number. Include appropriate fie Voucher? (Y/N) N Salaman ? (Y/N) N Voucher? (Y/N) N	•	Primary Headwater H	Habitat Assessment Ma	anual)
Performed? (Y/N): N Fish Observed? (Y/N) Frogs or Tadpoles Observed Comments Regarding Biolog	(If Yes, Record all observations. \ ID number. Include appropriate fie Voucher? (Y/N) N Salaman ? (Y/N) N Voucher? (Y/N) N	ders Observed? (Y/N) Aquatic Macroinverteb	Voucher? (Yrates Observed? (Y	Habitat Assessment Ma (/N) N Voucher? (Y/N) N
Performed? (Y/N): N Fish Observed? (Y/N) Frogs or Tadpoles Observed Comments Regarding Biolog	(If Yes, Record all observations. \ ID number. Include appropriate file Voucher? (Y/N) N Salaman (Y/N) N Voucher? (Y/N) N Y: NARRATIVE DESCRIPTION	ders Observed? (Y/N) Aquatic Macroinverteb	Voucher? (Yrates Observed? (Y	Habitat Assessment Ma (/N) N Voucher? (Y/N) N
Performed? (Y/N): N Fish Observed? (Y/N) Frogs or Tadpoles Observed Comments Regarding Biolog	(If Yes, Record all observations. \ ID number. Include appropriate file Voucher? (Y/N) N Salaman (Y/N) N Voucher? (Y/N) N Y: NARRATIVE DESCRIPTION	ders Observed? (Y/N) Aquatic Macroinverteb	Voucher? (Yrates Observed? (Y	Habitat Assessment Ma (/N) N Voucher? (Y/N) N



SITE NAME/LOCATION Northern Columbus Loop - Preferred Route	
SITE NUMBER Stream 10 RIVER BASIN DRAINAGE AREA (mi²) 0.67	7
LENGTH OF STREAM REACH (ft) 200 LAT. 40.183121 LONG. 83.213459 RIVER CODE RIVER MILE	
DATE 01/30/20 SCORER A. Sjollema COMMENTS Intermittent	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruct	tions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING RECENT OR NO RECOVERED RECOVERING RECENT OR NO RECOVERED RECOVERING RECENT OR NO RECOVERED RECOVERED RECENT OR NO RECOVERED RECENT OR NO RECOVERED RECENT OR NO RECOVERED RECOVERED RECOVERED RECENT OR NO RECOVERED REC	'ERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	
(·····································	HHEI Metric
	Points
BOULDER (>256 mm) [16 pts]	Substrate
BEDROCK [16 pt] FINE DETRITOS [3 pts]	Max = 40
COBBLE (65-256 mm) [12 pts] GRAVEL (2-64 mm) [9 pts] O% CLAY or HARDPAN [0 pt] MUCK [0 pts]	1.2
✓ SAND (<2 mm) [6 pts] 70% ARTIFICIAL [3 pts] 0%	12
Total of Percentages of 0.00% (A) Substrate Percentage 100% (B)	A + B
Bidr Slabs, Boulder, Cobble, Bedrock	Α.Β
	ool Dept Max = 30
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	
 ✓ > 22.5 - 30 cm [30 pts] ✓ > 10 - 22.5 cm [25 pts] ✓ NO WATER OR MOIST CHANNEL [0 pts] 	30
	30
COMMENTS 11 inches MAXIMUM POOL DEPTH (centimeters): 28	
(**************************************	Bankfull
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	
	Width Max=30
	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]	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]	
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS Bank full 4.5 feet wide/ 1.5 feet height OHWM 2.5'width/1.0' height This information must also be completed	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 Bank full 4.5 feet wide/ 1.5 feet height OHWM 2.5'width/1.0' height This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE: River Left (L) and Right (R) as looking downstream?	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 Bank full 4.5 feet wide/ 1.5 feet height OHWM 2.5'width/1.0' height This information must also be completed	Max=30
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> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS Bank full 4.5 feet wide/ 1.5 feet height OHWM 2.5'width/1.0' height 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) Urban or Industrial Moderate 5-10m L R (Most Predominant per Bank) Urban or Industrial	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 Bank full 4.5 feet wide/ 1.5 feet height OHWM 2.5'width/1.0' height 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 >10 m Mature Forest, Wetland Moderate 5-10 m Moderate 5-10 m Moderate Source Row Crop	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 Bank full 4.5 feet wide/ 1.5 feet height OHWM 2.5'width/1.0' height This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream And RIPARIAN WIDTH L R (Per Bank) Wide >10 m Mature Forest, Wetland Moderate 5-10m Moderate 5-10m Residential, Park, New Field OMMENTS AVERAGE BANKFULL WIDTH (meters): 1.40 L R (Most Predominant per Bank) L R (Most Predominant per Bank) I Mature Forest, Wetland Open Pasture, Row Crop	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 Bank full 4.5 feet wide/ 1.5 feet height OHWM 2.5'width/1.0' height 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 Moderate 5-10m Residential, Park, New Field Open Pasture, Row Crop None Mining or Construction	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 Bank full 4.5 feet wide/ 1.5 feet height OHWM 2.5'width/1.0' height 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 Viangle Park, New Field Open Pasture, Row Crop None COMMENTS Outside oldfield riparian (phalaris) it was cornfield FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermittent)	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 Bank full 4.5 feet wide/ 1.5 feet height OHWM 2.5'width/1.0' height This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY Residential, Park, New Field Vide >10 Den Pasture, Row Crop None COMMENTS Outside oldfield riparian (phalaris) it was cornfield FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	Max=30
Sommer 1.0 m (< 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 13') [25 pts] COMMENTS Bank full 4.5 feet wide/ 1.5 feet height OHWM 2.5'width/1.0' height 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 Mature Forest, Shrub or Old Immature Forest, Shrub or Old Virban or Industrial Virban or Industrial Penced Pasture COMMENTS Outside oldfield riparian (phalaris) it was cornfield FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS Wide >10' V One box): Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)	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 Bank full 4.5 feet wide/ 1.5 feet height OHWM 2.5'width/1.0' height 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 Wide >10m Moderate 5-10m Residential, Park, New Field V Narrow <5m Residential, Park, New Field Flood Residential, Park, New Field Flow Residential Park, New Field Flow Re	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 Bank full 4.5 feet wide/ 1.5 feet height OHWM 2.5'width/1.0' height This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY This information must also be completed RIPARIAN WIDTH FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY Wide >10 m Mature Forest, Wetland Moderate 5-10 m Mature Forest, Wetland Moderate 5-10 m Mature Forest, Shrub or Old Mature Forest, Shrub or Old Field None COMMENTS Outside oldfield riparian (phalaris) it was cornfield FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	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 Bank full 4.5 feet wide/ 1.5 feet height OHWM 2.5'width/1.0' height 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 Wide >10m Moderate 5-10m Residential, Park, New Field Vanrow <5m Residential, Park, New Field Flood Residential, Park, New Field Flow Residential, Park, New Field	15

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S) WWH Name: Eversole Run Distance from Evaluated Stream 0.07 mi.
CWH Name: Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Shawnee Hills, OH NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Union Township / City: Jerome Township
MISCELLANEOUS
Base Flow Conditions? (Y/N): Y Date of last precipitation: 01/25/20 Quantity: 0.87 in.
Photograph Information: _upstream, downstream, substrates
Elevated Turbidity? (Y/N): N Canopy (% open): 100%
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) 5.20 Dissolved Oxygen (mg/l) pH (S.U.) 8.00 Conductivity (µmhos/cm) 0.2
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
Culverts emptying tiles into stream
BIOTIC EVALUATION
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the
ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Vouc
Comments Regarding Biology:
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location
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FLOW ->
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ChieFP Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3):

SITE NUMBER Stream 11 RIVER BASIN Scioto DRAINAGE AREA (mi²)	
LENGTH OF STREAM REACH (ft) 200 LAT 40.174637 LONG83.231765 RIVER CODE RIVER MILE	
DATE 03/30/20 SCORER M. Kearns COMMENTS Intermittent, Ag Ditch	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Ins	tructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO REMODIFICATIONS:	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	ı HHEI
TYPE PERCENT TYPE PERCENT	Metric
BLDR SLABS [16 pts]	Points
BEDROCK [16 pt] BEDROCK [16 pt] D' FINE DETRITUS [3 pts]	Substrat
COBBLE (65-256 mm) [12 pts]	Max = 40
GRAVEL (2-64 mm) [9 pts] 45% MUCK [0 pts] 0% ARTIFICIAL [3 pts] 0%	14
SAND (<2 mm) [6 pts]	
Total of Percentages of 0.00% (A) Substrate Percentage Check (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 TOTAL NUMBER OF SUBSTRATE TYPES: 2	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dep
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	Max = 30
> 22.5 - 30 cm [30 pts] < 5 cm [5 pts]	20
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	30
COMMENTS 10 inches MAXIMUM POOL DEPTH (centimeters): 25	
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	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]	Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS BFW - 7', BFD - 3', OHWM W - 5.5', OHWM D - 1.	
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DOWNSTREAM DESIG	NATED USE(S)			_	
VWH Name: Sugar Run				rom Evaluated Stream	1.40 mi.
CWH Name: EWH Name:			_	om Evaluated Stream om Evaluated Stream	
			_		
	PIES OF MAPS, INCLUDING TH				
S Quadrangle Name:		NRCS Soil Map I	Page:	NRCS Soil Map Stream	Order
nty: Union	To	ownship / City:			
MISCELLANEOUS					
Flow Conditions? (Y/N):_N	Date of last precipitation:_	03/28/20	Quantity	0.30in.	
ograph Information: Up	stream, downstream, substrate	s			
ated Turbidity? (Y/N):	Canopy (% open):	100%			
e samples collected for water of		te lab sample no. or id.	and attach ros	uulta) Lab Numbar:	
					330
Measures: Temp (°C) 8.	Dissolved Oxygen (mg/l)	pH (S.U.)	Cond	luctivity (µmhos/cm)	
e sampling reach representativ	ve of the stream (Y/N)	not, please explain:			
BIOTIC EVALUATION	f pollution impacts:				
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SITE NAME/LOCATION Northern Columbus Loop - Preferred Route SITE NUMBER Stream 12 RIVER BASIN Scioto DRAINAGE AREA (mi²) LAT. 40.17163 LONG. -83.229378 LENGTH OF STREAM REACH (ft) RIVER CODE RIVER MILE DATE 03/30/20 **COMMENTS** Intermittent, Ag Ditch SCORER M. Kearns NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions STREAM CHANNEL **MODIFICATIONS:** SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes HHEI (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. Metric **TYPE** PERCENT **PERCENT Points** BLDR SLABS [16 pts] SILT [3 pt] 90% BOULDER (>256 mm) [16 pts] LEAF PACK/WOODY DEBRIS [3 pts] 0% 0% **Substrate** 0% BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] Max = 400% 0% COBBLE (65-256 mm) [12 pts] CLAY or HARDPAN [0 pt] 10% 0% GRAVEL (2-64 mm) [9 pts] MUCK [0 pts] 14 0% 0% SAND (<2 mm) [6 pts] ARTIFICIAL [3 pts] Total of Percentages of (B) 0.00% 100% A + BBldr Slabs, Boulder, Cobble, Bedrock 12 TOTAL NUMBER OF SUBSTRATE TYPES: 2 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of Pool Depth evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): Max = 30> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts] > 22.5 - 30 cm [30 pts] < 5 cm [5 pts] > 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts] 25 7 inches COMMENTS 18 **MAXIMUM POOL DEPTH (centimeters):** BANK FULL WIDTH (Measured as the average of 3-4 measurements) Bankfull (Check ONLY one box): > 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] \leq 1.0 m (<=3' 3") [5 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS BFW - 5.5', BFD - 2' AVERAGE BANKFULL WIDTH (meters): 1.70 20 OHWM W - 4.5', OHWM D - 1' This information must also be completed ☆NOTE: River Left (L) and Right (R) as looking downstream☆ RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH **FLOODPLAIN QUALITY** (Per Bank) (Most Predominant per Bank) R Wide >10m Mature Forest. Wetland Conservation Tillage Immature Forest, Shrub or Old Moderate 5-10m Urban or Industrial Field Open Pasture, Row Crop Narrow <5m Residential, Park, New Field Fenced Pasture None Mining or Construction COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermittent) Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0 0.5 15 >3 STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) ✓ Flat to Moderate Moderate (2 ft/100 ft) Severe (10 ft/100 ft)

QHEI PERFORMED? - Yes V No QHEI Score (Iff Yes, Attach Completed QHEI Form) DOWNSTREAM DESIGNATED USE(S) WWH Name: Sugar Run Distance from Evaluated Stream NAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION USGS Quadrangle Name: NRCS Soil Map Page: NRCS Soil Map Stream Order County: Union Township / City: MISCELLANEOUS Base Flow Conditions? (Y/N): N Date of last precipitation: 03/28/20 Quantity: 0.30 in. Photograph Information: upstream, downstrea, substrated Elevated Turbidity? (Y/N): Y Canopy (% open): 100% Were samples collected for water chemistry? (Y/N): Y (Note lab sample no. or id. and attach results) Lab Number: Field Measures: Temp (°C) 8.40 Dissolved Oxygen (mg/l) pH (S.U.) 7.60 Conductivity (µmhos/cm) 430 Is the sampling reach representative of the stream (Y/N) If not, please explain: BIOTIC EVALUATION BIOTIC EVALUATION BIOTIC EVALUATION
WWH Name: Sugar Run Distance from Evaluated Stream 1.25 mi. CWH Name: Distance from Evaluated Stream Distance from Evaluate
USGS Quadrangle Name: NRCS Soil Map Page: NRCS Soil Map Stream Order
USGS Quadrangle Name: NRCS Soil Map Page: NRCS Soil Map Stream Order
MISCELLANEOUS Base Flow Conditions? (Y/N): N Date of last precipitation: 03/28/20 Quantity: 0.30 in. Photograph Information: upstream, downstrea, substrated Elevated Turbidity? (Y/N): Y Canopy (% open): 100% Were samples collected for water chemistry? (Y/N): Y (Note lab sample no. or id. and attach results) Lab Number: Field Measures: Temp (°C) 8.40 Dissolved Oxygen (mg/l) pH (S.U.) 7.60 Conductivity (µmhos/cm) 430 Is the sampling reach representative of the stream (Y/N) If not, please explain: BIOTIC EVALUATION BIOTIC EVALUATION
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Base Flow Conditions? (Y/N): N Date of last precipitation: 03/28/20 Quantity: 0.30 in. Photograph Information: upstream, downstrea, substrated Elevated Turbidity? (Y/N): Y Canopy (% open): 100% Were samples collected for water chemistry? (Y/N): Y (Note lab sample no. or id. and attach results) Lab Number: Field Measures: Temp (°C) 8.40 Dissolved Oxygen (mg/l) pH (S.U.) 7.60 Conductivity (µmhos/cm) 430 Is the sampling reach representative of the stream (Y/N) If not, please explain: Additional comments/description of pollution impacts:
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Elevated Turbidity? (Y/N): Y Canopy (% open): 100% Were samples collected for water chemistry? (Y/N): Y (Note lab sample no. or id. and attach results) Lab Number: Field Measures: Temp (°C) 8.40 Dissolved Oxygen (mg/l) pH (S.U.) 7.60 Conductivity (µmhos/cm) 430 Is the sampling reach representative of the stream (Y/N) If not, please explain: Additional comments/description of pollution impacts:
Were samples collected for water chemistry? (Y/N): Y (Note lab sample no. or id. and attach results) Lab Number: Field Measures: Temp (°C) 8.40 Dissolved Oxygen (mg/l) pH (S.U.) 7.60 Conductivity (µmhos/cm) 430 Is the sampling reach representative of the stream (Y/N) If not, please explain: Additional comments/description of pollution impacts:
Field Measures: Temp (°C) 8.40 Dissolved Oxygen (mg/l) pH (S.U.) 7.60 Conductivity (µmhos/cm) 430 Is the sampling reach representative of the stream (Y/N) If not, please explain: Additional comments/description of pollution impacts: BIOTIC EVALUATION
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Additional comments/description of pollution impacts: BIOTIC EVALUATION
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BIOTIC EVALUATION
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the sID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) Fish Observed? (Y/N) Voucher? (Y/N) Vouch
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed)
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location
As Fred A
0730-11
FLOW ML Stream 12



ChieFP Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3):

SITE NAME/LOCATION Northern Columbus Loop - Preferred Route	
Of the case 40	<1.0
LENGTH OF STREAM REACH (ft) 200 LAT. 40.164454 LONG83.201603 RIVER CODE RIVER MILE	
DATE 03/30/20 SCORER M. Kearns COMMENTS Intermittent	
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
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 □ □ □ BLDR SLABS [16 pts] 0% ✓ □ SILT [3 pt] 35%	Metric Points
BOULDER (>256 mm) [16 pts] 0% LEAF PACK/WOODY DEBRIS [3 pts] 0%	
BEDROCK [16 pt] 0% FINE DETRITUS [3 pts]	Substrat Max = 4
COBBLE (65-256 mm) [12 pts]	
SAND (<2 mm) [6 pts] 35% ARTIFICIAL [3 pts] 0%	13
Total of Percentages of 5.00% (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: 4	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Deel Den
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] > 22.5 - 30 cm [30 pts] < 5 cm [5 pts]	
> 22.5 - 30 cm [30 pts]	25
COMMENTS 8 inches MAXIMUM POOL DEPTH (centimeters): 20	
	Double
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 BFW - 5.5', BFD - 1' AVERAGE BANKFULL WIDTH (meters): 1.70	20
OHWMW - 3', OHWMW - 1'	
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	
Field Croan or industrial	
Narrow <5m Residential, Park, New Field Open Pasture, Row Cro	ıρ
None Fenced Pasture Mining or Construction COMMENTS	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermittent)	
Subsurface flow with isolated pools (Interstitial) COMMENTS Dry channel, no water (Ephemeral)	_
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	
☐ None ☐ 1.0 ☐ 2.0 ☐ 3.0	
0.5 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)

DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Eversole Run	Distance from Evaluated Stream1.00 mi.
CWH Name:	Distance from Evaluated Stream Distance from Evaluated Stream
	
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE Shawnee Hills	
SGS Quadrangle Name: Ni	RCS Soil Map Page: NRCS Soil Map Stream Order
ounty: Union Township	/ City: Jerome Twp.
MISCELLANEOUS	
se Flow Conditions? (Y/N): N _ Date of last precipitation: 0	3/28/20 Quantity: 0.30in .
otograph Information: upstream, downstrea, substrated	
evated Turbidity? (Y/N): Y Canopy (% open): 100%	
	ample no. or id. and attach results) Lab Number:
eld Measures: Temp (°C) 9.00 Dissolved Oxygen (mg/l)	pH (S.U.) 7.70 Conductivity (µmhos/cm) 100
the sampling reach representative of the stream (Y/N)	ase explain:
ditional comments/description of pollution impacts:	
unional comments/description of political impacts.	
ID number. Include appropriate field data sh sh Observed? (Y/N) N Voucher? (Y/N) Salamanders Obse	erved? (Y/N) Voucher?
DRAWING AND NARRATIVE DESCRIPTION OF	
Include important landmarks and other features of interest for site	evaluation and a narrative description of the stream's location
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	2nd south
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Appendix C PHOTOGRAPHS







Photo Location 1.View of agriculture habitat. Photograph taken facing west.



Photo Location 2. View of Stream 1. Photograph taken facing upstream, west.





Photo Location 2. View of Stream 1. Photograph taken facing downstream, southeast.



Photo Location 2. View of Stream 1, typical substrates.





Photo Location 3. View of agriculture and fence row habitat. Photograph taken facing southeast.



Photo Location 4. View of residential habitat. Photograph taken facing southeast.





Photo Location 5. View of old early successional habitat. Photograph taken facing northwest.



Photo Location 6. View of Wetland 1 (SP01). Photograph taken facing north.





Photo Location 6. View of Wetland 1 (SP01). Photograph taken facing east.



Photo Location 6. View of Wetland 1 (SP01). Photograph taken facing south.





Photo Location 6. View of Wetland 1 (SP01). Photograph taken facing west.



Photo Location 7. View of pasture habitat. Photograph taken facing northwest.



Columbia Gas of Ohio Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route Wetland and Waterbody Delineation Report



Photo Location 8. View of Open Water 1. Photograph taken facing southeast.



Photo Location 9. View of maintained right-of-way. Photograph taken facing north.



Columbia Gas of Ohio Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route Wetland and Waterbody Delineation Report



Photo Location 9. View of second growth deciduous forest. Photograph taken facing west.



Photo Location 10. View of Stream 2. Photograph taken facing upstream, northeast.



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Photo Location 10. View of Stream 2. Photograph taken facing downstream, southwest.



Photo Location 10. View of Stream 2, typical substrates.



Columbia Gas of Ohio Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route Wetland and Waterbody Delineation Report



Photo Location 11. View of Stream 3, Scioto River. Photograph taken facing upstream, northwest.



Photo Location 11. View of Stream 3, Scioto River. Photograph taken facing downstream, south.



Columbia Gas of Ohio Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route Wetland and Waterbody Delineation Report



Photo Location 11. View of Stream 3, Scioto River, typical substrates.



Photo Location 12. View of Wetland 2 (SP05). Photograph taken facing north.



Columbia Gas of Ohio Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route Wetland and Waterbody Delineation Report



Photo Location 12. View of Wetland 2 (SP05). Photograph taken facing east.



Photo Location 12. View of Wetland 2 (SP05). Photograph taken facing south.



Columbia Gas of Ohio Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route Wetland and Waterbody Delineation Report



Photo Location 12. View of Wetland 2 (SP05). Photograph taken facing west.



Photo Location 13. View of Wetland 2 (SP06) and Open Water 2. Photograph taken facing north.



Columbia Gas of Ohio Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route Wetland and Waterbody Delineation Report



Photo Location 13. View of Wetland 2 (SP06). Photograph taken facing east.



Photo Location 13. View of Wetland 2 (SP06). Photograph taken facing south.



Columbia Gas of Ohio Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route Wetland and Waterbody Delineation Report



Photo Location 13. View of Wetland 2 (SP06). Photograph taken facing west.



Photo Location 14. View of Stream 4. Photograph taken facing upstream, northwest.



Columbia Gas of Ohio Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route Wetland and Waterbody Delineation Report



Photo Location 14. View of Stream 4. Photograph taken facing downstream, south.



Photo Location 14. View of Stream 4, typical substrates.



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Photo Location 15. View of Stream 5. Photograph taken facing upstream, west.



Photo Location 15. View of Stream 5. Photograph taken facing downstream, east.



Columbia Gas of Ohio Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route Wetland and Waterbody Delineation Report



Photo Location 15. View of Stream 5, typical substrates.



Photo Location 16. View of Stream 6. Photograph taken facing upstream, west.



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Photo Location 16. View of Stream 6. Photograph taken facing downstream, east.



Photo Location 16. View of Stream 6, typical substrates.



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Photo Location 17. View of second growth deciduous forest. Photograph taken facing east.



Photo Location 18. View of Stream 7. Photograph taken facing upstream, west.



Columbia Gas of Ohio Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route Wetland and Waterbody Delineation Report



Photo Location 18. View of Stream 7. Photograph taken facing downstream, east.



Photo Location 18. View of Stream 7, typical substrates.



Columbia Gas of Ohio Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route Wetland and Waterbody Delineation Report



Photo Location 19. View of Wetland 3 (SP08). Photograph taken facing north.



Photo Location 19. View of Wetland 3 (SP08). Photograph taken facing east.



Columbia Gas of Ohio Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route Wetland and Waterbody Delineation Report



Photo Location 19. View of Wetland 3 (SP08). Photograph taken facing south.



Photo Location 19. View Wetland 3 (SP08). Photograph taken facing west.



Columbia Gas of Ohio Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route Wetland and Waterbody Delineation Report



Photo Location 20. View of agriculture habitat. Photograph taken facing northeast.



Photo Location 21. View of old field habitat. Photograph taken facing north.



Columbia Gas of Ohio Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route Wetland and Waterbody Delineation Report



Photo Location 21a. View of Wetland 3a (SP9b). Photograph taken facing north.



Photo Location 21a. View of Wetland 3a (SP9b). Photograph taken facing east.



Columbia Gas of Ohio Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route Wetland and Waterbody Delineation Report



Photo Location 21a. View of Wetland 3a (SP9b). Photograph taken facing south.



Photo Location 21a. View of Wetland 3a (SP9b). Photograph taken facing west.



Columbia Gas of Ohio Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route Wetland and Waterbody Delineation Report



Photo Location 21b. View of Wetland 3b (SP9c). Photograph taken facing north



Photo Location 21b. View of Wetland 3b (SP9c). Photograph taken facing east.



Columbia Gas of Ohio Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route Wetland and Waterbody Delineation Report



Photo Location 21b. View of Wetland 3b (SP9c). Photograph taken facing south.



Photo Location 21b. View of Wetland 3b (SP9c). Photograph taken facing west.



Columbia Gas of Ohio Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route Wetland and Waterbody Delineation Report



Photo Location 21c. View of Wetland 3c (SP9e). Photograph taken facing north.



Photo Location 21c. View of Wetland 3c (SP9e). Photograph taken facing east.



Columbia Gas of Ohio Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route Wetland and Waterbody Delineation Report



Photo Location 21c. View of Wetland 3c (SP9e). Photograph taken facing south.



Photo Location 21c. View of Wetland 3c (SP9e). Photograph taken facing west.



Columbia Gas of Ohio Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route Wetland and Waterbody Delineation Report



Photo Location 21d. View of Stream 7a. Photograph taken facing upstream, west.



Photo Location 21d. View of Stream 7a. Photograph taken facing downstream, east.



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Photo Location 21d. View of Stream 7a, typical substrates.



Photo Location 21e. View of Wetland 3d (SP9h). Photograph taken facing north.



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Photo Location 21e. View of Wetland 3d (SP9h). Photograph taken facing east.



Photo Location 21e. View of Wetland 3d (SP9h). Photograph taken facing south



Columbia Gas of Ohio Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route Wetland and Waterbody Delineation Report



Photo Location 21e. View of Wetland 3d (SP9h). Photograph taken facing west.



Photo Location 21f. View of Wetland 4 PFO community (SP9i). Photograph taken facing north.



Columbia Gas of Ohio Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route Wetland and Waterbody Delineation Report



Photo Location 21f. View of Wetland 4 PFO community (SP9i). Photograph taken facing east.



Photo Location 21f. View of Wetland 4 PFO community (SP9i). Photograph taken facing south.



Columbia Gas of Ohio Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route Wetland and Waterbody Delineation Report



Photo Location 21f. View of Wetland 4 PFO community (SP9i). Photograph taken facing west.



Photo Location 21g. View of Stream 8. Photograph taken facing upstream, northwest.



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Photo Location 21g. View of Stream 8. Photograph taken facing downstream, southeast.



Photo Location 21g. View of Stream 8, typical substrates.



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Photo Location 21h. View of Wetland 4 PEM community (SP9k). Photograph taken facing north.



Photo Location 21h. View of Wetland 4 PEM community (SP9k). Photograph taken facing east.



Columbia Gas of Ohio Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route Wetland and Waterbody Delineation Report



Photo Location 21h. View of Wetland 4 PEM community (SP9k). Photograph taken facing south.



Photo Location 21h. View of Wetland 4 PEM community (SP9k). Photograph taken facing west.



Columbia Gas of Ohio Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route Wetland and Waterbody Delineation Report



Photo Location 21i. View of Wetland 4a (SP9m). Photograph taken facing north.



Photo Location 21i. View of Wetland 4a (SP9m). Photograph taken facing east.



Columbia Gas of Ohio Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route Wetland and Waterbody Delineation Report



Photo Location 21i. View of Wetland 4a (SP9m). Photograph taken facing south.



Photo Location 21i. View of Wetland 4a (SP9m). Photograph taken facing west.



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Photo Location 22. View of Stream 8. Photograph taken facing upstream, north.



Photo Location 22. View of Stream 8. Photograph taken facing downstream, south.



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Photo Location 22. View of Stream 8, typical substrates.



Photo Location 23. View of Wetland 4 (SP11). Photograph taken facing north.



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Photo Location 23. View of Wetland 4(SP11). Photograph taken facing east



Photo Location 23. View of Wetland 4 (SP11). Photograph taken facing south.



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Photo Location 23. View of Wetland 4 (SP11). Photograph taken facing west.



Photo Location 24. View of Wetland 4 (SP13). Photograph taken facing north.



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Photo Location 24. View of Wetland 4 (SP13). Photograph taken facing east.



Photo Location 24. View of Wetland 4 (SP13). Photograph taken facing south.



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Photo Location 24. View of Wetland 4 (SP13). Photograph taken facing west.



Photo Location 25. View of Wetland 5 (SP15). Photograph taken facing north.



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Photo Location 25. View of Wetland 5 (SP15). Photograph taken facing east.



Photo Location 25. View Wetland 5 (SP15). Photograph taken facing south.



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Photo Location 25. View of Wetland 5 (SP15). Photograph taken facing west



Photo Location 26. View of Stream 9. Photograph taken facing upstream, northwest.



Columbia Gas of Ohio Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route Wetland and Waterbody Delineation Report



Photo Location 26. View of Stream 9. Photograph taken facing downstream, southeast.



Photo Location 26. View of Stream 9, typical substrates.



Columbia Gas of Ohio Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route Wetland and Waterbody Delineation Report



Photo Location 27. View of Wetland 6 (SP17). Photograph taken facing north.



Photo Location 27. View of Wetland 6 (SP17). Photograph taken facing east.



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Photo Location 27. View of Wetland 6 (SP17). Photograph taken facing south.



Photo Location 27. View of Wetland 6 (SP17). Photograph taken facing west.



Columbia Gas of Ohio Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route Wetland and Waterbody Delineation Report



Photo Location 28. View of Stream 10, Eversole Run. Photograph taken facing upstream, north.



Photo Location 28. View of Stream 10, Eversole Run. Photograph taken facing downstream, south.



Columbia Gas of Ohio Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route Wetland and Waterbody Delineation Report



Photo Location 28. View of Stream 10, Eversole Run, typical substrates.



Photo Location 29. View of second growth decidious forest. Photograph taken facing east.



Columbia Gas of Ohio Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route Wetland and Waterbody Delineation Report



Photo Location 30. View of Stream 11. Photograph taken facing upstream northwest.



Photo Location 30. View of Stream 11. Photograph taken facing downstream, southeast.



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Photo Location 30. View of Stream 11, typical substrates.



Photo Location 31. View of agriculture habitat. Photograph taken facing west.



Columbia Gas of Ohio Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route Wetland and Waterbody Delineation Report



Photo Location 32. View of Stream 12. Photograph taken facing upstream, south.



Photo Location 32. View of Stream 12. Photograph taken facing downstream, north.



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Photo Location 32. View of Stream 12, typical substrates.



Photo Location 33. View of Wetland 7 (SP20). Photograph taken facing north.



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Photo Location 33. View of Wetland 7 (SP20). Photograph taken facing east.



Photo Location 33. View of Wetland 7 (SP20). Photograph taken facing south.



Columbia Gas of Ohio Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route Wetland and Waterbody Delineation Report



Photo Location 33. View of Wetland 7 (SP20). Photograph taken facing west.



Photo Location 34. View of Stream 13. Photograph taken facing upstream, southwest.



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Photo Location 34. View of Stream 13. Photograph taken facing downstream, southeast.



Photo Location 34. View of Stream13, typical substrates.



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Photo Location 34a. View of Wetland 8a (SP20a). Photograph taken facing north.



Photo Location 34a. View of Wetland 8a (SP20a). Photograph taken facing east.



Columbia Gas of Ohio Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route Wetland and Waterbody Delineation Report



Photo Location 34a. View of Wetland 8a (SP20a). Photograph taken facing south.



Photo Location 34a. View of Wetland 8a (SP20a). Photograph taken facing west.



Columbia Gas of Ohio Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route Wetland and Waterbody Delineation Report



Photo Location 34b. View or Wetland 8b (SP20c). Photograph taken facing north.



Photo Location 34b. View or Wetland 8b (SP20c). Photograph taken facing east.



Columbia Gas of Ohio Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route Wetland and Waterbody Delineation Report



Photo Location 34b. View or Wetland 8b (SP20c). Photograph taken facing south.



Photo Location 34b. View or Wetland 8b (SP20c). Photograph taken facing west.



Columbia Gas of Ohio Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route Wetland and Waterbody Delineation Report



Photo Location 34c. View of Wetland 8c (SP20e). Photograph taken facing north.



Photo Location 34c. View of Wetland 8c (SP20e). Photograph taken facing east.



Columbia Gas of Ohio Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route Wetland and Waterbody Delineation Report



Photo Location 34c. View of Wetland 8c (SP20e). Photograph taken facing south.



Photo Location 34c. View of Wetland 8c (SP20e). Photograph taken facing west.



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Photo Location 34d. View of Open Water 3. Photograph taken facing east.



Photo Location 35. View of Wetland 8 (SP21). Photograph taken facing north.



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Photo Location 35. View of Wetland 8 (SP21). Photograph taken facing east.



Photo Location 35. View of Wetland 8 (SP21). Photograph taken facing south.



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Photo Location 35. View of Wetland 8 (SP21). Photograph taken facing west.



Photo Location 36. View of Wetland 9 (SP23). Photograph taken facing north.



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Photo Location 36. View of Wetland 9 (SP23). Photograph taken facing east.



Photo Location 36. View of Wetland 9 (SP23). Photograph taken facing south.



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Photo Location 36. View of Wetland 9 (SP23). Photograph taken facing west.



Photo Location 37. View of Wetland 10 (SP25). Photograph taken facing north.



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Photo Location 37. View of Wetland 10 (SP25). Photograph taken facing east.



Photo Location 37. View of Wetland 10 (SP25). Photograph taken facing south.



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Photo Location 37. View of Wetland 10 (SP25). Photograph taken facing west.



Photo Location 38. View of Wetland 11 (SP27). Photograph taken facing north.



Columbia Gas of Ohio Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route Wetland and Waterbody Delineation Report



Photo Location 38. View of Wetland 11 (SP27). Photograph taken facing east.



Photo Location 38. View of Wetland 11 (SP27). Photograph taken facing south.



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Photo Location 38. View of Wetland 11 (SP27). Photograph taken facing west.



Photo Location 39. View of Wetland 12 (SP29). Photograph taken facing north.



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Photo Location 39. View of Wetland 12 (SP29). Photograph taken facing east.



Photo Location 39. View of Wetland 12 (SP29). Photograph taken facing south.



Columbia Gas of Ohio Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route Wetland and Waterbody Delineation Report



Photo Location 39. View of Wetland 12 (SP29). Photograph taken facing west.



Photo Location 40. View of oldfield habitat found in Glacier Ridge Metropark. Photograph taken facing north.



Columbia Gas of Ohio Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route Wetland and Waterbody Delineation Report



Photo Location 41. View of Wetland 13 (SP31). Photograph taken facing north.



Photo Location 41. View of Wetland 13 (SP31). Photograph taken facing east.



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Photo Location 41. View of Wetland 13 (SP31). Photograph taken facing south.



Photo Location 41. View of Wetland 13 (SP31). Photograph taken facing west.



Columbia Gas of Ohio Northern Columbus Loop Natural Gas Pipeline Project (Phase VII) – Preferred Route Wetland and Waterbody Delineation Report



Photo Location 42. View of agriculture habitat. Photograph taken facing north.



Photo Location 42. View of road right-of-way (McKitrick Rd.) and old field habitat. Photograph taken facing south.