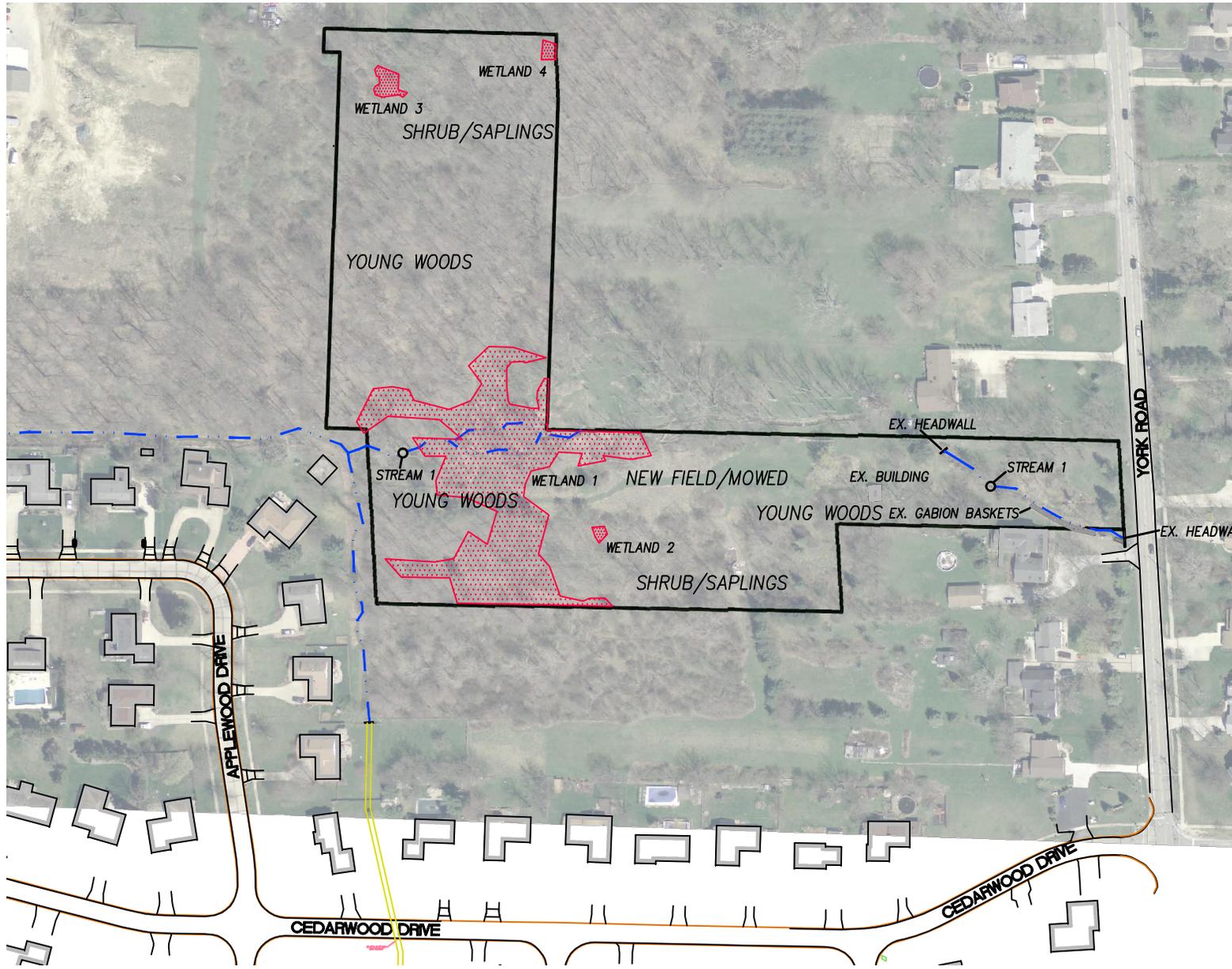

OHIO RAPID ASSESSMENT METHOD FOR WETLANDS (ORAM)



Ohio Rapid Assessment Method for Wetlands (ORAM)-Background Form

Contact Information					
Applicant:			Agent:		
Company Name:	City of North Royalton		Chagrin Valley Engineering, Inc.		
Address:	14600 State Road		22999 Forbes Road, Suite B		
City, State, Zip:	North Royalton, Ohio 44133		Cleveland, Ohio 44146		
Contact Person:	Mayor Robert Stefanik		Erin Van Nort		
Phone Number(s):	(440) 237-5686		(440) 439-1999		
E-Mail Address:			vannort@cvelimited.com		
Project Information					
Project Name: Cedar Estates Basin					
Street: Cedarwood Dr		City/Township: North Royalton		County: Cuyahoga	
Watershed (8-Digit HUC): 04110001 0202 (Rocky River)			USGS Quad: Berea		
NWI Map: (Berea Quad) FWS records do not indicate wetland on this site					
Soil Survey: (Cuyahoga County) Indicates presence of hydric soil Ct & potential hydric inclusions MgA					
Delineation Report/Mapping: Full wetland delineation report & maps including: location, USGS, NWI, Soils and wetland delineation.					
Dates of Site Visit: 3/16/15					
USACE District: Buffalo		Affirmed by Corps: No		Agent: Keith Sendziak (DA 2014-00144)	
Wetland Information					
Wetland	Acreeage	Category (Final Score)	HGM Class	Vegetation Community Class	Lat/Long Coordinates
1	1.00	2(54.5)	Riparian Depression, headwater, mineral soils	Mixed Emergent, Shrub Swamp, Forest	041° 20' 52.7886" - 081° 45' 45.3384"
2	0.006	2(48)	Isolated Depression, open, mineral soils	Mixed Emergent, Forest	041° 20' 51.7446" -081° 45' 43.023"
3	0.02	Mod 2(44)	Isolated Depression, open, mineral soils	Mixed Emergent, Forest	041° 20' 57.807" -081° 45' 46.1124"
4	0.01	Mod 2(41)	Isolated Depression, open, mineral soils	Mixed Emergent, Forest	041° 20' 58.5888" -081° 45' 44.3736"

*Wetland sketch information including north arrow, relationship with other surface waters and vegetation zones included on attached ORAM Information Map.



LEGEND

- WETLANDS (PFO/PSS/PEM)
- STREAM



**ORAM INFORMATION MAP
CEDAR ESTATES BASIN
CITY OF NORTH ROYALTON
CUYAHOGA COUNTY, OHIO**

CVE
CHAGRIN VALLEY
ENGINEERING, LTD.

Creative Engineers. Intelligent Solutions.

29999 Forbes Road, Suite B
Cleveland, Ohio 44146-5667
Phone • 440.339.1999 Fax • 440.439.1969
www.cveintlltd.com

DATE: MAY 2015 SCALE: 1"=180'
PROJECT NO.: 15092



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 Unit if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

Wetland 1

#	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 mitigation site, conservation site, etc.	X	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both the natural and human-induced changes including, constrictions, caused by berms or dikes, points where 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 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 are present. These should not be used to establish scoring boundaries unless they coincide with areas where 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



Ohio Rapid Assessment Method for Wetlands – 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 a 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 Reynoldsburg 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 1

#	Question	Circle One	
#1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	NO Go to Question 2
#2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 Go to Question 3	NO Go to Question 3
#3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 Go to Question 4	NO Go to Question 4
#4	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 Go to Question 5	NO Go to Question 5
#5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by <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 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 Go to Question 7	NO Go to Question 7
#7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is the 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 Go to Question 8a	NO Go to Question 8a



Ohio Rapid Assessment Method for Wetlands – Narrative Rating

#8a	“Old Growth Forest”. Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 Go to Question 8b	NO Go to Question 8b
#8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	YES Wetland should be evaluated for possible Category 3 status Go to Question 9a	NO Go to Question 9a
#9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES Go to Question 9b	NO Go to Question 10
#9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES Wetland should be evaluated for possible Category 3 status Go to Question 9d	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 9d
#9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant species can also be present?	YES Wetland is a Category 3 Go to Question 10	NO Go to Question 9e
#9e	Does the wetland have predominance of non-native or disturbance tolerant native plant species?	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 Go to Question 11	NO Go to Question 11
#11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio, Erie County, and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, etc.).	YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	NO Complete Quantitative Rating

ORAM v. 5.0 Field Form Quantitative Rating

Site: Cedar Estates Basin	Rater(s): Chagrin Valley Engineering	Date: 3/16/15
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2	2
max 6 pts	subtotal

Wetland: 1, 1.0-acre

Metric 1. Wetland Area (size).

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)
- 2 0.3 to <3 acres (0.12 to <1.2ha) (2 pts)
- 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- <0.1 acres (0.04ha) (0 pts)

54.5	2
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Final Score Category

8	10
max 14 pts	subtotal

Metric 2. Upland buffers and surrounding land use.

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- WIDE. Buffers average 50m (164 ft) or more around wetland perimeter (7)
- 4 MEDIUM. Buffers average 25m to <50m (82 to <164 ft) around wetland perimeter (4)
- NARROW. Buffers average 10m to <25m (32 ft to <82 ft) 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.

- 4 VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- 5 LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- 3 MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

21	31
max 30 pts	subtotal

Metric 3. Hydrology.

3a. Sources of water. Score all that apply.

- High pH groundwater (5)
- Other groundwater (3)
- 6 1 Precipitation (1)
- Seasonal/Intermittent surface water (3)
- 5 Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- 100 year floodplain (1)
- 1 Between stream/lake and other human use (1)
- 1 Part of wetland/upland (e.g. forest), complex (1)
- 1 Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

- >0.7 (27.6in) (3)
- 1 0.4 to 0.7m (15.7 to 27.6in) (2)
- 1 >0.4m (<15.7in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

- 4 Semi-to permanently inundated/saturated (4)
- Regularly inundated/saturated (3)
- Seasonally inundated (2)
- Seasonally saturated in upper 30 cm (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- None or none apparent (12)
- 7 Recovered (7)
- Recovering (3)
- 7 Recent or no recovery (1)

Check all disturbances observed	
<input type="checkbox"/> ditch <input type="checkbox"/> tile <input type="checkbox"/> dike <input type="checkbox"/> weir <input type="checkbox"/> stormwater input	<input type="checkbox"/> point source (non stormwater) <input checked="" type="checkbox"/> filling/grading <input checked="" type="checkbox"/> road bed/RR track <input type="checkbox"/> dredging <input type="checkbox"/> other

13.5	44.5
max 20 pts	subtotal

Metric 4. Habitat alteration and development.

4a. Substrate disturbance. Score one or double check and average.

- 4 None or none apparent (4)
- 3.5 Recovered (3)
- Recovering (2)
- Recent or no recovery (1)

4c. Habitat alteration. Score one or double check and average.

- None or none apparent (9)
- 6 Recovered (6)
- Recovering (3)
- Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- Excellent (7)
- Very good (6)
- Good (5)
- 4 Moderately good (4)
- Fair (3)
- Poor to fair (2)
- Poor (1)

Check all disturbances observed	
<input checked="" type="checkbox"/> mowing <input type="checkbox"/> grazing <input type="checkbox"/> clearcutting <input checked="" type="checkbox"/> selective cutting <input type="checkbox"/> woody debris removal <input type="checkbox"/> toxic pollutants	<input type="checkbox"/> shrub/sapling removal <input type="checkbox"/> herbaceous/aquatic bed removal <input type="checkbox"/> sedimentation <input type="checkbox"/> dredging <input type="checkbox"/> farming <input type="checkbox"/> nutrient enrichment

44.5

last revised 1 February 2001 jim

Subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: Cedar Estates Basin	Rater(s): Chagrin Valley Engineering	Date: 3/16/15
Wetland: 1, 1.0-acre		

44.5

Subtotal 1st page

0	44.5
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max 10 pts subtotal

Metric 5. Special Wetlands

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-unrestricted hydrology (10)
- Lake Erie Coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See question 1 Qualitative Rating - 10

0

10	54.5
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max 20 pts subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale.

- Aquatic bed
- Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other

3

6b. Horizontal (plan view) interspersions.

Select only one.

- High (5)
- Moderately high (4)
- Moderate (3)
- Moderately low (2)
- Low (1)
- None (0)

2

6c. Coverage of invasive plants. Refer to Table 1 ORAM

long form for list. Add or deduct points for coverage.

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- Absent (1)

0

6d. Microtopography

Score all present using 1 to 3 scale.

- Vegetated hummocks/tussocks
- Coarse woody debris > 15cm (6in)
- Standing dead >25cm (10in) dbh
- Amphibian breeding pools

5

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality.
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality.
3	Present and comprises significant part or more of wetland's vegetation and is of high quality.

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare, threatened or endangered spp.
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened or endangered spp

Mudflat and Open Water Class Quality

0	Absent
1	Low 0.1 to 1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

54.5 GRAND TOTAL (max 100 pts)

last revised 1 February 2001 ijm



Wetland 1

Narrative Rating	Question 1. Critical Habitat	Yes <input type="radio"/> No	If yes, Category 3
	Question 2. Threatened or Endangered Species	Yes <input type="radio"/> No	If yes, Category 3
	Question 3. High Quality Natural Wetland	Yes <input type="radio"/> No	If yes, Category 3
	Question 4. Significant Bird Habitat	Yes <input type="radio"/> No	If yes, Category 3
	Question 5. Category 1 Wetlands	Yes <input type="radio"/> No	If yes, Category 1
	Question 6. Bogs	Yes <input type="radio"/> No	If yes, Category 3
	Question 7. Fens	Yes <input type="radio"/> No	If yes, Category 3
	Question 8a. Old Growth Forest	Yes <input type="radio"/> No	If yes, Category 3
	Question 8b. Mature Forested Wetland	Yes <input type="radio"/> No	If yes, evaluate for Category 3; may also be 1 or 2
	Question 9b. Lake Erie Wetlands-Restricted	Yes <input type="radio"/> No	If yes, evaluate for Category 3; may also be 1 or 2
	Question 9d. Lake Erie Wetlands-Unrestricted with native plants	Yes <input type="radio"/> No	If yes, Category 3
	Question 9e. Lake Erie Wetlands-Unrestricted with invasive plants	Yes <input type="radio"/> No	If yes, evaluate for Category 3; may also be 1 or 2
Question 10. Oak Openings	Yes <input type="radio"/> No	If yes, Category 3	
Question 11. Relict Wet Prairies	Yes <input type="radio"/> No	If yes, evaluate for Category 3; may also be 1 or 2	
Quantitative Rating	Metric 1. Size	2	
	Metric 2. Buffers and Surrounding Land Use	8	
	Metric 3. Hydrology	21	
	Metric 4. Habitat	13.5	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant Communities, Interspersion, Microtopography	10	
	TOTAL SCORE	54.5	



Wetland 1

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	<input checked="" type="radio"/> NO 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© and biological and/or functional assessments to determine if the wetland has been over-categorized 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	<input checked="" type="radio"/> NO Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54© 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	<input checked="" type="radio"/> NO Is quantitative rating score <i>greater</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© 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?	<input checked="" type="radio"/> YES Wetland is assigned to the appropriate category based on the scoring range.	NO If the score of the wetland is located within the scoring range for a particular category, the wetlands should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54 © can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall within the "gray zone" of a Category 1, 2, or 3 wetland?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and narrative criteria.	<input checked="" type="radio"/> NO Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a non-rapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC Rule 3745-1-54 ©.
Does the wetland otherwise exhibit <i>moderate</i> OR <i>superior</i> hydrologic OR habitat, OR recreational functions AND the wetland was <i>not</i> categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was under-categorized by this method. A written justification for re-categorization should be provided on Background Information Form.	<input checked="" type="radio"/> NO A wetland may be under-categorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54 © (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:
Category 2



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 Unit if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

Wetland 2

#	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 mitigation site, conservation site, etc.	X	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both the natural and human-induced changes including, constrictions, caused by berms or dikes, points where 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 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 are present. These should not be used to establish scoring boundaries unless they coincide with areas where 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



Ohio Rapid Assessment Method for Wetlands – 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 a 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 Reynoldsburg 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 2

#	Question	Circle One	
#1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	NO Go to Question 2
#2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 Go to Question 3	NO Go to Question 3
#3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 Go to Question 4	NO Go to Question 4
#4	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 Go to Question 5	NO Go to Question 5
#5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by <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 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 Go to Question 7	NO Go to Question 7
#7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is the 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 Go to Question 8a	NO Go to Question 8a



Ohio Rapid Assessment Method for Wetlands – Narrative Rating

#8a	“Old Growth Forest”. Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 Go to Question 8b	NO Go to Question 8b
#8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	YES Wetland should be evaluated for possible Category 3 status Go to Question 9a	NO Go to Question 9a
#9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES Go to Question 9b	NO Go to Question 10
#9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES Wetland should be evaluated for possible Category 3 status Go to Question 9d	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 9d
#9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant species can also be present?	YES Wetland is a Category 3 Go to Question 10	NO Go to Question 9e
#9e	Does the wetland have predominance of non-native or disturbance tolerant native plant species?	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 Go to Question 11	NO Go to Question 11
#11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio, Erie County, and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, etc.).	YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	NO Complete Quantitative Rating

ORAM v. 5.0 Field Form Quantitative Rating

Site: Cedar Estates Basin	Rater(s): Chagrin Valley Engineering	Date: 3/16/15
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0	0
max 6 pts	subtotal

Wetland: 2, 0.006-acre

48	2
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Final Score Category

Metric 1. Wetland Area (size).

Select one size class and assign score.

0	0	<input type="checkbox"/> > 50 acres (<20.2ha) (6 pts)
0	0	<input type="checkbox"/> 25 to <50 acres (10.1 to <20.2ha) (5 pts)
0	0	<input type="checkbox"/> 10 to <25 acres (4 to <10.1ha) (4 pts)
0	0	<input type="checkbox"/> 3 to 10<acres (1.2 to <4ha) (3 pts)
0	0	<input type="checkbox"/> 0.3 to <3 acres (0.12 to <1.2ha) (2 pts)
0	0	<input type="checkbox"/> 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
0	0	<input type="checkbox"/> <0.1 acres (0.04ha) (0 pts)

12	12
max 14 pts	subtotal

Metric 2. Upland buffers and surrounding land use.

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

7	7	<input type="checkbox"/> WIDE. Buffers average 50m (164 ft) or more around wetland perimeter (7)
7	7	<input type="checkbox"/> MEDIUM. Buffers average 25m to <50m (82 to <164 ft) around wetland perimeter (4)
7	7	<input type="checkbox"/> NARROW. Buffers average 10m to <25m (32 ft to <82 ft) around wetland perimeter (1)
7	7	<input type="checkbox"/> VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

5	5	<input type="checkbox"/> VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
5	5	<input type="checkbox"/> LOW. Old field (>10 years), shrubland, young second growth forest. (5)
5	5	<input type="checkbox"/> MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
5	5	<input type="checkbox"/> HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

17	29
max 30 pts	subtotal

Metric 3. Hydrology.

3a. Sources of water. Score all that apply.

1	1	<input type="checkbox"/> High pH groundwater (5)
1	1	<input type="checkbox"/> Other groundwater (3)
1	1	<input type="checkbox"/> Precipitation (1)
1	1	<input type="checkbox"/> Seasonal/Intermittent surface water (3)
1	1	<input type="checkbox"/> Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

1	1	<input type="checkbox"/> 100 year floodplain (1)
1	1	<input type="checkbox"/> Between stream/lake and other human use (1)
1	1	<input type="checkbox"/> Part of wetland/upland (e.g. forest), complex (1)
1	1	<input type="checkbox"/> Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

1	1	<input type="checkbox"/> >0.7 (27.6in) (3)
1	1	<input type="checkbox"/> 0.4 to 0.7m (15.7 to 27.6in) (2)
1	1	<input type="checkbox"/> >0.4m (<15.7in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

2	2	<input type="checkbox"/> Semi-to permanently inundated/saturated (4)
2	2	<input type="checkbox"/> Regularly inundated/saturated (3)
2	2	<input type="checkbox"/> Seasonally inundated (2)
2	2	<input type="checkbox"/> Seasonally saturated in upper 30 cm (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

12	12	<input type="checkbox"/> None or none apparent (12)
12	12	<input type="checkbox"/> Recovered (7)
12	12	<input type="checkbox"/> Recovering (3)
12	12	<input type="checkbox"/> Recent or no recovery (1)

Check all disturbances observed	
<input type="checkbox"/> ditch <input type="checkbox"/> tile <input type="checkbox"/> dike <input type="checkbox"/> weir <input type="checkbox"/> stormwater input	<input type="checkbox"/> point source (non stormwater) <input type="checkbox"/> filling/grading <input type="checkbox"/> road bed/RR track <input type="checkbox"/> dredging <input type="checkbox"/> other

14	43
max 20 pts	subtotal

Metric 4. Habitat alteration and development.

4a. Substrate disturbance. Score one or double check and average.

4	4	<input type="checkbox"/> None or none apparent (4)
4	4	<input type="checkbox"/> Recovered (3)
4	4	<input type="checkbox"/> Recovering (2)
4	4	<input type="checkbox"/> Recent or no recovery (1)

4c. Habitat alteration. Score one or double check and average.

6	6	<input type="checkbox"/> None or none apparent (9)
6	6	<input type="checkbox"/> Recovered (6)
6	6	<input type="checkbox"/> Recovering (3)
6	6	<input type="checkbox"/> Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

4	4	<input type="checkbox"/> Excellent (7)
4	4	<input type="checkbox"/> Very good (6)
4	4	<input type="checkbox"/> Good (5)
4	4	<input type="checkbox"/> Moderately good (4)
4	4	<input type="checkbox"/> Fair (3)
4	4	<input type="checkbox"/> Poor to fair (2)
4	4	<input type="checkbox"/> Poor (1)

Check all disturbances observed	
<input type="checkbox"/> mowing <input type="checkbox"/> grazing <input type="checkbox"/> clearcutting <input checked="" type="checkbox"/> selective cutting <input type="checkbox"/> woody debris removal <input type="checkbox"/> toxic pollutants	<input type="checkbox"/> shrub/sapling removal <input type="checkbox"/> herbaceous/aquatic bed removal <input type="checkbox"/> sedimentation <input type="checkbox"/> dredging <input type="checkbox"/> farming <input type="checkbox"/> nutrient enrichment

43

last revised 1 February 2001 jim

Subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: Cedar Estates Basin	Rater(s): Chagrin Valley Engineering	Date: 3/16/15
Wetland: 2, 0.006-acre		

43

Subtotal 1st page

0	43
max 10 pts	subtotal

Metric 5. Special Wetlands

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-unrestricted hydrology (10)
- Lake Erie Coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See question 1 Qualitative Rating - 10

0

5	48
max 20 pts	subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale.

- Aquatic bed
- 2 Emergent
- 0 Shrub
- 0 Forest
- Mudflats
- Open water
- Other

2

6b. Horizontal (plan view) interspersions.

Select only one.

- High (5)
- Moderately high (4)
- Moderate (3)
- Moderately low (2)
- 1 Low (1)
- None (0)

1

6c. Coverage of invasive plants. Refer to Table 1 ORAM

long form for list. Add or deduct points for coverage.

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- 1 Absent (1)

1

6d. Microtopography

Score all present using 1 to 3 scale.

- 0 Vegetated hummocks/tussocks
- 1 Coarse woody debris > 15cm (6in)
- 0 Standing dead >25cm (10in) dbh
- 0 Amphibian breeding pools

1

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality.
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality.
3	Present and comprises significant part or more of wetland's vegetation and is of high quality.

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare, threatened or endangered spp.
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened or endangered spp

Mudflat and Open Water Class Quality

0	Absent
1	Low 0.1 to 1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

48 GRAND TOTAL (max 100 pts)

last revised 1 February 2001 jjm



Wetland 2

Narrative Rating	Question 1. Critical Habitat	Yes <input type="radio"/> No <input checked="" type="radio"/>	If yes, Category 3
	Question 2. Threatened or Endangered Species	Yes <input type="radio"/> No <input checked="" type="radio"/>	If yes, Category 3
	Question 3. High Quality Natural Wetland	Yes <input type="radio"/> No <input checked="" type="radio"/>	If yes, Category 3
	Question 4. Significant Bird Habitat	Yes <input type="radio"/> No <input checked="" type="radio"/>	If yes, Category 3
	Question 5. Category 1 Wetlands	Yes <input type="radio"/> No <input checked="" type="radio"/>	If yes, Category 1
	Question 6. Bogs	Yes <input type="radio"/> No <input checked="" type="radio"/>	If yes, Category 3
	Question 7. Fens	Yes <input type="radio"/> No <input checked="" type="radio"/>	If yes, Category 3
	Question 8a. Old Growth Forest	Yes <input type="radio"/> No <input checked="" type="radio"/>	If yes, Category 3
	Question 8b. Mature Forested Wetland	Yes <input type="radio"/> No <input checked="" type="radio"/>	If yes, evaluate for Category 3; may also be 1 or 2
	Question 9b. Lake Erie Wetlands-Restricted	Yes <input type="radio"/> No <input checked="" type="radio"/>	If yes, evaluate for Category 3; may also be 1 or 2
	Question 9d. Lake Erie Wetlands-Unrestricted with native plants	Yes <input type="radio"/> No <input checked="" type="radio"/>	If yes, Category 3
Question 9e. Lake Erie Wetlands-Unrestricted with invasive plants	Yes <input type="radio"/> No <input checked="" type="radio"/>	If yes, evaluate for Category 3; may also be 1 or 2	
Question 10. Oak Openings	Yes <input type="radio"/> No <input checked="" type="radio"/>	If yes, Category 3	
Question 11. Relict Wet Prairies	Yes <input type="radio"/> No <input checked="" type="radio"/>	If yes, evaluate for Category 3; may also be 1 or 2	
Quantitative Rating	Metric 1. Size	0	
	Metric 2. Buffers and Surrounding Land Use	12	
	Metric 3. Hydrology	17	
	Metric 4. Habitat	14	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant Communities, Interspersion, Microtopography	5	
	TOTAL SCORE		



Wetland 2

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	<input checked="" type="radio"/> NO 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© and biological and/or functional assessments to determine if the wetland has been over-categorized 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	<input checked="" type="radio"/> NO Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54© 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	<input checked="" type="radio"/> NO Is quantitative rating score <i>greater</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© 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?	<input checked="" type="radio"/> YES Wetland is assigned to the appropriate category based on the scoring range.	NO If the score of the wetland is located within the scoring range for a particular category, the wetlands should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54 © can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall within the "gray zone" of a Category 1, 2, or 3 wetland?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and narrative criteria.	<input checked="" type="radio"/> NO Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a non-rapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC Rule 3745-1-54 ©.
Does the wetland otherwise exhibit <i>moderate</i> OR <i>superior</i> hydrologic OR habitat, OR recreational functions AND the wetland was <i>not</i> categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was under-categorized by this method. A written justification for re-categorization should be provided on Background Information Form.	<input checked="" type="radio"/> NO A wetland may be under-categorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54 © (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:
Category 2



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 Unit if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

Wetland 3

#	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 mitigation site, conservation site, etc.	X	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both the natural and human-induced changes including, constrictions, caused by berms or dikes, points where 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 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 are present. These should not be used to establish scoring boundaries unless they coincide with areas where 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



Ohio Rapid Assessment Method for Wetlands – 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 a 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 Reynoldsburg 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 3

#	Question	Circle One	
#1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	NO Go to Question 2
#2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 Go to Question 3	NO Go to Question 3
#3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 Go to Question 4	NO Go to Question 4
#4	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 Go to Question 5	NO Go to Question 5
#5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by <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 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 Go to Question 7	NO Go to Question 7
#7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is the 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 Go to Question 8a	NO Go to Question 8a



Ohio Rapid Assessment Method for Wetlands – Narrative Rating

#8a	“Old Growth Forest”. Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 Go to Question 8b	NO Go to Question 8b
#8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	YES Wetland should be evaluated for possible Category 3 status Go to Question 9a	NO Go to Question 9a
#9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES Go to Question 9b	NO Go to Question 10
#9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES Wetland should be evaluated for possible Category 3 status Go to Question 9d	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 9d
#9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant species can also be present?	YES Wetland is a Category 3 Go to Question 10	NO Go to Question 9e
#9e	Does the wetland have predominance of non-native or disturbance tolerant native plant species?	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 Go to Question 11	NO Go to Question 11
#11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio, Erie County, and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, etc.).	YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	NO Complete Quantitative Rating

ORAM v. 5.0 Field Form Quantitative Rating

Site: Cedar Estates Basin	Rater(s): Chagrin Valley Engineering	Date: 3/16/15
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0	0
max 6 pts	subtotal

Wetland: 3, 0.02-acre

44	Mod 2
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Final Score Category

Metric 1. Wetland Area (size).

Select one size class and assign score.

0	<input type="checkbox"/> > 50 acres (<20.2ha) (6 pts)
	<input type="checkbox"/> 25 to <50 acres (10.1 to <20.2ha) (5 pts)
	<input type="checkbox"/> 10 to <25 acres (4 to <10.1ha) (4 pts)
	<input type="checkbox"/> 3 to 10<acres (1.2 to <4ha) (3 pts)
	<input type="checkbox"/> 0.3 to <3 acres (0.12 to <1.2ha) (2 pts)
	<input type="checkbox"/> 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
0	<input type="checkbox"/> <0.1 acres (0.04ha) (0 pts)

11	11
max 14 pts	subtotal

Metric 2. Upland buffers and surrounding land use.

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

7	<input type="checkbox"/> WIDE. Buffers average 50m (164 ft) or more around wetland perimeter (7)
	<input type="checkbox"/> MEDIUM. Buffers average 25m to <50m (82 to <164 ft) around wetland perimeter (4)
	<input type="checkbox"/> NARROW. Buffers average 10m to <25m (32 ft to <82 ft) around wetland perimeter (1)
	<input type="checkbox"/> VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

4	<input type="checkbox"/> VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
	<input type="checkbox"/> 5 LOW. Old field (>10 years), shrubland, young second growth forest. (5)
	<input type="checkbox"/> 3 MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
	<input type="checkbox"/> HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

17	28
max 30 pts	subtotal

Metric 3. Hydrology.

3a. Sources of water. Score all that apply.

1	<input type="checkbox"/> High pH groundwater (5)
	<input type="checkbox"/> Other groundwater (3)
	<input type="checkbox"/> 1 Precipitation (1)
	<input type="checkbox"/> Seasonal/Intermittent surface water (3)
	<input type="checkbox"/> Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

1	<input type="checkbox"/> 100 year floodplain (1)
	<input type="checkbox"/> Between stream/lake and other human use (1)
	<input type="checkbox"/> Part of wetland/upland (e.g. forest), complex (1)
	<input type="checkbox"/> Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

1	<input type="checkbox"/> >0.7 (27.6in) (3)
	<input type="checkbox"/> 0.4 to 0.7m (15.7 to 27.6in) (2)
	<input type="checkbox"/> 1 >0.4m (<15.7in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

2	<input type="checkbox"/> Semi-to permanently inundated/saturated (4)
	<input type="checkbox"/> Regularly inundated/saturated (3)
	<input type="checkbox"/> 2 Seasonally inundated (2)
	<input type="checkbox"/> Seasonally saturated in upper 30 cm (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

12	<input type="checkbox"/> None or none apparent (12)
	<input type="checkbox"/> Recovered (7)
	<input type="checkbox"/> Recovering (3)
12	<input type="checkbox"/> Recent or no recovery (1)

Check all disturbances observed	
<input type="checkbox"/> ditch <input type="checkbox"/> tile <input type="checkbox"/> dike <input type="checkbox"/> weir <input type="checkbox"/> stormwater input	<input type="checkbox"/> point source (non stormwater) <input type="checkbox"/> filling/grading <input type="checkbox"/> road bed/RR track <input type="checkbox"/> dredging <input type="checkbox"/> other

13	41
max 20 pts	subtotal

Metric 4. Habitat alteration and development.

4a. Substrate disturbance. Score one or double check and average.

4	<input type="checkbox"/> None or none apparent (4)
	<input type="checkbox"/> Recovered (3)
	<input type="checkbox"/> Recovering (2)
	<input type="checkbox"/> Recent or no recovery (1)

4c. Habitat alteration. Score one or double check and average.

6	<input type="checkbox"/> None or none apparent (9)
	<input type="checkbox"/> Recovered (6)
	<input type="checkbox"/> Recovering (3)
	<input type="checkbox"/> Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

3	<input type="checkbox"/> Excellent (7)
	<input type="checkbox"/> Very good (6)
	<input type="checkbox"/> Good (5)
	<input type="checkbox"/> Moderately good (4)
	<input type="checkbox"/> 3 Fair (3)
	<input type="checkbox"/> Poor to fair (2)
	<input type="checkbox"/> Poor (1)

Check all disturbances observed	
<input type="checkbox"/> mowing <input type="checkbox"/> grazing <input type="checkbox"/> clearcutting <input checked="" type="checkbox"/> selective cutting <input type="checkbox"/> woody debris removal <input type="checkbox"/> toxic pollutants	<input type="checkbox"/> shrub/sapling removal <input type="checkbox"/> herbaceous/aquatic bed removal <input type="checkbox"/> sedimentation <input type="checkbox"/> dredging <input type="checkbox"/> farming <input type="checkbox"/> nutrient enrichment

41

last revised 1 February 2001 jim

Subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: Cedar Estates Basin	Rater(s): Chagrin Valley Engineering	Date: 3/16/15
Wetland: 3, 0.02-acre		

41

Subtotal 1st page

0	41
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max 10 pts subtotal

Metric 5. Special Wetlands

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-unrestricted hydrology (10)
- Lake Erie Coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See question 1 Qualitative Rating - 10

0

3	44
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max 20 pts subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale.

- Aquatic bed
- Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other

1

6b. Horizontal (plan view) interspersions.

Select only one.

- High (5)
- Moderately high (4)
- Moderate (3)
- Moderately low (2)
- Low (1)
- None (0)

1

6c. Coverage of invasive plants. Refer to Table 1 ORAM

long form for list. Add or deduct points for coverage.

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- Absent (1)

1

6d. Microtopography

Score all present using 1 to 3 scale.

- Vegetated hummocks/tussocks
- Coarse woody debris > 15cm (6in)
- Standing dead >25cm (10in) dbh
- Amphibian breeding pools

0

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality.
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality.
3	Present and comprises significant part or more of wetland's vegetation and is of high quality.

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare, threatened or endangered spp.
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened or endangered spp

Mudflat and Open Water Class Quality

0	Absent
1	Low 0.1 to 1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

44 GRAND TOTAL (max 100 pts)

last revised 1 February 2001 ijm



Wetland 3

Narrative Rating	Question 1. Critical Habitat	Yes <input checked="" type="radio"/> No	If yes, Category 3
	Question 2. Threatened or Endangered Species	Yes <input checked="" type="radio"/> No	If yes, Category 3
	Question 3. High Quality Natural Wetland	Yes <input checked="" type="radio"/> No	If yes, Category 3
	Question 4. Significant Bird Habitat	Yes <input checked="" type="radio"/> No	If yes, Category 3
	Question 5. Category 1 Wetlands	Yes <input checked="" type="radio"/> No	If yes, Category 1
	Question 6. Bogs	Yes <input checked="" type="radio"/> No	If yes, Category 3
	Question 7. Fens	Yes <input checked="" type="radio"/> No	If yes, Category 3
	Question 8a. Old Growth Forest	Yes <input checked="" type="radio"/> No	If yes, Category 3
	Question 8b. Mature Forested Wetland	Yes <input checked="" type="radio"/> No	If yes, evaluate for Category 3; may also be 1 or 2
	Question 9b. Lake Erie Wetlands-Restricted	Yes <input checked="" type="radio"/> No	If yes, evaluate for Category 3; may also be 1 or 2
	Question 9d. Lake Erie Wetlands-Unrestricted with native plants	Yes <input checked="" type="radio"/> No	If yes, Category 3
Question 9e. Lake Erie Wetlands-Unrestricted with invasive plants	Yes <input checked="" type="radio"/> No	If yes, evaluate for Category 3; may also be 1 or 2	
Question 10. Oak Openings	Yes <input checked="" type="radio"/> No	If yes, Category 3	
Question 11. Relict Wet Prairies	Yes <input checked="" type="radio"/> No	If yes, evaluate for Category 3; may also be 1 or 2	
Quantitative Rating	Metric 1. Size	0	
	Metric 2. Buffers and Surrounding Land Use	11	
	Metric 3. Hydrology	17	
	Metric 4. Habitat	13	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant Communities, Interspersion, Microtopography	3	
	TOTAL SCORE	44	



Wetland 3

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	<input checked="" type="radio"/> NO 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© and biological and/or functional assessments to determine if the wetland has been over-categorized 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	<input checked="" type="radio"/> NO Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54© 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	<input checked="" type="radio"/> NO Is quantitative rating score <i>greater</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© 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?	<input checked="" type="radio"/> YES Wetland is assigned to the appropriate category based on the scoring range.	NO If the score of the wetland is located within the scoring range for a particular category, the wetlands should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54 © can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall within the "gray zone" of a Category 1, 2, or 3 wetland?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and narrative criteria.	<input checked="" type="radio"/> NO Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a non-rapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC Rule 3745-1-54 ©.
Does the wetland otherwise exhibit <i>moderate</i> OR <i>superior</i> hydrologic OR habitat, OR recreational functions AND the wetland was <i>not</i> categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was under-categorized by this method. A written justification for re-categorization should be provided on Background Information Form.	<input checked="" type="radio"/> NO A wetland may be under-categorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54 © (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:
Modified Category 2



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 Unit if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

Wetland 4

#	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 mitigation site, conservation site, etc.	X	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both the natural and human-induced changes including, constrictions, caused by berms or dikes, points where 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 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 are present. These should not be used to establish scoring boundaries unless they coincide with areas where 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



Ohio Rapid Assessment Method for Wetlands – 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 a 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 Reynoldsburg 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 4

#	Question	Circle One	
#1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	NO Go to Question 2
#2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 Go to Question 3	NO Go to Question 3
#3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 Go to Question 4	NO Go to Question 4
#4	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 Go to Question 5	NO Go to Question 5
#5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by <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 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 Go to Question 7	NO Go to Question 7
#7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is the 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 Go to Question 8a	NO Go to Question 8a



Ohio Rapid Assessment Method for Wetlands – Narrative Rating

#8a	“Old Growth Forest” . Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 Go to Question 8b	NO Go to Question 8b
#8b	Mature forested wetlands . Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	YES Wetland should be evaluated for possible Category 3 status Go to Question 9a	NO Go to Question 9a
#9a	Lake Erie coastal and tributary wetlands . Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES Go to Question 9b	NO Go to Question 10
#9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES Wetland should be evaluated for possible Category 3 status Go to Question 9d	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 9d
#9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant species can also be present?	YES Wetland is a Category 3 Go to Question 10	NO Go to Question 9e
#9e	Does the wetland have predominance of non-native or disturbance tolerant native plant species?	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 Go to Question 11	NO Go to Question 11
#11	Relict Wet Prairies . Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio, Erie County, and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, etc.).	YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	NO Complete Quantitative Rating

ORAM v. 5.0 Field Form Quantitative Rating

Site: Cedar Estates Basin	Rater(s): Chagrin Valley Engineering	Date: 3/16/15
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0	0
max 6 pts	subtotal

Wetland: 4, 0.01-acre

41	Mod 2
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Final Score Category

Metric 1. Wetland Area (size).

Select one size class and assign score.

0	0	<input type="checkbox"/> > 50 acres (<20.2ha) (6 pts)
0	0	<input type="checkbox"/> 25 to <50 acres (10.1 to <20.2ha) (5 pts)
0	0	<input type="checkbox"/> 10 to <25 acres (4 to <10.1ha) (4 pts)
0	0	<input type="checkbox"/> 3 to 10<acres (1.2 to <4ha) (3 pts)
0	0	<input type="checkbox"/> 0.3 to <3 acres (0.12 to <1.2ha) (2 pts)
0	0	<input type="checkbox"/> 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
0	0	<input type="checkbox"/> <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

4	4	<input type="checkbox"/> WIDE. Buffers average 50m (164 ft) or more around wetland perimeter (7)
4	4	<input type="checkbox"/> MEDIUM. Buffers average 25m to <50m (82 to <164 ft) around wetland perimeter (4)
4	4	<input type="checkbox"/> NARROW. Buffers average 10m to <25m (32 ft to <82 ft) around wetland perimeter (1)
4	4	<input type="checkbox"/> VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

4	5	<input type="checkbox"/> VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
4	3	<input type="checkbox"/> LOW. Old field (>10 years), shrubland, young second growth forest. (5)
4	3	<input type="checkbox"/> MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
4	1	<input type="checkbox"/> HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

Metric 3. Hydrology.

3a. Sources of water. Score all that apply.

1	1	<input type="checkbox"/> High pH groundwater (5)
1	1	<input type="checkbox"/> Other groundwater (3)
1	1	<input type="checkbox"/> Precipitation (1)
1	1	<input type="checkbox"/> Seasonal/Intermittent surface water (3)
1	1	<input type="checkbox"/> Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

1	1	<input type="checkbox"/> 100 year floodplain (1)
1	1	<input type="checkbox"/> Between stream/lake and other human use (1)
1	1	<input type="checkbox"/> Part of wetland/upland (e.g. forest), complex (1)
1	1	<input type="checkbox"/> Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

1	2	<input type="checkbox"/> >0.7 (27.6in) (3)
1	2	<input type="checkbox"/> 0.4 to 0.7m (15.7 to 27.6in) (2)
1	1	<input type="checkbox"/> >0.4m (<15.7in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

2	2	<input type="checkbox"/> Semi-to permanently inundated/saturated (4)
2	2	<input type="checkbox"/> Regularly inundated/saturated (3)
2	2	<input type="checkbox"/> Seasonally inundated (2)
2	2	<input type="checkbox"/> Seasonally saturated in upper 30 cm (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

12	12	<input type="checkbox"/> None or none apparent (12)
12	12	<input type="checkbox"/> Recovered (7)
12	12	<input type="checkbox"/> Recovering (3)
12	12	<input type="checkbox"/> Recent or no recovery (1)

Check all disturbances observed	
<input type="checkbox"/> ditch	<input type="checkbox"/> point source (non stormwater)
<input type="checkbox"/> tile	<input type="checkbox"/> filling/grading
<input type="checkbox"/> dike	<input type="checkbox"/> road bed/RR track
<input type="checkbox"/> weir	<input type="checkbox"/> dredging
<input type="checkbox"/> stormwater input	<input type="checkbox"/> other

Metric 4. Habitat alteration and development.

4a. Substrate disturbance. Score one or double check and average.

4	6	<input type="checkbox"/> None or none apparent (4)
4	6	<input type="checkbox"/> Recovered (3)
4	6	<input type="checkbox"/> Recovering (2)
4	6	<input type="checkbox"/> Recent or no recovery (1)

4c. Habitat alteration. Score one or double check and average.

6	6	<input type="checkbox"/> None or none apparent (9)
6	6	<input type="checkbox"/> Recovered (6)
6	6	<input type="checkbox"/> Recovering (3)
6	6	<input type="checkbox"/> Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

3	3	<input type="checkbox"/> Excellent (7)
3	3	<input type="checkbox"/> Very good (6)
3	3	<input type="checkbox"/> Good (5)
3	3	<input type="checkbox"/> Moderately good (4)
3	3	<input type="checkbox"/> Fair (3)
3	3	<input type="checkbox"/> Poor to fair (2)
3	3	<input type="checkbox"/> Poor (1)

Check all disturbances observed	
<input type="checkbox"/> mowing	<input type="checkbox"/> shrub/sapling removal
<input type="checkbox"/> grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input type="checkbox"/> clearcutting	<input type="checkbox"/> sedimentation
<input checked="" type="checkbox"/> selective cutting	<input type="checkbox"/> dredging
<input type="checkbox"/> woody debris removal	<input type="checkbox"/> farming
<input type="checkbox"/> toxic pollutants	<input type="checkbox"/> nutrient enrichment

38

last revised 1 February 2001 jim

Subtotal this page

ORAM v. 5.0 Field Form Quantitative Rating

Site: Cedar Estates Basin	Rater(s): Chagrin Valley Engineering	Date: 3/16/15
Wetland: 4, 0.01-acre		

38

Subtotal1st page

0 **38**

max 10 pts subtotal

Metric 5. Special Wetlands

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-unrestricted hydrology (10)
- Lake Erie Coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See question 1 Qualitative Rating - 10

0

3 **41**

max 20 pts subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale.

- Aquatic bed
- 1 Emergent
- 0 Shrub
- 0 Forest
- Mudflats
- Open water
- Other

1

6b. Horizontal (plan view) interspersions.

Select only one.

- High (5)
- Moderately high (4)
- Moderate (3)
- Moderately low (2)
- 1 Low (1)
- None (0)

1

6c. Coverage of invasive plants. Refer to Table 1 ORAM

long form for list. Add or deduct points for coverage.

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- 1 Absent (1)

1

6d. Microtopography

Score all present using 1 to 3 scale.

- 0 Vegetated hummocks/tussocks
- 0 Coarse woody debris > 15cm (6in)
- 0 Standing dead >25cm (10in) dbh
- 0 Amphibian breeding pools

0

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality.
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality.
3	Present and comprises significant part or more of wetland's vegetation and is of high quality.

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare, threatened or endangered spp.
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened or endangered spp

Mudflat and Open Water Class Quality

0	Absent
1	Low 0.1 to 1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

41 GRAND TOTAL (max 100 pts)

last revised 1 February 2001 ijm



Wetland 4

Narrative Rating	Question 1. Critical Habitat	Yes <input type="radio"/> No <input checked="" type="radio"/>	If yes, Category 3
	Question 2. Threatened or Endangered Species	Yes <input type="radio"/> No <input checked="" type="radio"/>	If yes, Category 3
	Question 3. High Quality Natural Wetland	Yes <input type="radio"/> No <input checked="" type="radio"/>	If yes, Category 3
	Question 4. Significant Bird Habitat	Yes <input type="radio"/> No <input checked="" type="radio"/>	If yes, Category 3
	Question 5. Category 1 Wetlands	Yes <input type="radio"/> No <input checked="" type="radio"/>	If yes, Category 1
	Question 6. Bogs	Yes <input type="radio"/> No <input checked="" type="radio"/>	If yes, Category 3
	Question 7. Fens	Yes <input type="radio"/> No <input checked="" type="radio"/>	If yes, Category 3
	Question 8a. Old Growth Forest	Yes <input type="radio"/> No <input checked="" type="radio"/>	If yes, Category 3
	Question 8b. Mature Forested Wetland	Yes <input type="radio"/> No <input checked="" type="radio"/>	If yes, evaluate for Category 3; may also be 1 or 2
	Question 9b. Lake Erie Wetlands-Restricted	Yes <input type="radio"/> No <input checked="" type="radio"/>	If yes, evaluate for Category 3; may also be 1 or 2
	Question 9d. Lake Erie Wetlands-Unrestricted with native plants	Yes <input type="radio"/> No <input checked="" type="radio"/>	If yes, Category 3
Question 9e. Lake Erie Wetlands-Unrestricted with invasive plants	Yes <input type="radio"/> No <input checked="" type="radio"/>	If yes, evaluate for Category 3; may also be 1 or 2	
Question 10. Oak Openings	Yes <input type="radio"/> No <input checked="" type="radio"/>	If yes, Category 3	
Question 11. Relict Wet Prairies	Yes <input type="radio"/> No <input checked="" type="radio"/>	If yes, evaluate for Category 3; may also be 1 or 2	
Quantitative Rating	Metric 1. Size	0	
	Metric 2. Buffers and Surrounding Land Use	8	
	Metric 3. Hydrology	17	
	Metric 4. Habitat	13	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant Communities, Interspersion, Microtopography	3	
	TOTAL SCORE	41	



Wetland 4

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	<input checked="" type="radio"/> NO 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© and biological and/or functional assessments to determine if the wetland has been over-categorized 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	<input checked="" type="radio"/> NO Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54© 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	<input checked="" type="radio"/> NO Is quantitative rating score <i>greater</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© 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?	<input checked="" type="radio"/> YES Wetland is assigned to the appropriate category based on the scoring range.	NO If the score of the wetland is located within the scoring range for a particular category, the wetlands should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54 © can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall within the "gray zone" of a Category 1, 2, or 3 wetland?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and narrative criteria.	NO Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a non-rapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC Rule 3745-1-54 ©.
Does the wetland otherwise exhibit <i>moderate</i> OR <i>superior</i> hydrologic OR habitat, OR recreational functions AND the wetland was <i>not</i> categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was under-categorized by this method. A written justification for re-categorization should be provided on Background Information Form.	<input checked="" type="radio"/> NO A wetland may be under-categorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54 © (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:
Modified Category 2

PRIMARY HEADWATER HABITAT EVALUATION INDEX FOR
STREAMS (HHEI)



Primary Headwater Habitat Evaluation Form

55

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

SITE NAME/LOCATION **Cedar Estates Basin; Cedarwood Drive North Royalton, Ohio**

Stream 1 (York Rd) SITE NUMBER RIVER BASIN **041100010202** DRAINAGE AREA (m²) **0.34**

LENGTH OF STREAM REACH (ft) **263** LAT. **41.34799** LONG. **-81.76013** RIVER CODE RIVER MILE

DATE **03/16/15** SCORER **CVE** COMMENTS

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY
Channel was modified to align with the existing culverts and the bank was stabilized with gabion baskets

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
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input checked="" type="checkbox"/> SILT [3 pt]	20%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	5%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	10%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	20%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	5%
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	25%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	10%	<input type="checkbox"/> ARTIFICIAL [3 pts]	5%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **25.00%** (A) Substrate Percentage Check **100%** (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **12** TOTAL NUMBER OF SUBSTRATE TYPES: **8**

2. **Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]

> 22.5 - 30 cm [30 pts] < 5 cm [5 pts]

> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS MAXIMUM POOL DEPTH (centimeters): **10**

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]

> 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 AVERAGE BANKFULL WIDTH (meters): **2.60**

HHEI Metric Points

Substrate Max = 40

20

A + B

Pool Depth Max = 30

15

Bankfull Width Max=30

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	L	R	L	R
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank) Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):

Stream Flowing Moist Channel, isolated pools, no flow (Intermittent)

Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral)

COMMENTS

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

None 1.0 2.0 3.0

0.5 1.5 2.5 >3

STREAM GRADIENT ESTIMATE

Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe Severe (10 ft/100 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)

<input checked="" type="checkbox"/> WWH Name: Baldwin Creek	Distance from Evaluated Stream	0.74 miles
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Berea** NRCS Soil Map Page: NRCS Soil Map Stream Order
 County: **Cuyahoga** Township / City: **North Royalton**

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: **03/15/15** Quantity: **0.09**
 Photograph Information: **included**
 Elevated Turbidity? (Y/N): N Canopy (% open): **90%**
 Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:
 Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
 Is the sampling reach representative of the stream (Y/N): Y If not, please explain:

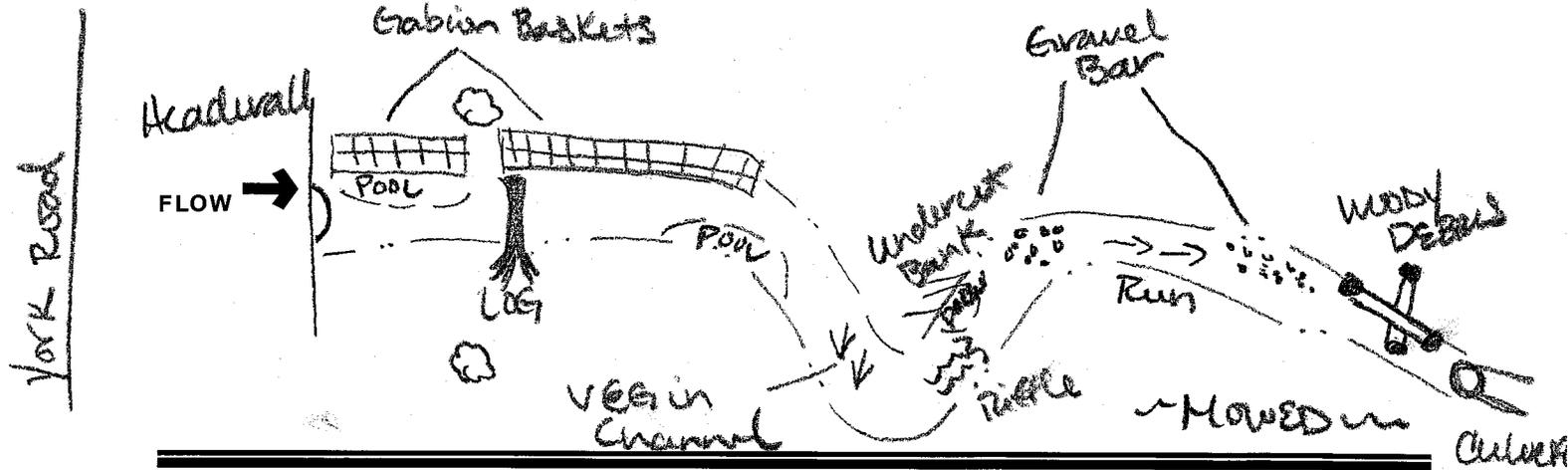
Additional comments/description of pollution impacts:

BIOTIC EVALUATION

Performed? (Y/N): Y (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) Y Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N
 Frogs or Tadpoles Observed? (Y/N) Y Voucher? (Y/N) Y Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N
 Comments Regarding Biology:
Fish observed were not identified. Tadpoles were observed in 3/2015, identified as Green Frog. Adult Green Frogs observed in 5/2015

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





Primary Headwater Habitat Evaluation Form

40

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

SITE NAME/LOCATION **Cedar Estates Basin; Cedarwood Drive North Royalton, Ohio**

Stream 1 (Center) SITE NUMBER RIVER BASIN **041100010202** DRAINAGE AREA (m²) **0.34**

LENGTH OF STREAM REACH (ft) **200** LAT. **41.34812** LONG. **-81.76267** RIVER CODE RIVER MILE

DATE **03/16/15** SCORER **CVE** COMMENTS

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY

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
<input type="checkbox"/> BLDR SLABS [16 pts]	<input type="text"/> 0%	<input checked="" type="checkbox"/> SILT [3 pt]	<input type="text"/> 20%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="text"/> 5%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="text"/> 20%
<input type="checkbox"/> BEDROCK [16 pt]	<input type="text"/> 0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="text"/> 0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="text"/> 0%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="text"/> 5%
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="text"/> 10%	<input checked="" type="checkbox"/> MUCK [0 pts]	<input type="text"/> 30%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="text"/> 10%	<input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="text"/> 0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **5.00%** (A)

Substrate Percentage Check **100%** (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3 **TOTAL NUMBER OF SUBSTRATE TYPES: 7**

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):

<input type="checkbox"/> > 30 centimeters [20 pts]	<input checked="" type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS **MAXIMUM POOL DEPTH (centimeters): 10**

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> < 1.0 m (<= 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS **AVERAGE BANKFULL WIDTH (meters): 1.50**

HHEI Metric Points

Substrate Max = 40

10
A + B

Pool Depth Max = 30

15

Bankfull Width Max=30

15

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):

Stream Flowing Moist Channel, isolated pools, no flow (Intermittent)

Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral)

COMMENTS

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

None 1.0 2.0 3.0

0.5 1.5 2.5 >3

STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe Severe (10 ft/100 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)

<input checked="" type="checkbox"/> WWH Name: Baldwin Creek	Distance from Evaluated Stream	0.74 miles
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Berea** NRCS Soil Map Page: NRCS Soil Map Stream Order
 County: **Cuyahoga** Township / City: **North Royalton**

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: **03/15/15** Quantity: **0.09**
 Photograph Information: **included**
 Elevated Turbidity? (Y/N): N Canopy (% open): **90%**
 Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:
 Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
 Is the sampling reach representative of the stream (Y/N) Y If not, please explain:

Additional comments/description of pollution impacts:

BIOTIC EVALUATION

Performed? (Y/N): Y (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) Y Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N
 Frogs or Tadpoles Observed? (Y/N) Y Voucher? (Y/N) Y Aquatic Macroinvertebrates Observed? (Y/N) Y Voucher? (Y/N) N
 Comments Regarding Biology:
Fish observed were not identified. Tadpoles were observed in 3/2015, identified as Green Frog. Adult Green Frogs observed in 5/2015
 Group 1 Taxa were observed (Hirudinea & Gastropoda)

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

