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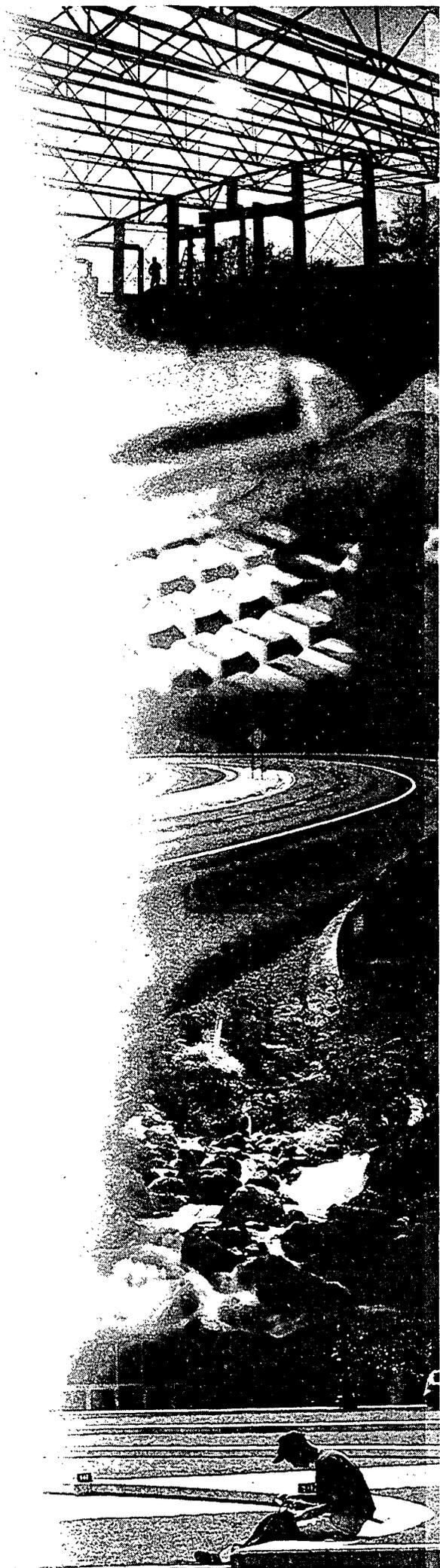
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**DELINEATION OF FEDERAL  
WETLANDS AND OTHER  
WATERS OF THE U.S.**

Miamisburg Environmental Management Project  
U.S. Department of Energy

Babcock & Wilcox of Ohio  
Montgomery County, Ohio

August 1999



**DELINEATION OF FEDERAL WETLANDS  
AND OTHER WATERS OF THE U.S.**

**FOR**

**MIAMISBURG ENVIRONMENTAL MANAGEMENT PROJECT  
U.S. DEPARTMENT OF ENERGY  
BABCOCK & WILCOX OF OHIO  
MONTGOMERY COUNTY, OHIO**

**August 1999**

# MIAMISBURG ENVIRONMENTAL MANAGEMENT PROJECT

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## PURPOSE

Woolpert performed a delineation of jurisdictional wetlands and other waters of the U.S. at the Department of Energy's Miamisburg Environmental Management Project (MEMP). The 300+ acre site, formally known as the Mound Facility, is located along Mound Avenue, in Miamisburg, Montgomery County, Ohio (Figure 1).

The Weston Co. had previously delineated the wetlands and other waters on the site (Weston, 1994). The delineation was approved by the Corps of Engineers, Louisville District, with a 5 year limitation. The facility is currently being prepared for closure. Therefore, this study was undertaken to determine the current extent and condition of wetlands and other regulated waters at the site as part of the closure environmental documentation.

## METHODS

Field studies were performed May 24 -26, 1999. Wetlands were delineated according to the *Corps of Engineers Wetlands Delineation Manual* (1987) and subsequent guidance from the Corps. According to this method, an area must contain wetland vegetation, hydric soils, and wetland hydrology in order to be designated a wetland. Documents referenced for this study included: the USGS 7.5-minute quadrangle map (Miamisburg and Franklin quadrangles), the *National List of Plant Species that Occur in Wetlands: Ohio* (1988), a 1993 color infrared aerial photo of the site, and the *Soil Survey of Montgomery County, Ohio* (1976), in addition to the Weston report. Plants were identified according to Gleason (1942) and Gleason and Cronquist (1963).

Wetland areas were marked in the field with wire flags or surveyor's ribbon tied to vegetation. The markers were numbered sequentially around each discrete wetland area. The wetland boundary markers were located using Global Positioning System (GPS) technology, with real-time correction to a satellite beacon. Several, previously installed survey monuments (referenced in the site's GIS) were located in the field by GPS on the same date and used as reference points for the wetland boundary survey. This method obtains an accuracy of less than two feet for the wetland boundary. Wetland areas were measured using the GPS digital data overlain on a site topographic and boundary survey with AutoCAD R14 computer mapping program.

Evaluation of the soils, vegetation and hydrology was made at each flag location to precisely define the boundary. The conditions of each wetland were documented on routine Wetland Determination Data Forms (see Appendix), with at least one representative point in each wetland and one point in the adjacent upland.

## SITE DESCRIPTION

The topography of the site is hilly, with 2 percent to more than 20 percent slopes across most of the site (Figures 1 and 4). The northern portion of the site, known as the North Property, is defined by a fence and is the location of all of the industrial activities and structures. The area is mostly developed, although there are some steep slopes that are vegetated. The South Property is largely undeveloped and contains a mixture of open grasslands and woodland.

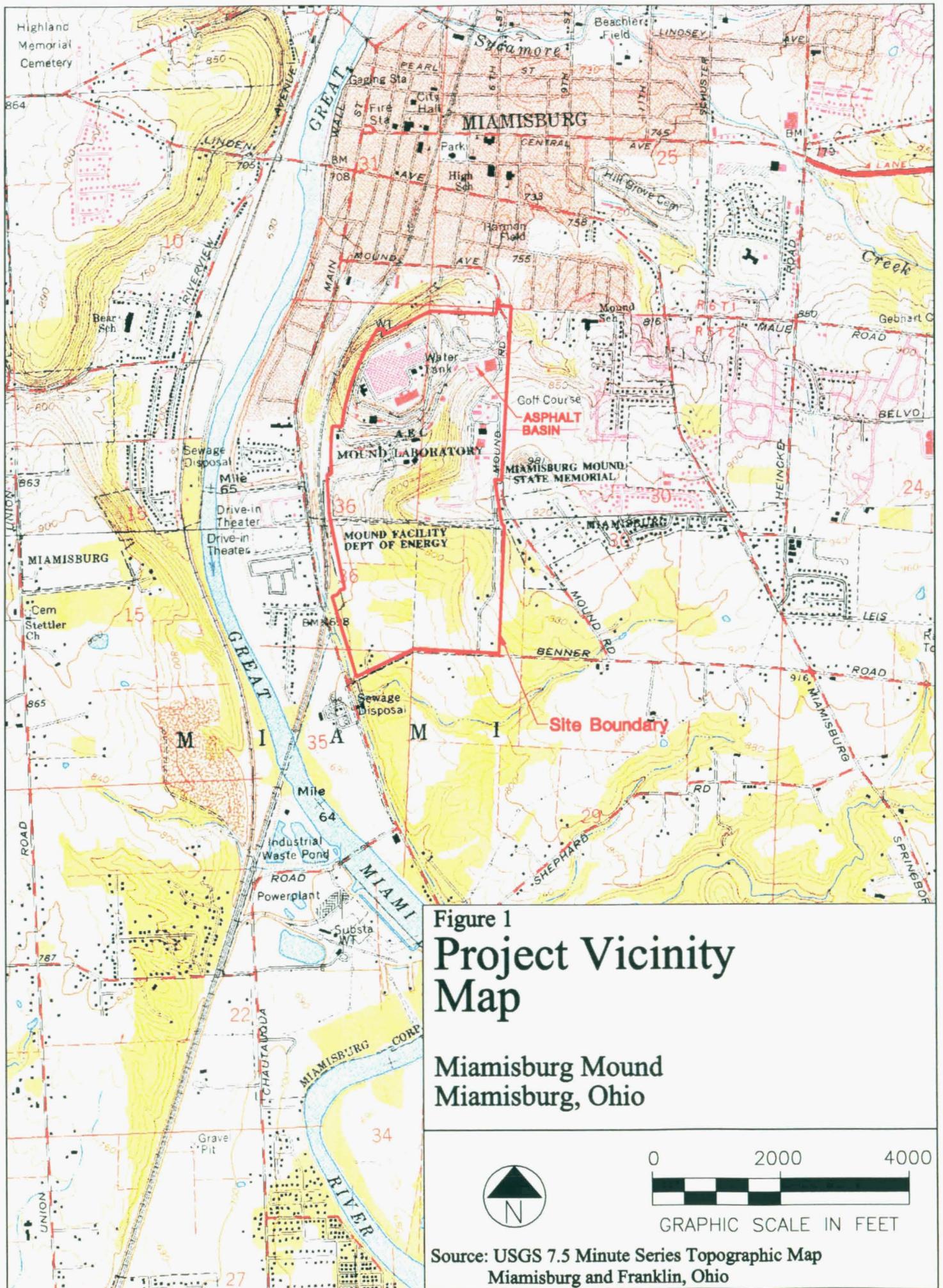
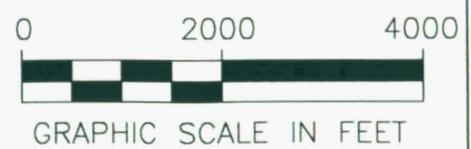


Figure 1  
**Project Vicinity  
 Map**

**Miamisburg Mound  
 Miamisburg, Ohio**



Source: USGS 7.5 Minute Series Topographic Map  
 Miamisburg and Franklin, Ohio

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The Ohio Wetlands Inventory map of Montgomery County (Geographic Information Management Systems) shows the storm water retention basin in the southwestern portion of the North Property, and three small scrub-shrub wetlands in the South Property (Figure 2). This map is based on 1985 Landsat imagery, with a resolution of 30 meters. Therefore, the potential wetlands that are identified are polygons composed of 30m x 30m squares or pixels. As a remote sensing inventory, it has no regulatory status, but serves as an additional source of information regarding potential wetland areas.

## Soils

The *Soil Survey of Montgomery County* (1976) shows nine soil series that occupy the vast majority of the site. All of these are well-drained or moderately well-drained soil types (Figure 3). None are considered hydric soils in the county, although several are considered inclusion soils, i.e., they may have small inclusions of hydric soils in depressions, potholes, or sloughs: Corwin silt loam, Miamian silt loam, Milton silt loam, and Ross silt loam. A very small area of Millsdale silty clay loam occurs in the eastern portion of the North Property. This very poorly drained, hydric soil type is located in an area of the site that was historically developed.

The occurrence and extent of hydric soils in suspected wetland areas were determined by sampling the soil to 18 inches below the surface with a hand soil probe. In most areas identified as potential wetlands, the soil was quite shallow (3 to 4 inches) over bedrock or gravel substratum, because of the natural condition of the soil or historic disturbance. Thus, sampling of the soil for hydric soil indicators was limited to this shallow soil layer. The typical indicators found in the soil were dark or grayish soil, often with bright mottles. Colors were determined by using the latest *Munsell Soil Color Charts* (1999). Under normal soil conditions, such colors in the topsoil may not normally be indicative of wetland soil because of the accumulation of organic matter. However, because the topsoil has apparently been stripped or eroded in most cases, these colors in the remnant, fine textured soil over the stony substratum were considered indicative of hydric soils. In many cases, the determination of hydric soils was supported by an apparent aquic moisture regime (saturation or surface water). Under the Corps methodology, hydric soils can be assumed in situations where the vegetation is strongly dominated by obligate and facultative-wetland plants, wetland hydrology is indicated, and the boundaries are abrupt. This situation was true for many of the identified areas.

## Hydrology

The USGS quadrangle maps show no streams on the site. The only waterbody identified is the asphalt basin, which is shown as a 1987 photo revision feature on the 1965 base map.

The entire site drains to the Great Miami River. The majority of the North Property drains via a perennial stream (main ditch) that flows northeast to southwest through the center of the property. There is a network of roadside and other drainage ditches, some of which are lined with concrete, and storm drains that direct flow to the main ditch. A large, off-line, storm water retention and sedimentation basin is located at the low end of the main ditch. Water is diverted into the basin under large storm events; low flows pass through a sluice gate through three smaller basins before exiting the site through a large culvert into the river. The northeastern portion of the site drains via hard pipe to the river. The southwestern portion of the North Property drains to the South Property. The South Property contains a network of small drainage

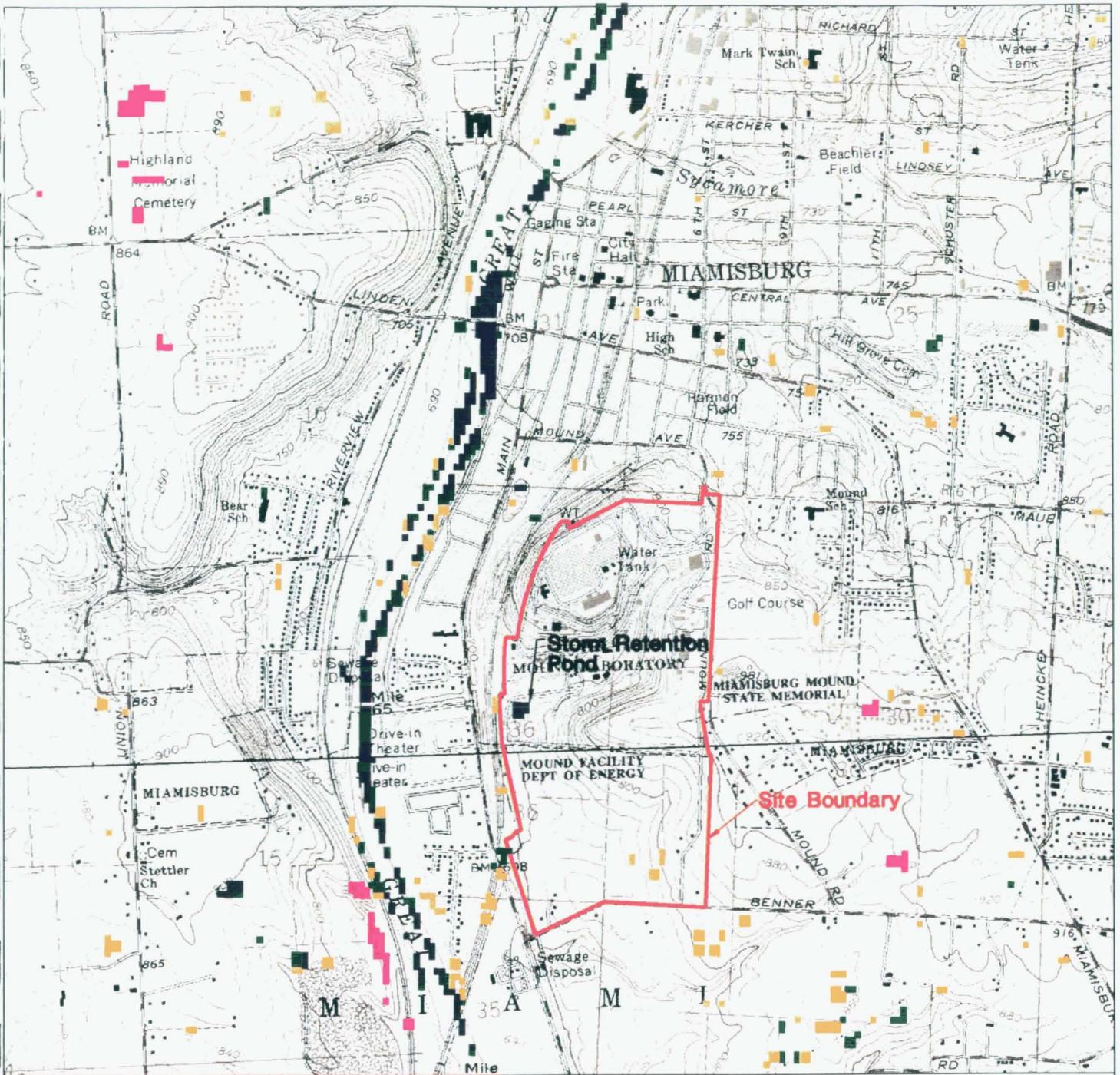


Figure 2  
**Ohio Wetlands  
 Inventory Map**

**Miamisburg Mound  
 Miamisburg, Ohio**

**LEGEND**

-  SHALLOW MARSH
-  SHRUB SCRUB
-  WATER
-  WET MEADOW
-  WOODS ON HYDRIC SOILS



GRAPHIC SCALE IN FEET

Source: Ohio Wetland Inventory Map 1985

<http://www.dnr.state.oh.us/odnr/occ/gims>



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swales and streams that collect into a single, intermittent stream that is a tributary to the river. The lower portion of the main channel is lined with concrete.

The site contains a number of small basins that have been developed consequential to or as sedimentation basins for demolition, remediation or construction activities. Some of these basins appear to retain a small amount of water through much of the year, while others appear to only retain water for limited periods of time.

There are also a number of springs at the site that are natural, or that may be due to leaking water mains (particularly below Building HH).

Most of the potential wetland areas identified at the site had primary indicators of wetland hydrology, that is, surface water or soil saturation. All had at least two secondary indicators, including water stained leaves and a predominance of plants which occur most often (called "facultative-wetland plants") or exclusively (called "obligate plants") in wetlands. This latter indicator is known as the "FAC-neutral test."

### Vegetation

The North Property is mostly developed, although there are grassland/scrub areas on steep slopes between roads and buildings, and a wooded slope in the southcentral portion of the property. Approximately one half of the South Property is wooded, the rest being mostly grassland or old field. The woodland is irregularly dissected by the open field habitats.

The determination of wetland vegetation requires that more than 50 percent of the dominant species are wetland-adapted species. In most of the potential wetland areas, the vegetation was strongly dominated by facultative-wetland and obligate wetland species, often including cattails (*Typha* spp.), spikerushes (*Eleocharis* spp.), sedges (*Carex* spp.), bulrushes (*Scirpus* spp.), rushes (*Juncus* spp.), and rice cutgrass (*Leersia virginica*).

### CORPS OF ENGINEERS FIELD INSPECTION

On June 3, 1999, a field inspection of the delineated areas was conducted by Gerry Newell, project manager at the Louisville Corps of Engineers, and Mark Agricola, from the Corps project office at the Caesar Creek reservoir. All of the potential wetlands identified were inspected, as well as the main ditch on the North Property and the lower reach of the main stream of the South Property.

In general, roadside ditches, even those that support hydrophytes (wetland plants), were categorically eliminated as regulated waters. These were eliminated as drainage ditches through uplands, because none were apparently created along natural streams or as relocations of natural streams. Also, none were apparently excavated in wetlands, given the topography and the lack of hydric soil units.

Similarly, sedimentation basins were eliminated in accordance with the Code of Federal Regulations, Title 33, Part 328, which specifically eliminates such areas as waters of the U.S. provided their original use does not change (Department of Defense, 1986). Thus, areas that were created as sedimentation basins and continue to be used as that are not regulated, even though these areas currently support wetland vegetation. Mr. Newell suggested maintenance of

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basins to prevent the development of wetland conditions, and documenting their original purpose to prevent future regulation as waters of the U.S. However, once their use changes (such as, the property changes hands), they may then become regulated waters.

## RESULTS

### Wetlands

Twenty-one areas across the site were identified as potential wetlands, of which, only nine discrete areas were designated as regulated wetlands (Table 1 and Figure 4). Most of the wetlands delineated are clustered along the South Slope of the Main Hill (A, C, D, DA, DB, and DC). Wetland A may be fed by foundation drainage from structures upslope. The seeps that feed C, D, DA, DB, and DC may possibly originate from leaks in water mains. However, because the seeps have not been proven to be caused by water main leaks, the wetlands cannot be excluded from regulation on the basis of artificial irrigation. Consequently, the seeps, whatever their source, constitute the "normal circumstances" for these areas and, given that these areas satisfy all of the delineation criteria, they are regulated wetlands. In the event that

**Table 1  
Summary of Wetlands Delineated**

Wetland		1999 Area (Acres)	Classification <sup>1</sup>
1994 Designation	1999 Designation		
A	—	—	Previously Filled Under Permit, 27 Jan 98
—	A	0.007	PEME
B	B	—	Eliminated as a Roadside Ditch
C	C	0.006	PEME
C	DC	0.007	PEME
D	D	0.007	PEME
D	DA	0.02	PEME
D	DB	0.06	PEME
E	E	—	Eliminated as a Roadside Ditch
F	F	—	Eliminated as a Roadside Ditch
G	G	—	Eliminated as a Roadside Ditch
H	H	0.03	PEME
I	I	0.01	PF01E
—	AA	—	Eliminated as a Roadside ditch
—	BB	—	Eliminated as a Sedimentation Basin
—	CC	—	Eliminated as a Sedimentation Basin
—	DD	—	Eliminated as a Sedimentation Basin
—	EE	—	Eliminated as a Sedimentation Basin
—	FF	—	Eliminated as a Roadside Ditch
—	GG	—	Eliminated due to soil characteristics
—	HH	0.03	PEME
—	II	—	Eliminated as a Sedimentation Basin
<b>Total</b>		<b>0.177</b>	

<sup>1</sup>Classification according to Cowardin, et. al., 1979:

**PEME**—Palustrine emergent marsh, seasonally flooded/saturated.  
**PF01E**—Palustrine deciduous forested wetland, seasonally flooded/saturated.



Legend  
 [Symbol] Wetland  
 [Symbol] Other Water of the US  
 [Symbol] Sample Points

Figure 4  
 Wetlands and other  
 Waters of the US  
 Miamiaburg Mound  
 Miamiaburg, Ohio  
 0 200 400  
 GRAPHIC SCALE IN FEET  
 Barnes, Washburn 1997

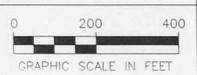


Legend

-  Wetland
-  Other Water of the US
-  Sample Points

Figure 4  
Wetlands and other  
Waters of the US

Miamisburg Mound  
Miamisburg, Ohio



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the water mains are the source of water for these wetlands and they are repaired, and the areas revert to upland, they would no longer be regulated. That is, they would cease to satisfy the hydrologic criterion.

Areas H and I are located in depressions that were apparently created by the installation of a road some years ago. They cannot be documented as sedimentation basins, and in the event that they did originally function as sedimentation basins, they appear to no longer serve this function. Thus, they are also regulated wetlands.

A single small wetland swale was identified in the South Property (HH). The area appears to have been created in a non-hydric soil type, but it currently supports hydrophytic vegetation, was saturated at the time of the study, and had developed hydric soil indicators in the top 12 inches of the soil. Therefore, it satisfies the wetland definition.

Areas BB, CC, DD, EE, and II were created as sedimentation basins and continue to be used for storm water runoff and silt control. Accordingly, these areas are not regulated. Similarly, six areas (B, E, F, G, AA, and FF) were identified as drainage ditches through uplands. Consequently, these areas were categorically eliminated as regulated wetlands.

Area GG is located on the south property. Although this area supports a wide variety of hydrophytic vegetation, the soil characteristics did not contain the necessary indicators for hydric soil. This area was eliminated since it did not meet all three criteria for a wetland.

### Streams

Several streams were also identified as regulated, in that ordinary high water marks could be identified in each (see Table 2). Primarily, the main ditch through the North Property is considered a water of the U.S. Two tributaries to this stream also had definable banks, a bedrock bottom and signs of flow during the study. Most of the base flow in the main ditch

**Table 2**  
**Summary of Regulated Streams**

<b>Stream</b>	<b>Average Width (Feet)</b>	<b>Length (Feet)</b>
<b>North Property</b>		
Main Ditch ("K")	8	1,650
Tributary "J"	3	200
South Tributary	8	300
<b>South Property</b>		
Main Stream (Below Road Culvert)	15	500
Main Stream (Below Fork, Above Road Culvert)	6	700
North Fork	7	2,000
West North Fork Tributary	2	500
East North Fork Tributary	1	300
South Fork	7	1,200

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appears to be the result of operations at the plant, that is, cooling water. Without the cooling water, flow in the main ditch may be intermittent. Nevertheless, it would remain a regulated stream.

In the South Property, the network of streams shown on the GIS of the site was reduced based on the lack of an ordinary high water mark; that is, many of the "streams" were actually only drainage swales. Therefore, they were eliminated as waters of the U.S.

### Comparison with the Previous Survey

A notable difference between this and the previous study is its scope. This study was limited to the MEMP site and excluded lands that had recently been exsiccated, namely "Parcel D." The previous study included a significant surrounding area, including the North Slope of the Main Hill and the area to the west along the Miami-Erie Canal.

Regarding the wetlands, only H and I were essentially unchanged between the studies (Table 1).

The majority of the wetland area identified in the current study is in the areas C, D, DA, DB and DC. These correspond to areas C and D in the Weston study, which were previously eliminated as wetlands because they were artificially irrigated by leaking water mains. In the Weston report, it is stated that the water mains were repaired and these areas were subsequently dry. However, during the recent study, at least the upper portions of these areas were saturated and upland vegetation had failed to replace the wetland vegetation. As a result, the Corps determined that the saturation, whatever the source, is the normal circumstance, and therefore these areas are regulated wetlands, at least until the water main is adequately repaired. At that time, upland vegetation should replace the wetland vegetation. Other wetlands previously identified were areas F and G. These were eliminated in the recent survey as roadside drainage ditches, despite the growth of wetland plants.

Other waters previously identified in the North Property included Areas B, E, J, K (the main ditch), and the drainage ditch near the C and D areas. Like wetlands F and G, Sites B, E, and the ditch near C and D were eliminated as roadside ditches. The main ditch remains a regulated water, as well as the small tributary labeled J. Woolpert also identified an additional stream that originates below wetland I as a regulated tributary to the main ditch.

The large overflow basin (L in the Weston report), which was previously identified as a water of the U.S., was also eliminated because its primary purpose is storm water management and sedimentation.

The Weston report states that site "Q" in the South Property was eliminated as either a wetland or a waterway because of its intermittency of flow. However, the 21 October 1992 letter in the report, that summarizes the field meeting with the Corps at that time, indicates that the "intermittent drainage swales" in the South Property are regulated waters. Presumably, the referenced swales are those shown on the accompanying map. In the current study, the extent of jurisdiction along all drainages was limited to those streams with ordinary high water marks and definable channels (although excluding manmade roadside ditches). Streams identified as J and K continue to be designated as waters of the U.S., although the upstream extent of the main ditch was shortened slightly in the current study, originating at a culvert below Building 22.

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The network of regulated waters in the South Property was limited to the primary channel and only a limited number/lengths of its tributaries.

## FUNCTIONAL EVALUATION

### Wetlands

The regulated wetlands were evaluated in accordance with the Ohio Administrative Code (OAC). OAC 3745-1 provides a tiered system of protection of the wetlands by placing each wetland into one of three anti-degradation categories, that reflect the wetland's relative functions and values (OEPA, 1997). Category 1 wetlands are those that support minimal wetland functions. Category 2 wetlands support moderate hydrological, habitat, recreational, and other wetland functions. Category 3 wetlands support superior wetland functions, such as habitat for an endangered species. The different categories of wetlands specify different levels of protection and, if an impact is permitted, different levels of mitigation.

The Ohio EPA's Draft Rapid Assessment Method, Version 4.0 is currently being used as a guideline in assigning the category to each wetland. This method assigns quantitative ratings to various physical and biological characteristics of the wetland. The Total Score (sum of the quantitative ratings) is used to assign the category according to the scale presented in Table 3.

**Table 3**  
**OEPA Wetland Categorization According to the Rapid Assessment Method Score**

Total Score	Wetland Category
0-12	1
13-16	1 or 2; Site Examined in More Detail to Make Determination
17-30	2
31-34	2 or 3; Site Examined in More Detail to Make Determination
>35	3

All of the wetlands at the site have a Total Score of 12 or less, and thus are considered Category 1 wetlands, because of their extremely small size, limited vegetation, low habitat and floristic diversity, and for most wetlands, limited buffers (Table 4). The wetland with the highest ranking, "HH," has the benefits of location in a wooded corridor with large average buffer, but its size limits other valuable qualities.

### Streams

The main ditch on the North Property (which appears to be the only perennial stream on site due to the constant flow of cooling waters) was evaluated using the OEPA's Qualitative Habitat Evaluation Index (QHEI). This method uses physical characteristics of a stream to determine its value as an aquatic habitat, primarily for fish. It is used as an initial assessment for assigning a stream's use designation according to the Ohio water quality standards, that is, Limited Resource Water, Modified Warmwater Habitat, Warmwater Habitat, or Exceptional

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**Table 4**  
**Functional Analysis of the Wetlands according to the OEPA's Rapid Assessment Method**

Wetland	Score	Category
A	2	1
C, D, DA, DB, and DC (Evaluated as a Unit)	4	1
H <sup>1</sup>	7	1
I	10	1
HH	12	1
<sup>1</sup> Wetland with a single cover type dominated by a non-native species.		

Warmwater Habitat. The true indication of a stream's use designation is determined using biological sampling (fish and macroinvertebrates) in addition to the QHEI.

The QHEI was completed for the segment of the stream just above the confluence with tributary "J" and below the road crossing. The reach was subjectively identified as perhaps the best portion of the stream because of the density of adjacent vegetation and its position at the lower end of the stream (and therefore the greatest normal flow). Other streams were not evaluated because of their intermittent flow and/or particularly small size.

The OEPA manual states that streams with a QHEI greater than 60 likely satisfy the Warmwater Habitat criteria, based upon their physical characteristics. That is, a score of 60 indicates that a variety of preferred habitat features are present in enough abundance to suggest that a variety of fish and macroinvertebrates would be supported by the stream. Generally, several QHEI evaluations are performed for various representative sections of the stream to determine its use designation.

The QHEI score for the lower reach of the main stream was 61. Upper reaches of the stream would likely rate a lower score because of lower flow (smaller watershed). Based on the QHEI alone, the conclusion is that the stream may marginally, at best, satisfy the Warmwater Habitat criteria. Water chemistry analysis and sampling of the biological communities is needed to fully ascertain the use designation for this stream. Given the barriers to fish migration from the river at the low end of the stream, the potential for degraded water quality due to the extensively developed nature of the watershed, and the fact that most base flow originates from plant operations, the stream would probably not meet the Warmwater Habitat if the biological components of the stream were sampled.

The OEPA is considering the establishment of a Headwater use designation. The biological and QHEI criteria for headwater streams have not yet been published, but would likely be less than that required for a Warmwater Habitat use designation. There is potential that the main stream could be classified in the future as a Headwater stream, if this use designation is enacted.

## CONCLUSIONS AND RECOMMENDATIONS

Only 0.117 acre of wetland was identified and confirmed by the Corps of Engineers to occur at the site. Most, if not all, of the wetlands that were identified appear to be manmade, by the creation of depressions, routing of surface water, or perhaps the creation of "springs." Streams

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that are regulated are somewhat more widespread throughout the site. These streams may have natural origins; however, some of the streams have been significantly altered by human activities, particularly on the North Property. Given the current conditions of the waters, their sizes, and their apparent functions and values, Clean Water Act permitting for disturbance of these waters for reclamation or eventual development is expected to be straightforward, either before or after the property is excised.

The disturbance of wetlands and other waters for the purpose of clean up of hazardous sites entirely under CERCLA, as approved or required by the USEPA, requires no Section 404 permit. Clean up of hazardous materials other than under CERCLA may be performed under Nationwide Permit 38, provided a pre-construction notification is sent to the Louisville District Engineer. This Nationwide Permit does not have specific limitations on the area or length of waters that may be disturbed in the process, although mitigation of the impacts to waters may be required as a condition of the authorization. It is recommended that all foreseeable clean up activities that are permissible under Nationwide Permit 38 be included in a single pre-construction notification of the Corps. There is no requirement for notification of the OEPA for Section 401 Water Quality Certification under this Nationwide Permit.

All of the wetlands and streams on the site are considered either isolated waters or headwaters. Consequently, the disturbance of all of these waters is also potentially permissible under Nationwide Permit 26. This permit allows for the filling of up to 3 acres of waters or up to 500 feet of stream. A pre-construction notification to the Louisville District Engineer is required for impacts greater than one-third acre. No notification of the OEPA to obtain a Section 401 Water Quality Certification is required provided these limits are not exceeded. Mitigation may also be required as a condition of this authorization. Be advised that this Nationwide Permit will expire on September 15, 1999, and is expected to be replaced by several other permits. The proposed conditions of those permits have been published in the Federal Register (1 July 98 and 14 October 98) and are available on the World Wide Web at [www.access.gpo.gov/nara/cfr/index.html](http://www.access.gpo.gov/nara/cfr/index.html).

Under the current regulations, if Nationwide Permit 38 is not applicable, and the action is not performed under CERCLA, then impacts to greater than 3 acres or more than 500 feet of stream will require an individual Department of the Army permit and a Section 401 Water Quality Certification. A public notice, alternatives analysis, and mitigation of the impacts (wetland replacement or stream restoration) will likely be required. The use designation for the streams will be required as part of the OEPA's Anti-degradation review of the project.

Once the entire property is transferred to private interests, the regulatory status of some of the sedimentation basins may change. Currently, they have been eliminated as waters of the U.S. because of their original and sustained use as sedimentation basins. Once that use is abandoned, and these areas satisfy the definition of waters of the U.S., such as developing wetland characteristics, they may be considered waters of the U.S. and a permit will be required for their alteration.

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- Weston, Co. 1994. *Operable Unit 9 Hydrogeologic Investigation: Wetlands Determination Report. Mound Plant, Miamisburg, Ohio*. Weston, Co., Albuquerque, NM.

## CREDENTIALS

### **Robert Hook—Environmental Scientist**

Robert Hook is a Senior Environmental Scientist with the Water Resources service line at Woolpert. He has been consulting for 13 years as a wetland ecologist, including delineation throughout the eastern U.S., permitting, mitigation design and construction administration. Mr. Hook has a Master of Arts degree in Biology, with an emphasis on plant ecology, from Eastern Kentucky University, and has received provisional certification as a wetland delineator from the Baltimore District, Corps of Engineers.

### **David C. Dister—Environmental Scientist**

David C. Dister is a field ecologist in the Environmental Services Unit at Woolpert. He has had academic training and 14 years experience in botany, ornithology, and small mammal trapping. He is familiar with vascular plant species, including grasses and sedges, and has performed more than seventy wetland delineations since 1990 in Ohio, Indiana, Kentucky, Arkansas, Alabama, and Florida. Mr. Dister earned a Bachelor of Arts degree in Botany from Miami University, Oxford, Ohio, and a Secondary Education Teaching Certificate in Biology and Earth Science from the University of Cincinnati, Cincinnati, Ohio.

**APPENDIX**

**WETLAND DETERMINATION DATA FORMS**

**DATA FORM  
ROUTINE WETLAND DETERMINATION  
(1987 COE Wetlands Delineation Manual)**

Project/Site: <u>Miamisburg Mound Facility</u> Applicant/Owner: <u>BWX</u> Investigator: <u>Dave Dister/Rob Hook</u>	Date: <u>May 24, 1999</u> County: <u>Montgomery</u> State: <u>Ohio</u>
Do Normal Circumstances exist on the site? <span style="float:right"><input checked="" type="radio"/> Yes <input type="radio"/> No</span> Is the site significantly disturbed (Atypical Situation)? <span style="float:right"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> Is the area a potential Problem Area? <span style="float:right"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: <u>A1</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Typha latifolia</u>	<u>H</u>	<u>OBL</u>	9. _____	_____	_____
2. <u>Rosa palustris</u>	<u>Sh</u>	<u>OBL</u>	10. _____	_____	_____
3. <u>Dipsacus sylvestris</u>	<u>NO/H</u>	<u>FACU-</u>	11. _____	_____	_____
4. _____	_____	_____	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 100%

Remarks: Greater than 50% hydrophytic dominants

**HYDROLOGY**

Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b>  Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: <u>Surface</u> (in.)	Remarks: <u>Saturation at surface supports wetland hydrology.</u>

**SOILS**

Map Unit Name (Series and Phase): Fairmount silty clay loam, 12-25%<sup>sl.</sup> Drainage Class: WD  
 Taxonomy (Subgroup): Typic Hapludolls Field Observations Confirm Mapped Type? Yes  No

**Profile Description:**

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-8	A	black	—	—	silt/loam
>8	auger refusal				

**Hydric Soil Indicators:**

<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils
<input checked="" type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Listed on National Hydric Soils List
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)

Remarks: Black matrix chroma suggests hydric soil criteria.

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No (Circle)	Is this Sampling Point Within a Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No (Circle)
Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	
Hydric Soils Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	

Remarks: All three wetland parameters met.

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
 (1987 COE Wetlands Delineation Manual)

Project/Site: <u>Miamisburg Mound Facility</u> Applicant/Owner: <u>BWX</u> Investigator: <u>Dave Dister / Rob Hook</u>	Date: <u>May 24, 1999</u> County: <u>Montgomery</u> State: <u>Ohio</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: <u>A2</u>

*rocky fill on slopes*

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Festuca elatior</u>	<u>H</u>	<u>UPL</u>	9. _____	_____	_____
2. <u>Paspalum sylv.</u>	<u>H</u>	<u>FACU-</u>	10. _____	_____	_____
3. <u>Solidago sp.</u>	<u>NO/H</u>	<u>—</u>	11. _____	_____	_____
4. _____	_____	_____	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 0%

Remarks: Less than 50% hydrophytic dominants.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b>  Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: <u>&gt;4</u> (in.)	Remarks: <u>No indication of hydrology. Auger refusal at 4"</u>

**SOILS**

Map Unit Name (Series and Phase): <u>Fairmount silty clay loam, 12-25% sl</u>		Drainage Class: <u>WD</u>			
Taxonomy (Subgroup): <u>Typic Hagludolls</u>		Field Observations Confirm Mapped Type? Yes No			
<b>Profile Description:</b>					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
<u>0-4</u>	<u>A</u>	<u>10YR 4/2</u>	<u>—</u>	<u>—</u>	<u>silt/loam</u>
<u>&gt;4</u>	<u>auger refusal</u>	<u>refusal</u>			
<b>Hydric Soil Indicators:</b>					
<input type="checkbox"/> Histosol	<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Gleyed or Low-Chrome Colors
<input type="checkbox"/> Concretions	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils	<input type="checkbox"/> Organic Streaking in Sandy Soils	<input type="checkbox"/> Listed on Local Hydric Soils List	<input type="checkbox"/> Listed on National Hydric Soils List	<input type="checkbox"/> Other (Explain in Remarks)
Remarks: <u>Matrix chroma of 2 without mottling does not support hydric soil criteria.</u>					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (Circle)	
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (Circle)	
Hydric Soils Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (Circle)	
		Is this Sampling Point Within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (Circle)
Remarks: <u>None of the wetland parameters met.</u>		

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>Miamisburg Board Facility</u> Applicant/Owner: <u>BWX</u> Investigator: <u>Dave Dister / Rob Hook</u>	Date: <u>May 25, 1999</u> County: <u>Montgomery</u> State: <u>Ohio</u>
Do Normal Circumstances exist on the site? <span style="float: right;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span> Is the site significantly disturbed (Atypical Situation)? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> Is the area a potential Problem Area? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: <u>13</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Scirpus validus</u>	<u>H</u>	<u>OBL</u>	9. _____	_____	_____
2. <u>Typha latifolia</u>	<u>H</u>	<u>OBL</u>	10. _____	_____	_____
3. <u>Festuca elatior</u>	<u>H</u>	<u>UPL</u>	11. _____	_____	_____
4. _____	_____	_____	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 67%

Remarks: Greater than 50% hydrophytic dominants.

**HYDROLOGY**

Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: <b>Primary Indicators:</b> <input checked="" type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u>0-1</u> (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: <u>surface</u> (in.)	Remarks: <u>Inundation supports wetland hydrology</u>

**SOILS**

Map Unit Name (Series and Phase): Fairmount silty clay loam, 12-25% sl. Drainage Class: WD  
 Taxonomy (Subgroup): Typic Haaludolls Field Observations Confirm Mapped Type? Yes  No

**Profile Description:**

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-2	A	5Y4/2	—	—	silt loam
2-5	B	5GY7/1	—	—	silty clay loam
75	auger	refusal			

**Hydric Soil Indicators:**

<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Listed on National Hydric Soils List
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)

Remarks: Matrix chroma of 1 suggests hydric soil criteria.

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No (Circle)	(Circle) Is this Sampling Point Within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	
Hydric Soils Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	

Remarks: All three wetland parameters met, but eliminated as a drainage ditch through uplands by COE.

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>Miamisburg Mound Facility</u> Applicant/Owner: <u>BWXJ</u> Investigator: <u>Dave Dister/Rob Hook</u>	Date: <u>May 25, 1999</u> County: <u>Montgomery</u> State: <u>Ohio</u>
Do Normal Circumstances exist on the site? <span style="float: right;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span> Is the site significantly disturbed (Atypical Situation)? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> Is the area a potential Problem Area? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: <u>C1</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Typha latifolia</u>	<u>H</u>	<u>OBL</u>	9. _____	_____	_____
2. <u>Epilobium morat.</u>	<u>H</u>	<u>FACW+</u>	10. _____	_____	_____
3. <u>Salix nigra</u>	<u>Sh</u>	<u>FACW+</u>	11. _____	_____	_____
4. <u>Vitis rotifolia</u>	<u>V</u>	<u>FACW</u>	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 100%

Remarks:  
Greater than 50% hydrophytic dominants.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b> Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: <u>Surface</u> (in.)	Remarks: <u>Saturation at surface supports wetland hydrology</u>

**SOILS**

Map Unit Name (Series and Phase): Fairmount silty clay loam, 12-25%<sup>sl.</sup> Drainage Class: WD  
 Field Observations: \_\_\_\_\_  
 Taxonomy (Subgroup): Typic Hapludolls Confirm Mapped Type? Yes No

**Profile Description:**

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-3	A	5G 5/1	2.5Y4/3	Few/Prom.	clay loam
73	auger refusal				

**Hydric Soil Indicators:**

<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Listed on National Hydric Soils List
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)

Remarks: Matrix chroma of 1 suggests hydric soil criteria.

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No (Circle)	Is this Sampling Point Within a Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No (Circle)
Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	
Hydric Soils Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	

Remarks: All three wetland parameters met.

**DATA FORM  
ROUTINE WETLAND DETERMINATION  
(1987 COE Wetlands Delineation Manual)**

Project/Site: <u>Miamisburg Mound Facility</u> Applicant/Owner: <u>BWX</u> Investigator: <u>Dave Dister / Rob Hook</u>	Date: <u>May 25, 1999</u> County: <u>Montgomery</u> State: <u>Ohio</u>		
Do Normal Circumstances exist on the site? Is the site significantly disturbed (Atypical Situation)? Is the area a potential Problem Area? (If needed, explain on reverse.)	<table style="width:100%; border: none;"> <tr> <td style="text-align: center;"> <input checked="" type="radio"/> Yes   <input type="radio"/> No  <input type="radio"/> Yes   <input checked="" type="radio"/> No  <input type="radio"/> Yes   <input checked="" type="radio"/> No         </td> <td style="padding-left: 20px;">           Community ID: _____            Transect ID: _____            Plot ID: <u>D1</u> </td> </tr> </table>	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Yes <input checked="" type="radio"/> No	Community ID: _____ Transect ID: _____ Plot ID: <u>D1</u>
<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Yes <input checked="" type="radio"/> No	Community ID: _____ Transect ID: _____ Plot ID: <u>D1</u>		

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Typha latifolia</u>	<u>H</u>	<u>OBL</u>	9. _____	_____	_____
2. <u>Solidago sp.</u>	<u>ND/H</u>	<u>-</u>	10. _____	_____	_____
3. <u>Cirsium arvense</u>	<u>ND/H</u>	<u>FACU</u>	11. _____	_____	_____
4. _____	_____	_____	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 100%

Remarks: Greater than 50% hydrophytic dominants.

**HYDROLOGY**

<p><input type="checkbox"/> Recorded Data (Describe in Remarks):</p> <p style="margin-left: 20px;"><input type="checkbox"/> Stream, Lake, or Tide Gauge</p> <p style="margin-left: 20px;"><input type="checkbox"/> Aerial Photographs</p> <p style="margin-left: 20px;"><input type="checkbox"/> Other</p> <p><input type="checkbox"/> No Recorded Data Available</p> <hr/> <p>Field Observations:</p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: <u>Surface</u> (in.)</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p><input type="checkbox"/> Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 Inches</p> <p><input type="checkbox"/> Water Marks</p> <p><input type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input type="checkbox"/> Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p><input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p><input type="checkbox"/> Water-Stained Leaves</p> <p><input type="checkbox"/> Local Soil Survey Data</p> <p><input type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
Remarks: <u>Saturation at surface supports wetland hydrology.</u>	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>Miamisburg Mound Facility</u> Applicant/Owner: <u>BWX</u> Investigator: <u>Dave Dister / Rob Hook</u>	Date: <u>May 25, 1999</u> County: <u>Montgomery</u> State: <u>Ohio</u>
Do Normal Circumstances exist on the site? <span style="float: right;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span> Is the site significantly disturbed (Atypical Situation)? <span style="float: right;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span> Is the area a potential Problem Area? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: <u>D2</u>

*fill area*

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Festuca elatior</u>	<u>H</u>	<u>UPL</u>	9. _____	_____	_____
2. <u>Solidago sp.</u>	<u>H</u>	<u>-</u>	10. _____	_____	_____
3. <u>Lonicera maackii</u>	<u>Sh</u>	<u>UPL</u>	11. _____	_____	_____
4. _____	_____	_____	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 100%

Remarks: Greater than 50% hydrophytic dominants.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b> Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: <u>73</u> (in.)	Remarks: <u>No indication of hydrology. Auger refusal at 3".</u>



**DATA FORM  
ROUTINE WETLAND DETERMINATION  
(1987 COE Wetlands Delineation Manual)**

Project/Site: <u>Miamisburg Mound Facility</u> Applicant/Owner: <u>BWX</u> Investigator: <u>Dave Dister / Rob Hook</u>	Date: <u>May 25, 1999</u> County: <u>Montgomery</u> State: <u>Ohio</u>
Do Normal Circumstances exist on the site? <span style="float:right"><input checked="" type="radio"/> Yes <input type="radio"/> No</span> Is the site significantly disturbed (Atypical Situation)? <span style="float:right"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> Is the area a potential Problem Area? <span style="float:right"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: <u>DA</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Aster novae-angl.</u>	<u>H</u>	<u>FAC</u>	9. _____	_____	_____
2. <u>grass sp.</u>	<u>H</u>	<u>—</u>	10. _____	_____	_____
3. <u>Salix exigua</u>	<u>Sh</u>	<u>OBL</u>	11. _____	_____	_____
4. <u>Typha latifolia</u>	<u>H</u>	<u>OBL</u>	12. _____	_____	_____
5. <u>Scirpus sp.</u>	<u>NDH</u>	<u>—</u>	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC). 100%

Remarks: Greater than 50% hydrophytic dominants.

**HYDROLOGY**

<p>___ Recorded Data (Describe in Remarks):</p> <p>   ___ Stream, Lake, or Tide Gauge</p> <p>   ___ Aerial Photographs</p> <p>   ___ Other</p> <p>___ No Recorded Data Available</p> <hr/> <p>Field Observations:</p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: <u>Surface</u> (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p>___ Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 Inches</p> <p>___ Water Marks</p> <p>___ Drift Lines</p> <p>___ Sediment Deposits</p> <p>___ Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p>___ Oxidized Root Channels in Upper 12 Inches</p> <p>___ Water-Stained Leaves</p> <p>___ Local Soil Survey Data</p> <p>___ FAC-Neutral Test</p> <p>___ Other (Explain in Remarks)</p>
Remarks: <u>Saturation at surface supports wetland hydrology.</u>	

**SOILS**

Map Unit Name (Series and Phase): Fairmount silty clay loam, 12-25% s.l. Drainage Class: WD  
 Taxonomy (Subgroup): Typic Hapludolls Field Observations Confirm Mapped Type? Yes  No

**Profile Description:**

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-6	A	5G7.5/1	—	—	silty clay loam
76	auger refusal				

**Hydric Soil Indicators:**

<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Listed on National Hydric Soils List
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)

Remarks: Matrix chroma of 1 suggests hydric soil criteria.

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No (Circle)	Is this Sampling Point Within a Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No (Circle)
Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	
Hydric Soils Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	

Remarks: All three wetland parameters met.

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>Miamisburg Mound Facility</u> Applicant/Owner: <u>BWX</u> Investigator: <u>Dave Distor / Rob Heak</u>	Date: <u>May 25, 1999</u> County: <u>Montgomery</u> State: <u>Ohio</u>
Do Normal Circumstances exist on the site? <span style="float: right;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span> Is the site significantly disturbed (Atypical Situation)? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> Is the area a potential Problem Area? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: <u>DBI</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Typha latifolia</u>	<u>H</u>	<u>OBL</u>	9. _____	_____	_____
2. <u>Salix nigra</u>	<u>Sh</u>	<u>FACW+</u>	10. _____	_____	_____
3. <u>Cirsium arvense</u>	<u>ND/H</u>	<u>FACU</u>	11. _____	_____	_____
4. <u>Nepeta cataria</u>	<u>ND/H</u>	<u>FACU</u>	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 100%

Remarks: Greater than 50% hydrophytic dominants.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: <u>surface</u> (in.)	Remarks: <u>Saturation at surface supports wetland hydrology.</u>



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>Miamisburg Mound Facility</u> Applicant/Owner: <u>BWX</u> Investigator: <u>Dave Dister / Rob Hook</u>	Date: <u>May 26, 1999</u> County: <u>Montgomery</u> State: <u>Ohio</u>
Do Normal Circumstances exist on the site? <span style="float: right;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span> Is the site significantly disturbed (Atypical Situation)? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> Is the area a potential Problem Area? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: <u>DC1</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Typha latifolia</u>	<u>H</u>	<u>OBL</u>	9. _____	_____	_____
2. <u>Rosa palustris</u>	<u>Sh</u>	<u>OBL</u>	10. _____	_____	_____
3. <u>Salix nigra</u>	<u>ND/H</u>	<u>FACW</u>	11. _____	_____	_____
4. <u>Solidago canad.</u>	<u>ND/H</u>	<u>FACU</u>	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC): 100%

Remarks:  
Greater than 50% hydrophytic dominants.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b> Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: <u>surface</u> (in.)	Remarks: <u>Saturation at surface supports wetland hydrology.</u>

**SOILS**

Map Unit Name (Series and Phase): Fairmount silty clay loam, 12-25% sl. Drainage Class: W0

Taxonomy (Subgroup): Typic Haapludolls Field Observations Confirm Mapped Type? Yes  No

**Profile Description:**

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-3	A	5G7.5/1	10YR 4/4	Common	clay loam
73	auger refusal				

**Hydric Soil Indicators:**

<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Listed on National Hydric Soils List
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)

Remarks: Matrix chroma of 1 supports hydric soil criteria.

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No (Circle)	Is this Sampling Point Within a Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No (Circle)
Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	
Hydric Soils Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	

Remarks: All three wetland parameters met.

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>Miamisburg Mound Facility</u> Applicant/Owner: <u>BWX</u> Investigator: <u>Dave Dister / Rob Hook</u>	Date: <u>May 26, 1999</u> County: <u>Montgomery</u> State: <u>Ohio</u>
Do Normal Circumstances exist on the site? <span style="float: right;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span> Is the site significantly disturbed (Atypical Situation)? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> Is the area a potential Problem Area? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: <u>DC-2</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Coronilla varia</u>	<u>H</u>	<u>UPL</u>	9. _____	_____	_____
2. <u>Solidago canad.</u>	<u>H</u>	<u>FACU</u>	10. _____	_____	_____
3. <u>Aristida sp.</u>	<u>H</u>	<u>UPL</u>	11. _____	_____	_____
4. <u>grass sp.</u>	<u>H</u>	<u>—</u>	12. _____	_____	_____
5. <u>Crataegus sp.</u>	<u>Sh</u>	<u>—</u>	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 0%

Remarks:  
less than 50% hydrophytic dominants.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b>  Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: <u>76</u> (in.)	Remarks: <u>No indication of hydrology. Auger refusal at 6"</u>

**SOILS**

Map Unit Name (Series and Phase): Fairmount silty clay loam, 12-25% sl. Drainage Class: WD  
 Taxonomy (Subgroup): Typic Hapludolls Field Observations Confirm Mapped Type?  Yes  No

**Profile Description:**

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-3	A	2.5Y4/2	—	—	silt/loam
3-6	B	2.5Y4/3	5G4.5/1	—	clay/loam
7G	anger refusal				

**Hydric Soil Indicators:**

<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)

Remarks: Matrix chroma of 3 does not support hydric soil criteria.

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present?	Yes <input type="radio"/> No <input checked="" type="radio"/> (Circle)	Is this Sampling Point Within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/> (Circle)
Wetland Hydrology Present?	Yes <input type="radio"/> No <input checked="" type="radio"/> (Circle)	
Hydric Soils Present?	Yes <input type="radio"/> No <input checked="" type="radio"/> (Circle)	

Remarks: None of the wetland parameters met.

**DATA FORM  
ROUTINE WETLAND DETERMINATION  
(1987 COE Wetlands Delineation Manual)**

Project/Site: <u>Miami's Lure Mound Facility</u> Applicant/Owner: <u>BWX</u> Investigator: <u>Dave Dister / Rob Hook</u>	Date: <u>May 26, 1999</u> County: <u>Montgomery</u> State: <u>Ohio</u>
Do Normal Circumstances exist on the site? <span style="float:right"><input checked="" type="radio"/> Yes <input type="radio"/> No</span> Is the site significantly disturbed (Atypical Situation)? <span style="float:right"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> Is the area a potential Problem Area? <span style="float:right"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: <u>E</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Scirpus validus</u>	<u>H</u>	<u>OBL</u>	9. _____	_____	_____
2. <u>Rumex crispus</u>	<u>H</u>	<u>FACU</u>	10. _____	_____	_____
3. _____	_____	_____	11. _____	_____	_____
4. _____	_____	_____	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 50%

Remarks: Only 50% hydrophytic dominants.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input checked="" type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b> Depth of Surface Water: <u>0-4</u> (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: _____ (in.)	Remarks: <u>Inundation supports wetland hydrology.</u>



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>Miamisburg Mound Facility</u> Applicant/Owner: <u>BWX</u> Investigator: <u>Dave Dister / Rob Hook</u>	Date: <u>May 26, 1999</u> County: <u>Montgomery</u> State: <u>Ohio</u>
Do Normal Circumstances exist on the site? <span style="float: right;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span> Is the site significantly disturbed (Atypical Situation)? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> Is the area a potential Problem Area? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: <u>F</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Eleocharis palustris</u>	<u>H</u>	<u>OBL</u>	9. _____	_____	_____
2. <u>Festuca elatior</u>	<u>NO/H</u>	<u>UPL</u>	10. _____	_____	_____
3. _____	_____	_____	11. _____	_____	_____
4. _____	_____	_____	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 100%

Remarks: Greater than 50% hydrophytic dominants.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input checked="" type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b>  Depth of Surface Water: <u>0-2</u> (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: _____ (in.)	Remarks: <u>Inundation supports wetland hydrology.</u>



**DATA FORM  
ROUTINE WETLAND DETERMINATION  
(1987 COE Wetlands Delineation Manual)**

Project/Site: <u>Miamisburg Mound Facility</u> Applicant/Owner: <u>BWA</u> Investigator: <u>Dave Dister / Rob Hook</u>	Date: <u>May 26, 1999</u> County: <u>Montgomery</u> State: <u>Ohio</u>
Do Normal Circumstances exist on the site? <span style="float:right"><input checked="" type="radio"/> Yes <input type="radio"/> No</span> Is the site significantly disturbed (Atypical Situation)? <span style="float:right"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> Is the area a potential Problem Area? <span style="float:right"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: <u>6</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Scirpus validus</u>	<u>H</u>	<u>OBL</u>	9. _____	_____	_____
2. <u>Carex vulpinoidea</u>	<u>H</u>	<u>OBL</u>	10. _____	_____	_____
3. <u>Typha angustifolia</u>	<u>H</u>	<u>OBL</u>	11. _____	_____	_____
4. _____	_____	_____	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 100%

Remarks:  
Greater than 50% hydrophytic dominants.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input checked="" type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b> Depth of Surface Water: <u>0-1</u> (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: _____ (in.)	
Remarks: <u>Inundation supports wetland hydrology.</u>	

**SOILS**

Map Unit Name (Series and Phase): Ritchey silty clay loam, 6-18% s. Drainage Class: WD  
 Taxonomy (Subgroup): Lithic Hapludalfs Field Observations Confirm Mapped Type? Yes  No

**Profile Description:**

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-1	A	10YR 3/1	—	—	silt
1-6	B	10GY 5/1	2.5Y 6/6	Common/Prst.	clay

**Hydric Soil Indicators:**

<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Listed on National Hydric Soils List
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)

Remarks: Matrix chroma of 1 supports hydric soil criteria.

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present?	<input checked="" type="radio"/> Yes <input type="radio"/> No (Circle)	(Circle)
Wetland Hydrology Present?	<input checked="" type="radio"/> Yes <input type="radio"/> No	
Hydric Soils Present?	<input checked="" type="radio"/> Yes <input type="radio"/> No	
Is this Sampling Point Within a Wetland?		Yes <input checked="" type="radio"/> No <input type="radio"/>

Remarks: All three wetland parameters met, but eliminated as a manmade drainage ditch through uplands by COE.

Approved by HQUSACE 3/92

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>Miamisburg Mound Facility</u> Applicant/Owner: <u>BWX</u> Investigator: <u>R. Hood</u>	Date: <u>May 24 1999</u> County: <u>Montgomery</u> State: <u>OHIO</u>
Do Normal Circumstances exist on the site? <span style="float: right;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span> Is the site significantly disturbed (Atypical Situation)? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> Is the area a potential Problem Area? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: <u>H-1</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Typha angustifolia</u>	<u>H</u>	<u>OBL</u>	9. _____	_____	_____
2. <u>Vitis riparia</u>	<u>H</u>	<u>FACW</u>	10. _____	_____	_____
3. <del><u>Rhus glabra</u></del> <u>Rhus glabra</u>	<u>H</u>	<u>FACW+</u>	11. _____	_____	_____
4. <u>Juncus tenuis</u>	<u>H</u>	<u>FAC-</u>	12. _____	_____	_____
5. <u>Solidago sp.</u>	<u>H</u>	<u>-</u>	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 75%

Remarks: Isolated depression supporting hydrophytic vegetation

**HYDROLOGY**

Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input checked="" type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input checked="" type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input checked="" type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations:  Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: <u>7B</u> (in.) Depth to Saturated Soil: _____ (in.)	Remarks: _____



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>Miamisburg Mound Facility</u> Applicant/Owner: <u>BWX</u> Investigator: <u>Rob Hook</u>	Date: <u>May 24 1999</u> County: <u>Montgomery</u> State: <u>OHIO</u>
Do Normal Circumstances exist on the site? <span style="float: right;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span> Is the site significantly disturbed (Atypical Situation)? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> Is the area a potential Problem Area? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: <u>H-2</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Lonicera maackii</u>	<u>Sh</u>	<u>UPL</u>	9. _____	_____	_____
2. <u>Lonicera japonica</u>	<u>V</u>	<u>FAC</u>	10. _____	_____	_____
3. <u>Festuca elatior</u>	<u>H</u>	<u>UPL</u>	11. _____	_____	_____
4. <u>Solidago sp.</u>	<u>H</u>	<u>-</u>	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC). 0

Remarks: steep slope, with some recent clearing of vegetation

**HYDROLOGY**

<p><input type="checkbox"/> Recorded Data (Describe in Remarks):</p> <p style="margin-left: 20px;"><input type="checkbox"/> Stream, Lake, or Tide Gauge</p> <p style="margin-left: 20px;"><input type="checkbox"/> Aerial Photographs</p> <p style="margin-left: 20px;"><input type="checkbox"/> Other</p> <p><input type="checkbox"/> No Recorded Data Available</p> <hr/> <p>Field Observations:</p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p><input type="checkbox"/> Inundated</p> <p><input type="checkbox"/> Saturated in Upper 12 Inches</p> <p><input type="checkbox"/> Water Marks</p> <p><input type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p><input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p><input type="checkbox"/> Water-Stained Leaves</p> <p><input type="checkbox"/> Local Soil Survey Data</p> <p><input type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
Remarks: <u>No indicators</u>	

**SOILS**

Map Unit Name (Series and Phase): <u>Ritchey silty clay loam</u>		Drainage Class: <u>WD</u>			
Taxonomy (Subgroup): _____		Field Observations Confirm Mapped Type? <input checked="" type="radio"/> Yes <input type="radio"/> No			
Profile Description:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
<u>0-4</u>		<u>10YR 4/3</u>			<u>silt loam</u>
<u>74</u>					<u>stony substratum</u>
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input type="checkbox"/> Gleyed or Low-Chroma Colors			<input type="checkbox"/> Concretions <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks)		
Remarks: <u>No indicators</u>					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present?	Yes <input type="radio"/> No <input checked="" type="radio"/> (Circle)	Is this Sampling Point Within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/> (Circle)
Wetland Hydrology Present?	Yes <input type="radio"/> No <input checked="" type="radio"/> (Circle)	
Hydric Soils Present?	Yes <input type="radio"/> No <input checked="" type="radio"/> (Circle)	
Remarks: <u>No criteria met.</u>		

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>Miamiisburg Mound Facility</u> Applicant/Owner: <u>BWA</u> Investigator: <u>R. Hook</u>	Date: <u>May 24 1999</u> County: <u>Montgomery</u> State: <u>OH</u>						
Do Normal Circumstances exist on the site? Is the site significantly disturbed (Atypical Situation)? Is the area a potential Problem Area? (If needed, explain on reverse.)	<table style="width: 100%; border: none;"> <tr> <td style="text-align: center;">Yes <input type="radio"/></td> <td style="text-align: center;">No <input type="radio"/></td> </tr> <tr> <td style="text-align: center;">Yes <input type="radio"/></td> <td style="text-align: center;">No <input checked="" type="radio"/></td> </tr> <tr> <td style="text-align: center;">Yes <input type="radio"/></td> <td style="text-align: center;">No <input type="radio"/></td> </tr> </table>	Yes <input type="radio"/>	No <input type="radio"/>	Yes <input type="radio"/>	No <input checked="" type="radio"/>	Yes <input type="radio"/>	No <input type="radio"/>
Yes <input type="radio"/>	No <input type="radio"/>						
Yes <input type="radio"/>	No <input checked="" type="radio"/>						
Yes <input type="radio"/>	No <input type="radio"/>						
Community ID: _____ Transect ID: _____ Plot ID: <u>I-1</u>							

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Populus de Hoidea</u>	<u>T</u>	<u>FAC</u>	9. _____	_____	_____
2. <u>Salix exigua</u>	<u>Sh</u>	<u>OBL</u>	10. _____	_____	_____
3. <u>Scirpus validus</u>	<u>H</u>	<u>OBL</u>	11. _____	_____	_____
4. <u>Leersia virginica</u>	<u>H</u>	<u>FACW</u>	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. <u>algal mat</u>	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 100%

Remarks: \_\_\_\_\_

**HYDROLOGY**

<p>___ Recorded Data (Describe in Remarks):</p> <p style="padding-left: 20px;">___ Stream, Lake, or Tide Gauge</p> <p style="padding-left: 20px;">___ Aerial Photographs</p> <p style="padding-left: 20px;">___ Other</p> <p>___ No Recorded Data Available</p> <hr/> <p>Field Observations:</p> <p>Depth of Surface Water: <u>0-2</u> (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p><input checked="" type="checkbox"/> Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 Inches</p> <p>___ Water Marks</p> <p>___ Drift Lines</p> <p>___ Sediment Deposits</p> <p>___ Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p>___ Oxidized Root Channels in Upper 12 Inches</p> <p>___ Water-Stained Leaves</p> <p>___ Local Soil Survey Data</p> <p><input checked="" type="checkbox"/> FAC-Neutral Test</p> <p>___ Other (Explain in Remarks)</p>
Remarks: <u>Small seep @ uphill end of depression.</u>	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>Miamisburg Mound Facility</u> Applicant/Owner: <u>BWX</u> Investigator: <u>R. Hook</u>	Date: <u>May 24 1999</u> County: <u>Montgomery</u> State: <u>OHIO</u>
Do Normal Circumstances exist on the site? Is the site significantly disturbed (Atypical Situation)? Is the area a potential Problem Area? (If needed, explain on reverse.)	Yes <input checked="" type="radio"/> No <input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/>
Community ID: _____ Transect ID: _____ Plot ID: <u>I-2</u>	

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Lonicera maackii</u>	<u>Sh</u>	<u>UPL</u>	9. _____	_____	_____
2. <u>Populus deltoides</u>	<u>So</u>	<u>FAC</u>	10. _____	_____	_____
3. <u>Solidago sp.</u>	<u>H</u>	<u>-</u>	11. _____	_____	_____
4. _____	_____	_____	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 50%

Remarks: Steep slope adjacent to depression with successional vegetation.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b> Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: _____ (in.)	Remarks: <u>No indicators.</u>

**SOILS**

Map Unit Name (Series and Phase): <u>Ritchey silty clay loam</u>		Drainage Class: <u>WD</u>			
Taxonomy (Subgroup): _____		Field Observations Confirm Mapped Type? <input checked="" type="radio"/> Yes <input type="radio"/> No			
<b>Profile Description:</b>					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-6		2-5Y 4/3			silt loam
>6					stony substratum
<b>Hydric Soil Indicators:</b>					
<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input type="checkbox"/> Gleyed or Low-Chroma Colors			<input type="checkbox"/> Concretions <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks)		
Remarks:					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present?	Yes <input type="radio"/> No <input checked="" type="radio"/> (Circle)	Is this Sampling Point Within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/> (Circle)
Wetland Hydrology Present?	Yes <input type="radio"/> No <input checked="" type="radio"/> (Circle)	
Hydric Soils Present?	Yes <input type="radio"/> No <input checked="" type="radio"/> (Circle)	
Remarks:  <p style="text-align: center; font-size: 1.2em;">No criteria met</p>		

**DATA FORM  
ROUTINE WETLAND DETERMINATION  
(1987 COE Wetlands Delineation Manual)**

Project/Site: <u>Miamisburg Mound Facility</u> Applicant/Owner: <u>BWX</u> Investigator: <u>Dave Dister / Rob Hook</u>	Date: <u>May 26, 1999</u> County: <u>Montgomery</u> State: <u>Ohio</u>
Do Normal Circumstances exist on the site? <span style="float:right"><input checked="" type="radio"/> Yes <input type="radio"/> No</span> Is the site significantly disturbed (Atypical Situation)? <span style="float:right"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> Is the area a potential Problem Area? <span style="float:right"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: <u>AA</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Muhlenbergia sp.</u>	<u>H</u>	<u>FAC/FACW</u>	9. _____	_____	_____
2. <u>Typha latifolia</u>	<u>H</u>	<u>OBL</u>	10. _____	_____	_____
3. <u>Festuca elatior</u>	<u>H</u>	<u>UPL</u>	11. _____	_____	_____
4. _____	_____	_____	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 67%

Remarks: Greater than 50% hydrophytic dominants.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input checked="" type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b> Depth of Surface Water: <u>0-1</u> (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: _____ (in.)	Remarks: <u>Inundation supports wetland hydrology.</u>



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>Miamisburg Mound Facility</u> Applicant/Owner: <u>BWX</u> Investigator: <u>Dave Dister / Rob Hook</u>	Date: <u>May 26, 1999</u> County: <u>Montgomery</u> State: <u>Ohio</u>
Do Normal Circumstances exist on the site? <span style="float: right;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span> Is the site significantly disturbed (Atypical Situation)? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> Is the area a potential Problem Area? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: <u>BB</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Typha angustifolia</u>	<u>H</u>	<u>OBL</u>	9. _____	_____	_____
2. <u>Scirpus validus</u>	<u>H</u>	<u>OBL</u>	10. _____	_____	_____
3. _____	_____	_____	11. _____	_____	_____
4. _____	_____	_____	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 100%

Remarks: Greater than 50% hydrophytic dominants.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input checked="" type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b> Depth of Surface Water: <u>0-10</u> (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: _____ (in.)	Remarks: <u>Inundation supports wetland hydrology.</u>



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>Miami'sburg Mound Facility</u> Applicant/Owner: <u>BWX</u> Investigator: <u>Dave Dister / Rob Hook</u>	Date: <u>May 26, 1999</u> County: <u>Montgomery</u> State: <u>Ohio</u>
Do Normal Circumstances exist on the site? <span style="float: right;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span> Is the site significantly disturbed (Atypical Situation)? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> Is the area a potential Problem Area? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: <u>CC</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Typha latifolia</u>	<u>H</u>	<u>OBL</u>	9. _____	_____	_____
2. <u>Populus delt.</u>	<u>Sh</u>	<u>FAC</u>	10. _____	_____	_____
3. <u>Juncus sp.</u>	<u>H</u>	<u>-</u>	11. _____	_____	_____
4. <u>Salix exigua</u>	<u>Sh</u>	<u>OBL</u>	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 100%

Remarks: Greater than 50% hydrophytic dominants.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b> Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: <u>surface</u> (in.)	Remarks: <u>Saturation at surface and abrupt boundary support wetland hydrology.</u>

**SOILS**

Map Unit Name (Series and Phase): Fairmount silty clay loam, 12-25%<sup>sl.</sup> Drainage Class: WD  
 Taxonomy (Subgroup): Typic Hagludolls Field Observations Confirm Mapped Type? Yes  No

**Profile Description:**

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-2	A	2.5Y4/2	—	—	silt loam
2-8	B	10GY5/1	2.5Y4/3	Many/	clay loam
78	auger refusal				

**Hydric Soil Indicators:**

<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Listed on National Hydric Soils List
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)

Remarks: Matrix chroma of 1 supports hydric soil criteria.

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present?	<input checked="" type="radio"/> Yes <input type="radio"/> No (Circle)	(Circle) Is this Sampling Point Within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Wetland Hydrology Present?	<input checked="" type="radio"/> Yes <input type="radio"/> No	
Hydric Soils Present?	<input checked="" type="radio"/> Yes <input type="radio"/> No	

Remarks: All three wetland parameters met, but eliminated as a sedimentation basin by C&E.

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>Miamisburg Mound Facility</u> Applicant/Owner: <u>BLX</u> Investigator: <u>Dave Dister / Rob Hook</u>	Date: <u>May 26, 1999</u> County: <u>Montgomery</u> State: <u>Ohio</u>
Do Normal Circumstances exist on the site? <span style="float:right"><input checked="" type="radio"/> Yes <input type="radio"/> No</span> Is the site significantly disturbed (Atypical Situation)? <span style="float:right"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> Is the area a potential Problem Area? <span style="float:right"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: <u>DD</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Typha angustifolia</u>	<u>H</u>	<u>OBL</u>	9. _____	_____	_____
2. _____	_____	_____	10. _____	_____	_____
3. _____	_____	_____	11. _____	_____	_____
4. _____	_____	_____	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 100%

Remarks: Greater than 50% hydrophytic dominants.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b> Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: <u>Surface</u> (in.)	Remarks: <u>Saturation at surface and abrupt boundary support wetland hydrology.</u>



**DATA FORM  
ROUTINE WETLAND DETERMINATION  
(1987 COE Wetlands Delineation Manual)**

Project/Site: <u>Miamisburg Mound Facility</u>	Date: <u>May 26, 1999</u>
Applicant/Owner: <u>BWK</u>	County: <u>Montgomery</u>
Investigator: <u>Dave Dister / Rob Hook</u>	State: <u>Ohio</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No	Community ID: _____ Transect ID: _____ Plot ID: <u>EE</u>
Is the site significantly disturbed (Atypical Situation)? <input checked="" type="radio"/> Yes <input type="radio"/> No	
Is the area a potential Problem Area? <input checked="" type="radio"/> Yes <input type="radio"/> No (If needed, explain on reverse.)	

*rocky detention basin*

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Salix exigua</u>	<u>Sh/H</u>	<u>OBL</u>	9. _____	_____	_____
2. <u>Juncus tenuis</u>	<u>H</u>	<u>FAC-</u>	10. _____	_____	_____
3. <u>Equisetum hyem.</u>	<u>H</u>	<u>FACW</u>	11. _____	_____	_____
4. <u>Populus deltoides</u>	<u>N/H</u>	<u>FAC</u>	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 75%

Remarks: Greater than 50% hydrophytic dominants.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b>  Depth of Surface Water: _____ (in.)  Depth to Free Water in Pit: _____ (in.)  Depth to Saturated Soil: <u>surface</u> (in.)	Remarks: <u>Saturation at surface supports wetland hydrology.</u>

**SOILS**

Map Unit Name (Series and Phase): Fairmount silty clay loam, 12-25% s/ Drainage Class: WD

Taxonomy (Subgroup): Typic Hagludolls Field Observations Confirm Mapped Type?  Yes  No

**Profile Description:**

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-4	A	2.5Y 4/4	—	—	silt loam
74	auger refusal				

**Hydric Soil Indicators:**

<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Gleyed or Low-Chrome Colors	<input type="checkbox"/> Other (Explain in Remarks)

Remarks: Aquic moisture regime suggests hydric soil criteria.

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present?	<input checked="" type="radio"/> Yes <input type="radio"/> No (Circle)	(Circle)
Wetland Hydrology Present?	<input checked="" type="radio"/> Yes <input type="radio"/> No	
Hydric Soils Present?	<input checked="" type="radio"/> Yes <input type="radio"/> No	
Is this Sampling Point Within a Wetland?		Yes <input type="radio"/> No <input checked="" type="radio"/>

Remarks: All three wetland parameters met, but eliminated as a sedimentation basin by COE

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>Miamisburg Mound Facility</u> Applicant/Owner: <u>BWX</u> Investigator: <u>Dave Dister / Rob Hook</u>	Date: <u>May 26, 1999</u> County: <u>Montgomery</u> State: <u>Ohio</u>
Do Normal Circumstances exist on the site? <span style="float:right">Yes <input type="radio"/> No <input checked="" type="radio"/></span> Is the site significantly disturbed (Atypical Situation)? <span style="float:right">Yes <input type="radio"/> No <input checked="" type="radio"/></span> Is the area a potential Problem Area? <span style="float:right">Yes <input type="radio"/> No <input checked="" type="radio"/></span> (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: <u>FF</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Typha latifolia</u>	<u>H</u>	<u>OBL</u>	9. _____	_____	_____
2. <u>Muhlenbergia sp.</u>	<u>H</u>	<u>FAC/FACW</u>	10. _____	_____	_____
3. <u>Festuca elatior</u>	<u>H</u>	<u>UPL</u>	11. _____	_____	_____
4. _____	_____	_____	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 67%

Remarks:  
Greater than 50% hydrophytic dominants.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input checked="" type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u>0-2</u> (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: _____ (in.)	
Remarks: <u>Inundation supports wetland hydrology.</u>	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>Miamisburg Mound Facility</u> Applicant/Owner: <u>BLX</u> Investigator: <u>Dave Dister / Rob Hook</u>	Date: <u>May 26, 1999</u> County: <u>Montgomery</u> State: <u>Ohio</u>
Do Normal Circumstances exist on the site? <span style="float: right;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span> Is the site significantly disturbed (Atypical Situation)? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> Is the area a potential Problem Area? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: <u>66</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Juncus tenuis</u>	<u>H</u>	<u>FAC-</u>	9. _____	_____	_____
2. <u>Carex vulpinoidea</u>	<u>H</u>	<u>OBL</u>	10. _____	_____	_____
3. <u>Scirpus pendulus</u>	<u>H</u>	<u>OBL</u>	11. _____	_____	_____
4. _____	_____	_____	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 67%

Remarks: Greater than 50% hydrophytic dominants.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b> Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: <u>surface</u> (in.)	Remarks: <u>Saturation at surface supports wetland hydrology.</u>

**SOILS**

Map Unit Name: Fairmount silty clay loam, 12-25%  
 (Series and Phase): sl. Drainage Class: WD  
 Taxonomy (Subgroup): Typic Hapluudolls Field Observations Confirm Mapped Type?  Yes  No

**Profile Description:**

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-4	A	2.5Y 3/2	—	—	silt
4-12	B	2.5Y 5/4	5Y 6/4 10GY 5/1	Coar/prom. Coar/prom.	clay/loam

**Hydric Soil Indicators:**

<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Listed on National Hydric Soils List
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)

Remarks: Matrix chroma of 4 does not support hydric soil criteria.

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No (Circle)	Is this Sampling Point Within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	
Hydric Soils Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	

Remarks: Hydric soil parameter not met.

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>Miamisburg Mound Facility</u> Applicant/Owner: <u>BWX</u> Investigator: <u>Dave Dister / Rob Hook</u>	Date: <u>May 26, 1999</u> County: <u>Montgomery</u> State: <u>Ohio</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? <input checked="" type="radio"/> Yes <input type="radio"/> No (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: <u>H/H-1</u>

*man-made wetland w/ seep*

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Juncus tenuis</u>	<u>H</u>	<u>FAC-</u>	9. _____	_____	_____
2. <u>Festuca elatior</u>	<u>ND/H</u>	<u>UPL</u>	10. _____	_____	_____
3. <u>Glyceria striata</u>	<u>H</u>	<u>OBL</u>	11. _____	_____	_____
4. <u>Carex vulpinoidea</u>	<u>H</u>	<u>OBL</u>	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 67%

Remarks: Greater than 50% hydrophytic dominants.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available <hr/> Field Observations:  Depth of Surface Water: _____ (in.)  Depth to Free Water in Pit: _____ (in.)  Depth to Saturated Soil: <u>surface</u> (in.)	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Remarks: <u>Saturation at surface supports wetland hydrology.</u>	

**SOILS**

Map Unit Name (Series and Phase): Corwin silt loam, 2-6% sl. Drainage Class: MWD  
 Taxonomy (Subgroup): Typic Argiudolls Field Observations Confirm Mapped Type?  Yes  No

**Profile Description:**

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-9	A	2.5Y3/1	—	—	silt/loam
9-12	B	2.5Y3/2	—	—	silty clay/loam

**Hydric Soil Indicators:**

<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Listed on National Hydric Soils List
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)

Remarks: Matrix chroma of 1 supports hydric soil criteria.

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No (Circle)	(Circle) Is this Sampling Point Within a Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No
Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	
Hydric Soils Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	

Remarks: All three wetland parameters met.

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>Miamisburg Mound Facility</u> Applicant/Owner: <u>BWX</u> Investigator: <u>Dave Dister / Rob Hook</u>	Date: <u>May 26, 1999</u> County: <u>Montgomery</u> State: <u>Ohio</u>
Do Normal Circumstances exist on the site? <span style="float: right;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span> Is the site significantly disturbed (Atypical Situation)? <span style="float: right;">Yes <input type="radio"/> <input checked="" type="radio"/> No</span> Is the area a potential Problem Area? <span style="float: right;">Yes <input type="radio"/> <input checked="" type="radio"/> No</span> (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: <u>HH-2</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Festuca elatior</u>	<u>H</u>	<u>UPL</u>	9. _____	_____	_____
2. <u>Melilotus offic.</u>	<u>H</u>	<u>FACU-</u>	10. _____	_____	_____
3. <u>Trifolium campestre</u>	<u>H</u>	<u>UPL</u>	11. _____	_____	_____
4. <u>Trifolium hybrid.</u>	<u>H</u>	<u>FACU-</u>	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 0%

Remarks:  
Less than 50% hydrophytic dominants.

**HYDROLOGY**

___ Recorded Data (Describe in Remarks): ___ Stream, Lake, or Tide Gauge ___ Aerial Photographs ___ Other ___ No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> ___ Inundated ___ Saturated in Upper 12 Inches ___ Water Marks ___ Drift Lines ___ Sediment Deposits ___ Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> ___ Oxidized Root Channels in Upper 12 Inches ___ Water-Stained Leaves ___ Local Soil Survey Data ___ FAC-Neutral Test ___ Other (Explain in Remarks)
<b>Field Observations:</b>  Depth of Surface Water: _____ (in.)  Depth to Free Water in Pit: _____ (in.)  Depth to Saturated Soil: <u>&gt;12</u> (in.)	Remarks: <u>No indication of hydrology.</u>

**SOILS**

Map Unit Name (Series and Phase):		<u>Corwin silt loam, 2-6% sl.</u>		Drainage Class:	<u>MWD</u>
Taxonomy (Subgroup):		<u>Typic Argiudolls</u>		Field Observations Confirm Mapped Type?	<input checked="" type="radio"/> Yes <input type="radio"/> No
<b>Profile Description:</b>					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
<u>0-12</u>	<u>A</u>	<u>2.5Y3/2</u>	<u>—</u>	<u>—</u>	<u>silty clay loam</u>
<b>Hydric Soil Indicators:</b>					
<input type="checkbox"/> Histosol	<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Reducing Conditions	<input checked="" type="checkbox"/> Gleyed or Low-Chrome Colors
<input type="checkbox"/> Concretions	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils	<input type="checkbox"/> Organic Streaking in Sandy Soils	<input type="checkbox"/> Listed on Local Hydric Soils List	<input type="checkbox"/> Listed on National Hydric Soils List	<input type="checkbox"/> Other (Explain in Remarks)
Remarks: <u>Matrix chroma of 2 without mottling does not support hydric soil criteria.</u>					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (Circle)	Is this Sampling Point Within a Wetland?    Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (Circle)
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (Circle)	
Hydric Soils Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (Circle)	
Remarks: <u>None of the wetland parameters met.</u>		

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>Miamisburg Mound Facility</u> Applicant/Owner: <u>BWX</u> Investigator: <u>R. Hook</u>	Date: <u>May 24, 1999</u> County: <u>Montgomery</u> State: <u>OH</u>
Do Normal Circumstances exist on the site? Is the site significantly disturbed (Atypical Situation)? Is the area a potential Problem Area? (If needed, explain on reverse.)	Yes <input checked="" type="radio"/> No <input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/>
Community ID: _____ Transect ID: _____ Plot ID: <u>II</u>	

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. _____	_____	_____	9. _____	_____	_____
2. _____	_____	_____	10. _____	_____	_____
3. _____	_____	_____	11. _____	_____	_____
4. _____	_____	_____	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): \_\_\_\_\_

Remarks: No vegetation present. Recently excavated sedimentation basin.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input checked="" type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b> Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: <u>0-2</u> (in.) Depth to Saturated Soil: _____ (in.)	
Remarks: _____	



**MIAMISBURG ENVIRONMENTAL MANAGEMENT PROJECT**

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**OHIO EPA RAPID ASSESSMENT METHOD DATA FORMS**

<b>Version 4.0 DRAFT</b>	<b>Ohio Rapid Assessment Method for Wetlands</b>	
	<b>Background Information Form Office Form Field Form A - Complete Field Form B - Short Form</b>	Ohio EPA, Division of Surface Water January 5, 1999
Pursuant to ORC Section 3745.30, the Ohio Rapid Assessment Method for Wetlands is a guidance or policy and <b>DOES NOT HAVE THE FORCE OF LAW</b>		

**Instructions**

The investigator is *STRONGLY URGED* to read the user's manual for further elaboration and discussion of the questions below prior to using the rating forms. For ease of use in the field, explanatory information has been kept to a minimum.

The Office Rating Questions are designed to categorize a wetland or to provide alerts to the investigator based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated.

The Qualitative Rating Questions are designed to categorize certain wetlands as very low quality (Category 1) regardless of the wetland's score on the Quantitative Rating Form. In addition, the Qualitative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating Form.

To complete the rapid assessment method, *all* questions should be answered. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to the User's Manual for discussion of how to determine the "scoring boundaries" of a wetland, or a single wetland within a wetland complex. In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

It is *VERY IMPORTANT* to properly and thoroughly answer the each of the questions in the Office Rating Form and the Qualitative Rating Questions. These questions are designed to categorize certain wetlands as very low quality (Category 1) or as very high quality (Category 3), *regardless* of the wetland's score on the Quantitative Rating Form. Therefore, just completing the Quantitative Rating Questions gives an incomplete answer as to the wetland's regulatory category. The reason for this is that the Quantitative Rating Questions do not consider or assign additional points for such important considerations as a wetland's statewide scarcity or the presence of an endangered species. These components of the regulatory scheme in OAC Rule 3745-1-54 are addressed in the questions in the Office Rating From and Qualitative Rating Questions.

### Background Information Form

Name <i>Rob Hook</i>		Date <i>6/14/99</i>	
Affiliation <i>Woolpert</i>			
Address <i>409 E. Monument Ave. Dayton OH 45402</i>			
Phone Number <i>(937) 341-9237</i>			
e-mail address			
Name of Wetland <i>A</i>			
Location of Wetland and include an address if available <i>Mound Facility</i>			
		Sources of information used (check all that apply)	
Universe Transverse Mercator		Site Visit	<input checked="" type="checkbox"/>
USGS Quad Name		USGS Topo Map	<input checked="" type="checkbox"/>
Hydrologic Unit Code		National Wetland Inventory Map	
Wetland Size (acres, hectares)	<i>0.007 ac</i>	Ohio Wetland Inventory Map	<input checked="" type="checkbox"/>
How was size estimated? <i>GPS survey / AutoCAD</i>		Aerial Photo	<input checked="" type="checkbox"/>
		Soil Survey	<input checked="" type="checkbox"/>
		Delineation report/map	<input checked="" type="checkbox"/>
sketch (include north arrow, relationship with other surface waters, vegetation zones, etc.)			
final score		Provisional Wetland Category	

## Office Rating Form

**INSTRUCTIONS.** In order to properly complete the Office Rating Form, the rater will need knowledge of the status and location of endangered and threatened species in the State of Ohio.

These questions can generally be answered by consulting the Natural Heritage Program database. "Documented" means the wetland is listed in the appropriate State of Ohio database. Questions 2 and 6 should be answered affirmatively if the rater knows of other published accounts or of actual observations of threatened or endangered species during site visits. Data sources for Question 3 include the Ohio Department of Natural Resources, Division of Wildlife and the North American Waterfowl Management Plan.

**Contacts.** Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Program, 1889 Fountain Square Court, Bldg. F-1, Columbus, Ohio 43224-1331, 614-265-6453, <http://www.dnr.state.oh.us/odnr/dnap/heritage/>. A Natural Heritage Database "Data Request Form" is included in the Appendices to the User's Manual. Ohio Department of Natural Resources, Division of Wildlife, 1840 Belcher Drive, Bldg. G-3, Columbus OH 43224-1329, 614-265-6300, <http://www.dnr.state.oh.us/odnr/wildlife/>.

#	Question	Circle one	
1	Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been documented as a habitat for any Ohio or federal listed threatened or endangered plant or animal species?	<input checked="" type="radio"/> YES Wetland may be a Category 3 wetland. Go to Question 2.	NO Go to Question 2
2	Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	<input checked="" type="radio"/> NO Go to Question 3
3	Is the wetland on record with the Ohio Natural Heritage Program as a high quality wetland?	YES Wetland is a Category 3 wetland. Go to Question 4	<input checked="" type="radio"/> NO Go to Question 4
4	Does the wetland contain documented regionally significant waterfowl, neotropical songbird, or shorebird concentration areas? Sources of information include site visits, the Ohio Department of Natural Resources Division of Wildlife, and the North American Waterfowl Management Plan.	YES Wetland is a Category 3 wetland. Go to Question 5	<input checked="" type="radio"/> NO Go to Question 5
5	Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been documented as a habitat for any state-listed potentially threatened plant species or special interest animal species?	YES Wetland should be evaluated for possible Category 3 status. Go to Question 5	NO Go to Question 6
6	Does the wetland contain individuals of state-listed potentially threatened plant or special interest animal species?	YES Wetland should be evaluated for possible Category 3 status. Question 5	<input checked="" type="radio"/> NO Complete qualitative rating form.

**End of Office Rating questions. Begin Qualitative Rating questions on next page.**

### Qualitative Rating Questions

#	Question	Circle one	
1	<p>Does the wetland fit either of the following descriptions:</p> <p>Is the wetland <u>hydrologically isolated</u> AND comprised of a <u>single vegetation class that is dominated (&gt;50% areal cover) by one species</u> from Table 1. Note: hydrologic isolation is defined in OAC Rule 3745-1-50 and discussed in the User's Manual?</p> <p>Is the wetland excavated from upland soils on unreclaimed mined lands and does not have any surface water connection to streams, lakes, rivers or other wetlands?</p>	<p>YES</p> <p>Wetland is a Category 1 wetland.</p> <p>Complete quantitative rating form.</p>	<p><u>NO</u></p> <p>Go to Question 2</p>
2	<p><b>Bogs.</b> Is the wetland a peat-accumulating wetland that has no significant inflows or outflows and supports acidophilic mosses, particularly sphagnum spp. <i>Sphagnum</i> spp. &gt;30% cover with at least one species from Table 3, and the cover of invasive species (see Table 1) is &lt;25%? Note: peat soils may also be present without actively growing <i>Sphagnum</i> spp.</p>	<p>YES</p> <p>Wetland is a Category 3 wetland.</p> <p>Complete quantitative rating form</p>	<p><u>NO</u></p> <p>Go to Question 3</p>
3	<p><b>Fens.</b> 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 4 and the cover of invasive species listed in Table 1 is &lt;25%?</p>	<p>YES</p> <p>Wetland is a Category 3 wetland.</p> <p>Complete quantitative rating form</p>	<p><u>NO</u></p> <p>Go to Question 4a</p>
4a	<p><b>"Old Growth Forest."</b> Is the wetland a forested wetland and the forest is characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least fifty per cent of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past eighty to one hundred 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?</p>	<p>YES</p> <p>Wetland is a Category 3 wetland.</p> <p>Complete quantitative rating form</p>	<p><u>NO</u></p> <p>Go to Question 4b</p>
4b	<p><b>Hemlock/Pine Forest.</b> Is the wetland a forested wetland with more than 50% of the cover of the forest canopy consisting of Hemlock (<i>Tsuga canadensis</i>) or White pine (<i>Pinus strobus</i>)? Note: forested wetlands with these characteristics are relatively unusual and mostly found in Northeast Ohio and may be confirmed for Category 3 by consulting the Ohio Department of Natural Resources Natural Heritage database.</p>	<p>YES</p> <p>Wetland is a Category 3 wetland.</p> <p>Complete quantitative rating form</p>	<p><u>NO</u></p> <p>Go to Question 4c</p>
4c	<p><b>Mature forested wetlands.</b> 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 1.5' dbh?</p>	<p>YES</p> <p>Wetland should be evaluated for possible Category 3 status.</p> <p>Complete the quantitative rating form.</p>	<p><u>NO</u></p> <p>Go to Question 5</p>

#	Question	Circle one	
5	<p><b>Lake Erie coastal and tributary wetlands.</b> Can the wetland be characterized by some or all of the descriptions below?</p> <p>The wetland is generally located below an elevation of 575 feet on the applicable USGS topographic maps, or the wetland is located adjacent to this elevation, or wetland is located along tributaries to Lake Erie that are accessible to fish.</p> <p>Lake Erie water levels are wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations). These include sandbar deposition wetlands or those dominated by submersed aquatic vegetation.</p> <p>The wetland's hydrology results from measures designed to prevent the loss of aquatic macrophytes, i.e. the wetland is partially hydrologically restricted due to lakeward or landward dikes or other hydrological controls.</p>	<p>YES</p> <p><i>Wetland should be evaluated for possible Category 3 status.</i></p> <p>Complete the quantitative rating form.</p>	<p><b>NO</b></p> <p>Go to Question 6</p>
6	<p><b>Lake Plain Sand Prairies (Oak Openings)</b> Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the description below?</p> <p>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 4 (woody species may also be present). The Ohio Department of Natural Resources can provide assistance in confirming this type of wetland and its quality.</p>	<p>YES</p> <p>Wetland is a Category 3 wetland.</p> <p>Complete the quantitative rating form.</p>	<p><b>NO</b></p> <p>Go to Question 7</p>
7	<p><b>Lack of human-caused disturbances.</b> Is there evidence observable at the time the rating is performed of human-caused changes to the wetland as indicated by some or all of the following descriptions?</p> <p><input type="checkbox"/> the wetland is ditched and water flow is, or is not, obstructed</p> <p><input type="checkbox"/> the wetland has been graded or filled</p> <p><input type="checkbox"/> the wetland's hydrology is controlled by dikes, weirs, etc.</p> <p><input checked="" type="checkbox"/> the wetland has been grazed, mowed, logged, or farmed</p> <p><input type="checkbox"/> non-native plants are present or invading</p> <p><input type="checkbox"/> Water quality degradation.</p> <p>Water quality degradation can be inferred by observing untreated runoff entering the wetland from roads, parking lots, septic systems, agricultural fields, etc., the presence of waste dumps in or adjacent to the wetland, oily sheens on the water in the wetland, the smell of organic chemicals, and/or use of the wetland by livestock.</p>	<p><b>YES</b></p> <p>Human-caused disturbance may degrade the wetland.</p> <p>Complete quantitative rating form.</p>	<p>NO</p> <p>Lack of human-caused disturbance indicates the wetland may be of high quality.</p> <p>Complete quantitative rating form.</p>

**End of Qualitative Rating questions. Begin Quantitative Rating questions on next page.**

### Quantitative Rating Questions

#	Question	score																
1	<p><b>Wetland area.</b> Estimate the area of wetland. Circle the appropriate category and points. The estimated acreage should be done with sufficient precision to clearly place the wetland within the appropriate size class. Refer to the User's Manual for additional discussion.</p> <table style="margin-left: 20px;"> <tr> <td style="text-align: left;"><u>Acre</u></td> <td style="text-align: left;"><u>Points</u></td> </tr> <tr> <td>≥ 50</td> <td>6</td> </tr> <tr> <td>25 - &lt;50</td> <td>5</td> </tr> <tr> <td>10 - &lt;25</td> <td>4</td> </tr> <tr> <td>3 - &lt;10</td> <td>3</td> </tr> <tr> <td>0.3 - &lt;3</td> <td>2</td> </tr> <tr> <td>0.1 - &lt;0.3</td> <td>1</td> </tr> <tr> <td>&lt;0.1</td> <td style="text-align: center;">0</td> </tr> </table>	<u>Acre</u>	<u>Points</u>	≥ 50	6	25 - <50	5	10 - <25	4	3 - <10	3	0.3 - <3	2	0.1 - <0.3	1	<0.1	0	0
<u>Acre</u>	<u>Points</u>																	
≥ 50	6																	
25 - <50	5																	
10 - <25	4																	
3 - <10	3																	
0.3 - <3	2																	
0.1 - <0.3	1																	
<0.1	0																	
2	<p><b>Wetland vegetation classes.</b> Check the wetland classes listed below that are present in the wetland. Refer to the User's Manual for descriptions of these classes. If the total area of the wetland is less than 1/4 acre, check the <u>single</u> vegetation class that most appropriately describes the wetland. If the wetland is dry due to the time of year the assessment is done, best professional judgement using evidence provided by any hydrologic indicators should be used to determine whether an open water class is normally or seasonally present.</p> <p> <input type="checkbox"/> Open Water, if the area of open water is &gt;0.25 acres  <input type="checkbox"/> Aquatic Beds, if the area of aquatic beds is &gt;0.25 acres  <input checked="" type="checkbox"/> Emergent, if the area of emergent class is &gt;0.25 acres  <input type="checkbox"/> Scrub-Shrub, if the area of scrub-shrub is &gt;0.25 acres  <input type="checkbox"/> Forested, if the area of forested class is &gt;0.25 acres  <input type="checkbox"/> Total Number of Classes                 </p>																	
3	<p>Based on Question 2, score the wetland according to the following table (e.g., if there are 4 classes, you would circle 8 points).</p> <table style="margin-left: 20px;"> <tr> <td style="text-align: left;"><u># of Classes</u></td> <td style="text-align: left;"><u>Points</u></td> </tr> <tr> <td>1</td> <td style="text-align: center;">0</td> </tr> <tr> <td>2</td> <td>3</td> </tr> <tr> <td>3</td> <td>6</td> </tr> <tr> <td>4</td> <td>8</td> </tr> <tr> <td>5</td> <td>10</td> </tr> </table>	<u># of Classes</u>	<u>Points</u>	1	0	2	3	3	6	4	8	5	10	0				
<u># of Classes</u>	<u>Points</u>																	
1	0																	
2	3																	
3	6																	
4	8																	
5	10																	
4	<p><b>Plant species diversity.</b> In Questions 4a to 4d, circle each wetland class that was identified in Question 2 and determine the number of different plant species that cover more than 10% of the surface area of that class. Any plant species with a cover of &gt;10% qualifies for points within a class, even those species which are not of that class, e.g., a shrub species found in a forested class.</p> <p>Score as indicated below, e.g., if a wetland has an aquatic bed class with 3 species, an emergent class with 4 species, and a scrub-shrub class with 2 species, you would circle 3, 2, and 1 under "Points."</p>																	
4a	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>Class</u></th> <th style="text-align: left;"><u># Species in Class</u></th> <th style="text-align: left;"><u>Points</u></th> <th style="text-align: left;"><u>Names of Plants (Optional)</u></th> </tr> </thead> <tbody> <tr> <td rowspan="3">Aquatic Bed</td> <td style="text-align: center;">1</td> <td style="text-align: center;">1</td> <td>_____</td> </tr> <tr> <td style="text-align: center;">2</td> <td style="text-align: center;">2</td> <td>_____</td> </tr> <tr> <td style="text-align: center;">&gt;2</td> <td style="text-align: center;">3</td> <td>_____</td> </tr> </tbody> </table>	<u>Class</u>	<u># Species in Class</u>	<u>Points</u>	<u>Names of Plants (Optional)</u>	Aquatic Bed	1	1	_____	2	2	_____	>2	3	_____			
<u>Class</u>	<u># Species in Class</u>	<u>Points</u>	<u>Names of Plants (Optional)</u>															
Aquatic Bed	1	1	_____															
	2	2	_____															
	>2	3	_____															

4b	<u>Class</u> Emergent	<u># Species in Class</u> 1 2-3 4-5 >5	<u>Points</u> 0 ① 2 3	<u>Names of Plants (Optional)</u> <i>Typha lat., Rosa palustris</i>	/										
4c	<u>Class</u> Scrub-Shrub	<u># Species in Class</u> 1 2 3-4 >4	<u>Points</u> 0 1 2 3	<u>Names of Plants (Optional)</u> 											
4d	<u>Class</u> Forested	<u># Species in Class</u> 1 2 3-4 >4	<u>Points</u> 0 1 2 3	<u>Names of Plants (Optional)</u> 											
5	<p><b>Wetland plant community interspersions.</b> Decide from the Figure 1 below whether interspersions between wetland classes is high, moderate, low or none. Write the appropriate score in the scoring column.</p> <p><b>IMPORTANT:</b> If you think the amount of interspersions falls between the degree of interspersions shown on the diagrams, assign an intermediate score, e.g., a moderately high amount of interspersions would score a "4," while a moderately low amount would score a "2".</p> <table border="0"> <tr> <td><u>Amount of Interspersions</u></td> <td><u>Points</u></td> </tr> <tr> <td>High</td> <td>5</td> </tr> <tr> <td>Moderate</td> <td>3</td> </tr> <tr> <td>Low</td> <td>1</td> </tr> <tr> <td>None</td> <td>①</td> </tr> </table>				<u>Amount of Interspersions</u>	<u>Points</u>	High	5	Moderate	3	Low	1	None	①	0
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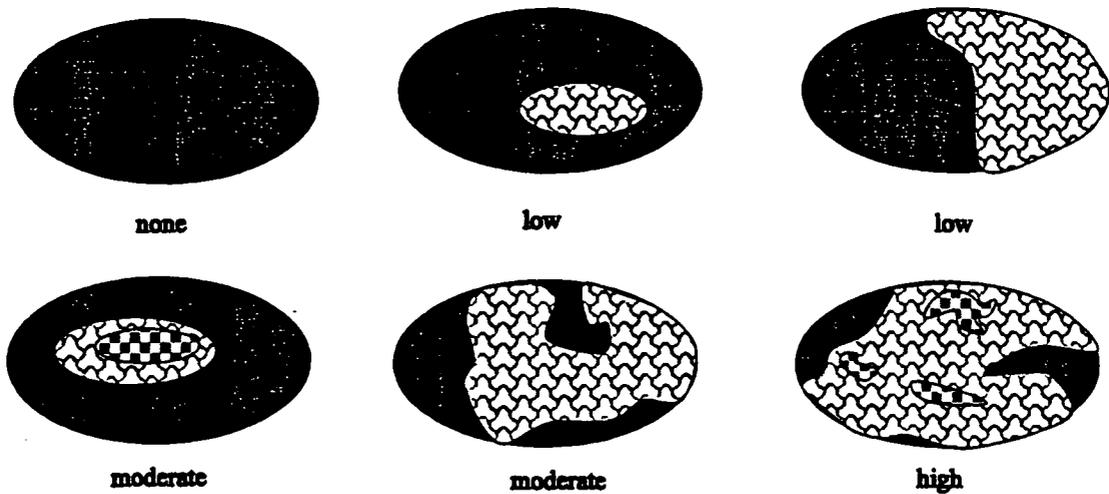


Figure 1. Hypothetical wetlands for estimating degree of interspersions.



4b	<u>Class</u> Emergent	<u># Species in Class</u> 1 2-3 4-5 >5	<u>Points</u> 0 1 2 3	<u>Names of Plants (Optional)</u> _____ _____ <i>Typha angust., Vitis, Carex, Juncus</i> _____	2										
4c	<u>Class</u> Scrub-Shrub	<u># Species in Class</u> 1 2 3-4 >4	<u>Points</u> 0 1 2 3	<u>Names of Plants (Optional)</u> _____ _____ _____											
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5	<p><b>Wetland plant community interspersions.</b> Decide from the Figure 1 below whether interspersions between wetland classes is high, moderate, low or none. Write the appropriate score in the scoring column.</p> <p><b>IMPORTANT:</b> If you think the amount of interspersions falls between the degree of interspersions shown on the diagrams, assign an intermediate score, e.g., a moderately high amount of interspersions would score a "4," while a moderately low amount would score a "2".</p> <table border="0"> <tr> <td><u>Amount of Interspersions</u></td> <td><u>Points</u></td> </tr> <tr> <td>High</td> <td>5</td> </tr> <tr> <td>Moderate</td> <td>3</td> </tr> <tr> <td>Low</td> <td>1</td> </tr> <tr> <td>None</td> <td>0</td> </tr> </table>				<u>Amount of Interspersions</u>	<u>Points</u>	High	5	Moderate	3	Low	1	None	0	0
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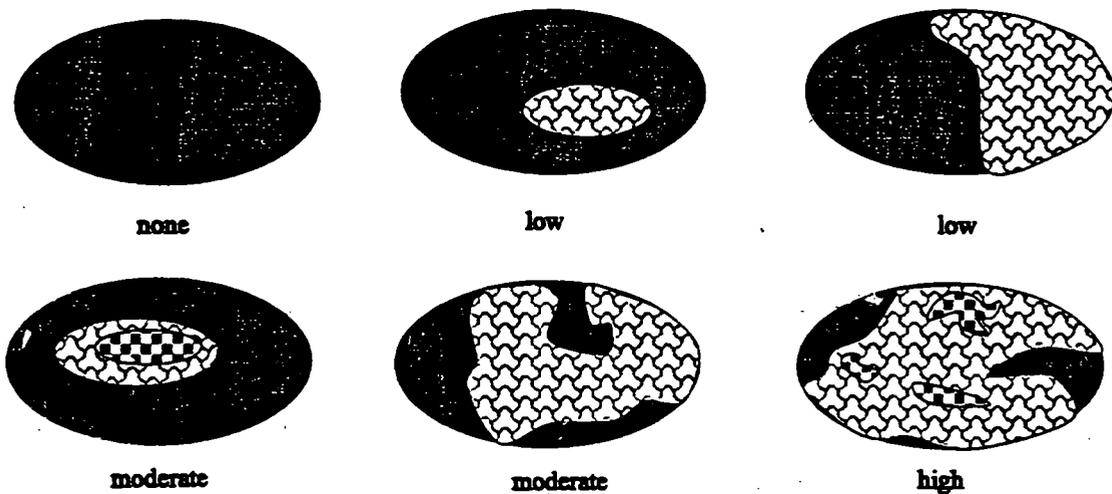


Figure 1. Hypothetical wetlands for estimating degree of interspersions.



#	Question	score															
10	<b>Wetland - surface water quality functions.</b> To answer the questions below, circle the features, if any, that apply to the wetland in question and circle the corresponding score(s). More than one answer may apply. <b>This question should only be scored for wetlands that are <u>not</u> hydrologically isolated as determined by Question 9.</b>																
10a	YES=2 NO=0 Is the wetland located in the "100 year floodplain"?																
10b	YES=2 NO=0 Is the wetland located <u>between</u> a stream and a different adjacent land use, and the wetland is located such that water from the adjacent land use could flow through wetland to the stream? "Different adjacent land uses" include agricultural, commercial, industrial, mining, or residential uses.																
10c	YES=3 NO=0 Is the wetland located adjacent to a stream <u>and</u> there is a permanent surface water connection between the wetland and the stream, i.e. water can perennially flow between the wetland and the stream and vice versa. Note: if the surface water connection is "permanent," seasonal connections like spring flooding, are considered to be included in the "permanent connection."																
10d	YES=2 NO=0 Is the wetland adjacent to a stream and only seasonal surface water connections are present, e.g. spring flooding? The answer to this question should be "no" if Question 10c is answered "yes."																
10e	YES=1 NO=0 Is the wetland forested?																
11	<p><b>Land Use Adjacent to the Wetland.</b> Circle the points that are associated with the <i>level of intensity</i> of surrounding land uses that <i>best</i> describes the intensity of land use surrounding the wetland. An average score may be used, e.g. score "2.5" if the intensity of land use is between low and medium.</p> <table border="1"> <thead> <tr> <th><u>Points</u></th> <th><u>Intensity of Land Use Surrounding Wetland</u></th> <th><u>Description</u></th> </tr> </thead> <tbody> <tr> <td>3</td> <td>low</td> <td>The wetland is mostly or completely surrounded by undeveloped land, e.g. forest, grasslands, old fields (&gt;10 years old), open water.</td> </tr> <tr> <td>2</td> <td>medium</td> <td>The wetland is mostly or completely surrounded by developed land but land use is not intensive, e.g. the wetland may be surrounded by pasture, fallow farmland, old fields (&lt;10 years old), a golf course, but generally not by roads, railroads, buildings or other paved areas.</td> </tr> <tr> <td>1</td> <td>high</td> <td>The wetland is mostly or completely surrounded by developed land and land use is intensive, e.g. active agricultural row cropping or residential development.</td> </tr> <tr> <td>0</td> <td>very high</td> <td>The wetland is mostly or completely surrounded by developed land and land use is very intensive, e.g. paved areas, industrial facilities, shopping centers, construction sites, etc.</td> </tr> </tbody> </table>	<u>Points</u>	<u>Intensity of Land Use Surrounding Wetland</u>	<u>Description</u>	3	low	The wetland is mostly or completely surrounded by undeveloped land, e.g. forest, grasslands, old fields (>10 years old), open water.	2	medium	The wetland is mostly or completely surrounded by developed land but land use is not intensive, e.g. the wetland may be surrounded by pasture, fallow farmland, old fields (<10 years old), a golf course, but generally not by roads, railroads, buildings or other paved areas.	1	high	The wetland is mostly or completely surrounded by developed land and land use is intensive, e.g. active agricultural row cropping or residential development.	0	very high	The wetland is mostly or completely surrounded by developed land and land use is very intensive, e.g. paved areas, industrial facilities, shopping centers, construction sites, etc.	
<u>Points</u>	<u>Intensity of Land Use Surrounding Wetland</u>	<u>Description</u>															
3	low	The wetland is mostly or completely surrounded by undeveloped land, e.g. forest, grasslands, old fields (>10 years old), open water.															
2	medium	The wetland is mostly or completely surrounded by developed land but land use is not intensive, e.g. the wetland may be surrounded by pasture, fallow farmland, old fields (<10 years old), a golf course, but generally not by roads, railroads, buildings or other paved areas.															
1	high	The wetland is mostly or completely surrounded by developed land and land use is intensive, e.g. active agricultural row cropping or residential development.															
0	very high	The wetland is mostly or completely surrounded by developed land and land use is very intensive, e.g. paved areas, industrial facilities, shopping centers, construction sites, etc.															

Subtotal this Page

#	Question	score															
12	<p><b>Average Buffer Width.</b> Circle the points that are associated with the "average buffer width" surrounding the wetland. To calculate the average buffer width, estimate width of buffer on each side of wetland to a maximum of 200' and divide by the number of sides, e.g. the average buffer width of a wetland with buffers of 500', 100', 50' and 0' would be calculated as follows: <math>abw = (500' + 100' + 50' + 0')/4 = 87.5'</math>. A wetland with buffers greater than 200' on all sides would have an <math>abw \geq 200</math> and would score 3 points. Intensive land uses should not be counted as buffers, e.g. active agricultural row cropping, paved areas, housing developments, etc.</p> <table border="1"> <thead> <tr> <th>Points</th> <th>Average Buffer Width (abw)</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>3</td> <td><math>abw \geq 200</math> ft</td> <td>Buffers average 200 feet or more around the wetland perimeter?</td> </tr> <tr> <td>2</td> <td><math>100' &lt; abw &lt; 200'</math></td> <td>Buffers average between 100 and 200 feet around the wetland perimeter</td> </tr> <tr> <td>①</td> <td><math>50' &lt; abw &lt; 100'</math></td> <td>Buffers average between 50 and 100 feet around the wetland perimeter</td> </tr> <tr> <td>0</td> <td><math>abw \leq 50'</math></td> <td>Buffers average less than 50 feet around the wetland perimeter?</td> </tr> </tbody> </table>	Points	Average Buffer Width (abw)	Description	3	$abw \geq 200$ ft	Buffers average 200 feet or more around the wetland perimeter?	2	$100' < abw < 200'$	Buffers average between 100 and 200 feet around the wetland perimeter	①	$50' < abw < 100'$	Buffers average between 50 and 100 feet around the wetland perimeter	0	$abw \leq 50'$	Buffers average less than 50 feet around the wetland perimeter?	1
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13	<p><b>Connectivity.</b> Is the wetland connected to a "riparian corridor"?</p> <p>YES Answer Question 13a, do NOT answer Question 13b.</p> <p>NO Answer Question 13b</p>																
13a	<p><b>Connectivity to Riparian Corridors.</b> Circle the points that are associated with the degree of connectivity to a "riparian corridor" that best describes the intensity of land use surrounding the wetland. If the wetland being evaluated appears to fall between the categories described below, an average score may be used, e.g. score "3.5" if the degree of connectivity is between moderate and high.</p> <table border="1"> <thead> <tr> <th>Points</th> <th>Degree of Connectivity to other habitat areas</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>5</td> <td>very high</td> <td>Is the wetland 1) connected to, or part of, a "riparian corridor" that is &gt;100' wide and the riparian corridor connects the wetland with a protected area, e.g. scenic river, exceptional warmwater habitat stream, coldwater habitat stream, nature preserve, state forest, public lands, land under a conservation easement, etc.</td> </tr> <tr> <td>4</td> <td>high</td> <td>Is the wetland connected to or part of a riparian corridor that is &gt;100' wide?</td> </tr> <tr> <td>3</td> <td>moderate</td> <td>Is the wetland connected to, or part of, a riparian corridor between 50' and 100' wide?</td> </tr> <tr> <td>1</td> <td>low</td> <td>Is the wetland connected to a riparian corridor that is &lt;50' wide?</td> </tr> </tbody> </table>	Points	Degree of Connectivity to other habitat areas	Description	5	very high	Is the wetland 1) connected to, or part of, a "riparian corridor" that is >100' wide and the riparian corridor connects the wetland with a protected area, e.g. scenic river, exceptional warmwater habitat stream, coldwater habitat stream, nature preserve, state forest, public lands, land under a conservation easement, etc.	4	high	Is the wetland connected to or part of a riparian corridor that is >100' wide?	3	moderate	Is the wetland connected to, or part of, a riparian corridor between 50' and 100' wide?	1	low	Is the wetland connected to a riparian corridor that is <50' wide?	
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1	low	Is the wetland connected to a riparian corridor that is <50' wide?															

Subtotal this Page	1
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#	Question	score																		
13b	<p><b>Connectivity to Upland Corridors.</b> Circle the points that are associated with the degree of connectivity to an "upland corridor" that best describes the intensity of land use surrounding the wetland. If the wetland being evaluated appears to fall between the categories described below, an average score may be used, e.g. score "3.5" if the degree of connectivity is between moderate and high. <b>DO NOT ANSWER THIS QUESTION IF QUESTION 13a WAS ANSWERED.</b></p> <table border="1"> <thead> <tr> <th>Points</th> <th>Degree of Connectivity to other habitat areas</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>5</td> <td>very high</td> <td>Is the wetland connected to or part of an upland corridor that is &gt;100' wide with good forest and shrub cover (&gt;25% cover) and the upland corridor connects the wetland with a protected area, e.g. nature preserve, state forest, public lands, land under a conservation easement, etc.</td> </tr> <tr> <td>4</td> <td>high</td> <td>Is the wetland connected to or part of an upland corridor that is &gt;100' wide with good forest and shrub cover (&gt;25% cover)</td> </tr> <tr> <td>3</td> <td>moderate</td> <td>Is the wetland connected to or part of another habitat area with either a forested/shrub corridor &lt;100' wide; or (2) a corridor that is &gt;100' wide, but has a low vegetative cover (i.e., not forested)?</td> </tr> <tr> <td>1</td> <td>low</td> <td>Is the wetland connected to any other habitat area by a narrow corridor (&lt;50') of low vegetation (i.e., not forested), or surrounded by agricultural lands?</td> </tr> <tr> <td>0</td> <td>none</td> <td>Is the wetland and its buffer mostly isolated by development (urban, residential &gt;2 houses/acre, commercial or industrial)?</td> </tr> </tbody> </table>	Points	Degree of Connectivity to other habitat areas	Description	5	very high	Is the wetland connected to or part of an upland corridor that is >100' wide with good forest and shrub cover (>25% cover) and the upland corridor connects the wetland with a protected area, e.g. nature preserve, state forest, public lands, land under a conservation easement, etc.	4	high	Is the wetland connected to or part of an upland corridor that is >100' wide with good forest and shrub cover (>25% cover)	3	moderate	Is the wetland connected to or part of another habitat area with either a forested/shrub corridor <100' wide; or (2) a corridor that is >100' wide, but has a low vegetative cover (i.e., not forested)?	1	low	Is the wetland connected to any other habitat area by a narrow corridor (<50') of low vegetation (i.e., not forested), or surrounded by agricultural lands?	0	none	Is the wetland and its buffer mostly isolated by development (urban, residential >2 houses/acre, commercial or industrial)?	0
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0	none	Is the wetland and its buffer mostly isolated by development (urban, residential >2 houses/acre, commercial or industrial)?																		
14	<p><b>Other relevant information.</b> Is there any other information about this wetland that might be important when completing its assessment? If yes, please describe below (no score given). Please include any information on educational, scientific or other public uses of the wetland. Information about any unusual circumstances that may have affected the wetland's score should also be included.</p>																			
15	<b>TOTAL SCORE</b>	2																		

**Table 1. List of invasive/exotic plant species**

Source: The Ohio Aquatic Nuisance Species Committee).

<i>Lythrum salicaria</i>	Purple loosestrife
<i>Myriophyllum spicatum</i>	European milfoil
<i>Najas minor</i>	Lesser naiad
<i>Phalaris arundinacea</i>	Reed canary grass
<i>Phragmites australis</i>	Giant reed
<i>Potamogeton crispus</i>	Curly pondweed
<i>Ranunculus ficaria</i>	Lesser celandine
<i>Rhamnus frangula</i>	European buckthorn
<i>Typha angustifolia</i>	Narrow-leaved cattail

**Table 2. List of some characteristic fen species**

*Aigademes elegans* var. *glaucus*  
*Cacalia plantaginea*  
*Carex flava*  
*Carex sterilis*  
*Carex stricta*  
*Deschampsia caespitosa*  
*Eleocharis pauciflora*  
*Eleocharis rotellata*  
*Eriophorum viridicarinatum*  
*Euthamia (Solidago) ohioensis*  
*Gentianopsis* spp.  
*Lobelia kalmii*  
*Parnassia glauca*  
*Potentilla fruticosa*  
*Rhamnus alnifolia*  
*Rhynchospora* spp.  
*Salix candida*  
*Salix myricoides*  
*Salix serissima*  
*Tofieldia glutinosa*  
*Triglochin maritimum*  
*Triglochin palustre*

**Table 3. List of some characteristic bog species.**

*Calla palustris*  
*Carex atlantica* var. *capillacea*  
*Carex echinata*  
*Carex oligosperma*  
*Carex trisperma*  
*Chamaedaphne calyculata*  
*Decodon verticillatus*  
*Eriophorum virginicum*  
*Larix laricina*  
*Nemopanthus muscronatus*  
*Scheuchzeria palustris*  
*Sphagnum* spp.  
*Vaccinium macrocarpon*  
*Vaccinium corymbosum*  
*Vaccinium oxycoccus*  
*Woodwardia virginica*  
*Xyris difformis*

**Table 4. List of some Oak Opening Species**

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

### Qualitative Rating Questions

1	YES	NO	hydrologically isolated, single class >50% cover OR minelands without surface water connection?
2-6	YES	NO	__ bog __ fen __ old growth/hemlock and pine __ mature forest __ Oak Opening __ Coastal
7	YES	NO	Is there evidence of human-caused disturbances?

### Quantitative Rating Questions

1	Wetland area $\geq 50$ (6 pts) 25-<50 (5 pts) 10-<25 (4 pts) 3-<10 (3 pts) 0.3-<3 (2 pts) 0.1->0.3 (1 pt) <0.1 (0 pts)	0
2	Wetland vegetation classes __ Open Water __ Aquatic Bed <input checked="" type="checkbox"/> Emergent __ Scrub-Shrub __ Forested	
3	Score vegetation classes 1 class = 0 2 classes = 3 3 classes = 6 4 classes = 8 5 classes = 10	
4a	Aquatic Bed Plant Species one = 1pt two = 2pts >2 = 3pts	
4b	Emergent Plant Species one = 0 pts two to three = 1pts four to five = 2pts more than five = 3pts	/
4c	Scrub-Shrub Plant Species one = 0 pts two = 1pts three to four = 2pts more than four = 3pts	
4d	Forest Plant Species one = 0 pts two = 1pts three to four = 2pts more than four = 3pts	
5	Wetland plant community interspersion high = 5 moderate = 3 low = 1 none = 0	
6	Does the wetland have a forested class >0.25 acres YES -- Answer Question 7 NO -- Go to Question 8	
7a-e	YES=1 trees >50' tall YES=1 trees 20'-49' YES=1 shrubs YES=1 herbaceous YES=1 open water /aquatic bed	
8a	YES=1 NO=0 hydrology of the wetland has been modified by beavers	
8b	YES=1 NO=0 heron rookery within 300'	
8c	YES=1 NO=0 mudflat areas that could provide habitat for shorebirds	
8d	YES=1 NO=0 raptor nests within 300'	
8e	YES=1 NO=0 at least 3 standing dead trees per acre >10" dbh	
8f	YES=1 NO=0 at least 3 downed logs per acre >6" diameter and at least 10' in length	
8g	YES=2 NO=0 areas ponded for at least 4 months/year, no open water class	
8h	YES=2 NO=0 Are there "vernal pools"	
8i	YES=1 NO=0 in the littoral zone of a lake (other than Lake Erie)	
9	Is the wetland "Hydrologically isolated?" YES -- Go to Question 11 NO -- Go to Question 10.	
10a	YES=2 NO=0 located in the "100 year floodplain"?	
10b	YES=2 NO=0 located <u>between</u> a stream and a different adjacent land use	
10c	YES=3 NO=0 located adjacent to a stream <u>and</u> there is a permanent surface water connection	
10d	YES=2 NO=0 adjacent to a stream and seasonal surface water connections Answer "no" if 10c answered "yes."	
10e	YES=1 NO=0 Is the wetland forested?	
11	Land Use Around the Wetland low = 3, medium = 2, high = 1, very high = 0	
12	Average Buffer Width abw $\geq 200$ ft = 3, 100' < abw < 200' = 2, 50' < abw $\leq 100'$ = 1, abw $\leq 50'$ = 0	/
13	Connectivity. Is the wetland connected to a "riparian corridor" YES Answer 13a Do NOT Answer 13b	
13a	Connectivity to Riparian Corridors very high = 5, high = 4, moderate = 3, low = 1, none = 0	
13b	Connectivity to Upland Corridors very high = 5, high = 4, moderate = 3, low = 1, none = 0	
<b>TOTAL SCORE</b>		<b>2</b>

Version 4.0 DRAFT	<b>Ohio Rapid Assessment Method for Wetlands</b>	
	<b>Background Information Form</b> <b>Office Form</b> <b>Field Form A - Complete</b> <b>Field Form B - Short Form</b>	Ohio EPA, Division of Surface Water  January 5, 1999
Pursuant to ORC Section 3745.30, the Ohio Rapid Assessment Method for Wetlands is a guidance or policy and <b>DOES NOT HAVE THE FORCE OF LAW</b>		

### Instructions

The investigator is **STRONGLY URGED** to read the user's manual for further elaboration and discussion of the questions below prior to using the rating forms. For ease of use in the field, explanatory information has been kept to a minimum.

The Office Rating Questions are designed to categorize a wetland or to provide alerts to the investigator based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated.

The Qualitative Rating Questions are designed to categorize certain wetlands as very low quality (Category 1) regardless of the wetland's score on the Quantitative Rating Form. In addition, the Qualitative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating Form.

To complete the rapid assessment method, *all* questions should be answered. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to the User's Manual for discussion of how to determine the "scoring boundaries" of a wetland, or a single wetland within a wetland complex. In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

It is **VERY IMPORTANT** to properly and thoroughly answer each of the questions in the Office Rating Form and the Qualitative Rating Questions. These questions are designed to categorize certain wetlands as very low quality (Category 1) or as very high quality (Category 3), *regardless* of the wetland's score on the Quantitative Rating Form. Therefore, just completing the Quantitative Rating Questions gives an incomplete answer as to the wetland's regulatory category. The reason for this is that the Quantitative Rating Questions do not consider or assign additional points for such important considerations as a wetland's statewide scarcity or the presence of an endangered species. These components of the regulatory scheme in OAC Rule 3745-1-54 are addressed in the questions in the Office Rating Form and Qualitative Rating Questions.

### Background Information Form

<b>Name</b> <i>Rob Hook</i>	<b>Date</b> <i>6/14/99</i>
<b>Affiliation</b> <i>Woolpert</i>	
<b>Address</b> <i>409 E. Monument Ave. Dayton OH 45402</i>	
<b>Phone Number</b> <i>(937) 341-9237</i>	
<b>e-mail address</b>	
<b>Name of Wetland</b> <i>C, D, DA, DB, DC</i>	
<b>Location of Wetland and include an address if available</b> <i>Mound Facility</i>	
<b>Sources of information used (check all that apply)</b>	
Universe Transverse Mercator	Site Visit <input checked="" type="checkbox"/>
USGS Quad Name	USGS Topo Map <input checked="" type="checkbox"/>
Hydrologic Unit Code	National Wetland Inventory Map
Wetland Size (acres, hectares) <i>0.1 ac. (all totalled)</i>	Ohio Wetland Inventory Map
<b>How was size estimated?</b> <i>GPS survey / AutoCAD</i>	Aerial Photo <input checked="" type="checkbox"/>
	Soil Survey <input checked="" type="checkbox"/>
	Delineation report/map <input checked="" type="checkbox"/>
<b>sketch (include north arrow, relationship with other surface waters, vegetation zones, etc.)</b>	
<b>final score</b>	<b>Provisional Wetland Category</b>

## Office Rating Form

**INSTRUCTIONS.** In order to properly complete the Office Rating Form, the rater will need knowledge of the status and location of endangered and threatened species in the State of Ohio.

These questions can generally be answered by consulting the Natural Heritage Program database. "Documented" means the wetland is listed in the appropriate State of Ohio database. Questions 2 and 6 should be answered affirmatively if the rater knows of other published accounts or of actual observations of threatened or endangered species during site visits. Data sources for Question 3 include the Ohio Department of Natural Resources, Division of Wildlife and the North American Waterfowl Management Plan.

**Contacts.** Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Program, 1889 Fountain Square Court, Bldg. F-1, Columbus, Ohio 43224-1331, 614-265-6453, <http://www.dnr.state.oh.us/odnr/dnap/heritage/>. A Natural Heritage Database "Data Request Form" is included in the Appendices to the User's Manual. Ohio Department of Natural Resources, Division of Wildlife, 1840 Belcher Drive, Bldg. G-3, Columbus OH 43224-1329, 614-265-6300, <http://www.dnr.state.oh.us/odnr/wildlife/>.

#	Question	Circle one	
1	Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been documented as a habitat for any Ohio or federal listed threatened or endangered plant or animal species?	<input checked="" type="radio"/> YES <i>Juncus interior</i> Wetland may be a Category 3 wetland. Go to Question 2.	NO Go to Question 2
2	Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	<input checked="" type="radio"/> NO Go to Question 3
3	Is the wetland on record with the Ohio Natural Heritage Program as a high quality wetland?	YES Wetland is a Category 3 wetland. Go to Question 4	<input checked="" type="radio"/> NO Go to Question 4
4	Does the wetland contain documented regionally significant waterfowl, neotropical songbird, or shorebird concentration areas? Sources of information include site visits, the Ohio Department of Natural Resources Division of Wildlife, and the North American Waterfowl Management Plan.	YES Wetland is a Category 3 wetland. Go to Question 5	<input checked="" type="radio"/> NO Go to Question 5
5	Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been documented as a habitat for any state-listed potentially threatened plant species or special interest animal species?	YES Wetland should be evaluated for possible Category 3 status. Go to Question 5	NO Go to Question 6
6	Does the wetland contain individuals of state-listed potentially threatened plant or special interest animal species?	YES Wetland should be evaluated for possible Category 3 status. Question 5	<input checked="" type="radio"/> NO Complete qualitative rating form.

**End of Office Rating questions. Begin Qualitative Rating questions on next page.**

### Qualitative Rating Questions

#	Question	Circle one	
1	<p>Does the wetland fit either of the following descriptions:</p> <p>Is the wetland <u>hydrologically isolated</u> AND comprised of a <u>single vegetation class that is dominated (&gt;50% areal cover) by one species</u> from Table 1. Note: hydrologic isolation is defined in OAC Rule 3745-1-50 and discussed in the User's Manual?</p> <p>Is the wetland excavated from upland soils on unreclaimed mined lands and does not have any surface water connection to streams, lakes, rivers or other wetlands?</p>	<p>YES</p> <p>Wetland is a Category 1 wetland.</p> <p>Complete quantitative rating form.</p>	<p><b>NO</b></p> <p>Go to Question 2</p>
2	<p><b>Bogs.</b> Is the wetland a peat-accumulating wetland that has no significant inflows or outflows and supports acidophilic mosses, particularly sphagnum spp. <i>Sphagnum</i> spp. &gt;30% cover with at least one species from Table 3, and the cover of invasive species (see Table 1) is &lt;25%? Note: peat soils may also be present without actively growing <i>Sphagnum</i> spp.</p>	<p>YES</p> <p>Wetland is a Category 3 wetland.</p> <p>Complete quantitative rating form</p>	<p><b>NO</b></p> <p>Go to Question 3</p>
3	<p><b>Fens.</b> 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 4 and the cover of invasive species listed in Table 1 is &lt;25%?</p>	<p>YES</p> <p>Wetland is a Category 3 wetland.</p> <p>Complete quantitative rating form</p>	<p><b>NO</b></p> <p>Go to Question 4a</p>
4a	<p><b>"Old Growth Forest."</b> Is the wetland a forested wetland and the forest is characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least fifty per cent of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past eighty to one hundred 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?</p>	<p>YES</p> <p>Wetland is a Category 3 wetland.</p> <p>Complete quantitative rating form</p>	<p><b>NO</b></p> <p>Go to Question 4b</p>
4b	<p><b>Hemlock/Pine Forest.</b> Is the wetland a forested wetland with more than 50% of the cover of the forest canopy consisting of Hemlock (<i>Tsuga canadensis</i>) or White pine (<i>Pinus strobus</i>)? Note: forested wetlands with these characteristics are relatively unusual and mostly found in Northeast Ohio and may be confirmed for Category 3 by consulting the Ohio Department of Natural Resources Natural Heritage database.</p>	<p>YES</p> <p>Wetland is a Category 3 wetland.</p> <p>Complete quantitative rating form</p>	<p><b>NO</b></p> <p>Go to Question 4c</p>
4c	<p><b>Mature forested wetlands.</b> 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 1.5' dbh?</p>	<p>YES</p> <p><i>Wetland should be evaluated for possible Category 3 status.</i></p> <p>Complete the quantitative rating form.</p>	<p><b>NO</b></p> <p>Go to Question 5</p>

#	Question	Circle one	
5	<p><b>Lake Erie coastal and tributary wetlands.</b> Can the wetland be characterized by some or all of the descriptions below?</p> <p>The wetland is generally located below an elevation of 575 feet on the applicable USGS topographic maps, or the wetland is located adjacent to this elevation, or wetland is located along tributaries to Lake Erie that are accessible to fish.</p> <p>Lake Erie water levels are wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations). These include sandbar deposition wetlands or those dominated by submersed aquatic vegetation.</p> <p>The wetland's hydrology results from measures designed to prevent the loss of aquatic macrophytes, i.e. the wetland is partially hydrologically restricted due to lakeward or landward dikes or other hydrological controls.</p>	<p>YES</p> <p><i>Wetland should be evaluated for possible Category 3 status.</i></p> <p>Complete the quantitative rating form.</p>	<p><b>NO</b></p> <p>Go to Question 6</p>
6	<p><b>Lake Plain Sand Prairies (Oak Openings)</b> Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the description below?</p> <p>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 4 (woody species may also be present). The Ohio Department of Natural Resources can provide assistance in confirming this type of wetland and its quality.</p>	<p>YES</p> <p>Wetland is a Category 3 wetland.</p> <p>Complete the quantitative rating form.</p>	<p><b>NO</b></p> <p>Go to Question 7</p>
7	<p><b>Lack of human-caused disturbances.</b> Is there evidence observable at the time the rating is performed of human-caused changes to the wetland as indicated by some or all of the following descriptions?</p> <p>___ the wetland is ditched and water flow is, or is not, obstructed</p> <p>___ the wetland has been graded or filled</p> <p>___ the wetland's hydrology is controlled by dikes, weirs, etc.</p> <p><input checked="" type="checkbox"/> the wetland has been grazed, mowed, logged, or farmed</p> <p>___ non-native plants are present or invading</p> <p>___ Water quality degradation.</p> <p>Water quality degradation can be inferred by observing untreated runoff entering the wetland from roads, parking lots, septic systems, agricultural fields, etc., the presence of waste dumps in or adjacent to the wetland, oily sheens on the water in the wetland, the smell of organic chemicals, and/or use of the wetland by livestock.</p>	<p><b>YES</b></p> <p>Human-caused disturbance may degrade the wetland.</p> <p>Complete quantitative rating form.</p>	<p>NO</p> <p>Lack of human-caused disturbance indicates the wetland may be of high quality.</p> <p>Complete quantitative rating form.</p>

**End of Qualitative Rating questions. Begin Quantitative Rating questions on next page.**

### Quantitative Rating Questions

#	Question	score																
1	<p><b>Wetland area.</b> Estimate the area of wetland. Circle the appropriate category and points. The estimated acreage should be done with sufficient precision to clearly place the wetland within the appropriate size class. Refer to the User's Manual for additional discussion.</p> <table style="margin-left: 20px;"> <thead> <tr> <th style="text-decoration: underline;">Acres</th> <th style="text-decoration: underline;">Points</th> </tr> </thead> <tbody> <tr> <td>≥ 50</td> <td style="text-align: center;">6</td> </tr> <tr> <td>25 - &lt;50</td> <td style="text-align: center;">5</td> </tr> <tr> <td>10 - &lt;25</td> <td style="text-align: center;">4</td> </tr> <tr> <td>3 - &lt;10</td> <td style="text-align: center;">3</td> </tr> <tr> <td>0.3 - &lt;3</td> <td style="text-align: center;">2</td> </tr> <tr> <td>0.1 - &lt;0.3</td> <td style="text-align: center;">1</td> </tr> <tr> <td>&lt;0.1</td> <td style="text-align: center;">0</td> </tr> </tbody> </table> <p style="margin-left: 100px;"><i>All 5 wetlands together total 0.1 acre</i></p>	Acres	Points	≥ 50	6	25 - <50	5	10 - <25	4	3 - <10	3	0.3 - <3	2	0.1 - <0.3	1	<0.1	0	1
Acres	Points																	
≥ 50	6																	
25 - <50	5																	
10 - <25	4																	
3 - <10	3																	
0.3 - <3	2																	
0.1 - <0.3	1																	
<0.1	0																	
2	<p><b>Wetland vegetation classes.</b> Check the wetland classes listed below that are present in the wetland. Refer to the User's Manual for descriptions of these classes. <b>If the total area of the wetland is less than 1/4 acre, check the single vegetation class that most appropriately describes the wetland.</b> If the wetland is dry due to the time of year the assessment is done, best professional judgement using evidence provided by any hydrologic indicators should be used to determine whether an open water class is normally or seasonally present.</p> <p> <input type="checkbox"/> Open Water, if the area of open water is &gt;0.25 acres  <input type="checkbox"/> Aquatic Beds, if the area of aquatic beds is &gt;0.25 acres  <input checked="" type="checkbox"/> Emergent, if the area of emergent class is &gt;0.25 acres  <input type="checkbox"/> Scrub-Shrub, if the area of scrub-shrub is &gt;0.25 acres  <input type="checkbox"/> Forested, if the area of forested class is &gt;0.25 acres  <input type="checkbox"/> Total Number of Classes                 </p>																	
3	<p>Based on Question 2, score the wetland according to the following table (e.g., if there are 4 classes, you would circle 8 points).</p> <table style="margin-left: 20px;"> <thead> <tr> <th style="text-decoration: underline;"># of Classes</th> <th style="text-decoration: underline;">Points</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">0</td> </tr> <tr> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td style="text-align: center;">3</td> <td style="text-align: center;">6</td> </tr> <tr> <td style="text-align: center;">4</td> <td style="text-align: center;">8</td> </tr> <tr> <td style="text-align: center;">5</td> <td style="text-align: center;">10</td> </tr> </tbody> </table>	# of Classes	Points	1	0	2	3	3	6	4	8	5	10	0				
# of Classes	Points																	
1	0																	
2	3																	
3	6																	
4	8																	
5	10																	
4	<p><b>Plant species diversity.</b> In Questions 4a to 4d, circle each wetland class that was identified in Question 2 and determine the number of different plant species that cover more than 10% of the surface area of that class. Any plant species with a cover of &gt;10% qualifies for points within a class, even those species which are not of that class, e.g., a shrub species found in a forested class.</p> <p>Score as indicated below, e.g., if a wetland has an aquatic bed class with 3 species, an emergent class with 4 species, and a scrub-shrub class with 2 species, you would circle 3, 2, and 1 under "Points."</p>																	
4a	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-decoration: underline;">Class</th> <th style="text-decoration: underline;"># Species in Class</th> <th style="text-decoration: underline;">Points</th> <th style="text-decoration: underline;">Names of Plants (Optional)</th> </tr> </thead> <tbody> <tr> <td style="border-bottom: 1px solid black;">Aquatic Bed</td> <td style="text-align: center;">1</td> <td style="text-align: center;">1</td> <td style="border-bottom: 1px solid black;">_____</td> </tr> <tr> <td></td> <td style="text-align: center;">2</td> <td style="text-align: center;">2</td> <td style="border-bottom: 1px solid black;">_____</td> </tr> <tr> <td></td> <td style="text-align: center;">&gt;2</td> <td style="text-align: center;">3</td> <td style="border-bottom: 1px solid black;">_____</td> </tr> </tbody> </table>	Class	# Species in Class	Points	Names of Plants (Optional)	Aquatic Bed	1	1	_____		2	2	_____		>2	3	_____	
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Aquatic Bed	1	1	_____															
	2	2	_____															
	>2	3	_____															

4b	<u>Class</u> Emergent	<u># Species in Class</u> 1 2-3 4-5 >5	<u>Points</u> 0 1 2 3	<u>Names of Plants (Optional)</u> _____ _____ <i>Typha, Paspalum, Salix, Aster, Sida</i> _____ _____	2										
4c	<u>Class</u> Scrub-Shrub	<u># Species in Class</u> 1 2 3-4 >4	<u>Points</u> 0 1 2 3	<u>Names of Plants (Optional)</u> _____ _____ _____ _____											
4d	<u>Class</u> Forested	<u># Species in Class</u> 1 2 3-4 >4	<u>Points</u> 0 1 2 3	<u>Names of Plants (Optional)</u> _____ _____ _____ _____											
5	<p><b>Wetland plant community interspersions.</b> Decide from the Figure 1 below whether interspersions between wetland classes is high, moderate, low or none. Write the appropriate score in the scoring column.</p> <p><b>IMPORTANT:</b> If you think the amount of interspersions falls between the degree of interspersions shown on the diagrams, assign an intermediate score, e.g., a moderately high amount of interspersions would score a "4," while a moderately low amount would score a "2".</p> <table border="1"> <thead> <tr> <th>Amount of Interspersions</th> <th>Points</th> </tr> </thead> <tbody> <tr> <td>High</td> <td>5</td> </tr> <tr> <td>Moderate</td> <td>3</td> </tr> <tr> <td>Low</td> <td>1</td> </tr> <tr> <td>None</td> <td>0</td> </tr> </tbody> </table>				Amount of Interspersions	Points	High	5	Moderate	3	Low	1	None	0	0
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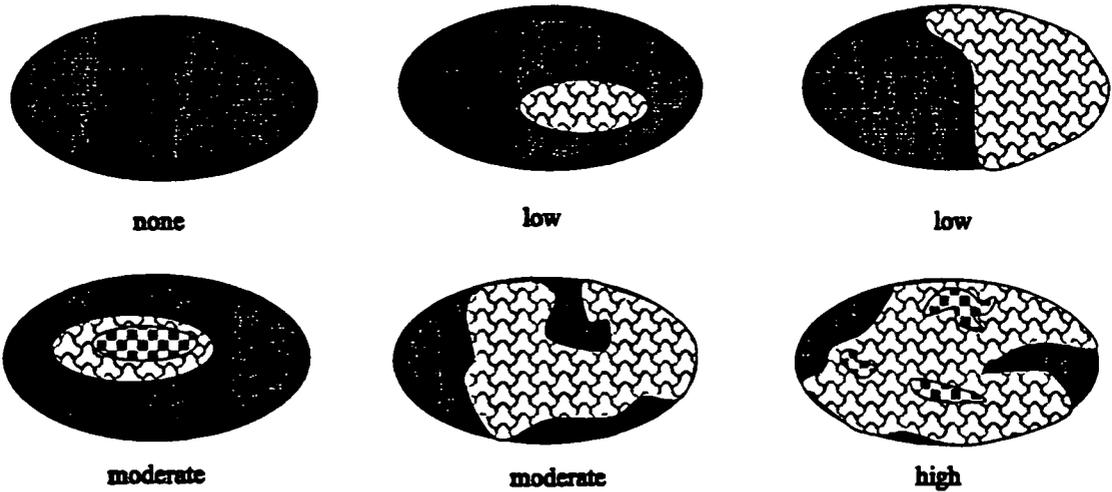


Figure 1. Hypothetical wetlands for estimating degree of interspersions.



#	Question	score															
10	<b>Wetland - surface water quality functions.</b> To answer the questions below, circle the features, if any, that apply to the wetland in question and circle the corresponding score(s). More than one answer may apply. <b>This question should only be scored for wetlands that are <u>not</u> hydrologically isolated as determined by Question 9.</b>																
10a	YES=2 NO=0 Is the wetland located in the "100 year floodplain"?	0															
10b	YES=2 NO=0 Is the wetland located <u>between</u> a stream and a different adjacent land use, and the wetland is located such that water from the adjacent land use could flow through wetland to the stream? "Different adjacent land uses" include agricultural, commercial, industrial, mining, or residential uses.	0															
10c	YES=3 NO=0 Is the wetland located adjacent to a stream <u>and</u> there is a permanent surface water connection between the wetland and the stream, i.e. water can perennially flow between the wetland and the stream and vice versa. Note: if the surface water connection is "permanent," seasonal connections like spring flooding, are considered to be included in the "permanent connection."	0															
10d	YES=2 NO=0 Is the wetland adjacent to a stream and only seasonal surface water connections are present, e.g. spring flooding? The answer to this question should be "no" if Question 10c is answered "yes."	0															
10e	YES=1 NO=0 Is the wetland forested?	0															
11	<p><b>Land Use Adjacent to the Wetland.</b> Circle the points that are associated with the <i>level of intensity</i> of surrounding land uses that <i>best</i> describes the intensity of land use surrounding the wetland. An average score may be used, e.g. score "2.5" if the intensity of land use is between low and medium.</p> <table border="1"> <thead> <tr> <th><u>Points</u></th> <th><u>Intensity of Land Use Surrounding Wetland</u></th> <th><u>Description</u></th> </tr> </thead> <tbody> <tr> <td>3</td> <td>low</td> <td>The wetland is mostly or completely surrounded by undeveloped land, e.g. forest, grasslands, old fields (&gt;10 years old), open water.</td> </tr> <tr> <td>2</td> <td>medium</td> <td>The wetland is mostly or completely surrounded by developed land but land use is not intensive, e.g. the wetland may be surrounded by pasture, fallow farmland, old fields (&lt;10 years old), a golf course, but generally not by roads, railroads, buildings or other paved areas.</td> </tr> <tr> <td>1</td> <td>high</td> <td>The wetland is mostly or completely surrounded by developed land and land use is intensive, e.g. active agricultural row cropping or residential development.</td> </tr> <tr> <td>0</td> <td>very high</td> <td>The wetland is mostly or completely surrounded by developed land and land use is very intensive, e.g. paved areas, industrial facilities, shopping centers, construction sites, etc.</td> </tr> </tbody> </table>	<u>Points</u>	<u>Intensity of Land Use Surrounding Wetland</u>	<u>Description</u>	3	low	The wetland is mostly or completely surrounded by undeveloped land, e.g. forest, grasslands, old fields (>10 years old), open water.	2	medium	The wetland is mostly or completely surrounded by developed land but land use is not intensive, e.g. the wetland may be surrounded by pasture, fallow farmland, old fields (<10 years old), a golf course, but generally not by roads, railroads, buildings or other paved areas.	1	high	The wetland is mostly or completely surrounded by developed land and land use is intensive, e.g. active agricultural row cropping or residential development.	0	very high	The wetland is mostly or completely surrounded by developed land and land use is very intensive, e.g. paved areas, industrial facilities, shopping centers, construction sites, etc.	0
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#	Question	score															
12	<p><b>Average Buffer Width.</b> Circle the points that are associated with the "average buffer width" surrounding the wetland. To calculate the average buffer width, estimate width of buffer on each side of wetland to a maximum of 200' and divide by the number of sides, e.g. the average buffer width of a wetland with buffers of 500', 100', 50' and 0' would be calculated as follows: <math>abw = (500' + 100' + 50' + 0')/4 = 87.5'</math>. A wetland with buffers greater than 200' on all sides would have an <math>abw \geq 200</math> and would score 3 points. Intensive land uses should not be counted as buffers, e.g. active agricultural row cropping, paved areas, housing developments, etc.</p> <table border="1"> <thead> <tr> <th>Points</th> <th>Average Buffer Width (abw)</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>3</td> <td><math>abw \geq 200</math> ft</td> <td>Buffers average 200 feet or more around the wetland perimeter?</td> </tr> <tr> <td>2</td> <td><math>100' &lt; abw &lt; 200'</math></td> <td>Buffers average between 100 and 200 feet around the wetland perimeter</td> </tr> <tr> <td><u>1</u></td> <td><math>50' &lt; abw &lt; 100'</math></td> <td>Buffers average between 50 and 100 feet around the wetland perimeter</td> </tr> <tr> <td>0</td> <td><math>abw \leq 50'</math></td> <td>Buffers average less than 50 feet around the wetland perimeter?</td> </tr> </tbody> </table>	Points	Average Buffer Width (abw)	Description	3	$abw \geq 200$ ft	Buffers average 200 feet or more around the wetland perimeter?	2	$100' < abw < 200'$	Buffers average between 100 and 200 feet around the wetland perimeter	<u>1</u>	$50' < abw < 100'$	Buffers average between 50 and 100 feet around the wetland perimeter	0	$abw \leq 50'$	Buffers average less than 50 feet around the wetland perimeter?	1
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0	$abw \leq 50'$	Buffers average less than 50 feet around the wetland perimeter?															
13	<p><b>Connectivity.</b> Is the wetland connected to a "riparian corridor"?</p> <p>YES Answer Question 13a, do NOT answer Question 13b.</p> <p><u>NO</u> Answer Question 13b</p>																
13a	<p><b>Connectivity to Riparian Corridors.</b> Circle the points that are associated with the degree of connectivity to a "riparian corridor" that best describes the intensity of land use surrounding the wetland. If the wetland being evaluated appears to fall between the categories described below, an average score may be used, e.g. score "3.5" if the degree of connectivity is between moderate and high.</p> <table border="1"> <thead> <tr> <th>Points</th> <th>Degree of Connectivity to other habitat areas</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>5</td> <td>very high</td> <td>Is the wetland 1) connected to, or part of, a "riparian corridor" that is &gt;100' wide and the riparian corridor connects the wetland with a protected area, e.g. scenic river, exceptional warmwater habitat stream, coldwater habitat stream, nature preserve, state forest, public lands, land under a conservation easement, etc.</td> </tr> <tr> <td>4</td> <td>high</td> <td>Is the wetland connected to or part of a riparian corridor that is &gt;100' wide?</td> </tr> <tr> <td>3</td> <td>moderate</td> <td>Is the wetland connected to, or part of, a riparian corridor between 50' and 100' wide?</td> </tr> <tr> <td>1</td> <td>low</td> <td>Is the wetland connected to a riparian corridor that is &lt;50' wide?</td> </tr> </tbody> </table>	Points	Degree of Connectivity to other habitat areas	Description	5	very high	Is the wetland 1) connected to, or part of, a "riparian corridor" that is >100' wide and the riparian corridor connects the wetland with a protected area, e.g. scenic river, exceptional warmwater habitat stream, coldwater habitat stream, nature preserve, state forest, public lands, land under a conservation easement, etc.	4	high	Is the wetland connected to or part of a riparian corridor that is >100' wide?	3	moderate	Is the wetland connected to, or part of, a riparian corridor between 50' and 100' wide?	1	low	Is the wetland connected to a riparian corridor that is <50' wide?	
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Subtotal this Page	1
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#	Question	score																		
13b	<p><b>Connectivity to Upland Corridors.</b> Circle the points that are associated with the degree of connectivity to an "upland corridor" that best describes the intensity of land use surrounding the wetland. If the wetland being evaluated appears to fall between the categories described below, an average score may be used, e.g. score "3.5" if the degree of connectivity is between moderate and high. <b>DO NOT ANSWER THIS QUESTION IF QUESTION 13a WAS ANSWERED.</b></p> <table border="1"> <thead> <tr> <th>Points</th> <th>Degree of Connectivity to other habitat areas</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>5</td> <td>very high</td> <td>Is the wetland connected to or part of an upland corridor that is &gt;100' wide with good forest and shrub cover (&gt;25% cover) and the upland corridor connects the wetland with a protected area, e.g. nature preserve, state forest, public lands, land under a conservation easement, etc.</td> </tr> <tr> <td>4</td> <td>high</td> <td>Is the wetland connected to or part of an upland corridor that is &gt;100' wide with good forest and shrub cover (&gt;25% cover)</td> </tr> <tr> <td>3</td> <td>moderate</td> <td>Is the wetland connected to or part of another habitat area with either a forested/shrub corridor &lt;100' wide; or (2) a corridor that is &gt;100' wide, but has a low vegetative cover (i.e., not forested)?</td> </tr> <tr> <td>1</td> <td>low</td> <td>Is the wetland connected to any other habitat area by a narrow corridor (&lt;50') of low vegetation (i.e., not forested), or surrounded by agricultural lands?</td> </tr> <tr> <td>0</td> <td>none</td> <td>Is the wetland and its buffer mostly isolated by development (urban, residential &gt;2 houses/acre, commercial or industrial)?</td> </tr> </tbody> </table>	Points	Degree of Connectivity to other habitat areas	Description	5	very high	Is the wetland connected to or part of an upland corridor that is >100' wide with good forest and shrub cover (>25% cover) and the upland corridor connects the wetland with a protected area, e.g. nature preserve, state forest, public lands, land under a conservation easement, etc.	4	high	Is the wetland connected to or part of an upland corridor that is >100' wide with good forest and shrub cover (>25% cover)	3	moderate	Is the wetland connected to or part of another habitat area with either a forested/shrub corridor <100' wide; or (2) a corridor that is >100' wide, but has a low vegetative cover (i.e., not forested)?	1	low	Is the wetland connected to any other habitat area by a narrow corridor (<50') of low vegetation (i.e., not forested), or surrounded by agricultural lands?	0	none	Is the wetland and its buffer mostly isolated by development (urban, residential >2 houses/acre, commercial or industrial)?	0
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14	<p><b>Other relevant information.</b> Is there any other information about this wetland that might be important when completing its assessment? If yes, please describe below (no score given). Please include any information on educational, scientific or other public uses of the wetland. Information about any unusual circumstances that may have affected the wetland's score should also be included.</p>																			
15	<b>TOTAL SCORE</b>	4																		

**Table 1. List of invasive/exotic plant species**

Source: The Ohio Aquatic Nuisance Species Committee).

<i>Lythrum salicaria</i>	Purple loosestrife
<i>Myriophyllum spicatum</i>	European milfoil
<i>Najas minor</i>	Lesser naiad
<i>Phalaris arundinacea</i>	Reed canary grass
<i>Phragmites australis</i>	Giant reed
<i>Potamogeton crispus</i>	Curly pondweed
<i>Ranunculus ficaria</i>	Lesser celandine
<i>Rhamnus frangula</i>	European buckthorn
<i>Typha angustifolia</i>	Narrow-leaved cattail

**Table 2. List of some characteristic fen species**

*Aigademes elegans* var. *glaucus*  
*Cacalia plantaginea*  
*Carex flava*  
*Carex sterilis*  
*Carex stricta*  
*Deschampsia caespitosa*  
*Eleocharis pauciflora*  
*Eleocharis rotellata*  
*Eriophorum viridicarinatum*  
*Euthamia (Solidago) ohioensis*  
*Gentianopsis* spp.  
*Lobelia kalmii*  
*Parnassia glauca*  
*Potentilla fruticosa*  
*Rhamnus alnifolia*  
*Rhynchospora* spp.  
*Salix candida*  
*Salix myricoides*  
*Salix serissima*  
*Tofieldia glutinosa*  
*Triglochin maritimum*  
*Triglochin palustre*

**Table 3. List of some characteristic bog species.**

*Calla palustris*  
*Carex atlantica* var. *capillacea*  
*Carex echinata*  
*Carex oligosperma*  
*Carex trisperma*  
*Chamaedaphne calyculata*  
*Decodon verticillatus*  
*Eriophorum virginicum*  
*Larix laricina*  
*Nemopanthus muscronatus*  
*Scheuchzeria palustris*  
*Sphagnum* spp.  
*Vaccinium macrocarpon*  
*Vaccinium corymbosum*  
*Vaccinium oxycoccos*  
*Woodwardia virginica*  
*Xyris difformis*

**Table 4. List of some Oak Opening Species**

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

**Qualitative Rating Questions**

1	YES	<input checked="" type="radio"/> NO	hydrologically isolated, single class >50% cover OR minelands without surface water connection?
2-6	YES	<input checked="" type="radio"/> NO	<input type="checkbox"/> bog <input type="checkbox"/> fen <input type="checkbox"/> old growth/hemlock and pine <input type="checkbox"/> mature forest <input type="checkbox"/> Oak Opening <input type="checkbox"/> Coastal
7	<input checked="" type="radio"/> YES	NO	Is there evidence of human-caused disturbances?

**Quantitative Rating Questions**

1	Wetland area ≥ 50 (6 pts) 25-<50 (5 pts) 10-<25 (4 pts) 3-<10 (3 pts) 0.3-<3 (2 pts) 0.1->0.3 (1 pt) <0.1 (0 pts)	1
2	Wetland vegetation classes <input type="checkbox"/> Open Water <input type="checkbox"/> Aquatic Bed <input checked="" type="checkbox"/> Emergent <input type="checkbox"/> Scrub-Shrub <input type="checkbox"/> Forested	
3	Score vegetation classes 1 class = 0 2 classes = 3 3 classes = 6 4 classes = 8 5 classes = 10	0
4a	Aquatic Bed Plant Species one = 1pt two = 2pts >2 = 3pts	0
4b	Emergent Plant Species one = 0 pt s two to three = 1pts four to five = 2pts more than five = 3pts	2
4c	Scrub-Shrub Plant Species one = 0 pt s two = 1pts three to four = 2pts more than four = 3pts	0
4d	Forest Plant Species one = 0 pt s two = 1pts three to four = 2pts more than four = 3pts	0
5	Wetland plant community interspersion high = 5 moderate = 3 low = 1 none = 0	0
6	Does the wetland have a forested class >0.25 acres YES — Answer Question 7 NO — Go to Question 8	
7a-e	YES=1 trees >50' tall YES=1 trees 20'-49' YES=1 shrubs YES=1 herbaceous YES=1 open water /aquatic bed	0
8a	YES=1 NO=0 hydrology of the wetland has been modified by beavers	0
8b	YES=1 NO=0 heron rookery within 300'	0
8c	YES=1 NO=0 mudflat areas that could provide habitat for shorebirds	0
8d	YES=1 NO=0 raptor nests within 300'	0
8e	YES=1 NO=0 at least 3 standing dead trees per acre >10" dbh	0
8f	YES=1 NO=0 at least 3 downed logs per acre >6" diameter and at least 10' in length	0
8g	YES=2 NO=0 areas ponded for at least 4 months/year, no open water class	0
8h	YES=2 NO=0 Are there "vernal pools"	0
8i	YES=1 NO=0 in the littoral zone of a lake (other than Lake Erie)	0
9	Is the wetland "Hydrologically isolated?" YES — Go to Question 11 NO — Go to Question 10.	
10a	YES=2 NO=0 located in the "100 year floodplain"?	0
10b	YES=2 NO=0 located <u>between</u> a stream and a different adjacent land use	0
10c	YES=3 NO=0 located adjacent to a stream <u>and</u> there is a permanent surface water connection	0
10d	YES=2 NO=0 adjacent to a stream and seasonal surface water connections Answer "no" if 10c answered "yes."	0
10e	YES=1 NO=0 Is the wetland forested?	0
11	Land Use Around the Wetland low = 3, medium = 2, high = 1, very high = 0	0
12	Average Buffer Width abw ≥ 200 ft = 3, 100' < abw < 200' = 2, 50' < abw ≤ 100' = 1, abw ≤ 50' = 0	1
13	Connectivity. Is the wetland connected to a "riparian corridor" YES Answer 13a Do NOT Answer 13b	
13a	Connectivity to Riparian Corridors very high = 5, high=4, moderate = 3, low = 1, none = 0	0
13b	Connectivity to Upland Corridors very high = 5, high = 4, moderate = 3, low = 1, none = 0	0
<b>TOTAL SCORE</b>		<b>4</b>

<b>Version 4.0 DRAFT</b>	<b>Ohio Rapid Assessment Method for Wetlands</b>	
	<b>Background Information Form Office Form Field Form A - Complete Field Form B - Short Form</b>	Ohio EPA, Division of Surface Water January 5, 1999
Pursuant to ORC Section 3745.30, the Ohio Rapid Assessment Method for Wetlands is a guidance or policy and <b>DOES NOT HAVE THE FORCE OF LAW</b>		

### Instructions

The investigator is ***STRONGLY URGED*** to read the user's manual for further elaboration and discussion of the questions below prior to using the rating forms. For ease of use in the field, explanatory information has been kept to a minimum.

The Office Rating Questions are designed to categorize a wetland or to provide alerts to the investigator based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated.

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It is ***VERY IMPORTANT*** to properly and thoroughly answer each of the questions in the Office Rating Form and the Qualitative Rating Questions. These questions are designed to categorize certain wetlands as very low quality (Category 1) or as very high quality (Category 3), *regardless* of the wetland's score on the Quantitative Rating Form. Therefore, just completing the Quantitative Rating Questions gives an incomplete answer as to the wetland's regulatory category. The reason for this is that the Quantitative Rating Questions do not consider or assign additional points for such important considerations as a wetland's statewide scarcity or the presence of an endangered species. These components of the regulatory scheme in OAC Rule 3745-1-54 are addressed in the questions in the Office Rating Form and Qualitative Rating Questions.

### Background Information Form

<b>Name</b> <i>Rob Hook</i>	<b>Date</b> <i>6/14/99</i>
<b>Affiliation</b> <i>Woolpert</i>	
<b>Address</b> <i>409 E. Monument Ave. Dayton OH 45402</i>	
<b>Phone Number</b> <i>(937) 341-9237</i>	
<b>e-mail address</b>	
<b>Name of Wetland</b> <i>H</i>	
<b>Location of Wetland and include an address if available</b>	
<b>Sources of information used (check all that apply)</b>	
Universe Transverse Mercator	<input type="checkbox"/>
USGS Quad Name	<input type="checkbox"/>
Hydrologic Unit Code	<input type="checkbox"/>
Wetland Size (acres, hectares) <i>0.03 ac.</i>	<input checked="" type="checkbox"/>
<b>How was size estimated?</b> <i>GPS survey / Auto CAD</i>	<input checked="" type="checkbox"/>
	<input checked="" type="checkbox"/>
	<input checked="" type="checkbox"/>
<b>sketch (include north arrow, relationship with other surface waters, vegetation zones, etc.)</b>	
<b>final score</b>	<b>Provisional Wetland Category</b>

## Office Rating Form

**INSTRUCTIONS.** In order to properly complete the Office Rating Form, the rater will need knowledge of the status and location of endangered and threatened species in the State of Ohio.

These questions can generally be answered by consulting the Natural Heritage Program database. "Documented" means the wetland is listed in the appropriate State of Ohio database. Questions 2 and 6 should be answered affirmatively if the rater knows of other published accounts or of actual observations of threatened or endangered species during site visits. Data sources for Question 3 include the Ohio Department of Natural Resources, Division of Wildlife and the North American Waterfowl Management Plan.

**Contacts.** Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Program, 1889 Fountain Square Court, Bldg. F-1, Columbus, Ohio 43224-1331, 614-265-6453, <http://www.dnr.state.oh.us/odnr/dnap/heritage/>. A Natural Heritage Database "Data Request Form" is included in the Appendices to the User's Manual. Ohio Department of Natural Resources, Division of Wildlife, 1840 Belcher Drive, Bldg. G-3, Columbus OH 43224-1329, 614-265-6300, <http://www.dnr.state.oh.us/odnr/wildlife/>.

#	Question	Circle one	
1	Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been documented as a habitat for any Ohio or federal listed threatened or endangered plant or animal species?	<input checked="" type="radio"/> YES Wetland may be a Category 3 wetland. Go to Question 2.	NO Go to Question 2
2	Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	<input checked="" type="radio"/> NO Go to Question 3
3	Is the wetland on record with the Ohio Natural Heritage Program as a high quality wetland?	YES Wetland is a Category 3 wetland. Go to Question 4	<input checked="" type="radio"/> NO Go to Question 4
4	Does the wetland contain documented regionally significant waterfowl, neotropical songbird, or shorebird concentration areas? Sources of information include site visits, the Ohio Department of Natural Resources Division of Wildlife, and the North American Waterfowl Management Plan.	YES Wetland is a Category 3 wetland. Go to Question 5	<input checked="" type="radio"/> NO Go to Question 5
5	Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been documented as a habitat for any state-listed potentially threatened plant species or special interest animal species?	YES Wetland should be evaluated for possible Category 3 status. Go to Question 5	NO Go to Question 6
6	Does the wetland contain individuals of state-listed potentially threatened plant or special interest animal species?	YES Wetland should be evaluated for possible Category 3 status. Question 5	<input checked="" type="radio"/> NO Complete qualitative rating form.

**End of Office Rating questions. Begin Qualitative Rating questions on next page.**

### Quantitative Rating Questions

#	Question	score																
1	<p><b>Wetland area.</b> Estimate the area of wetland. Circle the appropriate category and points. The estimated acreage should be done with sufficient precision to clearly place the wetland within the appropriate size class. Refer to the User's Manual for additional discussion.</p> <table style="margin-left: 20px;"> <thead> <tr> <th style="text-decoration: underline;">Acres</th> <th style="text-decoration: underline;">Points</th> </tr> </thead> <tbody> <tr><td>≥ 50</td><td style="text-align: center;">6</td></tr> <tr><td>25 - &lt;50</td><td style="text-align: center;">5</td></tr> <tr><td>10 - &lt;25</td><td style="text-align: center;">4</td></tr> <tr><td>3 - &lt;10</td><td style="text-align: center;">3</td></tr> <tr><td>0.3 - &lt;3</td><td style="text-align: center;">2</td></tr> <tr><td>0.1 - &lt;0.3</td><td style="text-align: center;">1</td></tr> <tr><td>&lt;0.1</td><td style="text-align: center;">0</td></tr> </tbody> </table>	Acres	Points	≥ 50	6	25 - <50	5	10 - <25	4	3 - <10	3	0.3 - <3	2	0.1 - <0.3	1	<0.1	0	0
Acres	Points																	
≥ 50	6																	
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10 - <25	4																	
3 - <10	3																	
0.3 - <3	2																	
0.1 - <0.3	1																	
<0.1	0																	
2	<p><b>Wetland vegetation classes.</b> Check the wetland classes listed below that are present in the wetland. Refer to the User's Manual for descriptions of these classes. If the total area of the wetland is less than 1/4 acre, check the <u>single</u> vegetation class that most appropriately describes the wetland. If the wetland is dry due to the time of year the assessment is done, best professional judgement using evidence provided by any hydrologic indicators should be used to determine whether an open water class is normally or seasonally present.</p> <p> <input type="checkbox"/> Open Water, if the area of open water is &gt;0.25 acres  <input type="checkbox"/> Aquatic Beds, if the area of aquatic beds is &gt;0.25 acres  <input checked="" type="checkbox"/> Emergent, if the area of emergent class is &gt;0.25 acres  <input type="checkbox"/> Scrub-Shrub, if the area of scrub-shrub is &gt;0.25 acres  <input type="checkbox"/> Forested, if the area of forested class is &gt;0.25 acres  <input type="checkbox"/> Total Number of Classes                 </p>																	
3	<p>Based on Question 2, score the wetland according to the following table (e.g., if there are 4 classes, you would circle 8 points).</p> <table style="margin-left: 20px;"> <thead> <tr> <th style="text-decoration: underline;"># of Classes</th> <th style="text-decoration: underline;">Points</th> </tr> </thead> <tbody> <tr><td>1</td><td style="text-align: center;">0</td></tr> <tr><td>2</td><td style="text-align: center;">3</td></tr> <tr><td>3</td><td style="text-align: center;">6</td></tr> <tr><td>4</td><td style="text-align: center;">8</td></tr> <tr><td>5</td><td style="text-align: center;">10</td></tr> </tbody> </table>	# of Classes	Points	1	0	2	3	3	6	4	8	5	10	0				
# of Classes	Points																	
1	0																	
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4	<p><b>Plant species diversity.</b> In Questions 4a to 4d, circle each wetland class that was identified in Question 2 and determine the number of different plant species that cover more than 10% of the surface area of that class. Any plant species with a cover of &gt;10% qualifies for points within a class, even those species which are not of that class, e.g., a shrub species found in a forested class.</p> <p>Score as indicated below, e.g., if a wetland has an aquatic bed class with 3 species, an emergent class with 4 species, and a scrub-shrub class with 2 species, you would circle 3, 2, and 1 under "Points."</p>																	
4a	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-decoration: underline;">Class</th> <th style="text-decoration: underline;"># Species in Class</th> <th style="text-decoration: underline;">Points</th> <th style="text-decoration: underline;">Names of Plants (Optional)</th> </tr> </thead> <tbody> <tr> <td>Aquatic Bed</td> <td style="text-align: center;">1</td> <td style="text-align: center;">1</td> <td>_____</td> </tr> <tr> <td></td> <td style="text-align: center;">2</td> <td style="text-align: center;">2</td> <td>_____</td> </tr> <tr> <td></td> <td style="text-align: center;">&gt;2</td> <td style="text-align: center;">3</td> <td>_____</td> </tr> </tbody> </table>	Class	# Species in Class	Points	Names of Plants (Optional)	Aquatic Bed	1	1	_____		2	2	_____		>2	3	_____	
Class	# Species in Class	Points	Names of Plants (Optional)															
Aquatic Bed	1	1	_____															
	2	2	_____															
	>2	3	_____															

4b	<u>Class</u> Emergent	<u># Species in Class</u> 1 2-3 4-5 >5	<u>Points</u> 0 1 ② 3	<u>Names of Plants (Optional)</u> _____ _____ <i>Typha angust., Vitis, Carex, Juncus</i> _____	2										
4c	<u>Class</u> Scrub-Shrub	<u># Species in Class</u> 1 2 3-4 >4	<u>Points</u> 0 1 2 3	<u>Names of Plants (Optional)</u> _____ _____ _____ _____											
4d	<u>Class</u> Forested	<u># Species in Class</u> 1 2 3-4 >4	<u>Points</u> 0 1 2 3	<u>Names of Plants (Optional)</u> _____ _____ _____ _____											
5	<p><b>Wetland plant community interspersions.</b> Decide from the Figure 1 below whether interspersions between wetland classes is high, moderate, low or none. Write the appropriate score in the scoring column.</p> <p><b>IMPORTANT:</b> If you think the amount of interspersions falls between the degree of interspersions shown on the diagrams, assign an intermediate score, e.g., a moderately high amount of interspersions would score a "4," while a moderately low amount would score a "2".</p> <table border="1"> <thead> <tr> <th>Amount of Interspersions</th> <th>Points</th> </tr> </thead> <tbody> <tr> <td>High</td> <td>5</td> </tr> <tr> <td>Moderate</td> <td>3</td> </tr> <tr> <td>Low</td> <td>1</td> </tr> <tr> <td>None</td> <td>① 0</td> </tr> </tbody> </table>				Amount of Interspersions	Points	High	5	Moderate	3	Low	1	None	① 0	0
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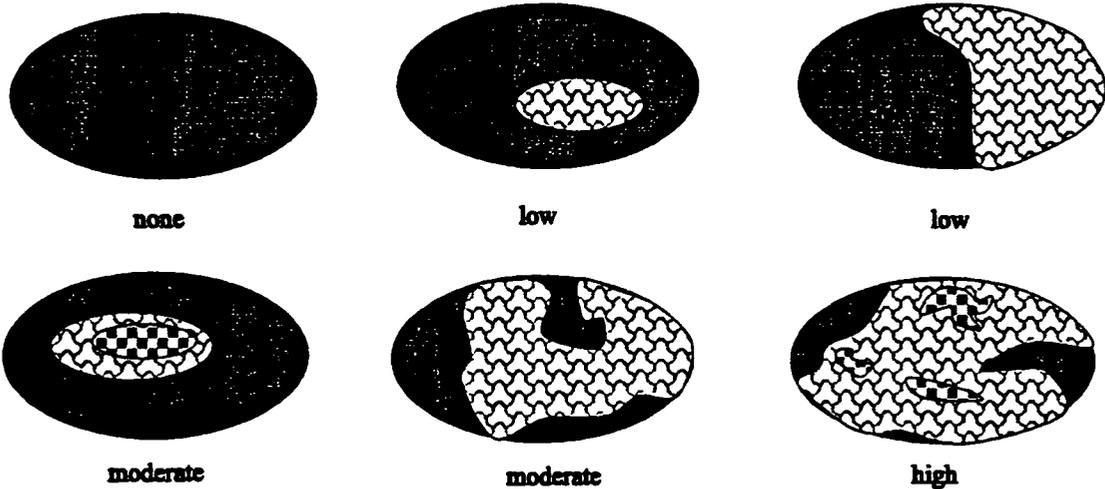


Figure 1. Hypothetical wetlands for estimating degree of interspersions.

**Table 1. List of invasive/exotic plant species**

Source: The Ohio Aquatic Nuisance Species Committee).

<i>Lythrum salicaria</i>	Purple loosestrife
<i>Myriophyllum spicatum</i>	European milfoil
<i>Najas minor</i>	Lesser naiad
<i>Phalaris arundinacea</i>	Reed canary grass
<i>Phragmites australis</i>	Giant reed
<i>Potamogeton crispus</i>	Curly pondweed
<i>Ranunculus ficaria</i>	Lesser celandine
<i>Rhamnus frangula</i>	European buckthorn
<i>Typha angustifolia</i>	Narrow-leaved cattail

**Table 2. List of some characteristic fen species**

*Aigademos elegans* var. *glaucus*  
*Cacalia plantaginea*  
*Carex flava*  
*Carex sterilis*  
*Carex stricta*  
*Deschampsia caespitosa*  
*Eleocharis pauciflora*  
*Eleocharis rotellata*  
*Eriophorum viridicarinarum*  
*Euthamia (Solidago) ohioensis*  
*Gentianopsis* spp.  
*Lobelia kalmii*  
*Parnassia glauca*  
*Potentilla fruticosa*  
*Rhamnus alnifolia*  
*Rhynchospora* spp.  
*Salix candida*  
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*Cladium mariscoides*  
*Calamagrostis inexpansa*  
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### Qualitative Rating Questions

1	YES	NO	hydrologically isolated, single class >50% cover OR minelands without surface water connection?
2-6	YES	NO	__ bog __ fen __ old growth/hemlock and pine __ mature forest __ Oak Opening __ Coastal
7	YES	NO	Is there evidence of human-caused disturbances?

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2	Wetland vegetation classes __ Open Water __ Aquatic Bed __ Emergent __ Scrub-Shrub __ Forested	0
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7a-e	YES=1 trees >50' tall YES=1 trees 20'-49' YES=1 shrubs YES=1 herbaceous YES=1 open water /aquatic bed	0
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<b>TOTAL SCORE</b>		<b>7</b>

<b>Version</b> <b>4.0</b> <b>DRAFT</b>	<b>Ohio Rapid Assessment Method for Wetlands</b>	
	<b>Background Information Form</b> <b>Office Form</b> <b>Field Form A - Complete</b> <b>Field Form B - Short Form</b>	Ohio EPA, Division of Surface Water  January 5, 1999
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<b>Name</b> <i>Rob Hook</i>	<b>Date</b> <i>6/14/99</i>		
<b>Affiliation</b> <i>Woolpert</i>			
<b>Address</b> <i>409 E. Monument Ave. Dayton OH 45402</i>			
<b>Phone Number</b> <i>(937) 391-9237</i>			
<b>e-mail address</b>			
<b>Name of Wetland</b> <i>I</i>			
<b>Location of Wetland and include an address if available</b>  <i>Mound Facility</i>			
<b>Sources of information used (check all that apply)</b>			
Universe Transverse Mercator		Site Visit	✓
USGS Quad Name		USGS Topo Map	✓
Hydrologic Unit Code		National Wetland Inventory Map	
Wetland Size (acres, hectares)	<i>0.01 ac</i>	Ohio Wetland Inventory Map	✓
<b>How was size estimated?</b>  <i>GPS survey / AutoCAD</i>		Aerial Photo	✓
		Soil Survey	✓
		Delineation report/map	✓
<b>sketch (include north arrow, relationship with other surface waters, vegetation zones, etc.)</b>			
<b>final score</b>		<b>Provisional Wetland Category</b>	

## Office Rating Form

**INSTRUCTIONS.** In order to properly complete the Office Rating Form, the rater will need knowledge of the status and location of endangered and threatened species in the State of Ohio.

These questions can generally be answered by consulting the Natural Heritage Program database. "Documented" means the wetland is listed in the appropriate State of Ohio database. Questions 2 and 6 should be answered affirmatively if the rater knows of other published accounts or of actual observations of threatened or endangered species during site visits. Data sources for Question 3 include the Ohio Department of Natural Resources, Division of Wildlife and the North American Waterfowl Management Plan.

**Contacts.** Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Program, 1889 Fountain Square Court, Bldg. F-1, Columbus, Ohio 43224-1331, 614-265-6453, <http://www.dnr.state.oh.us/odnr/dnap/heritage/>. A Natural Heritage Database "Data Request Form" is included in the Appendices to the User's Manual. Ohio Department of Natural Resources, Division of Wildlife, 1840 Belcher Drive, Bldg. G-3, Columbus OH 43224-1329, 614-265-6300, <http://www.dnr.state.oh.us/odnr/wildlife/>.

#	Question	Circle one	
1	Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been documented as a habitat for any Ohio or federal listed threatened or endangered plant or animal species?	<input checked="" type="radio"/> YES Wetland may be a Category 3 wetland. Go to Question 2.	NO Go to Question 2
2	Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	<input checked="" type="radio"/> NO Go to Question 3
3	Is the wetland on record with the Ohio Natural Heritage Program as a high quality wetland?	YES Wetland is a Category 3 wetland. Go to Question 4	<input checked="" type="radio"/> NO Go to Question 4
4	Does the wetland contain documented regionally significant waterfowl, neotropical songbird, or shorebird concentration areas? Sources of information include site visits, the Ohio Department of Natural Resources Division of Wildlife, and the North American Waterfowl Management Plan.	YES Wetland is a Category 3 wetland. Go to Question 5	<input checked="" type="radio"/> NO Go to Question 5
5	Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been documented as a habitat for any state-listed potentially threatened plant species or special interest animal species?	YES Wetland should be evaluated for possible Category 3 status. Go to Question 5	NO Go to Question 6
6	Does the wetland contain individuals of state-listed potentially threatened plant or special interest animal species?	YES Wetland should be evaluated for possible Category 3 status. Question 5	<input checked="" type="radio"/> NO Complete qualitative rating form.

**End of Office Rating questions. Begin Qualitative Rating questions on next page.**

### Qualitative Rating Questions

#	Question	Circle one	
1	<p>Does the wetland fit either of the following descriptions:</p> <p>Is the wetland <u>hydrologically isolated</u> AND comprised of a <u>single vegetation class that is dominated (&gt;50% areal cover) by one species</u> from Table 1. Note: hydrologic isolation is defined in OAC Rule 3745-1-50 and discussed in the User's Manual?</p> <p>Is the wetland excavated from upland soils on unreclaimed mined lands and does not have any surface water connection to streams, lakes, rivers or other wetlands?</p>	<p>YES</p> <p>Wetland is a Category 1 wetland.</p> <p>Complete quantitative rating form.</p>	<p>NO</p> <p>Go to Question 2</p>
2	<p><b>Bogs.</b> Is the wetland a peat-accumulating wetland that has no significant inflows or outflows and supports acidophilic mosses, particularly sphagnum spp. <i>Sphagnum</i> spp. &gt;30% cover with at least one species from Table 3, and the cover of invasive species (see Table 1) is &lt;25%? Note: peat soils may also be present without actively growing <i>Sphagnum</i> spp.</p>	<p>YES</p> <p>Wetland is a Category 3 wetland.</p> <p>Complete quantitative rating form</p>	<p>NO</p> <p>Go to Question 3</p>
3	<p><b>Fens.</b> 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 4 and the cover of invasive species listed in Table 1 is &lt;25%?</p>	<p>YES</p> <p>Wetland is a Category 3 wetland.</p> <p>Complete quantitative rating form</p>	<p>NO</p> <p>Go to Question 4a</p>
4a	<p><b>"Old Growth Forest."</b> Is the wetland a forested wetland and the forest is characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least fifty per cent of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past eighty to one hundred 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?</p>	<p>YES</p> <p>Wetland is a Category 3 wetland.</p> <p>Complete quantitative rating form</p>	<p>NO</p> <p>Go to Question 4b</p>
4b	<p><b>Hemlock/Pine Forest.</b> Is the wetland a forested wetland with more than 50% of the cover of the forest canopy consisting of Hemlock (<i>Tsuga canadensis</i>) or White pine (<i>Pinus strobus</i>)? Note: forested wetlands with these characteristics are relatively unusual and mostly found in Northeast Ohio and may be confirmed for Category 3 by consulting the Ohio Department of Natural Resources Natural Heritage database.</p>	<p>YES</p> <p>Wetland is a Category 3 wetland.</p> <p>Complete quantitative rating form</p>	<p>NO</p> <p>Go to Question 4c</p>
4c	<p><b>Mature forested wetlands.</b> 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 1.5' dbh?</p>	<p>YES</p> <p>Wetland should be evaluated for possible Category 3 status.</p> <p>Complete the quantitative rating form.</p>	<p>NO</p> <p>Go to Question 5</p>

#	Question	Circle one	
5	<p><b>Lake Erie coastal and tributary wetlands.</b> Can the wetland be characterized by some or all of the descriptions below?</p> <p>The wetland is generally located below an elevation of 575 feet on the applicable USGS topographic maps, or the wetland is located adjacent to this elevation, or wetland is located along tributaries to Lake Erie that are accessible to fish.</p> <p>Lake Erie water levels are wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations). These include sandbar deposition wetlands or those dominated by submersed aquatic vegetation.</p> <p>The wetland's hydrology results from measures designed to prevent the loss of aquatic macrophytes, i.e. the wetland is partially hydrologically restricted due to lakeward or landward dikes or other hydrological controls.</p>	<p>YES</p> <p><i>Wetland should be evaluated for possible Category 3 status.</i></p> <p>Complete the quantitative rating form.</p>	<p><b>NO</b></p> <p>Go to Question 6</p>
6	<p><b>Lake Plain Sand Prairies (Oak Openings)</b> Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the description below?</p> <p>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 4 (woody species may also be present). The Ohio Department of Natural Resources can provide assistance in confirming this type of wetland and its quality.</p>	<p>YES</p> <p>Wetland is a Category 3 wetland.</p> <p>Complete the quantitative rating form.</p>	<p><b>NO</b></p> <p>Go to Question 7</p>
7	<p><b>Lack of human-caused disturbances.</b> Is there evidence observable at the time the rating is performed of human-caused changes to the wetland as indicated by some or all of the following descriptions?</p> <p>___ the wetland is ditched and water flow is, or is not, obstructed</p> <p>___ the wetland has been graded or filled</p> <p>___ the wetland's hydrology is controlled by dikes, weirs, etc.</p> <p>___ the wetland has been grazed, mowed, logged, or farmed</p> <p>___ non-native plants are present or invading</p> <p>___ Water quality degradation.</p> <p>Water quality degradation can be inferred by observing untreated runoff entering the wetland from roads, parking lots, septic systems, agricultural fields, etc., the presence of waste dumps in or adjacent to the wetland, oily sheens on the water in the wetland, the smell of organic chemicals, and/or use of the wetland by livestock.</p>	<p>YES</p> <p>Human-caused disturbance may degrade the wetland.</p> <p>Complete quantitative rating form.</p>	<p><b>NO</b></p> <p>Lack of human-caused disturbance indicates the wetland may be of high quality.</p> <p>Complete quantitative rating form.</p>

**End of Qualitative Rating questions. Begin Quantitative Rating questions on next page.**

### Quantitative Rating Questions

#	Question	score																
1	<p><b>Wetland area.</b> Estimate the area of wetland. Circle the appropriate category and points. The estimated acreage should be done with sufficient precision to clearly place the wetland within the appropriate size class. Refer to the User's Manual for additional discussion.</p> <table style="margin-left: 20px;"> <thead> <tr> <th style="text-decoration: underline;">Acres</th> <th style="text-decoration: underline;">Points</th> </tr> </thead> <tbody> <tr><td>≥ 50</td><td style="text-align: center;">6</td></tr> <tr><td>25 - &lt;50</td><td style="text-align: center;">5</td></tr> <tr><td>10 - &lt;25</td><td style="text-align: center;">4</td></tr> <tr><td>3 - &lt;10</td><td style="text-align: center;">3</td></tr> <tr><td>0.3 - &lt;3</td><td style="text-align: center;">2</td></tr> <tr><td>0.1 - &lt;0.3</td><td style="text-align: center;">1</td></tr> <tr><td>&lt;0.1</td><td style="text-align: center;">0</td></tr> </tbody> </table>	Acres	Points	≥ 50	6	25 - <50	5	10 - <25	4	3 - <10	3	0.3 - <3	2	0.1 - <0.3	1	<0.1	0	0
Acres	Points																	
≥ 50	6																	
25 - <50	5																	
10 - <25	4																	
3 - <10	3																	
0.3 - <3	2																	
0.1 - <0.3	1																	
<0.1	0																	
2	<p><b>Wetland vegetation classes.</b> Check the wetland classes listed below that are present in the wetland. Refer to the User's Manual for descriptions of these classes. If the total area of the wetland is less than 1/4 acre, check the <u>single</u> vegetation class that most appropriately describes the wetland. If the wetland is dry due to the time of year the assessment is done, best professional judgement using evidence provided by any hydrologic indicators should be used to determine whether an open water class is normally or seasonally present.</p> <p> <input type="checkbox"/> Open Water, if the area of open water is &gt;0.25 acres  <input type="checkbox"/> Aquatic Beds, if the area of aquatic beds is &gt;0.25 acres  <input type="checkbox"/> Emergent, if the area of emergent class is &gt;0.25 acres  <input type="checkbox"/> Scrub-Shrub, if the area of scrub-shrub is &gt;0.25 acres  <input checked="" type="checkbox"/> Forested, if the area of forested class is &gt;0.25 acres  <input type="checkbox"/> Total Number of Classes                 </p>																	
3	<p>Based on Question 2, score the wetland according to the following table (e.g., if there are 4 classes, you would circle 8 points).</p> <table style="margin-left: 20px;"> <thead> <tr> <th style="text-decoration: underline;"># of Classes</th> <th style="text-decoration: underline;">Points</th> </tr> </thead> <tbody> <tr><td>1</td><td style="text-align: center;">0</td></tr> <tr><td>2</td><td style="text-align: center;">3</td></tr> <tr><td>3</td><td style="text-align: center;">6</td></tr> <tr><td>4</td><td style="text-align: center;">8</td></tr> <tr><td>5</td><td style="text-align: center;">10</td></tr> </tbody> </table>	# of Classes	Points	1	0	2	3	3	6	4	8	5	10	0				
# of Classes	Points																	
1	0																	
2	3																	
3	6																	
4	8																	
5	10																	
4	<p><b>Plant species diversity.</b> In Questions 4a to 4d, circle each wetland class that was identified in Question 2 and determine the number of different plant species that cover more than 10% of the surface area of that class. Any plant species with a cover of &gt;10% qualifies for points within a class, even those species which are not of that class, e.g., a shrub species found in a forested class.</p> <p>Score as indicated below, e.g., if a wetland has an aquatic bed class with 3 species, an emergent class with 4 species, and a scrub-shrub class with 2 species, you would circle 3, 2, and 1 under "Points."</p>																	
4a	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-decoration: underline;">Class</th> <th style="text-decoration: underline;"># Species in Class</th> <th style="text-decoration: underline;">Points</th> <th style="text-decoration: underline;">Names of Plants (Optional)</th> </tr> </thead> <tbody> <tr> <td rowspan="3">Aquatic Bed</td> <td style="text-align: center;">1</td> <td style="text-align: center;">1</td> <td>_____</td> </tr> <tr> <td style="text-align: center;">2</td> <td style="text-align: center;">2</td> <td>_____</td> </tr> <tr> <td style="text-align: center;">&gt;2</td> <td style="text-align: center;">3</td> <td>_____</td> </tr> </tbody> </table>	Class	# Species in Class	Points	Names of Plants (Optional)	Aquatic Bed	1	1	_____	2	2	_____	>2	3	_____			
Class	# Species in Class	Points	Names of Plants (Optional)															
Aquatic Bed	1	1	_____															
	2	2	_____															
	>2	3	_____															

<b>Subtotal this Page</b>	0
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4b	<u>Class</u> Emergent	<u># Species in Class</u> 1 2-3 4-5 >5	<u>Points</u> 0 1 2 3	<u>Names of Plants (Optional)</u> _____ _____ _____ _____	
4c	<u>Class</u> Scrub-Shrub	<u># Species in Class</u> 1 2 3-4 >4	<u>Points</u> 0 1 2 3	<u>Names of Plants (Optional)</u> _____ _____ _____ _____	
4d	<u>Class</u> Forested	<u># Species in Class</u> 1 2 <u>3-4</u> >4	<u>Points</u> 0 1 2 3	<u>Names of Plants (Optional)</u> _____ <i>Populus deltoides, Salix, Leersia, Scirpus</i> _____ _____	2
5	<p><b>Wetland plant community interspersions.</b> Decide from the Figure 1 below whether interspersions between wetland classes is high, moderate, low or none. Write the appropriate score in the scoring column.</p> <p><b>IMPORTANT:</b> If you think the amount of interspersions falls between the degree of interspersions shown on the diagrams, assign an intermediate score, e.g., a moderately high amount of interspersions would score a "4," while a moderately low amount would score a "2".</p> <p><u>Amount of Interspersions</u>      <u>Points</u></p> <p>High                                    5</p> <p>Moderate                              3</p> <p>Low                                      1</p> <p>None                                     <u>0</u></p>				0

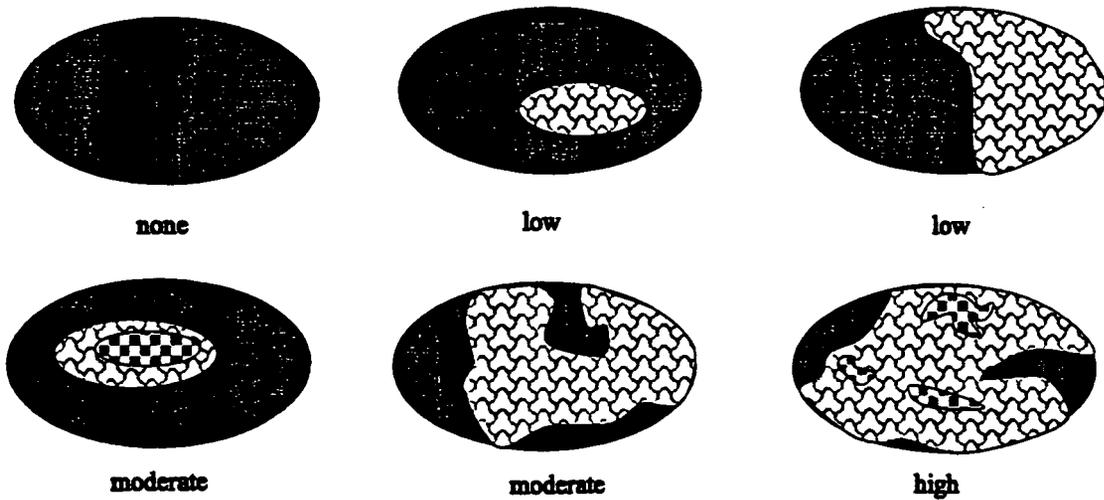


Figure 1. Hypothetical wetlands for estimating degree of interspersions.

#	Question	score
6	<p>Does the wetland have a forested class <u>&gt;0.25 acres in size</u> as determined in Question 2. Circle the appropriate response.</p> <p>YES --- Answer Question 7.</p> <p><input checked="" type="radio"/> NO --- Go to Question 8. <i>Wetland too small.</i></p>	
7	<p><b>Vertical structural diversity in forested wetlands.</b> Answer each of the following questions by circling the appropriate answer and writing the score in the scoring column. Circle each feature of vertical structural diversity that is present <u>within</u> the forested class and that is <u>&gt;0.25 acres</u> in surface area.</p>	
7a	YES=1 NO=0 Are there trees >50' tall present?	
7b	YES=1 NO=0 Are there trees 20'-49' present?	
7c	YES=1 NO=0 Are there shrubs present?	
7d	YES=1 NO=0 Is there herbaceous groundcover present?	
7e	YES=1 NO=0 Is there an open water or aquatic bed class contiguous to the forested class?	
8	<p><b>Habitat features.</b> Answer each of the questions below, by circling the applicable answer. Write the score associated with the answer in the scoring column.</p>	
8a	YES=1 NO=0 Is there evidence that the hydrology of the wetland has been modified by beavers?	<input type="radio"/>
8b	YES=1 NO=0 Is a heron rookery located within 300' of the wetland?	<input type="radio"/>
8c	YES=1 NO=0 Are there mudflat areas that could provide habitat for shorebirds?	<input type="radio"/>
8d	YES=1 NO=0 Are there raptor nests located within 300' of the wetland?	<input type="radio"/>
8e	YES=1 NO=0 Are there at least 3 standing dead trees per acre >10" dbh, i.e. den or nesting trees?	<input type="radio"/>
8f	YES=1 NO=0 Are there at least 3 downed logs per acre >6" diameter and at least 10' in length?	<input type="radio"/>
8g	YES=2 NO=0 Are there areas (vegetated or unvegetated) within the wetland that appear to be ponded for at least 4 months out of the year, and the wetland does not have an open water class as determined by Question 2?	<input type="radio"/>
8h	YES=2 NO=0 Are there areas that appear to be "vernal pools," i.e. shallow, temporarily-flooded, (typically dry in summer and fall) forested or forest edge pools which could provide breeding areas for amphibians? When flooded, vernal pools are often comprised of areas of open water that are not densely vegetated. They also tend to accumulate organic (woody) debris.	<input type="radio"/>
8i	YES=1 NO=0 Is the wetland found in the littoral zone of a lake (other than Lake Erie)?	<input type="radio"/>
9	<p>Is the wetland "hydrologically isolated?" A wetland that is hydrologically isolated does <u>not</u> have <u>any</u> of the following characteristics: 1) surface water connection to a surface water of the state; 2) located within or contiguous to, any one hundred-year "floodplain" as that term is defined in OAC Rule 3745-1-50 and the discussed in the User's Manual, and 3) contiguous hydric soil between the wetland and any surface water of the state.</p> <p>YES --- Go to Question 11.                      NO --- Go to Question 10.</p>	

Subtotal this Page

#	Question	score															
10	<b>Wetland - surface water quality functions.</b> To answer the questions below, circle the features, if any, that apply to the wetland in question and circle the corresponding score(s). More than one answer may apply. This question should only be scored for wetlands that are <u>not</u> hydrologically isolated as determined by Question 9.																
10a	YES=2 NO=0 Is the wetland located in the "100 year floodplain"?	0															
10b	YES=2 NO=0 Is the wetland located <u>between</u> a stream and a different adjacent land use, and the wetland is located such that water from the adjacent land use could flow through wetland to the stream? "Different adjacent land uses" include agricultural, commercial, industrial, mining, or residential uses.	2															
10c	YES=3 NO=0 Is the wetland located adjacent to a stream <u>and</u> there is a permanent surface water connection between the wetland and the stream, i.e. water can perennially flow between the wetland and the stream and vice versa. Note: if the surface water connection is "permanent," seasonal connections like spring flooding, are considered to be included in the "permanent connection."	0															
10d	YES=2 NO=0 Is the wetland adjacent to a stream and only seasonal surface water connections are present, e.g. spring flooding? The answer to this question should be "no" if Question 10c is answered "yes."	0															
10e	YES=1 NO=0 Is the wetland forested?	1															
11	<p><b>Land Use Adjacent to the Wetland.</b> Circle the points that are associated with the <i>level of intensity</i> of surrounding land uses that <i>best</i> describes the intensity of land use surrounding the wetland. An average score may be used, e.g. score "2.5" if the intensity of land use is between low and medium.</p> <table border="1"> <thead> <tr> <th>Points</th> <th>Intensity of Land Use Surrounding Wetland</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>3</td> <td>low</td> <td>The wetland is mostly or completely surrounded by undeveloped land, e.g. forest, grasslands, old fields (&gt;10 years old), open water.</td> </tr> <tr> <td>2</td> <td>medium</td> <td>The wetland is mostly or completely surrounded by developed land but land use is not intensive, e.g. the wetland may be surrounded by pasture, fallow farmland, old fields (&lt;10 years old), a golf course, but generally not by roads, railroads, buildings or other paved areas.</td> </tr> <tr> <td>1</td> <td>high</td> <td>The wetland is mostly or completely surrounded by developed land and land use is intensive, e.g. active agricultural row cropping or residential development.</td> </tr> <tr> <td>0</td> <td>very high</td> <td>The wetland is mostly or completely surrounded by developed land and land use is very intensive, e.g. paved areas, industrial facilities, shopping centers, construction sites, etc.</td> </tr> </tbody> </table> <p><i>Woods clearing recently slopes receive stormwater from paved areas</i></p>	Points	Intensity of Land Use Surrounding Wetland	Description	3	low	The wetland is mostly or completely surrounded by undeveloped land, e.g. forest, grasslands, old fields (>10 years old), open water.	2	medium	The wetland is mostly or completely surrounded by developed land but land use is not intensive, e.g. the wetland may be surrounded by pasture, fallow farmland, old fields (<10 years old), a golf course, but generally not by roads, railroads, buildings or other paved areas.	1	high	The wetland is mostly or completely surrounded by developed land and land use is intensive, e.g. active agricultural row cropping or residential development.	0	very high	The wetland is mostly or completely surrounded by developed land and land use is very intensive, e.g. paved areas, industrial facilities, shopping centers, construction sites, etc.	2
Points	Intensity of Land Use Surrounding Wetland	Description															
3	low	The wetland is mostly or completely surrounded by undeveloped land, e.g. forest, grasslands, old fields (>10 years old), open water.															
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0	very high	The wetland is mostly or completely surrounded by developed land and land use is very intensive, e.g. paved areas, industrial facilities, shopping centers, construction sites, etc.															

#	Question	score															
12	<p><b>Average Buffer Width.</b> Circle the points that are associated with the "average buffer width" surrounding the wetland. To calculate the average buffer width, estimate width of buffer on each side of wetland to a maximum of 200' and divide by the number of sides, e.g. the average buffer width of a wetland with buffers of 500', 100', 50' and 0' would be calculated as follows: <math>abw = (200' + 100' + 50' + 0')/4 = 87.5'</math>. A wetland with buffers greater than 200' on all sides would have an <math>abw \geq 200</math> and would score 3 points. Intensive land uses should not be counted as buffers, e.g. active agricultural row cropping, paved areas, housing developments, etc.</p> <table border="1"> <thead> <tr> <th><u>Points</u></th> <th><u>Average Buffer Width (abw)</u></th> <th><u>Description</u></th> </tr> </thead> <tbody> <tr> <td>3</td> <td><math>abw \geq 200</math> ft</td> <td>Buffers average 200 feet or more around the wetland perimeter?</td> </tr> <tr> <td>2</td> <td><math>100' &lt; abw &lt; 200'</math></td> <td>Buffers average between 100 and 200 feet around the wetland perimeter</td> </tr> <tr> <td>1</td> <td><math>50' &lt; abw &lt; 100'</math></td> <td>Buffers average between 50 and 100 feet around the wetland perimeter</td> </tr> <tr> <td>0</td> <td><math>abw \leq 50'</math></td> <td><i>Roads and recent clearing surround wetland.</i> Buffers average less than 50 feet around the wetland perimeter?</td> </tr> </tbody> </table>	<u>Points</u>	<u>Average Buffer Width (abw)</u>	<u>Description</u>	3	$abw \geq 200$ ft	Buffers average 200 feet or more around the wetland perimeter?	2	$100' < abw < 200'$	Buffers average between 100 and 200 feet around the wetland perimeter	1	$50' < abw < 100'$	Buffers average between 50 and 100 feet around the wetland perimeter	0	$abw \leq 50'$	<i>Roads and recent clearing surround wetland.</i> Buffers average less than 50 feet around the wetland perimeter?	0
<u>Points</u>	<u>Average Buffer Width (abw)</u>	<u>Description</u>															
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0	$abw \leq 50'$	<i>Roads and recent clearing surround wetland.</i> Buffers average less than 50 feet around the wetland perimeter?															
13	<p><b>Connectivity.</b> Is the wetland connected to a "riparian corridor"?</p> <p>YES Answer Question 13a, do NOT answer Question 13b.</p> <p>NO Answer Question 13b</p>																
13a	<p><b>Connectivity to Riparian Corridors.</b> Circle the points that are associated with the degree of connectivity to a "riparian corridor" that best describes the intensity of land use surrounding the wetland. If the wetland being evaluated appears to fall between the categories described below, an average score may be used, e.g. score "3.5" if the degree of connectivity is between moderate and high.</p> <table border="1"> <thead> <tr> <th><u>Points</u></th> <th><u>Degree of Connectivity to other habitat areas</u></th> <th><u>Description</u></th> </tr> </thead> <tbody> <tr> <td>5</td> <td>very high</td> <td>Is the wetland 1) connected to, or part of, a "riparian corridor" that is &gt;100' wide and the riparian corridor connects the wetland with a protected area, e.g. scenic river, exceptional warmwater habitat stream, coldwater habitat stream, nature preserve, state forest, public lands, land under a conservation easement, etc.</td> </tr> <tr> <td>4</td> <td>high</td> <td>Is the wetland connected to or part of a riparian corridor that is &gt;100' wide?</td> </tr> <tr> <td>3</td> <td>moderate</td> <td>Is the wetland connected to, or part of, a riparian corridor between 50' and 100' wide?</td> </tr> <tr> <td>1</td> <td>low</td> <td>Is the wetland connected to a riparian corridor that is &lt;50' wide?</td> </tr> </tbody> </table>	<u>Points</u>	<u>Degree of Connectivity to other habitat areas</u>	<u>Description</u>	5	very high	Is the wetland 1) connected to, or part of, a "riparian corridor" that is >100' wide and the riparian corridor connects the wetland with a protected area, e.g. scenic river, exceptional warmwater habitat stream, coldwater habitat stream, nature preserve, state forest, public lands, land under a conservation easement, etc.	4	high	Is the wetland connected to or part of a riparian corridor that is >100' wide?	3	moderate	Is the wetland connected to, or part of, a riparian corridor between 50' and 100' wide?	1	low	Is the wetland connected to a riparian corridor that is <50' wide?	
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#	Question	score																		
13b	<p><b>Connectivity to Upland Corridors.</b> Circle the points that are associated with the degree of connectivity to an "upland corridor" that best describes the intensity of land use surrounding the wetland. If the wetland being evaluated appears to fall between the categories described below, an average score may be used, e.g. score "3.5" if the degree of connectivity is between moderate and high. <b>DO NOT ANSWER THIS QUESTION IF QUESTION 13a WAS ANSWERED.</b></p> <table border="1"> <thead> <tr> <th>Points</th> <th>Degree of Connectivity to other habitat areas</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>5</td> <td>very high</td> <td>Is the wetland connected to or part of an upland corridor that is &gt;100' wide with good forest and shrub cover (&gt;25% cover) and the upland corridor connects the wetland with a protected area, e.g. nature preserve, state forest, public lands, land under a conservation easement, etc.</td> </tr> <tr> <td>4</td> <td>high</td> <td>Is the wetland connected to or part of an upland corridor that is &gt;100' wide with good forest and shrub cover (&gt;25% cover)</td> </tr> <tr> <td>③</td> <td>moderate</td> <td>Is the wetland connected to or part of another habitat area with either a forested/shrub corridor &lt;100' wide; or (2) a corridor that is &gt;100' wide, but has a low vegetative cover (i.e., not forested)?</td> </tr> <tr> <td>1</td> <td>low</td> <td>Is the wetland connected to any other habitat area by a narrow corridor (&lt;50') of low vegetation (i.e., not forested), or surrounded by agricultural lands?</td> </tr> <tr> <td>0</td> <td>none</td> <td>Is the wetland and its buffer mostly isolated by development (urban, residential &gt;2 houses/acre, commercial or industrial)?</td> </tr> </tbody> </table> <p><i>At edge of wooded area, although forest connection to South Property is interrupted.</i></p>	Points	Degree of Connectivity to other habitat areas	Description	5	very high	Is the wetland connected to or part of an upland corridor that is >100' wide with good forest and shrub cover (>25% cover) and the upland corridor connects the wetland with a protected area, e.g. nature preserve, state forest, public lands, land under a conservation easement, etc.	4	high	Is the wetland connected to or part of an upland corridor that is >100' wide with good forest and shrub cover (>25% cover)	③	moderate	Is the wetland connected to or part of another habitat area with either a forested/shrub corridor <100' wide; or (2) a corridor that is >100' wide, but has a low vegetative cover (i.e., not forested)?	1	low	Is the wetland connected to any other habitat area by a narrow corridor (<50') of low vegetation (i.e., not forested), or surrounded by agricultural lands?	0	none	Is the wetland and its buffer mostly isolated by development (urban, residential >2 houses/acre, commercial or industrial)?	3
Points	Degree of Connectivity to other habitat areas	Description																		
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0	none	Is the wetland and its buffer mostly isolated by development (urban, residential >2 houses/acre, commercial or industrial)?																		
14	<p><b>Other relevant information.</b> Is there any other information about this wetland that might be important when completing its assessment? If yes, please describe below (no score given). Please include any information on educational, scientific or other public uses of the wetland. Information about any unusual circumstances that may have affected the wetland's score should also be included.</p>																			
15	<b>TOTAL SCORE</b>	10																		

**Table 1. List of invasive/exotic plant species**

Source: The Ohio Aquatic Nuisance Species Committee).

<i>Lythrum salicaria</i>	Purple loosestrife
<i>Myriophyllum spicatum</i>	European milfoil
<i>Najas minor</i>	Lesser naiad
<i>Phalaris arundinacea</i>	Reed canary grass
<i>Phragmites australis</i>	Giant reed
<i>Potamogeton crispus</i>	Curly pondweed
<i>Ranunculus ficaria</i>	Lesser celandine
<i>Rhamnus frangula</i>	European buckthorn
<i>Typha angustifolia</i>	Narrow-leaved cattail

**Table 2. List of some characteristic fen species**

*Aigadenus elegans* var. *glaucus*  
*Cacalia plantaginea*  
*Carex flava*  
*Carex sterilis*  
*Carex stricta*  
*Deschampsia caespitosa*  
*Eleocharis pauciflora*  
*Eleocharis rotellata*  
*Eriophorum viridicarinatum*  
*Euthamia (Solidago) ohioensis*  
*Gentianopsis* spp.  
*Lobelia kalmii*  
*Parnassia glauca*  
*Potentilla fruticosa*  
*Rhamnus alnifolia*  
*Rhynchospora* spp.  
*Salix candida*  
*Salix myricoides*  
*Salix serissima*  
*Tofieldia glutinosa*  
*Triglochin maritimum*  
*Triglochin palustre*

**Table 3. List of some characteristic bog species.**

*Calla palustris*  
*Carex atlantica* var. *capillacea*  
*Carex echinata*  
*Carex oligosperma*  
*Carex trisperma*  
*Chamaedaphne calyculata*  
*Decodon verticillatus*  
*Eriophorum virginicum*  
*Larix laricina*  
*Nemopanthus muscronatus*  
*Scheuchzeria palustris*  
*Sphagnum* spp.  
*Vaccinium macrocarpon*  
*Vaccinium corymbosum*  
*Vaccinium oxycoccus*  
*Woodwardia virginica*  
*Xyris difformis*

**Table 4. List of some Oak Opening Species**

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

**Qualitative Rating Questions**

1	YES	NO	hydrologically isolated, single class >50% cover OR minelands without surface water connection?
2-6	YES	NO	__ bog __ fen __ old growth/hemlock and pine __ mature forest __ Oak Opening __ Coastal
7	YES	NO	Is there evidence of human-caused disturbances?

**Quantitative Rating Questions**

1	Wetland area ≥ 50 (6 pts) 25-<50 (5 pts) 10-<25 (4 pts) 3-<10 (3 pts) 0.3-<3 (2 pts) 0.1->0.3 (1 pt) <0.1 (0 pts)			
2	Wetland vegetation classes __ Open Water __ Aquatic Bed __ Emergent __ Scrub-Shrub __ Forested			
3	Score vegetation classes 1 class = 0 2 classes = 3 3 classes = 6 4 classes = 8 5 classes = 10			
4a	Aquatic Bed Plant Species one = 1pt two = 2pts >2 = 3pts			
4b	Emergent Plant Species one = 0 pt s two to three = 1pts four to five = 2pts more than five = 3pts			
4c	Scrub-Shrub Plant Species one = 0 pt s two = 1pts three to four = 2pts more than four = 3pts			
4d	Forest Plant Species one = 0 pt s two = 1pts three to four = 2pts more than four = 3pts			2
5	Wetland plant community interspersation high = 5 moderate = 3 low = 1 none = 0			
6	Does the wetland have a forested class >0.25 acres YES --- Answer Question 7 NO --- Go to Question 8			
7a-e	YES=1 trees >50' tall YES=1 trees 20'-49' YES=1 shrubs YES=1 herbaceous YES=1 open water /aquatic bed			
8a	YES=1 NO=0 hydrology of the wetland has been modified by beavers			
8b	YES=1 NO=0 heron rookery within 300'			
8c	YES=1 NO=0 mudflat areas that could provide habitat for shorebirds			
8d	YES=1 NO=0 raptor nests within 300'			
8e	YES=1 NO=0 at least 3 standing dead trees per acre >10" dbh			
8f	YES=1 NO=0 at least 3 downed logs per acre >6" diameter and at least 10' in length			
8g	YES=2 NO=0 areas ponded for at least 4 months/year, no open water class			
8h	YES=2 NO=0 Are there "vernal pools"			
8i	YES=1 NO=0 in the littoral zone of a lake (other than Lake Erie)			
9	Is the wetland "Hydrologically isolated?" YES --- Go to Question 11 NO --- Go to Question 10.			
10a	YES=2 NO=0 located in the "100 year floodplain"?			
10b	YES=2 NO=0 located <u>between</u> a stream and a different adjacent land use			2
10c	YES=3 NO=0 located adjacent to a stream <u>and</u> there is a permanent surface water connection			
10d	YES=2 NO=0 adjacent to a stream and seasonal surface water connections Answer "no" if 10c answered "yes."			
10e	YES=1 NO=0 Is the wetland forested?			1
11	Land Use Around the Wetland low = 3, medium = 2, high = 1, very high = 0			2
12	Average Buffer Width abw ≥ 200 ft = 3, 100' < abw < 200' = 2, 50' < abw ≤ 100' = 1, abw ≤ 50' = 0			
13	Connectivity. Is the wetland connected to a "riparian corridor" YES Answer 13a Do NOT Answer 13b			
13a	Connectivity to Riparian Corridors very high = 5, high=4, moderate = 3, low = 1, none = 0			
13b	Connectivity to Upland Corridors very high = 5, high = 4, moderate = 3, low = 1, none = 0			3
	<b>TOTAL SCORE</b>			10

Version 4.0 DRAFT	<b>Ohio Rapid Assessment Method for Wetlands</b>	
	<b>Background Information Form</b> <b>Office Form</b> <b>Field Form A - Complete</b> <b>Field Form B - Short Form</b>	Ohio EPA, Division of Surface Water  January 5, 1999
Pursuant to ORC Section 3745.30, the Ohio Rapid Assessment Method for Wetlands is a guidance or policy and <b>DOES NOT HAVE THE FORCE OF LAW</b>		

### Instructions

The investigator is ***STRONGLY URGED*** to read the user's manual for further elaboration and discussion of the questions below prior to using the rating forms. For ease of use in the field, explanatory information has been kept to a minimum.

The Office Rating Questions are designed to categorize a wetland or to provide alerts to the investigator based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated.

The Qualitative Rating Questions are designed to categorize certain wetlands as very low quality (Category 1) regardless of the wetland's score on the Quantitative Rating Form. In addition, the Qualitative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating Form.

To complete the rapid assessment method, *all* questions should be answered. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to the User's Manual for discussion of how to determine the "scoring boundaries" of a wetland, or a single wetland within a wetland complex. In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

It is ***VERY IMPORTANT*** to properly and thoroughly answer each of the questions in the Office Rating Form and the Qualitative Rating Questions. These questions are designed to categorize certain wetlands as very low quality (Category 1) or as very high quality (Category 3), *regardless* of the wetland's score on the Quantitative Rating Form. Therefore, just completing the Quantitative Rating Questions gives an incomplete answer as to the wetland's regulatory category. The reason for this is that the Quantitative Rating Questions do not consider or assign additional points for such important considerations as a wetland's statewide scarcity or the presence of an endangered species. These components of the regulatory scheme in OAC Rule 3745-1-54 are addressed in the questions in the Office Rating Form and Qualitative Rating Questions.

## Background Information Form

Name <i>Rob Hook</i>		Date <i>6/14/99</i>	
Affiliation <i>Woolpert</i>			
Address <i>409 E. Monument Ave. Dayton OH 45402</i>			
Phone Number <i>(937) 341-9237</i>			
e-mail address			
Name of Wetland <i>HH</i>			
Location of Wetland and include an address if available <i>Mound Facility</i>			
		Sources of information used (check all that apply)	
Universe Transverse Mercator		Site Visit	<input checked="" type="checkbox"/>
USGS Quad Name		USGS Topo Map	<input checked="" type="checkbox"/>
Hydrologic Unit Code		National Wetland Inventory Map	
Wetland Size (acres, hectares)	<i>0.03 ac.</i>	Ohio Wetland Inventory Map	<input checked="" type="checkbox"/>
How was size estimated? <i>GPS survey / Auto CAD</i>		Aerial Photo	<input checked="" type="checkbox"/>
		Soil Survey	<input checked="" type="checkbox"/>
		Delineation report/map	<input checked="" type="checkbox"/>
sketch (include north arrow, relationship with other surface waters, vegetation zones, etc.)			
final score		Provisional Wetland Category	

## Office Rating Form

**INSTRUCTIONS.** In order to properly complete the Office Rating Form, the rater will need knowledge of the status and location of endangered and threatened species in the State of Ohio.

These questions can generally be answered by consulting the Natural Heritage Program database. "Documented" means the wetland is listed in the appropriate State of Ohio database. Questions 2 and 6 should be answered affirmatively if the rater knows of other published accounts or of actual observations of threatened or endangered species during site visits. Data sources for Question 3 include the Ohio Department of Natural Resources, Division of Wildlife and the North American Waterfowl Management Plan.

**Contacts.** Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Program, 1889 Fountain Square Court, Bldg. F-1, Columbus, Ohio 43224-1331, 614-265-6453, <http://www.dnr.state.oh.us/odnr/dnap/heritage/>. A Natural Heritage Database "Data Request Form" is included in the Appendices to the User's Manual. Ohio Department of Natural Resources, Division of Wildlife, 1840 Belcher Drive, Bldg. G-3, Columbus OH 43224-1329, 614-265-6300, <http://www.dnr.state.oh.us/odnr/wildlife/>.

#	Question	Circle one	
1	Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been documented as a habitat for any Ohio or federal listed threatened or endangered plant or animal species?	<input checked="" type="radio"/> YES Wetland may be a Category 3 wetland. Go to Question 2.	NO Go to Question 2
2	Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	<input checked="" type="radio"/> NO Go to Question 3
3	Is the wetland on record with the Ohio Natural Heritage Program as a high quality wetland?	YES Wetland is a Category 3 wetland. Go to Question 4	<input checked="" type="radio"/> NO Go to Question 4
4	Does the wetland contain documented regionally significant waterfowl, neotropical songbird, or shorebird concentration areas? Sources of information include site visits, the Ohio Department of Natural Resources Division of Wildlife, and the North American Waterfowl Management Plan.	YES Wetland is a Category 3 wetland. Go to Question 5	<input checked="" type="radio"/> NO Go to Question 5
5	Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been documented as a habitat for any state-listed potentially threatened plant species or special interest animal species?	YES Wetland should be evaluated for possible Category 3 status. Go to Question 5	NO Go to Question 6
6	Does the wetland contain individuals of state-listed potentially threatened plant or special interest animal species?	YES Wetland should be evaluated for possible Category 3 status. Question 5	<input checked="" type="radio"/> NO Complete qualitative rating form.

**End of Office Rating questions. Begin Qualitative Rating questions on next page.**

### Qualitative Rating Questions

#	Question	Circle one	
1	<p>Does the wetland fit either of the following descriptions:</p> <p>Is the wetland <u>hydrologically isolated</u> AND comprised of a <u>single vegetation class that is dominated (&gt;50% areal cover) by one species</u> from Table 1. Note: hydrologic isolation is defined in OAC Rule 3745-1-50 and discussed in the User's Manual?</p> <p>Is the wetland excavated from upland soils on unreclaimed mined lands and does not have any surface water connection to streams, lakes, rivers or other wetlands?</p>	<p>YES</p> <p>Wetland is a Category 1 wetland.</p> <p>Complete quantitative rating form.</p>	<p><u>NO</u></p> <p>Go to Question 2</p>
2	<p><b>Bogs.</b> Is the wetland a peat-accumulating wetland that has no significant inflows or outflows and supports acidophilic mosses, particularly sphagnum spp. <i>Sphagnum</i> spp. &gt;30% cover with at least one species from Table 3, and the cover of invasive species (see Table 1) is &lt;25%? Note: peat soils may also be present without actively growing <i>Sphagnum</i> spp.</p>	<p>YES</p> <p>Wetland is a Category 3 wetland.</p> <p>Complete quantitative rating form</p>	<p><u>NO</u></p> <p>Go to Question 3</p>
3	<p><b>Fens.</b> 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 4 and the cover of invasive species listed in Table 1 is &lt;25%?</p>	<p>YES</p> <p>Wetland is a Category 3 wetland.</p> <p>Complete quantitative rating form</p>	<p><u>NO</u></p> <p>Go to Question 4a</p>
4a	<p><b>"Old Growth Forest."</b> Is the wetland a forested wetland and the forest is characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least fifty per cent of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past eighty to one hundred 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?</p>	<p>YES</p> <p>Wetland is a Category 3 wetland.</p> <p>Complete quantitative rating form</p>	<p><u>NO</u></p> <p>Go to Question 4b</p>
4b	<p><b>Hemlock/Pine Forest.</b> Is the wetland a forested wetland with more than 50% of the cover of the forest canopy consisting of Hemlock (<i>Tsuga canadensis</i>) or White pine (<i>Pinus strobus</i>)? Note: forested wetlands with these characteristics are relatively unusual and mostly found in Northeast Ohio and may be confirmed for Category 3 by consulting the Ohio Department of Natural Resources Natural Heritage database.</p>	<p>YES</p> <p>Wetland is a Category 3 wetland.</p> <p>Complete quantitative rating form</p>	<p><u>NO</u></p> <p>Go to Question 4c</p>
4c	<p><b>Mature forested wetlands.</b> 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 1.5' dbh?</p>	<p>YES</p> <p><i>Wetland should be evaluated for possible Category 3 status.</i></p> <p>Complete the quantitative rating form.</p>	<p><u>NO</u></p> <p>Go to Question 5</p>

#	Question	Circle one	
5	<p><b>Lake Erie coastal and tributary wetlands.</b> Can the wetland be characterized by some or all of the descriptions below?</p> <p>The wetland is generally located below an elevation of 575 feet on the applicable USGS topographic maps, or the wetland is located adjacent to this elevation, or wetland is located along tributaries to Lake Erie that are accessible to fish.</p> <p>Lake Erie water levels are wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations). These include sandbar deposition wetlands or those dominated by submersed aquatic vegetation.</p> <p>The wetland's hydrology results from measures designed to prevent the loss of aquatic macrophytes, i.e. the wetland is partially hydrologically restricted due to lakeward or landward dikes or other hydrological controls.</p>	<p>YES</p> <p><i>Wetland should be evaluated for possible Category 3 status.</i></p> <p>Complete the quantitative rating form.</p>	<p><b>NO</b></p> <p>Go to Question 6</p>
6	<p><b>Lake Plain Sand Prairies (Oak Openings)</b> Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the description below?</p> <p>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 4 (woody species may also be present). The Ohio Department of Natural Resources can provide assistance in confirming this type of wetland and its quality.</p>	<p>YES</p> <p>Wetland is a Category 3 wetland.</p> <p>Complete the quantitative rating form.</p>	<p><b>NO</b></p> <p>Go to Question 7</p>
7	<p><b>Lack of human-caused disturbances.</b> Is there evidence observable at the time the rating is performed of human-caused changes to the wetland as indicated by some or all of the following descriptions?</p> <p>___ the wetland is ditched and water flow is, or is not, obstructed</p> <p>___ the wetland has been graded or filled</p> <p>___ the wetland's hydrology is controlled by dikes, weirs, etc.</p> <p>___ the wetland has been grazed, mowed, logged, or farmed</p> <p>___ non-native plants are present or invading</p> <p>___ Water quality degradation.</p> <p>Water quality degradation can be inferred by observing untreated runoff entering the wetland from roads, parking lots, septic systems, agricultural fields, etc., the presence of waste dumps in or adjacent to the wetland, oily sheens on the water in the wetland, the smell of organic chemicals, and/or use of the wetland by livestock.</p>	<p>YES</p> <p>Human-caused disturbance may degrade the wetland.</p> <p>Complete quantitative rating form.</p>	<p><b>NO</b></p> <p>Lack of human-caused disturbance indicates the wetland may be of high quality.</p> <p>Complete quantitative rating form.</p>

**End of Qualitative Rating questions. Begin Quantitative Rating questions on next page.**

### Quantitative Rating Questions

#	Question	score																
1	<p><b>Wetland area.</b> Estimate the area of wetland. Circle the appropriate category and points. The estimated acreage should be done with sufficient precision to clearly place the wetland within the appropriate size class. Refer to the User's Manual for additional discussion.</p> <table style="margin-left: 20px;"> <thead> <tr> <th style="text-decoration: underline;">Acres</th> <th style="text-decoration: underline;">Points</th> </tr> </thead> <tbody> <tr><td>≥ 50</td><td>6</td></tr> <tr><td>25 - &lt;50</td><td>5</td></tr> <tr><td>10 - &lt;25</td><td>4</td></tr> <tr><td>3 - &lt;10</td><td>3</td></tr> <tr><td>0.3 - &lt;3</td><td>2</td></tr> <tr><td>0.1 - &lt;0.3</td><td>1</td></tr> <tr><td>&lt;0.1</td><td style="border: 1px solid black; border-radius: 50%; padding: 2px;">0</td></tr> </tbody> </table>	Acres	Points	≥ 50	6	25 - <50	5	10 - <25	4	3 - <10	3	0.3 - <3	2	0.1 - <0.3	1	<0.1	0	0
Acres	Points																	
≥ 50	6																	
25 - <50	5																	
10 - <25	4																	
3 - <10	3																	
0.3 - <3	2																	
0.1 - <0.3	1																	
<0.1	0																	
2	<p><b>Wetland vegetation classes.</b> Check the wetland classes listed below that are present in the wetland. Refer to the User's Manual for descriptions of these classes. <b>If the total area of the wetland is less than 1/4 acre, check the <u>single</u> vegetation class that most appropriately describes the wetland.</b> If the wetland is dry due to the time of year the assessment is done, best professional judgement using evidence provided by any hydrologic indicators should be used to determine whether an open water class is normally or seasonally present.</p> <p> <input type="checkbox"/> Open Water, if the area of open water is &gt;0.25 acres  <input type="checkbox"/> Aquatic Beds, if the area of aquatic beds is &gt;0.25 acres  <input checked="" type="checkbox"/> Emergent, if the area of emergent class is &gt;0.25 acres  <input type="checkbox"/> Scrub-Shrub, if the area of scrub-shrub is &gt;0.25 acres  <input type="checkbox"/> Forested, if the area of forested class is &gt;0.25 acres  <input type="checkbox"/> Total Number of Classes                 </p>																	
3	<p>Based on Question 2, score the wetland according to the following table (e.g., if there are 4 classes, you would circle 8 points).</p> <table style="margin-left: 20px;"> <thead> <tr> <th style="text-decoration: underline;"># of Classes</th> <th style="text-decoration: underline;">Points</th> </tr> </thead> <tbody> <tr><td>1</td><td style="border: 1px solid black; border-radius: 50%; padding: 2px;">0</td></tr> <tr><td>2</td><td>3</td></tr> <tr><td>3</td><td>6</td></tr> <tr><td>4</td><td>8</td></tr> <tr><td>5</td><td>10</td></tr> </tbody> </table>	# of Classes	Points	1	0	2	3	3	6	4	8	5	10	0				
# of Classes	Points																	
1	0																	
2	3																	
3	6																	
4	8																	
5	10																	
4	<p><b>Plant species diversity.</b> In Questions 4a to 4d, circle each wetland class that was identified in Question 2 and determine the number of different plant species that cover more than 10% of the surface area of that class. Any plant species with a cover of &gt;10% qualifies for points within a class, even those species which are not of that class, e.g., a shrub species found in a forested class.</p> <p>Score as indicated below, e.g., if a wetland has an aquatic bed class with 3 species, an emergent class with 4 species, and a scrub-shrub class with 2 species, you would circle 3, 2, and 1 under "Points."</p>																	
4a	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-decoration: underline;">Class</th> <th style="text-decoration: underline;"># Species in Class</th> <th style="text-decoration: underline;">Points</th> <th style="text-decoration: underline;">Names of Plants (Optional)</th> </tr> </thead> <tbody> <tr> <td>Aquatic Bed</td> <td style="text-align: center;">1</td> <td style="text-align: center;">1</td> <td>_____</td> </tr> <tr> <td></td> <td style="text-align: center;">2</td> <td style="text-align: center;">2</td> <td>_____</td> </tr> <tr> <td></td> <td style="text-align: center;">&gt;2</td> <td style="text-align: center;">3</td> <td>_____</td> </tr> </tbody> </table>	Class	# Species in Class	Points	Names of Plants (Optional)	Aquatic Bed	1	1	_____		2	2	_____		>2	3	_____	
Class	# Species in Class	Points	Names of Plants (Optional)															
Aquatic Bed	1	1	_____															
	2	2	_____															
	>2	3	_____															

<b>Subtotal this Page</b>	0
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4b	<u>Class</u> Emergent	<u># Species in Class</u> 1 2-3 <u>4-5</u> >5	<u>Points</u> 0 1 2 3	<u>Names of Plants (Optional)</u> _____ _____ <i>Juncus t., Festuca, Glyceria, Carex vulpinoidea</i> _____	2										
4c	<u>Class</u> Scrub-Shrub	<u># Species in Class</u> 1 2 3-4 >4	<u>Points</u> 0 1 2 3	<u>Names of Plants (Optional)</u> _____ _____ _____ _____											
4d	<u>Class</u> Forested	<u># Species in Class</u> 1 2 3-4 >4	<u>Points</u> 0 1 2 3	<u>Names of Plants (Optional)</u> _____ _____ _____ _____											
<p>5 <b>Wetland plant community interspersions.</b> Decide from the Figure 1 below whether interspersions between wetland classes is high, moderate, low or none. Write the appropriate score in the scoring column.</p> <p><b>IMPORTANT:</b> If you think the amount of interspersions falls between the degree of interspersions shown on the diagrams, assign an intermediate score, e.g., a moderately high amount of interspersions would score a "4," while a moderately low amount would score a "2".</p> <table border="1"> <thead> <tr> <th>Amount of Interspersions</th> <th>Points</th> </tr> </thead> <tbody> <tr> <td>High</td> <td>5</td> </tr> <tr> <td>Moderate</td> <td>3</td> </tr> <tr> <td>Low</td> <td>1</td> </tr> <tr> <td>None</td> <td><u>0</u></td> </tr> </tbody> </table>						Amount of Interspersions	Points	High	5	Moderate	3	Low	1	None	<u>0</u>
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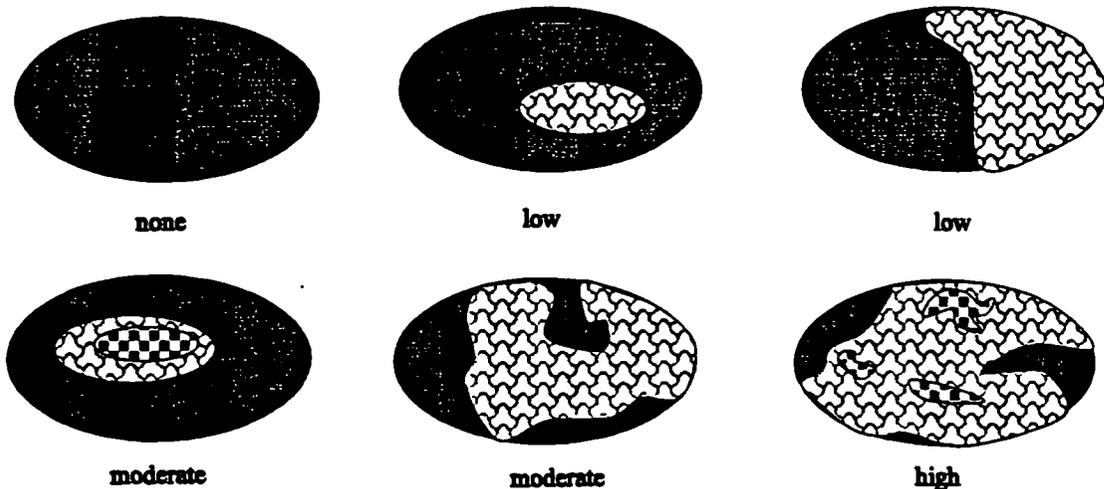


Figure 1. Hypothetical wetlands for estimating degree of interspersions.

Subtotal this Page	2
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#	Question	score															
10	<b>Wetland - surface water quality functions.</b> To answer the questions below, circle the features, if any, that apply to the wetland in question and circle the corresponding score(s). More than one answer may apply. This question should only be scored for wetlands that are <u>not</u> hydrologically isolated as determined by Question 9.																
10a	YES=2 NO=0 Is the wetland located in the "100 year floodplain"?	0															
10b	YES=2 NO=0 Is the wetland located <u>between</u> a stream and a different adjacent land use, and the wetland is located such that water from the adjacent land use could flow through wetland to the stream? "Different adjacent land uses" include agricultural, commercial, industrial, mining, or residential uses.																
10c	YES=3 NO=0 Is the wetland located adjacent to a stream <u>and</u> there is a permanent surface water connection between the wetland and the stream, i.e. water can perennially flow between the wetland and the stream and vice versa. Note: if the surface water connection is "permanent," seasonal connections like spring flooding, are considered to be included in the "permanent connection."																
10d	YES=2 NO=0 Is the wetland adjacent to a stream and only seasonal surface water connections are present, e.g. spring flooding? The answer to this question should be "no" if Question 10c is answered "yes."																
10e	YES=1 NO=0 Is the wetland forested?	✓															
11	<p><b>Land Use Adjacent to the Wetland.</b> Circle the points that are associated with the <i>level of intensity</i> of surrounding land uses that <i>best</i> describes the intensity of land use surrounding the wetland. An average score may be used, e.g. score "2.5" if the intensity of land use is between low and medium.</p> <table border="1"> <thead> <tr> <th><u>Points</u></th> <th><u>Intensity of Land Use Surrounding Wetland</u></th> <th><u>Description</u></th> </tr> </thead> <tbody> <tr> <td>3</td> <td>low</td> <td>The wetland is mostly or completely surrounded by undeveloped land, e.g. forest, grasslands, old fields (&gt;10 years old), open water.</td> </tr> <tr> <td>2</td> <td>medium</td> <td>The wetland is mostly or completely surrounded by developed land but land use is not intensive, e.g. the wetland may be surrounded by pasture, fallow farmland, old fields (&lt;10 years old), a golf course, but generally not by roads, railroads, buildings or other paved areas.</td> </tr> <tr> <td>1</td> <td>high</td> <td>The wetland is mostly or completely surrounded by developed land and land use is intensive, e.g. active agricultural row cropping or residential development.</td> </tr> <tr> <td>0</td> <td>very high</td> <td>The wetland is mostly or completely surrounded by developed land and land use is very intensive, e.g. paved areas, industrial facilities, shopping centers, construction sites, etc.</td> </tr> </tbody> </table>	<u>Points</u>	<u>Intensity of Land Use Surrounding Wetland</u>	<u>Description</u>	3	low	The wetland is mostly or completely surrounded by undeveloped land, e.g. forest, grasslands, old fields (>10 years old), open water.	2	medium	The wetland is mostly or completely surrounded by developed land but land use is not intensive, e.g. the wetland may be surrounded by pasture, fallow farmland, old fields (<10 years old), a golf course, but generally not by roads, railroads, buildings or other paved areas.	1	high	The wetland is mostly or completely surrounded by developed land and land use is intensive, e.g. active agricultural row cropping or residential development.	0	very high	The wetland is mostly or completely surrounded by developed land and land use is very intensive, e.g. paved areas, industrial facilities, shopping centers, construction sites, etc.	3
<u>Points</u>	<u>Intensity of Land Use Surrounding Wetland</u>	<u>Description</u>															
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1	high	The wetland is mostly or completely surrounded by developed land and land use is intensive, e.g. active agricultural row cropping or residential development.															
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#	Question	score															
12	<p><b>Average Buffer Width.</b> Circle the points that are associated with the "average buffer width" surrounding the wetland. To calculate the average buffer width, estimate width of buffer on each side of wetland to a maximum of 200' and divide by the number of sides, e.g. the average buffer width of a wetland with buffers of 500', 100', 50' and 0' would be calculated as follows: <math>abw = (500' + 100' + 50' + 0')/4 = 87.5'</math>. A wetland with buffers greater than 200' on all sides would have an <math>abw \geq 200</math> and would score 3 points. Intensive land uses should not be counted as buffers, e.g. active agricultural row cropping, paved areas, housing developments, etc.</p> <table border="1"> <thead> <tr> <th><u>Points</u></th> <th><u>Average Buffer Width (abw)</u></th> <th><u>Description</u></th> </tr> </thead> <tbody> <tr> <td>3</td> <td><math>abw \geq 200</math> ft</td> <td>Buffers average 200 feet or more around the wetland perimeter?</td> </tr> <tr> <td>2</td> <td><math>100' &lt; abw &lt; 200'</math></td> <td>Buffers average between 100 and 200 feet around the wetland perimeter</td> </tr> <tr> <td>1</td> <td><math>50' &lt; abw &lt; 100'</math></td> <td>Buffers average between 50 and 100 feet around the wetland perimeter</td> </tr> <tr> <td>0</td> <td><math>abw \leq 50'</math></td> <td>Buffers average less than 50 feet around the wetland perimeter?</td> </tr> </tbody> </table>	<u>Points</u>	<u>Average Buffer Width (abw)</u>	<u>Description</u>	3	$abw \geq 200$ ft	Buffers average 200 feet or more around the wetland perimeter?	2	$100' < abw < 200'$	Buffers average between 100 and 200 feet around the wetland perimeter	1	$50' < abw < 100'$	Buffers average between 50 and 100 feet around the wetland perimeter	0	$abw \leq 50'$	Buffers average less than 50 feet around the wetland perimeter?	3
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13	<p><b>Connectivity.</b> Is the wetland connected to a "riparian corridor"?</p> <p>YES     Answer Question 13a, do NOT answer Question 13b.</p> <p>NO       Answer Question 13b</p>																
13a	<p><b>Connectivity to Riparian Corridors.</b> Circle the points that are associated with the degree of connectivity to a "riparian corridor" that best describes the intensity of land use surrounding the wetland. If the wetland being evaluated appears to fall between the categories described below, an average score may be used, e.g. score "3.5" if the degree of connectivity is between moderate and high.</p> <table border="1"> <thead> <tr> <th><u>Points</u></th> <th><u>Degree of Connectivity to other habitat areas</u></th> <th><u>Description</u></th> </tr> </thead> <tbody> <tr> <td>5</td> <td>very high</td> <td>Is the wetland 1) connected to, or part of, a "riparian corridor" that is &gt;100' wide and the riparian corridor connects the wetland with a protected area, e.g. scenic river, exceptional warmwater habitat stream, coldwater habitat stream, nature preserve, state forest, public lands, land under a conservation easement, etc.</td> </tr> <tr> <td>4</td> <td>high</td> <td>Is the wetland connected to or part of a riparian corridor that is &gt;100' wide?</td> </tr> <tr> <td>3</td> <td>moderate</td> <td>Is the wetland connected to, or part of, a riparian corridor between 50' and 100' wide?</td> </tr> <tr> <td>1</td> <td>low</td> <td>Is the wetland connected to a riparian corridor that is &lt;50' wide?</td> </tr> </tbody> </table>	<u>Points</u>	<u>Degree of Connectivity to other habitat areas</u>	<u>Description</u>	5	very high	Is the wetland 1) connected to, or part of, a "riparian corridor" that is >100' wide and the riparian corridor connects the wetland with a protected area, e.g. scenic river, exceptional warmwater habitat stream, coldwater habitat stream, nature preserve, state forest, public lands, land under a conservation easement, etc.	4	high	Is the wetland connected to or part of a riparian corridor that is >100' wide?	3	moderate	Is the wetland connected to, or part of, a riparian corridor between 50' and 100' wide?	1	low	Is the wetland connected to a riparian corridor that is <50' wide?	
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1	low	Is the wetland connected to a riparian corridor that is <50' wide?															

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13b	<p><b>Connectivity to Upland Corridors.</b> Circle the points that are associated with the degree of connectivity to an "upland corridor" that best describes the intensity of land use surrounding the wetland. If the wetland being evaluated appears to fall between the categories described below, an average score may be used, e.g. score "3.5" if the degree of connectivity is between moderate and high. <b>DO NOT ANSWER THIS QUESTION IF QUESTION 13a WAS ANSWERED.</b></p> <table border="1"> <thead> <tr> <th>Points</th> <th>Degree of Connectivity to other habitat areas</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>5</td> <td>very high</td> <td>Is the wetland connected to or part of an upland corridor that is &gt;100' wide with good forest and shrub cover (&gt;25% cover) and the upland corridor connects the wetland with a protected area, e.g. nature preserve, state forest, public lands, land under a conservation easement, etc.</td> </tr> <tr> <td>4</td> <td>high</td> <td>Is the wetland connected to or part of an upland corridor that is &gt;100' wide with good forest and shrub cover (&gt;25% cover)</td> </tr> <tr> <td>3</td> <td>moderate</td> <td>Is the wetland connected to or part of another habitat area with either a forested/shrub corridor &lt;100' wide; or (2) a corridor that is &gt;100' wide, but has a low vegetative cover (i.e., not forested)?</td> </tr> <tr> <td>1</td> <td>low</td> <td>Is the wetland connected to any other habitat area by a narrow corridor (&lt;50') of low vegetation (i.e., not forested), or surrounded by agricultural lands?</td> </tr> <tr> <td>0</td> <td>none</td> <td>Is the wetland and its buffer mostly isolated by development (urban, residential &gt;2 houses/acre, commercial or industrial)?</td> </tr> </tbody> </table>	Points	Degree of Connectivity to other habitat areas	Description	5	very high	Is the wetland connected to or part of an upland corridor that is >100' wide with good forest and shrub cover (>25% cover) and the upland corridor connects the wetland with a protected area, e.g. nature preserve, state forest, public lands, land under a conservation easement, etc.	4	high	Is the wetland connected to or part of an upland corridor that is >100' wide with good forest and shrub cover (>25% cover)	3	moderate	Is the wetland connected to or part of another habitat area with either a forested/shrub corridor <100' wide; or (2) a corridor that is >100' wide, but has a low vegetative cover (i.e., not forested)?	1	low	Is the wetland connected to any other habitat area by a narrow corridor (<50') of low vegetation (i.e., not forested), or surrounded by agricultural lands?	0	none	Is the wetland and its buffer mostly isolated by development (urban, residential >2 houses/acre, commercial or industrial)?	4
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14	<p><b>Other relevant information.</b> Is there any other information about this wetland that might be important when completing its assessment? If yes, please describe below (no score given). Please include any information on educational, scientific or other public uses of the wetland. Information about any unusual circumstances that may have affected the wetland's score should also be included.</p>																			
15	<b>TOTAL SCORE</b>	12																		

**Table 1. List of invasive/exotic plant species**

Source: The Ohio Aquatic Nuisance Species Committee).

<i>Lythrum salicaria</i>	Purple loosestrife
<i>Myriophyllum spicatum</i>	European milfoil
<i>Najas minor</i>	Lesser naiad
<i>Phalaris arundinacea</i>	Reed canary grass
<i>Phragmites australis</i>	Giant reed
<i>Potamogeton crispus</i>	Curly pondweed
<i>Ranunculus ficaria</i>	Lesser celandine
<i>Rhamnus frangula</i>	European buckthorn
<i>Typha angustifolia</i>	Narrow-leaved cattail

**Table 2. List of some characteristic fen species**

*Aigadenus elegans* var. *glaucus*  
*Cacalia plantaginea*  
*Carex flava*  
*Carex sterilis*  
*Carex stricta*  
*Deschampsia caespitosa*  
*Eleocharis pauciflora*  
*Eleocharis rotellata*  
*Eriophorum viridicarinatum*  
*Euthamia (Solidago) ohioensis*  
*Gentianopsis* spp.  
*Lobelia kalmii*  
*Parnassia glauca*  
*Potentilla fruticosa*  
*Rhamnus alnifolia*  
*Rhynchospora* spp.  
*Salix candida*  
*Salix myricoides*  
*Salix serissima*  
*Tofieldia glutinosa*  
*Triglochin maritimum*  
*Triglochin palustre*

**Table 3. List of some characteristic bog species.**

*Calla palustris*  
*Carex atlantica* var. *capillacea*  
*Carex echinata*  
*Carex oligosperma*  
*Carex trisperma*  
*Chamaedaphne calyculata*  
*Decodon verticillatus*  
*Eriophorum virginicum*  
*Larix laricina*  
*Nemopanthus muscronatus*  
*Scheuchzeria palustris*  
*Sphagnum* spp.  
*Vaccinium macrocarpon*  
*Vaccinium corymbosum*  
*Vaccinium oxycoccus*  
*Woodwardia virginica*  
*Xyris difformis*

**Table 4. List of some Oak Opening Species**

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

**Qualitative Rating Questions**

1	YES	<input checked="" type="radio"/> NO	hydrologically isolated, single class >50% cover OR minelands without surface water connection?
2-6	YES	<input checked="" type="radio"/> NO	<input type="checkbox"/> bog <input type="checkbox"/> fen <input type="checkbox"/> old growth/hemlock and pine <input type="checkbox"/> mature forest <input type="checkbox"/> Oak Opening <input type="checkbox"/> Coastal
7	YES	<input checked="" type="radio"/> NO	Is there evidence of human-caused disturbances?

**Quantitative Rating Questions**

1	Wetland area ≥ 50 (6 pts) 25-<50 (5 pts) 10-<25 (4 pts) 3-<10 (3 pts) 0.3-<3 (2 pts) 0.1->0.3 (1 pt) <0.1 (0 pts)			
2	Wetland vegetation classes <input type="checkbox"/> Open Water <input type="checkbox"/> Aquatic Bed <input type="checkbox"/> Emergent <input type="checkbox"/> Scrub-Shrub <input type="checkbox"/> Forested			
3	Score vegetation classes 1 class = 0 2 classes = 3 3 classes = 6 4 classes = 8 5 classes = 10			
4a	Aquatic Bed Plant Species one = 1pt two = 2pts >2 = 3pts			
4b	Emergent Plant Species one = 0 pt s two to three = 1pts four to five = 2pts more than five = 3pts			2
4c	Scrub-Shrub Plant Species one = 0 pt s two = 1pts three to four = 2pts more than four = 3pts			
4d	Forest Plant Species one = 0 pt s two = 1pts three to four = 2pts more than four = 3pts			
5	Wetland plant community interspersion high = 5 moderate = 3 low = 1 none = 0			
6	Does the wetland have a forested class >0.25 acres YES -- Answer Question 7 NO -- Go to Question 8			
7a-e	YES=1 trees >50' tall YES=1 trees 20'-49' YES=1 shrubs YES=1 herbaceous YES=1 open water /aquatic bed			
8a	YES=1 NO=0 hydrology of the wetland has been modified by beavers			
8b	YES=1 NO=0 heron rookery within 300'			
8c	YES=1 NO=0 mudflat areas that could provide habitat for shorebirds			
8d	YES=1 NO=0 raptor nests within 300'			
8e	YES=1 NO=0 at least 3 standing dead trees per acre >10" dbh			
8f	YES=1 NO=0 at least 3 downed logs per acre >6" diameter and at least 10' in length			
8g	YES=2 NO=0 areas ponded for at least 4 months/year, no open water class			
8h	YES=2 NO=0 Are there "vernal pools"			
8i	YES=1 NO=0 in the littoral zone of a lake (other than Lake Erie)			
9	Is the wetland "Hydrologically isolated?" YES -- Go to Question 11 NO -- Go to Question 10.			
10a	YES=2 NO=0 located in the "100 year floodplain"?			
10b	YES=2 NO=0 located <u>between</u> a stream and a different adjacent land use			
10c	YES=3 NO=0 located adjacent to a stream <u>and</u> there is a permanent surface water connection			
10d	YES=2 NO=0 adjacent to a stream and seasonal surface water connections Answer "no" if 10c answered "yes."			
10e	YES=1 NO=0 Is the wetland forested?			
11	Land Use Around the Wetland low = 3, medium = 2, high = 1, very high = 0			3
12	Average Buffer Width abw ≥ 200 ft = 3, 100' < abw < 200' = 2, 50' < abw ≤ 100' = 1, abw ≤ 50' = 0			3
13	Connectivity. Is the wetland connected to a "riparian corridor" YES Answer 13a Do NOT Answer 13b			
13a	Connectivity to Riparian Corridors very high = 5, high=4, moderate = 3, low = 1, none = 0			
13b	Connectivity to Upland Corridors very high = 5, high = 4, moderate = 3, low = 1, none = 0			4
			<b>TOTAL SCORE</b>	12

**QUALITATIVE HABITAT EVALUATION INDEX FORM**



Qualitative Habitat Evaluation Index Field Sheet QHEI Score: **61**

River Code: \_\_\_\_\_ RM: \_\_\_\_\_ Stream North Property, Main Ditch "K"  
 Date 5/24/99 Location DOE Mound Facility  
 Scorers Initials: RAH Comments \_\_\_\_\_

1) SUBSTRATE (Check ONLY Two Substrate TYPE BOXES; Estimate % present):

TYPE	POOL RIFFLE	POOL RIFFLE	SUBSTRATE ORIGIN	SUBSTRATE QUALITY
<input type="checkbox"/> BLDR/SLBS [10]	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> GRAVEL [7]	Check ONE (OR 2 & AVERAGE)	Check ONE (OR 2 & AVERAGE)
<input type="checkbox"/> BOULDER [9]	<input type="checkbox"/> SAND [6]	<input checked="" type="checkbox"/>	<input type="checkbox"/> LIMESTONE [1]	<input type="checkbox"/> SILT HEAVY [-2]
<input checked="" type="checkbox"/> COBBLE [8]	<input type="checkbox"/> BEDROCK [5]	<input type="checkbox"/>	<input type="checkbox"/> TILLS [1]	<input type="checkbox"/> SILT MODERATE [-1]
<input type="checkbox"/> HARDPAN [4]	<input type="checkbox"/> DETRITUS [3]	<input type="checkbox"/>	<input type="checkbox"/> WETLANDS [0]	<input checked="" type="checkbox"/> SILT NORMAL [0]
<input type="checkbox"/> MUCK [2]	<input type="checkbox"/> ARTIFICIAL [0]	<input checked="" type="checkbox"/>	<input type="checkbox"/> HARDPAN [0]	<input type="checkbox"/> SILT FREE [1]
<input type="checkbox"/> SILT [2]			<input type="checkbox"/> SANDSTONE [0]	<input type="checkbox"/> EXTENSIVE [-2]
			<input type="checkbox"/> RIP/RAP [0]	<input type="checkbox"/> MODERATE [-1]
			<input type="checkbox"/> LACUSTRINE [0]	<input checked="" type="checkbox"/> NORMAL [0]
			<input type="checkbox"/> SHALE [-1]	<input type="checkbox"/> NONE [1]
			<input type="checkbox"/> COAL FINES [-2]	

NOTE: (Ignore sludge originating from point-sources; score on natural substrates)  5 or More [2]  
 NUMBER OF SUBSTRATE TYPES:  4 or Less [0]  
 COMMENTS \_\_\_\_\_

Substrate  
**16**  
 Max 20

2) INSTREAM COVER (see back for instructions for additional cover scoring method)

TYPE: (Check All That Apply)	AMOUNT: (Check ONLY One or check 2 and AVERAGE)
<input checked="" type="checkbox"/> UNDERCUT BANKS [1]	<input type="checkbox"/> EXTENSIVE > 75% [11]
<input type="checkbox"/> POOLS > 70 cm [2]	<input checked="" type="checkbox"/> MODERATE 25-75% [7]
<input type="checkbox"/> OXBOWS, BACKWATERS [1]	<input type="checkbox"/> SPARSE 5-25% [3]
<input type="checkbox"/> OVERHANGING VEGETATION [1]	<input type="checkbox"/> NEARLY ABSENT < 5% [1]
<input type="checkbox"/> ROOTWADS [1]	
<input type="checkbox"/> AQUATIC MACROPHYTES [1]	
<input type="checkbox"/> SHALLOWS (IN SLOW WATER) [1]	
<input checked="" type="checkbox"/> BOULDERS [1]	
<input type="checkbox"/> LOGS OR WOODY DEBRIS [1]	
<input type="checkbox"/> ROOTMATS [1]	

COMMENTS: \_\_\_\_\_

Cover  
**7**  
 Max 20

3) CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY	MODIFICATIONS/OTHER
<input type="checkbox"/> HIGH [4]	<input checked="" type="checkbox"/> EXCELLENT [7]	<input type="checkbox"/> NONE [6]	<input checked="" type="checkbox"/> HIGH [3]	<input type="checkbox"/> SNAGGING
<input checked="" type="checkbox"/> MODERATE [3]	<input checked="" type="checkbox"/> GOOD [5]	<input checked="" type="checkbox"/> RECOVERED [4]	<input type="checkbox"/> MODERATE [2]	<input type="checkbox"/> IMPOUND.
<input type="checkbox"/> LOW [2]	<input type="checkbox"/> FAIR [3]	<input type="checkbox"/> RECOVERING [3]	<input type="checkbox"/> LOW [1]	<input type="checkbox"/> RELOCATION
<input type="checkbox"/> NONE [1]	<input type="checkbox"/> POOR [1]	<input type="checkbox"/> RECENT OR NO RECOVERY [1]		<input type="checkbox"/> CANOPY REMOVAL
				<input type="checkbox"/> LEVEED
				<input type="checkbox"/> DREDGING
				<input type="checkbox"/> BANK SHAPING
				<input type="checkbox"/> ONE SIDE CHANNEL MODIFICATIONS

COMMENTS: \_\_\_\_\_

Channel  
**15**  
 Max 20

4) RIPARIAN ZONE AND BANK EROSION (check ONE box per bank or check 2 and AVERAGE per bank) ★ River Right Looking Downstream ★

RIPARIAN WIDTH		FLOOD PLAIN QUALITY (PAST 100 Meter RIPARIAN)		BANK EROSION	
L R (Per Bank)	L R (Most Predominant Per Bank)	L R	L R (Per Bank)	L R (Per Bank)	
<input type="checkbox"/> WIDE > 50m [4]	<input checked="" type="checkbox"/> FOREST, SWAMP [3]	<input type="checkbox"/> CONSERVATION TILLAGE [1]	<input checked="" type="checkbox"/> NONE/LITTLE [3]	<input type="checkbox"/> MODERATE [2]	
<input type="checkbox"/> MODERATE 10-50m [3]	<input type="checkbox"/> SHRUB OR OLD FIELD [2]	<input type="checkbox"/> URBAN OR INDUSTRIAL [0]	<input type="checkbox"/> MODERATE [2]	<input type="checkbox"/> HEAVY/SEVERE [1]	
<input type="checkbox"/> NARROWS < 10m [2]	<input type="checkbox"/> RESIDENTIAL, PARK, NEW FIELD [1]	<input type="checkbox"/> OPEN PASTURE, ROW CROP [0]			
<input type="checkbox"/> VERY NARROW < 5m [1]	<input type="checkbox"/> FENCED PASTURE [1]	<input type="checkbox"/> MINING/CONSTRUCTION [0]			
<input type="checkbox"/> NONE [0]					

COMMENTS: \_\_\_\_\_

Riparian  
**6**  
 Max 10

5) POOL/GLIDE AND RIFFLE/RUN QUALITY

MAX. DEPTH (Check 1 ONLY!)	MORPHOLOGY (Check 1 or 2 & AVERAGE)	CURRENT VELOCITY (POOLS & RIFFLES!) (Check All That Apply)
<input type="checkbox"/> > 1m [6]	<input checked="" type="checkbox"/> POOL WIDTH > RIFFLE WIDTH [2]	<input type="checkbox"/> ZIDDIES [1]
<input type="checkbox"/> 0.7-1m [4]	<input type="checkbox"/> POOL WIDTH = RIFFLE WIDTH [1]	<input checked="" type="checkbox"/> FAST [1]
<input type="checkbox"/> 0.4-0.7m [2]	<input type="checkbox"/> POOL WIDTH < RIFFLE W. [0]	<input type="checkbox"/> TORRENTIAL [-1]
<input checked="" type="checkbox"/> 0.2-0.4m [1]		<input type="checkbox"/> INTERSTITIAL [-1]
<input type="checkbox"/> < 0.2m [POOL=0]		<input checked="" type="checkbox"/> MODERATE [1]
		<input type="checkbox"/> INTERMITTENT [-2]
		<input type="checkbox"/> SLOW [1]

COMMENTS: \_\_\_\_\_

Pool/Current  
**5**  
 Max 12

CHECK ONE OR CHECK 2 AND AVERAGE

RIFFLE DEPTH	RUN DEPTH	RIFFLE/RUN SUBSTRATE	RIFFLE/RUN EMBEDDEDNESS
<input type="checkbox"/> Best Areas > 10 cm [2]	<input type="checkbox"/> MAX > 50 [2]	<input checked="" type="checkbox"/> STABLE (e.g., Cobble, Boulder) [2]	<input type="checkbox"/> NONE [2]
<input checked="" type="checkbox"/> Best Areas 5-10 cm [1]	<input checked="" type="checkbox"/> MAX < 50 [1]	<input type="checkbox"/> MOD. STABLE (e.g., Large Gravel) [1]	<input checked="" type="checkbox"/> LOW [1]
<input type="checkbox"/> Best Areas < 5 cm [RIFFLE=0]		<input type="checkbox"/> UNSTABLE (Fine Gravel, Sand) [0]	<input type="checkbox"/> MODERATE [0]
			<input type="checkbox"/> EXTENSIVE [-1]
		<input type="checkbox"/> NO RIFFLE [Metric=0]	

COMMENTS: \_\_\_\_\_

Riffle/Run  
**4**  
 Max 8  
 Gradient  
**8**  
 Max 10

6) GRADIENT (ft/mi): 205 DRAINAGE AREA (sq.mi.): < 1

% POOL: **40** % GLIDE: **0**  
 % RIFFLE: **40** % RUN: **20**

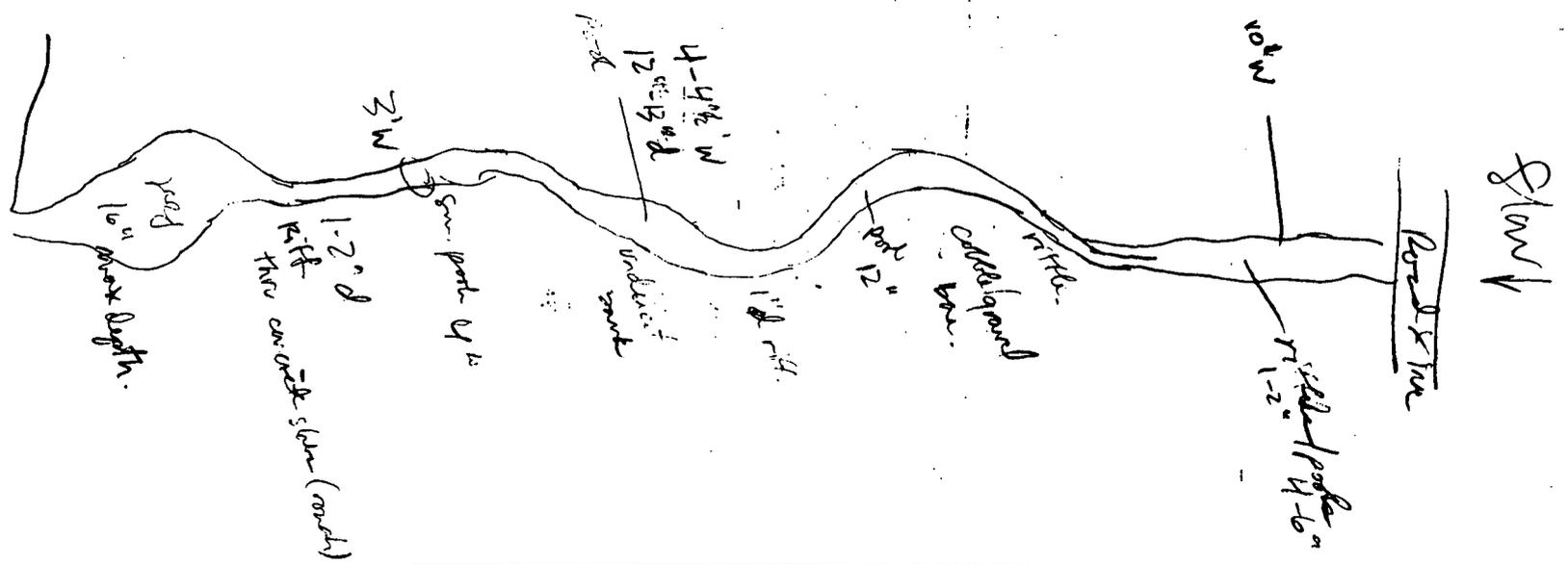
\*Best areas must be large enough to support a population of riffle-obligate fish species.

Is Sampling Reach Representative of the Stream (Y/N) \_\_\_ If Not, Explain: \_\_\_\_\_

- Major Suspected Sources of Impacts (Check All That Apply):
- None
  - Industrial
  - WWTP
  - Ag
  - Livestock
  - Silviculture
  - Construction
  - Urban Runoff
  - CSOs
  - Suburban Impacts
  - Mining
  - Channelization
  - Riparian Removal
  - Landfills
  - Natural
  - Dams
  - Other Flow Alteration
  - Other: \_\_\_\_\_

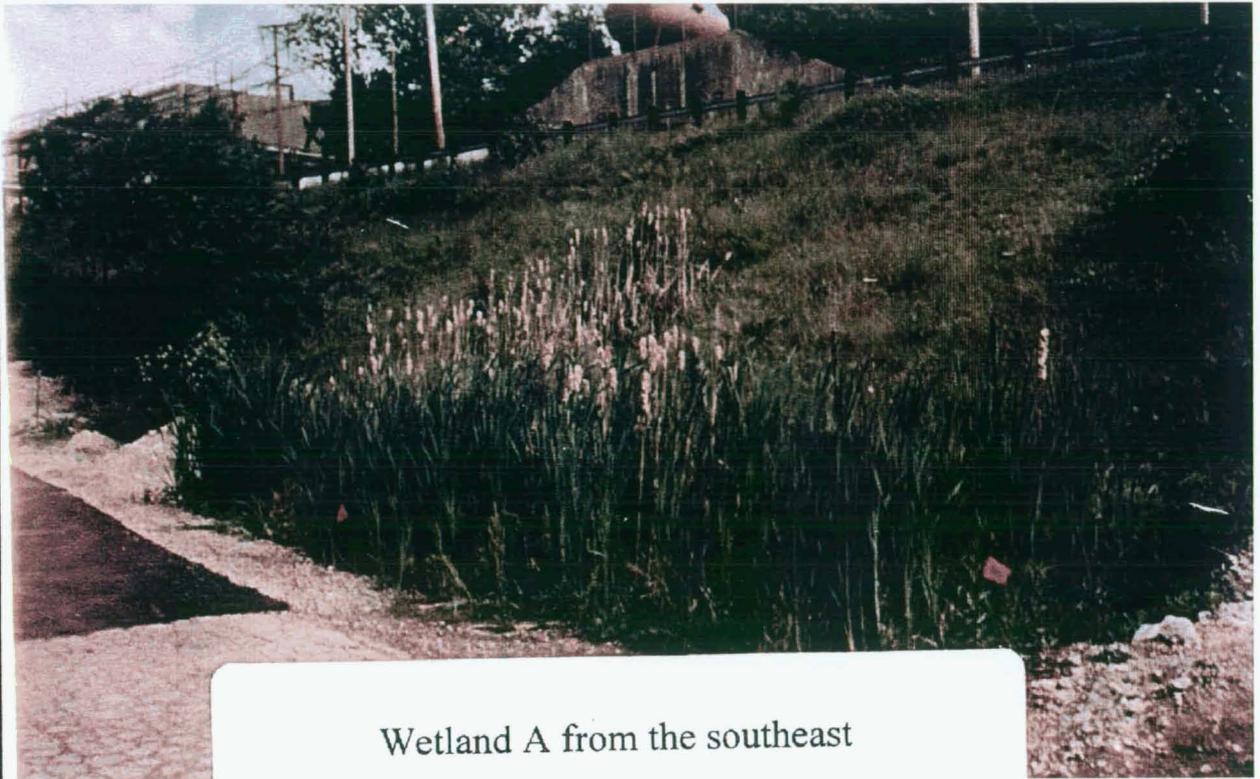
		Gear: _____	Distance: _____	Water Clarity: _____	Water Stage: _____	Canopy -% Open _____			
First Sampling Pass									
Subjective Rating (1-10)	Aesthetic Rating (1-10)	Stream Measurements:							
Gradient: <input type="checkbox"/> - Low, <input type="checkbox"/> - Moderate, <input type="checkbox"/> - High	Average Width	Average Depth	Maximum Depth	Av. Bankfull Width	Bankfull Mean Depth	W/D Ratio	Bankfull Max Depth	Floodprone Area Width	Entrench. Ratio

**Stream Drawing:**

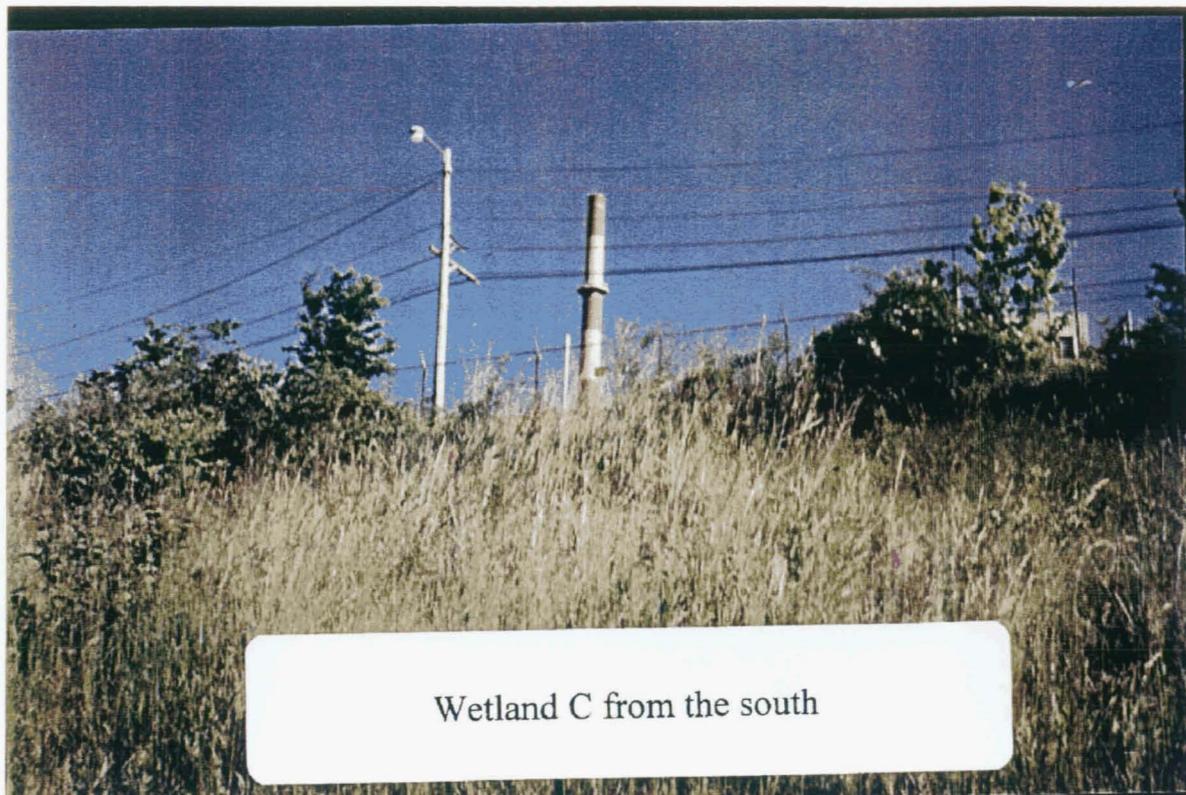


Instructions for Scoring the Alternate Cover Metric: Each Cover Type Should Receive a Score of Between 0 and 3, Where: 0 - Cover type absent; 1 - Cover type present in very small amounts or if more common of marginal quality; 2 - Cover type present in moderate amounts, but not of highest quality or in small amounts of highest quality; 3 - Cover type of highest quality in moderate or greater amounts. Examples of highest quality cover include very large boulders in deep or fast water, large diameter logs that are stable, well developed rootwads in deep/fast water, or deep, well-defined, functional pools.

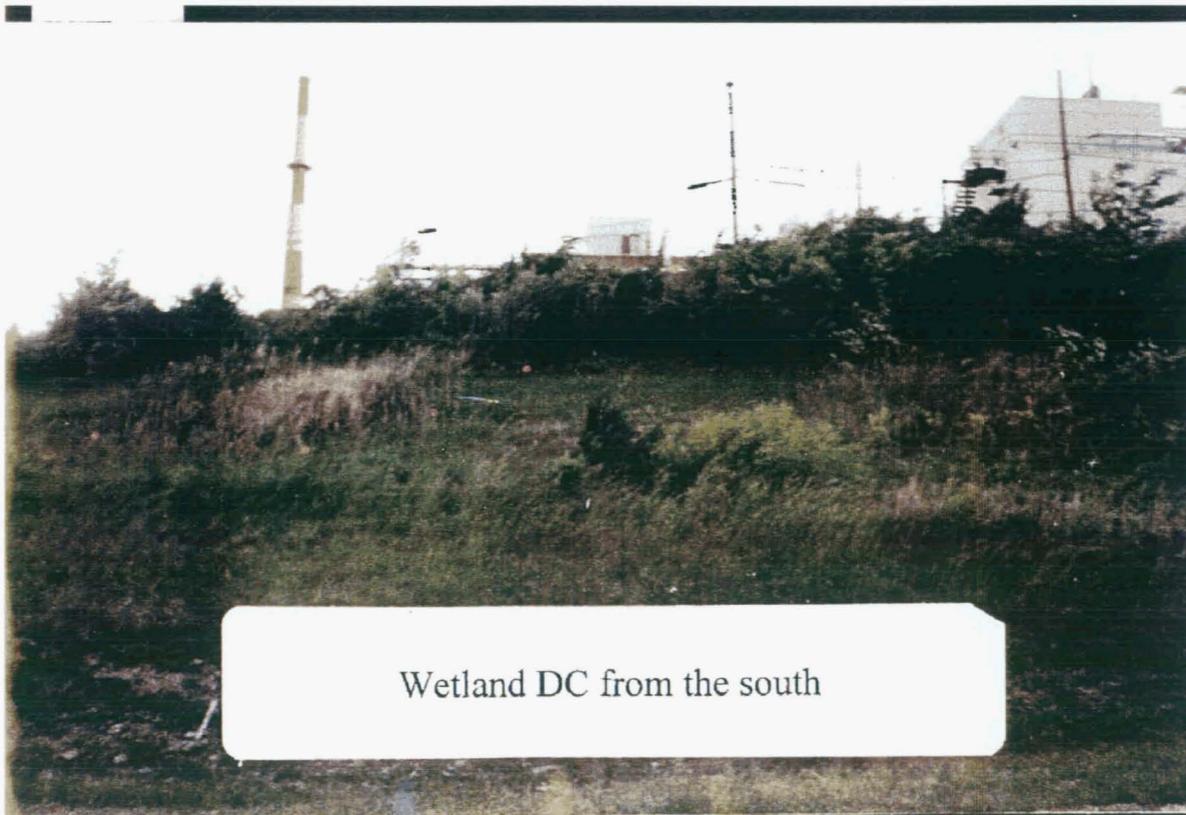
**PHOTOS**



Wetland A from the southeast



Wetland C from the south



Wetland DC from the south



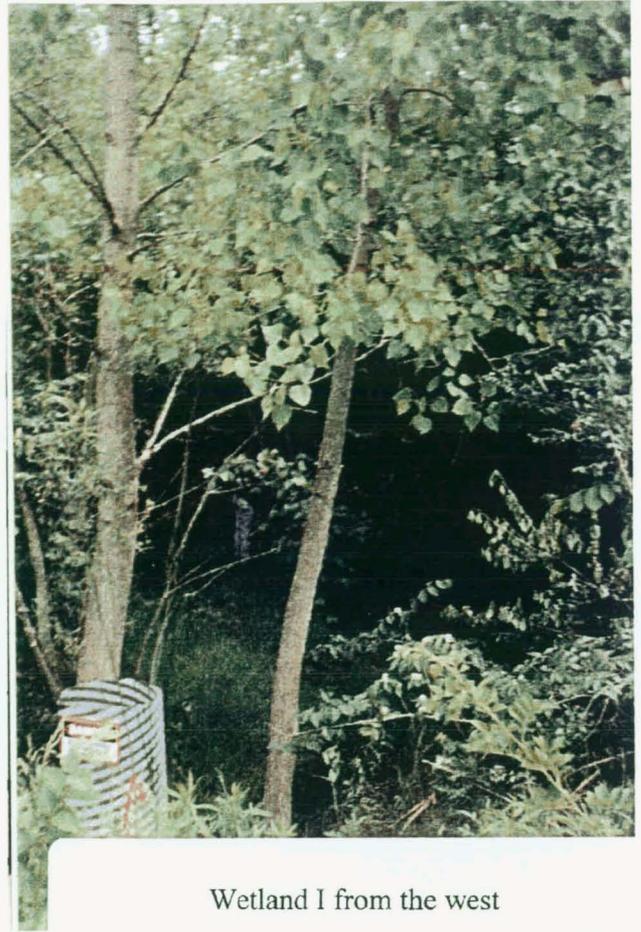
Wetland DA from the south



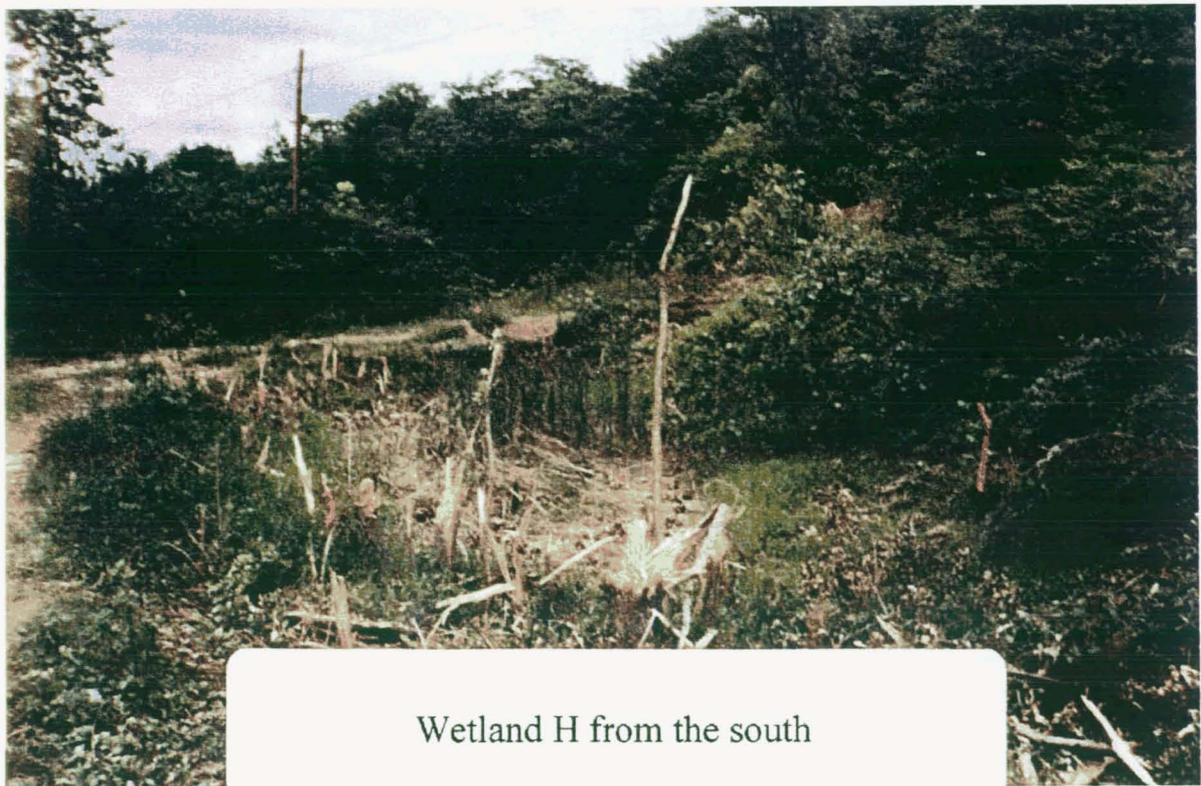
Wetland D from the south



Wetland HH from the south



Wetland I from the west



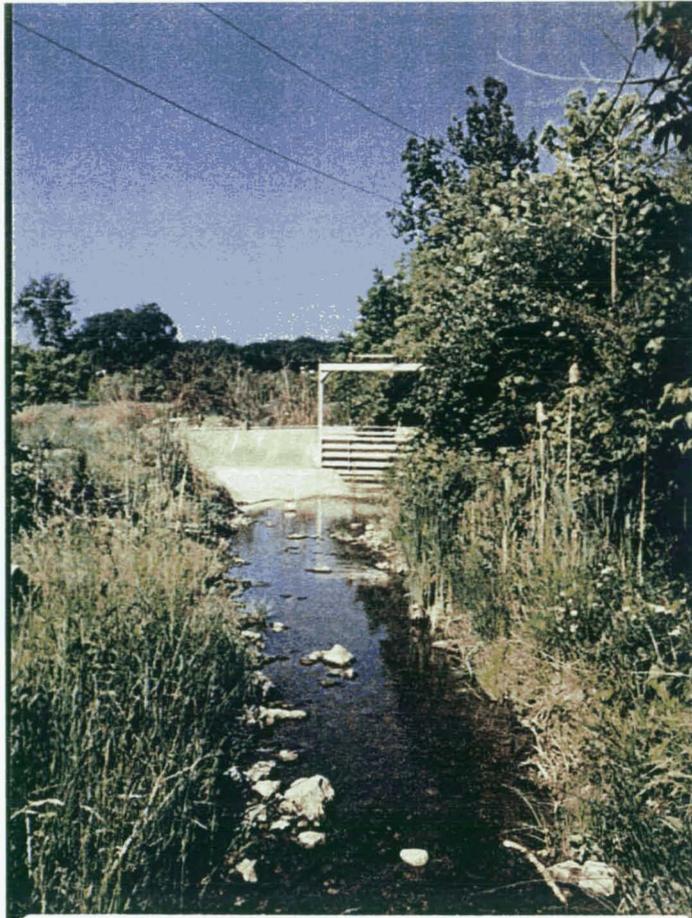
Wetland H from the south



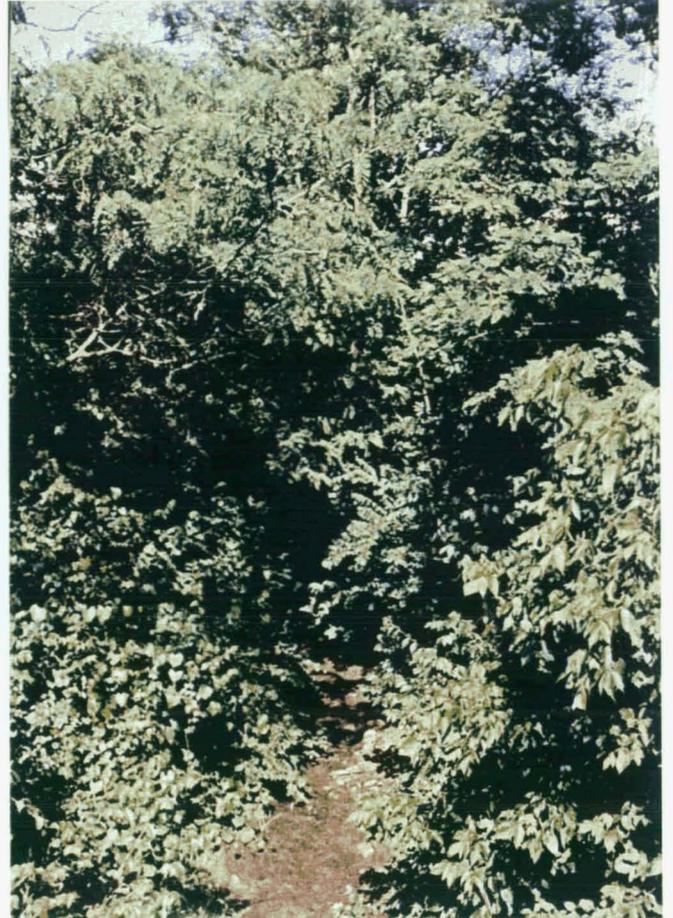
Main Ditch below lower road crossing



Low end of Main Ditch



Sluce gate along Main Ditch



Main Ditch above lower road crossing





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