



## Ecological Resources Inventory Report

Eastern Corridor Multi-Modal Projects  
Segment II/III (Relocated SR 32)  
US 50 to Bells Lane  
Hamilton and Clermont Counties, Ohio

Prepared By:



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## I. INTRODUCTION AND BACKGROUND

### A. PROJECT DESCRIPTION

#### *Background*

Eastern Corridor Segment II/III involves relocation of SR 32 with new parallel rail transit between US 50 in Hamilton County and I-275 in Clermont County (see Figure 1), and is one of several new highway capacity improvements to be implemented as part of the Eastern Corridor Multi-Modal Projects (HAM-SR32-0.00, PID 22970; FHWA-OH-EIS-04-02). The Eastern Corridor Multi-Modal Project covers 165 square miles of Cincinnati's eastern suburbs in eastern Hamilton County and western Clermont County, and is following a tiered approach for compliance with requirements of the National Environmental Policy Act (NEPA) and related statutes. Tier 1, completed in 2006, evaluated transportation needs in the Eastern Corridor, identified environmental and community issues, developed preliminary multi-modal alternatives, and assessed preliminary costs, benefits, and impacts. Preliminary alternatives developed in Tier 1 were based on a multi-modal framework established by the Eastern Corridor Major Investment Study completed in 2000. The Eastern Corridor Tier 1 Record of Decision (ROD) issued in June 2006 identified a set of alternatives that will be evaluated by mode and segment through independent Tier 2 NEPA analyses to determine final location and impacts. The recommended Tier 2 projects, which include Segment II/III (Relocated SR 32), consist of new highway and rail transit implementation segments, expanded bus service and local network improvements. The Tier 1 ROD established that the Tier 2 NEPA evaluation for Segment II/III and Rail Transit Segment 3, both located in the Little Miami River valley, would be conducted under one NEPA document.

#### *Project Status*

The new capacity components of the Eastern Corridor Multi-Modal Projects, including highway and rail transit, are following the current Ohio Department of Transportation (ODOT) 14-Step Project Development Process (PDP) for Major projects. The Tier 1 work for Segment II/III identified 22 corridor segments that can be combined into 264 different full-length alternatives for a shared SR 32/rail transit corridor between US 50 in Hamilton County and Bells Lane in Clermont County (located approximately one mile to the west of the I-275/SR 32 interchange).

Tier 2 for Segment II/III will continue project development consistent with the ODOT PDP and federal NEPA requirements to identify a preferred alternative, corresponding to Major PDP Step 6 (refining feasible alternatives and identifying a preferred alternative), Step 7 (developing the preferred alternative) and Step 8 (environmental clearance). Because of the numerous corridor segments carried over from the initial Eastern Corridor work, the transition from Tier 1 to Tier 2 includes preparation of a Conceptual Alternatives Study (completion of PDP Step 5) to identify a manageable number of full-length feasible alternatives to be carried forward into Step 6 evaluation. This Ecological Resources Inventory Report is being prepared in support of the Conceptual Alternatives Study.

#### *Proposed Improvements*

Segment II/III involves consolidating and managing access points to establish relocated SR 32 as a controlled access arterial roadway west of I-275. Segment II/III begins at US 50 near Fairfax in

Hamilton County, where it ties into planned improvements in Segment I at Fair Lane (the Red Bank corridor), and ends in Clermont County's Eastgate area, where it ties into planned Segment IV improvements for the I-275/SR 32 interchange (CLE-275-10.15; PID 76289). Proposed improvements in Segment II/III consist of a new interchange at US 50/Red Bank Road, relocated SR 32 with new parallel rail transit, a multi-modal clear span crossing of the Little Miami River, multi-modal transit stations at US 50 and Newtown Road, preservation of a future rail transit corridor for the proposed Eastern Corridor Wasson rail line, and coordination with other modal improvements in the area.

### ***Study Area Setting***

The Segment II/III study area encompasses approximately 3,358 acres and includes the communities of Newtown and Shademoor, a portion of Anderson Township, and the south edges of the communities of Fairfax and Mariemont (see Figure 2). The area contains a mix of land uses, including residential, commercial and extensive industrial development in Newtown, wooded stream corridor and agricultural land along the Little Miami River to the west and north of Newtown, and wooded uplands with developing residential areas to the south of Newtown and along existing SR 32 between Newtown and the I-275/SR 32 interchange in the Eastgate area. Segment II/III contains a number of recreational and natural areas including a public golf course, ball/soccer fields and other parkland/greenspace. Also occurring in the area is extensive gravel mining and industrial development in the Ancor area to the east of Newtown, and active landfills along US 50 to the west of the Little Miami River and along existing SR 32 just east of Newtown. The Segment II/III area is also sensitive for cultural historic and archaeology resources, especially along the Little Miami River floodplain, and in and around Newtown.

## **B. PURPOSE OF THIS STUDY**

The purpose of this ecological inventory is to present an overview and evaluation of ecological resources occurring within the Eastern Corridor Segment II/III study area. Findings from this inventory will be used to assist in the refinement of feasible alternatives for the project that avoid and minimize encroachment on identified ecological and other environmental features. Information from this inventory will ultimately be incorporated into an Ecological Survey Report for Segment II/III of the Eastern Corridor, which will document, assess and provide a comparative summary of ecological impacts by alternative. The Ecological Survey Report, then, will serve as the ecological base study component of environmental documentation for the project as required by the National Environmental Policy Act (NEPA) and related statutes and per the Ohio Department of Transportation (ODOT) Project Development Process.

## II. ECOLOGICAL METHODS

### A. GENERAL APPROACH

An Ecological Resources Inventory Report (ERIR) for the entire Eastern Corridor Multi-modal Projects study area extending from downtown Cincinnati in Hamilton County to east of I-275 in Clermont County was initially completed in 2003 (Balke Engineers, February 2003). The current ecological work presented in this 2008 ERIR focuses on Segment II/III only and consists of an update to the previous field survey and literature review for this portion of the Eastern Corridor following current ODOT ecological guidelines (ODOT 2005) to provide current information and mapping of ecological features for use in alternatives evaluation.

Background information on climate, soils, geology, aquatic and terrestrial features, and related ecological resources occurring in the Segment II/III study area was collected from secondary sources that included: local, state and federal databases; information from coordination with resource and regulatory agencies; local, state and federal agency websites; scientific reports; regional studies; and previous Eastern Corridor documents (including the *Eastern Corridor Land Use Vision Plan*, Meisner and Associates, May 2002; the *Environmental Inventory Source Document*, Balke Engineers et al., March 2002; the *Ecological Resources Inventory Report*, Balke Engineers, February 2003; the *Eastern Corridor Tier 1 Draft Environmental Impact Statement*, FHWA, 2004; and the *Eastern Corridor Tier 1 Final Environmental Impact Statement*, FHWA, 2005). Materials reviewed included: 2008 GIS databases from Hamilton and Clermont Counties; United States Geological Survey (USGS) 7.5' topographic quads; National Wetland Inventory (NWI) mapping; digital aerial photos; 2007 digital LIDAR (Laser Imaging and Detection Ranging) topographic mapping; Natural Resources Conservation Service (NRCS) county soil surveys; Ohio Department of Natural Resources (ODNR) geological mapping; ODNR, United States Environmental Protection Agency (USEPA) and Ohio Environmental Protection Agency (OEPA) groundwater and aquifer information; OEPA stream studies and water resource inventories; and floodplain mapping. Key secondary source maps and information relevant to this ecological study are included in Appendix A. Further discussion of the secondary source information collected for this study is presented in Section III.

Ecological studies were conducted in accordance with ODOT-OES (Office of Environmental Services) guidelines (January 2005). These guidelines include the use of OEPA methodology (2002 and 2006) for stream surveys and United States Army Corps of Engineers (USACOE) methodology (Environmental Laboratory, 1987) for wetland determinations/delineations. In addition, current USACOE/USEPA guidance on Clean Water Act jurisdiction (December 2008) was used for determining potential jurisdictional streams and wetlands in the study area, as well as for assessment and investigation of roadside ditches.

Detailed ecological field studies were conducted from August 2008 through mid-October 2008. USGS 1:24,000 scale topographic mapping, 1:6,000 scale aerial photographs, and Trimble Geo-Explorer GPS unit were used to collect and map field data.

## B. STREAM SURVEYS

Secondary source information, including the previous (2003) Eastern Corridor ecological inventory, as well as USGS maps, county soil surveys and 2007 LIDAR topographic mapping were used to determine the presence of potential surface streams within the study area prior to the 2008 field survey.

Drainage areas for streams and ditches were calculated using Delorme 3-D TopoQuads® mapping software to determine the level of assessment required for field surveys. According to 2005 ODOT-OES guidance, stream drainages greater than one square mile require Qualitative Habitat Evaluation Index (QHEI) assessment and stream drainages of one square mile or less (Primary Headwater Habitats) usually require a Headwater Habitat Evaluation Index (HHEI) assessment (unless natural pools > 40cm deep are present).

The non-Primary Headwater Habitats within the study area were sampled in detail using QHEI methodology, as described below. All Primary Headwater Habitat (PHWH) features within the study area were sampled following procedures in *Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams* (OEPA, 2002).

### *Physical and Biological Surveys*

During the 2008 field surveys, physical stream conditions were recorded, sketches were compiled and photographs were taken. Information regarding bank conditions, bottom substrate, channel conditions, adjacent land use, erosion and pollution problems, and riparian composition were recorded on OEPA Site Description Sheets (2002), and used in the calculation of QHEI and HHEI scores according to OEPA methods (2002 and 2006). QHEI and HHEI forms are included in Appendix C and photographs are included in Appendix G. A summary of stream conditions by site is presented in Tables A and B. Stream site locations are shown on Figures 3a-g.

In accordance with 2005 ODOT-OES technical guidance, no full aquatic biological sampling was required for any of the stream sites within the study area.

### *Water Quality Analyses*

Single grab samples were analyzed on-site at all locations with sufficient water depth (2 inches) using a YSI 556 Multi-Parameter System. Water quality parameters sampled at each stream site, in accordance with 2005 ODOT-OES technical guidance, included pH, water temperature, conductivity and dissolved oxygen. A summary of water quality data collected for this study is presented in Table 1 (in-text table; see Section IV.B.4).

## C. WETLAND SURVEYS

NWI-mapped wetlands and other suspect sites identified from the previous (2003) Eastern Corridor ecological survey, as well as aerial photos, digital topographic maps, and soil maps were field inspected for wetland conditions. Each potential wetland feature encountered was assessed using the “point-in/point out” method following United States Army Corps of Engineers (USACOE) 1987 guidance. Each feature determined to meet jurisdictional wetland criteria was also assessed using OEPA Ohio

Rapid Assessment Method (ORAM) for Wetlands, Version 5.0 (Mack, 2001). Representative photographs were taken and each wetland was delineated on aerial photo-based maps through visual assessment and the collection of GPS coordinate points around the feature's boundaries. All wetland features were classified according to Cowardin et al. (1979).

Wetland features identified in the study area are summarized in Table 2 (in-text table; see Section IV.C.2) and are shown on Figure 3a-g. Wetland determination forms are included in Appendix D, ORAM forms are included in Appendix E and photographs are included in Appendix G.

A preliminary isolated wetland assessment was conducted for each feature using USACOE/USEPA regulatory guidance (May 2007 and December 2008). This assessment included cursory review and evaluation of aerial photo and topographic mapping, soil maps, and field inspection. Further discussion of isolated wetlands is presented in Section IV.C.2.

Farmed wetlands were assessed in the study area through review of NRCS soil surveys (Lerch et. al., 1982 and Lerch et. al., 1975) and cursory field inspection. Further discussion of farmed wetlands is presented in Section III.B.4.

### ***Wetland Categories***

State wetland anti-degradation regulations (OAC 3745-1-54, 2006a; effective October 17, 2003) require that all wetland features under review be placed into one of three categories based on significance, where, in general, Category 1 wetlands have limited value, Category 2 wetlands have moderate value and Category 3 wetlands have high value. Placement into one of these categories is then used in decision-making regarding the level of avoidance, minimization and/or mitigation required for impacts to a particular feature.

For this study, assessment of value and placement into a wetland category was conducted for all identified features using the OEPA Ohio Rapid Assessment Method (ORAM) for Wetlands, Version 5.0 (Mack, 2001). Summaries of wetlands by OEPA category are presented in Tables 3 and 4 (in-text tables; see Section IV.C.3). ORAM forms for field-identified wetlands are included in Appendix E.

## **D. POND SURVEYS**

All ponds located within the study area were visually inspected, representative photos taken, and mapped during field surveys. A summary of ponds is presented in Table 5 (in text table; see Section IV.D) and representative photographs are included in Appendix G. Pond locations are mapped on Figure 3a-g.

## **E. TERRESTRIAL SURVEYS**

The identification, location and characteristics of terrestrial habitats in the study area were documented through review of aerial photos, digital topographic maps, and soil and geologic maps, and through detailed field inspections. Descriptions of terrestrial habitats are presented in Section IV.E.2 and summarized in Table 6 (in-text table; see Section IV.E.2). Flora encountered during field surveys are listed in attached Table C. Terrestrial habitat locations are mapped on Figure 4a-g.



### ***Woodlands***

Qualitative walkover field surveys of representative woodland tracts within the Segment II/III study area were conducted to document composition, structure, dominant species, tree size, understory development and disturbance. The primary taxonomic references used for identification of plants included Strausbaugh and Core (1977), Wharton and Barbour (1973), and Wharton and Barbour (1979). Woodland field data forms are included in Appendix F and a listing and description of woodlands surveyed for this study are summarized in Table 7 (in-text table; see Section IV.E.3). Photographs of representative woodlands are included in Appendix G, and all woodlands, including the sites where woodland data forms were compiled, are shown on Figure 4a-g.

### ***Faunal Components***

Evaluation of fauna within the study area consisted of the overturning of rocks, logs, and debris in order to assess small mammal, reptile, and amphibian populations. Animal signs (tracks, scats, road kills, calls) and direct field observations were also documented. Bird populations were not quantified, but notations of significant populations were made. All faunal specimens encountered were identified in the field. The primary taxonomic references used included Hamilton and Whitaker, 1979 (mammals), Peterson, 1980 (birds), Sibley, 2000 (birds) and Conant and Collins, 1998 (amphibians and reptiles). Fauna encountered during field surveys are listed in Table D.

## **F. THREATENED AND ENDANGERED SPECIES SURVEYS**

Information was requested from the Ohio Department of Natural Resources (ODNR) Natural Heritage Program regarding known occurrences of federal or state-listed species in the general area, and the agency response regarding this information request is included in Appendix B (ODNR, 2006). The current USFWS list of federally-listed species by Ohio county (November 2008) was also reviewed.

Detailed biological surveys for endangered species were not conducted for this ecological inventory. However, for species reported by agencies as possibly occurring in the area, efforts were made during field surveys to identify locations or features of potential habitat. Further discussion of the threatened and endangered species is presented in Section III.D and Section IV.F.



### III. RESULTS OF THE LITERATURE REVIEW

Background information on ecological and other related resources occurring within the study area was obtained by review of available secondary source information. A summary of key background information relevant to this ecological study are described below and presented in Appendix A.

#### A. ENVIRONMENTAL SETTING

##### 1. Physiography and Topography

Ecoregions are areas of the United States grouped together based on similarities in mosaic of land use, potential natural vegetation, predominant land forms and soils. USEPA uses the ecoregion concept to determine attainable biological, chemical and physical attributes of aquifer resources occurring within a particular region, and to develop management strategies for those resources. Ohio contains six ecoregions based on mapping developed by Woods et al., (1998). The Segment II/III study area occurs in the Pre-Wisconsin Drift Plains of the Eastern Corn Belt Plains Ecoregion (see Appendix A, Ecoregions of Indiana and Ohio map). This Ecoregion is characterized as a rolling glacial till plain with soils derived from glacial materials, potential natural vegetation consisting of beech-maple hardwood forest, and land use comprised of a combination of agricultural cropland, woodland and small to medium urban areas.

Ohio is comprised of five physiographic regions as described by Brockman (ODNR, 1998). The Segment II/III study area occurs in the Till Plains physiographic region, specifically the Illinoian Till Plain (see Appendix A, Physiographic Regions of Ohio map).

Topography in the Segment II/III study area is controlled by glacial deposits and stream erosion. Surface topography is mostly level to gently sloping in proximity to the Little Miami River and adjacent bottomland, with steep slopes and valley cuts occurring where the study area transitions out of the Little Miami River 100-year floodplain at the western and eastern ends. Surface elevations in the study area range from about 470 feet above mean sea level along the Little Miami River to approximately 900 feet above mean sea level in the Mt. Carmel area at the east project terminus. The study area is located in the Little Miami River drainage basin (HUC 05090202) (see Appendix A, Ohio HUC Assessment Units map). Overall, the Little Miami River flows for approximately 105 miles, drains about 1,755 square miles and has an average gradient of 6.5 feet per mile (ODNR, 1960).

##### 2. Geology

Bedrock in the Segment II/III study area is composed of interbedded Ordovician-age limestone and shale (see Appendix A, Geologic Map of Ohio). The primary structural feature in the vicinity affecting this bedrock pattern is the Cincinnati Arch, which is a broad anticline extending from Alabama to Canada. The Eastern Corridor area occurs on the crest of the Cincinnati Arch (i.e., the location of the geologically oldest Ordovician-aged formations) and into the eastern flank of this feature. The rock strata, therefore, dip subtly to the southeast (about 6 feet per mile) and younger Silurian and Devonian aged bedrock generally occur to the east of the study area. Karst areas generally do not occur in the Segment II/III study area (see Appendix A, Ohio Karst Areas map).

Uplands in the study area are overlain by a layer of Illinoian glacial drift, composed of a mix of sand, silt, clay and coarse fragments (see Appendix A, Glacial Map of Ohio). Topography in the area is primarily shaped by the deposition and subsequent erosion of these glacial deposits.

Unconsolidated alluvium deposits occur in the study area, specifically along the floodplain of the Little Miami River. The broad Little Miami River floodplain contains alluvial deposits that are poorly sorted and stratified with silt and sand deposited by erosion, flooding and recent stream deposition actions.

### 3. Soils

Glacial deposits, including Illinoian glacial till, outwash, lacustrine deposits and loess, are the dominant parent materials for soils in the study area. Other parent materials include alluvium, residual soils and man-placed fill.

Soils in the study area are predominantly loams, silt loams and silty clay loams. Roughly six associations consisting of about 18 mapped soil series occur in the study area, based on review of Hamilton and Clermont County soil surveys. These series have been grouped into five main categories based on similar soil characteristics, features and topographic location (see Appendix A, Eastern Corridor Mapped Soils; note: this grouping does not correspond to any formal NRCS grouping, but provides an overall representation of the predominant soil makeup occurring in the study area):

#### ***High Erodibility Soils***

Hamilton and Clermont County soil surveys describe these as occurring on steep slopes and exhibiting severe erosion potential, thus requiring special methods of operation during construction activities to prevent soil loss. In the Segment II/III study area, they generally occur on the slopes of valley walls above the Little Miami River and include Casco silt loam, 25-35 percent slopes (above Little Miami River in US 50/Red Bank Road area and above SR 32 east of Newtown). Overall, high erodibility soils comprise about two percent of the study area.

#### ***Urban Land Complex Soils***

These soils occur in heavily urbanized and developed areas that comprise about 32 percent of the Segment II/III study area. A total of five soil series mapped as eight separate units comprise the urban land complex soils within the study area, including: Avonburg-Urban, Eldean-Urban, Genesee-Urban, Rossmoyne-Urban and Urban land-Martinsville. Characteristics of these soils tend to be obscured due to the fact that they are paved over or covered with structures and buildings. They occur in greatest concentration in the study area along Red Bank Road, Columbia Parkway, Wooster Pike/US 50 and SR 32 in Newtown.

#### ***Upland Soils***

These soils occur along river valley walls and upland terraces and plateaus, comprising about 22 percent of the Segment II/III study area. A total of nine soil series mapped as 16 separate units are included in these upland soils, consisting of: Avonburg, Bonnell, Cincinnati, Edenton, Eden, Eldean, Martinsville, Pate and Rossmoyne. Upland soils are concentrated primarily in the eastern portion of the study area

east of Newtown along SR 32 at Eight Mile Road. They also occur in small areas along Red Bank Road and on the slopes above US 50 (Columbia Parkway). They are characterized by areas of gentle to steep slopes and small to intermediate-sized shallow surface streams. These soils tend to be moderately well drained and are primarily used for agricultural purposes in level areas and where they have not been developed.

### ***Floodplain Soils***

These soils comprise about 44 percent of the Segment II/III study area, occurring in areas of low topographic relief that are occasionally inundated by floodwaters. They mostly occur along the 100-year floodplains of the Little Miami River, Dry Run, McCullough Run and Duck Creek. A total of eight soil series mapped as nine separate units are included in these floodplain and bottomland soils, consisting of: Eldean, Genesee, Huntington, Jules, Lanier, Martinsville, Stonelick and Wakeland. Most of these soils are rich and well drained, and primarily used for agricultural purposes (sod farms and row crop) in the Mariemont, Newtown and Round Bottom Road areas.

### ***Hydric Soils***

Hydric soils are generally poorly drained and may be associated with the occurrence of wetlands. There are no mapped hydric soils within the study area.

## **4. Climate**

The following climatological information is summarized from the Soil Surveys of Hamilton and Clermont Counties, Ohio (Lerch et al., 1982 and Lerch et al., 1975, respectively). Climate in Hamilton and Clermont Counties is typically cold in winter and hot in summer. Winter precipitation results in an accumulation of soil moisture sufficient to minimize summer droughts, however annual precipitation can be highly variable. The growing season ranges from about 150 to 160 days and extends from the end of May through September with probable last freezes and first freezes being the end of April and the middle of October, respectively.

Average daily temperature extremes for Hamilton and Clermont Counties are between 41.8°F and 21.7°F in January and 86.9°F and 62.3°F in July. The lowest temperature on record for Hamilton County is -20°F, occurring at Cincinnati on January 28, 1963. Clermont County experiences a minimum temperature of -12°F in one year out of ten. The highest recorded temperature for Hamilton County is 101°F, occurring on June 28, 1971. Clermont County experiences a maximum temperature exceeding 101°F in one year out of ten. Total annual precipitation averages about 40 inches for Hamilton County and 40.5 inches for Clermont County, the majority of which falls between April and September. Thunderstorms account for the majority of the rainfall in both counties and occur mostly in the summer. Average seasonal snowfall for Hamilton and Clermont Counties is 13.8 and 17 inches, respectively, with daily accumulations being highly variable. The average relative humidity at dawn for both counties is 80 percent, dropping to 60 percent for Hamilton County and 55 percent for Clermont County by mid-afternoon. The prevailing wind is from the south-southwest for both counties with the highest average wind speed (11 miles per hour) occurring in Hamilton County in the winter.

## B. AQUATIC RESOURCES

### 1. Little Miami River

The most prominent aquatic feature occurring in the Segment II/III study area is the Little Miami River. The Little Miami River originates in Clark County, Ohio and flows generally southwest for 105 miles, discharging into the Ohio River in Cincinnati (Hamilton County). Total drainage area is about 1,755 square miles.

#### *Scenic River Designations*

The Little Miami River is designated as a State Scenic River (per Section 1517.14 to Section 1517.18 of the Ohio Revised Code) on three separate dates, covering its entire 105 mile length: April 23, 1969 – from the Clermont County line at Loveland north to the headwaters in Clark County; on September 19, 1969 – from the Clermont County line at Loveland south to the confluence with the East Fork; and on October 27, 1971 – from the confluence with the East Fork in Clermont County south to the Ohio River in Hamilton County.

In addition, the Little Miami River is designated as a state-administered component of the National Wild and Scenic Rivers System per Section 2(a) (ii) of the Wild and Scenic Rivers Act on two separate dates, including:

- August 1973 – 64 stream miles from Clifton, Ohio near the Clark/Green County line south to Foster in southern Warren County (outside the study area); included two scenic classification segments (18 miles total) and two recreational classification segments (48 miles total), pursuant to Sections 2(b) (2) and (3) of the Act; and
- January 1980 – 28 stream miles from Foster south to the Ohio River (within the study area); recreational river classification pursuant to Sections 2(b) (3) of the Act.

The Outstandingly Remarkable Values (ORVs) assigned to the Little Miami River in the vicinity of the Segment II/III study area include: scenic (aesthetic), recreational, fish and wildlife (flora/fauna), geological, and historical resources (cultural and archaeological).

#### *OEPA and Other Designations*

The Little Miami River is designated by OEPA as an Outstanding State Water based on exceptional ecological values per OAC 3745-1-05 effective July 2003 and an Exceptional Warmwater Habitat (EWH) per OAC 3745-1-18 draft rules November 2008 (subject to final approval) (see Appendix A, OAC Codes 3745-1-05 and 3745-1-18). EWH designation is typically assigned due to the occurrence of unusual or exceptional assemblages of aquatic organisms characterized by a high species diversity, particularly those which are highly intolerant and/or rare, threatened, endangered or have special status.

In addition to the EWH designation, the Little Miami River is designated by the OEPA as a State Resource Water (SRW), Primary Contact Recreation (PCR) water, Agricultural Water Supply (AWS) and

Industrial Water Supply (IWS) per OAC 3745-1-18 draft rules November 2008 (subject to final approval).

The Little Miami River is also listed as an Important Bird Area (IBA) by the Ohio Audubon Society. In general, IBAs are identified as providing essential habitat for one or more species of birds and are typically areas that stand out as special from the surrounding landscape. Although the entire Little Miami River corridor is identified as an IBA, the focus area for this IBA is the Spring Valley Wildlife Area, located about 50 miles northeast of Cincinnati in Green and Warren counties.

### ***Aquatic Life Use and Stream Impairment***

Information from the OEPA 2008 Integrated (305b and 303d) Water Quality Monitoring and Assessment Report (OEPA, 2008) indicate that the quality of the Little Miami River is being impaired by a number of different causes and associated sources. The Little Miami River in the study area vicinity (i.e., a 50.9-mile segment extending from the Ohio River to Caesar Creek) is reported as being impaired from nutrients, siltation, suspended solids, metals, organic enrichment, direct habitat alterations and unknown causes due to major and minor municipal point sources, non-irrigated crop production, combined sewer overflow, dam construction, land development/suburbanization and urban runoff/storm sewers (NPS). Most of the length of the Little Miami River in this reach (34.92 miles) is reported as being in partial aquatic life use attainment and 1.3 miles is reported as being in non-attainment (OEPA, 2008).

Because of these disturbances, the Little Miami River from the Ohio River to Caesar Creek is included in the 2008 303(d) *List of Prioritized Impaired Waters* (OEPA 2008, Section L4, Category 5 impairment). This 50.9-mile segment of the Little Miami River is listed for field monitoring in 2007 with a projected TMDL implementation by 2010 (OEPA, 2008; see Appendix A, Ohio TMDL Program Progress map).

In addition to the OEPA 2008 information summarized above, a detailed summary of OEPA aquatic life use attainment and stream impairment was included in the Eastern Corridor Multi-Modal Projects, Tier 1 ERIR (Balke Engineers, 2003). Key information from that report is summarized below:

Information from Ohio Water Resource Inventory 305(b) Reports (OEPA, 2000 and 2002) indicated that the quality of the Little Miami River was being impaired by a number of different causes and associated sources. The Little Miami River in the Eastern Corridor vicinity (i.e., an 11.5-mile segment extending from the Ohio River to East Fork) was reported as being impaired from organic enrichment, nutrients and unknown causes due to combined sewer overflows, urban runoff and municipal point sources, and most of the length of the Little Miami River in this reach (7.2 miles out of a total 11.5 miles) was reported as being in *partial* aquatic life use attainment (OEPA 2000 305(b) Report). Other segments of the Little Miami River outside the project area had additional causes and sources of impairment.

Because of these disturbances, the Little Miami River from the Ohio River to Caesar Creek was included in the 2002 303(d) *List of Prioritized Impaired Waters* (OEPA 2002, Table 6, Category 5 impairment). The Little Miami River was also listed as having “one meal per month fish consumption advisory” for its entire length for channel catfish, smallmouth bass and sauger (OEPA 2002 305(b) Report).

### ***Previous OEPA Studies***

A detailed summary of OEPA biological and water quality studies is included in the Eastern Corridor Multi-Modal Projects, Tier 1 *ERIR* (Balke Engineers, 2003). Key information from that report is summarized below:

The Ohio Environmental Protection Agency, Division of Surface Water conducted biological and water quality studies of the Little Miami River and selected tributaries, and presented results in OEPA reports dated 1995 and 2000. The 1995 OEPA study included 87 total sample locations in the Little Miami River drainage, 36 of which occurred in the Little Miami River mainstem. The 2000 OEPA study included 190 total sample locations, 71 of which occurred in the Little Miami River mainstem.

Of these previous OEPA stream sample locations, those occurring in the vicinity of the study area included 12 sites in the Little Miami River mainstem from the Ohio River north to Milford. Data collected by OEPA at these locations included a variety of quantitative fish and benthic data (for IBI and ICI analyses), water quality data and qualitative physical stream habitat (QHEI) information. More detailed OEPA biological and physical (QHEI) stream data and analyses conducted for the Little Miami River at sample locations in the project vicinity is summarized in Appendix E of the Eastern Corridor Multi-Modal Projects Tier 1 *ERIR* (Balke Engineers, 2003).

The OEPA, Division of Surface Water conducted additional sampling for the lower Little Miami River in 2007, as outlined in the final *2007 Study Plan for the Lower Little Miami River* (OEPA, May 2007). At the time of this *ERIR*, information from the 2007 Lower Little Miami River study has not yet been published. Three sampling sites in the Little Miami River in the vicinity of the study area were identified for sampling in 2007 including: 1) at Newtown Road (approximate River Mile 8.2), 2) downstream of Newtown Road (approximate River Mile 8.0), and 3) at Beechmont Road (approximate River Mile 3.5).

### ***Mussel Surveys***

A mussel survey of the Little Miami River conducted by Hoggarth in 1992 reported a total of 36 species of Unionidae, including 21 species collected from Hamilton and Clermont Counties. Species collected from the Little Miami River in Hamilton and Clermont Counties included two state endangered mussels (*Quadrula nodulata* and *Epioblasma triquetra*), two state threatened mussels (*Obliquaria reflexa* and *Truncilla donaciformis*) and two state special concern species (*Anodonta suborbiculata* and *Truncilla truncata*). (Note: *Epioblasma triquetra* is currently listed by USFWS as a federal species of concern; see Section III.D). The 1992 survey reported one federal listed species from the Little Miami River (*Pleurobema clava*, federal endangered) - at a sample location further upstream outside both Hamilton and Clermont Counties.

A mussel survey in the Little Miami River at the Newtown Road bridge conducted by Hoggarth in 1998 yielded a total of 14 species from this location (approximately RM 8.2), including dead specimens of the state threatened *Truncilla donaciformis* and the state special concern *Truncilla truncata* (Hoggarth, 1998). No live specimens of any federal or state listed species were found during the 1998 study.

A mussel survey of the Little Miami River conducted by Hoggarth and Goodman in 2006 and 2007 (Hoggarth and Goodman, 2007) included one site in the study area (Horseshoe Bend) and two sites in the vicinity of the study area (Newtown Road upstream of the study area and SR 125/SR 32 bridge



downstream of the study area). Fifteen species were collected from the Horseshoe Bend location, 20 species were collected from the Newtown Road vicinity, and three species were collected from the SR 125/SR 32 location during the 2006/2007 surveys. No federal listed mussels were collected from any of these 2006/2007 survey locations. Species collected from the Horseshoe Bend and Newtown Road areas included one state endangered mussel (*Quadrula nodulata*), two state threatened mussels (*Obliquaria reflexa* and *Truncilla donaciformis*) and two state special concern species (*Anodonta suborbiculata* and *Truncilla truncata*). No listed species were collected from the SR 125/SR 32 location.

### ***Threatened and Endangered Species***

The Ohio Department of Natural Resources, Division of Natural Areas and Preserves (Natural Heritage Database) reports known occurrences of 11 state listed species from the Little Miami River in the project vicinity (within five miles), including 5 fishes, 5 mussels and 1 reptile. No federal threatened or endangered species are reported from the Little Miami River in the Segment II/III study area. Suitable habitat for threatened and endangered species in the study area is further discussed in Section IV.F.

### ***Historical Meanders***

Available information on the historical meandering of the Little Miami River in the Segment II/III project vicinity based on review of available USGS and aerial photos dates back nearly 150 years to 1869. Since that time, the reach of the Little Miami River referred to as the Horseshoe Bend has meandered several thousand feet back and forth through its river valley. Fluvial geomorphology and hydraulic modeling studies currently underway for the Eastern Corridor (Stantec, in progress and CH2MHill, in progress) will document historical and predicted future meandering patterns in the Segment II/III project vicinity, and will be used to assist in the location and configuration of a clear span multi-modal crossing of the Little Miami River as the Eastern Corridor project further develops.

## **2. Other USGS Streams**

In addition to the Little Miami River, 11 other USGS blueline streams occur within the Segment II/III study area, including: Unnamed Tributary #1, Unnamed Tributary #2, Unnamed Tributary #3, Duck Creek, Unnamed Tributary #5, Clear Creek, McCullough Run, Dry Run, Unnamed Tributary #24, Unnamed Tributary #26 and Unnamed Tributary #33. All USGS stream features were field inspected as part of this ecological study, and results of field survey are described in Section IV.B. Summary information for these streams is presented in Tables A and B.

### ***OEPA Use Designations***

Three of these USGS streams are assigned Warmwater Habitat (WWH) aquatic life use designations by OEPA per OAC 3745-1-18 draft rules November 2008 (subject to final approval), including Duck Creek, McCullough Run and Dry Run. In general, WWH is defined as the typical warmwater assemblage for Ohio streams and represents the principal restoration target for the majority of water resource management efforts in Ohio. Duck Creek, McCullough Run and Dry Run are also designated as Agricultural Water Supplies (AWS), Industrial Water Supplies (IWS) and Primary Contact Recreation (PCR) waters.

### ***Aquatic Life Use and Stream Impairment***

A detailed summary of OEPA aquatic life use attainment and stream impairment for USGS streams was included in the Eastern Corridor Multi-Modal Projects, Tier 1 *ERIR* (Balke Engineers, 2003). Key information from that report is summarized below:

Information from Ohio Resource Inventory 305(b) Reports (OEPA, 2000 and 2002) indicated that typical causes of stream impairment in the Eastern Corridor project vicinity included organic enrichment, habitat alterations, flow alterations, siltation and increased nutrients. Typical impairment sources reported by the OEPA included municipal and industrial point sources, combined sewer overflows, urban runoff, channelization, dredging, streambank modifications, storm sewer runoff, sanitary sewer overflow, and spills (OEPA 2000 305(b) Report). As a result of these disturbances, all of the USGS streams in the study area were reported as being in *partial* aquatic life use attainment for at least part of their lengths (OEPA 1996 and 2000 305(b) Reports).

The OEPA Division of Surface Water conducted additional sampling for the lower Little Miami River in 2007, as outlined in the final *2007 Study Plan for the Lower Little Miami River* (OEPA, May 2007). At the time of this *ERIR*, information from the 2007 Lower Little Miami River study has not yet been published. Two sample sites in tributary streams to the Little Miami River in the vicinity of the study area were identified for sampling in 2007 including: 1) Duck Creek at Eastern Avenue (approximate River Mile 0.95), and 2) Duck Creek at Brotherton Road (approximate River Mile 3.43).

### **3. Non-USGS Streams**

Numerous other non-USGS features occur within the boundaries of the Segment II/III study area as identified through NRCS soil survey mapping for Hamilton and Clermont Counties and/or LIDAR topographic mapping. These mapped streams (potential OHW features) are all headwaters. Soil survey-mapped and LIDAR-mapped features were field inspected as part of this ecological study, and the results of the field survey are presented in Section IV.B.

### **4. Wetlands**

#### ***National Wetland Inventory Features***

U.S. Department of the Interior National Wetland Inventory (NWI) maps were reviewed to determine likely wetland locations. A total of 11 NWI features are scattered within the Segment II/III study area (see Appendix A, NWI wetland maps). Most of these NWI wetlands are forested or open emergent features in the 100-year floodplain and riparian corridors of the Little Miami River. Other NWI mapped wetlands are scattered in the study area in uplands or along small streams. Of the 11 NWI features within the study area, only two were determined to meet USACOE wetland criteria based on 2008 field studies, as further described in Section IV.C.

#### ***Farmed Wetlands***

According to Natural Resources Conservation Service (NRCS) definitions, farmed wetlands are once natural wetlands that have been partially drained or altered before 1985 in order to produce crops, but



are still saturated enough that in most years planting and harvest is not possible. Farmed wetlands differ from natural wetlands in that natural wetlands have no prior history of drainage modification. Existing drainage maintenance (but no enhancement) is allowed in farmed wetlands, whereas no drainage modifications are allowed in natural wetlands. Areas where wetlands or hydric soils have been drained for crop production prior to 1985 and are cropped on a yearly basis are called Prior Converted Cropland. Prior Converted Cropland can only be reclassified as wetland if cropping ceases for five years and wetland species return to the site.

Review of soil survey mapping for Hamilton and Clermont Counties and NWI maps indicate that farmed wetlands are not likely to occur in the Segment II/III study area since no hydric soils occur in the area and none of the NWI mapped wetlands occur in currently farmed lands. In addition, no evidence of wet farmland was observed during field surveys conducted for this ecological inventory report.

## 5. Ponds

Large sand and gravel quarry ponds occur in the Segment II/III study area in the Newtown vicinity, as well as a number of smaller ponds associated with residential and commercial development. Eighteen features were identified within the study area. Descriptions are provided in Section IV.D.

## 6. Groundwater and Floodplains

### *Sole Source Aquifer*

A portion of the Segment II/III study area is located within the boundaries of the Great Miami / Little Miami Buried Valley Aquifer System (GMBVAS), which was designated in 1988 by USEPA Region V as a Sole Source Aquifer under Section 1424(e) of the Safe Drinking Water Act (see Appendix A, USEPA aquifer map). In the project vicinity this aquifer occurs along bottomland and floodplain areas associated with Duck Creek and the Little Miami River. Overall, the GMBVAS covers portions of 14 counties in Ohio, extending from the Ohio River in the southwest part of the state to Logan and Shelby Counties in west central Ohio.

Most communities in the study area use groundwater from the GMBVAS as either their sole or partial water supply. The primary alternative public water supply in the area is surface water obtained from Lake Harsha in Clermont County or the Ohio River.

### *Floodplains*

Designated 100-year floodplains in the study area occur along the Little Miami River, Duck Creek, McCullough Run and Dry Run (see Appendix A, FEMA floodplain maps). The broadest floodplain occurs along the Little Miami River, generally from Beechmont Avenue upstream to Broadwell Road and includes the Segment II/III study area. Typical widths in these areas are up to 6,400 feet. Floodplains along the smaller streams in the study area are generally much narrower and average approximately 80 to a few hundred feet in width. The Little Miami River floodplain in the Segment II/III vicinity is primarily attributed to backwater flooding from the Ohio River.

The floodway portion of the Little Miami River floodplain in the Segment II/III vicinity primarily occurs along the south bank. Floodway widths range from about 1,000 feet in the vicinity of the Newtown Road bridge to over 4,000 feet in width near the Horseshoe Bend.

## C. TERRESTRIAL RESOURCES

### 1. Original Vegetation

Natural vegetation in the project area around the time of the first settlers included three original forest types: mixed mesophytic forests, beech forests and bottomland hardwood forests (based on mapping included in: *The Natural Vegetation of Ohio in Pioneer Days*, Gordon, 1969).

Mixed mesophytic forests comprised about 60 percent of the original vegetation in the vicinity of the Segment II/III study area, based on visual estimate from available secondary source mapping (Gordon, 1969). These forests were composed of various oaks, Kentucky coffee-tree, white ash, and hickory as well as occasional sugar maple. Within the study area these forests primarily occurred in Hamilton County.

Beech forests comprised about 30 percent of the original vegetation in the vicinity of the Segment II/III study area based on visual estimate. These forest types were dominated by about 50 percent beech with the remaining 50 percent comprised of sugar maple, tulip tree, wild black cherry, rock elm, big shellbark hickory, mulberry, and basswood. Within the study area these forests primarily occurred in Clermont County.

Bottomland hardwood forests comprised about 10 percent of the original vegetation in the vicinity of the Segment II/III study area based on visual estimate. These forests formerly occupied older valleys and terraces of major streams as well as recent alluvium (e.g., the Ohio, Little Miami and East Fork Rivers). They were comprised of vegetation of variable composition, depending on location, such as: beech-elm-ash-yellow buckeye, beech-white oak, beech-maple, elm-sycamore-river birch-red maple, and sweet gum-river birch. Within the study area these forests primarily occurred along the Little Miami River in Hamilton County.

### 2. Land Use

Current land use in the Segment II/III study area consists of agriculture and parkland/greenspace areas, as well as dense concentrations of residential, commercial and industrial development (see Appendix A, Eastern Corridor Land Use Vision map). Agricultural land and parks/greenspace are primarily located west and north of Newtown along the Little Miami River 100-year floodplain. Residential and commercial development is located along Red Bank Road and US 50 in the Fairfax vicinity and along existing SR 32 through Newtown. Industrial development occurs in the vicinity of the existing US 50/Red Bank Road interchange in Fairfax and along existing SR 32 and Round Bottom Road in Newtown.

Semi-natural habitats (e.g. woodlands and wetlands) in the study area primarily occur along the Little Miami River bottomland, narrow stream corridors and along steep upland valley walls that preclude development.

### 3. Woodlands

An assessment of natural areas occurring in the Eastern Corridor area conducted for the *Eastern Corridor Land Use Vision Plan* (Northern Kentucky University, September 2001 for Meisner and Associates, May 2002) identified 24 quality woodlands in the project vicinity based on criteria including: age, disturbance, species diversity, occurrence of invasive species and potential for rare species habitat. Three of these woodlands are located within the Segment II/III study area, two of which are associated with parkland.

Based on review of aerial and topographic mapping, three other large, continuous woodland tracts were identified within the Segment II/III study area. These, along with the three sites identified from secondary sources, were field evaluated for this ecological inventory (see Figure 4a-g). Further description and evaluation of woodlands in the study area is presented in Section IV.E.3.

### 4. Agriculture

Agricultural land comprises about 15 percent of the study area, and consists of large sod farms and row crop along the Little Miami River floodplain and other smaller agricultural areas/pastureland scattered along Round Bottom Road and existing SR 32.

Approximately 15 Agricultural Districts and Current Agricultural Use Value (CAUV) parcels occur in the Segment II/III study area based on information from the Hamilton County and Clermont County auditor's offices (see Appendix A, Eastern Corridor Agricultural Land map). All of the district parcels occur in Hamilton County and most are located between SR 32 and the Little Miami River, west of Newtown along the Little Miami River 100-year floodplain.

### 5. Parks and Greenspace

A total of 18 public park and greenspace areas occur in the Segment II/III study area, as well as a number of privately owned facilities (see Appendix A, Eastern Corridor Parks and Greenspace map). These sites are further described in Section IV.E.5 and listed in Table 8 (in-text table, see Section IV.E.5).

## D. THREATENED AND ENDANGERED SPECIES

### 1. Federal Listed Species

Based on 2008 USFWS information, the Segment II/III study area lies within the habitat range of five federal-listed species, including the federal endangered Indiana bat (*Myotis sodalis*) and running buffalo clover (*Trifolium stoloniferum*), the federal candidate rayed bean mussel (*Villosa fabalis*) and sheepsnose mussel (*Plethobasus cyphus*), and the federal species of concern snuffbox mussel (*Epioblasma triquetra*) (see Appendix A, USFWS federal species listings for Ohio). No specific occurrences of these species are reported from within the Segment II/III study area boundaries (ODNR, 2006). Habitat requirements and known locations are summarized below. Potential habitat within the study area is discussed in Section IV.F.

### ***Indiana Bat***

The Indiana bat (federal and state endangered) has a known range that extends throughout all of Ohio. Research recently reported by USFWS regarding Indiana bat summer habitat indicates this species exhibits no dependable preference for wooded riparian corridors and floodplains, but rather may roost and feed in wooded uplands as well as wooded riparian and floodplain habitats. Indiana bat utilizes any living or standing dead trees or snags with peeling bark, split trunks and/or branches or cavities as roosting and brood-rearing habitat.

### ***Running Buffalo Clover***

Running buffalo clover (federal and state endangered) has a known range that includes Indiana, Kentucky, Missouri, Ohio, and West Virginia. Habitat requirements for this species include mesic conditions, rich soils most often derived from limestone or other calcareous bedrock (but not exclusively), some form of prolonged, moderate, periodic disturbance from mowing, trampling, or grazing, and partial to filtered sunlight. Consequently, running buffalo clover can be found from a variety of habitats, including mesic woodlands, savannahs, mowed paths (e.g. in cemeteries, parks, and lawns), stream terraces, floodplains, sandbars (especially where old trails cross or parallel intermittent streams), grazed woodlots, old logging roads, jeep trails, skidder trails, mowed wildlife openings within mature forest, and steep ravines. In the project vicinity (within 1 mile) running buffalo clover is known to occur at Ault Park (west of the study area) and south of SR 32 southwest of Newtown (south of the study area).

### ***Rayed Bean Mussel***

The rayed bean mussel (federal candidate and state endangered) generally prefers streams and small rivers having clean, coarse sand and gravel runs. This species is considered potentially present anywhere within a known drainage where preferred habitat is found. The known range includes all of Ohio except the Lake Erie drainage. In the project vicinity, this species is known to occur in the East Fork Little Miami River in Clermont County and the Little Miami River in Warren County.

### ***Sheepnose Mussel***

The sheepnose mussel (federal candidate and state endangered) can be found in river areas having gravel substrates located in relatively deep water and having moderate current. This species is known to occur throughout all of Ohio except the Lake Erie drainage. In the project vicinity, this species is known to occur in the Ohio River in Hamilton and Clermont Counties.

### ***Snuffbox mussel***

Snuffbox mussel (federal species of concern) inhabits riffles of medium and large rivers with stony or sandy bottoms, usually buried deep in swift currents (NatureServe, 2008). This species was collected from the Little Miami River in 1992 by Hoggarth at a location outside the Segment II/III study area.

## 2. State Listed Species

Based on 2006 ODNR Natural Heritage Program information, there are 13 state-listed species (5 mussels, 5 fish, 2 birds and 1 turtle) with known occurrences in the study area vicinity (within 1 mile). These species include: the state endangered wartback mussel (*Quadrula nodulata*), blue sucker (*Cycleptus elongates*), mountain madtom (*Noturus eleutherus*), northern madtom (*Noturus stigmosus*) and loggerhead shrike (*Lanius ludovicianus*); the state threatened threehorn wartback mussel (*Obliquaria reflexa*) and fawnsfoot mussel (*Truncilla donaciformis*); and the state species of concern flat floater mussel (*Anodonta suborbiculata*), deertoe mussel (*Truncilla truncata*), river redhorse (*Moxostoma carinatum*), burbot (*Lota lota*), sora (*Porzana Carolina*) and false map turtle (*Graptemys pseudogeographica*). Habitat requirements and known locations are summarized below. Potential habitat within the study area is discussed in Section IV.F.

### ***Wartyback Mussel***

This species can occur in medium to large rivers at depths of up to 15-18 feet on a sand and mud substrate (NatureServe, 2008). This species is known to occur in Clermont and Hamilton counties in Ohio and has recorded occurrence in the Little Miami River within the Segment II/III study area (Hoggarth and Goodman, 2007).

### ***Blue Sucker***

This fish can occur in the largest of rivers and lower parts of major tributaries as well as in some impoundments. It is usually found in channels and flowing pools with moderate current. Adults probably winter in deep pools and the young in shallower and less swift water. The blue sucker migrates upstream to spawn on riffles (NatureServe, 2008). This species is known to occur in Hamilton County in Ohio and has recorded occurrence in the Little Miami River downstream of the Segment II/III study area (ODNR, 2006).

### ***Mountain Madtom***

This fish species is generally found in small to large rivers, preferring clear fast-flowing riffles and runs over a substrate of sand, gravel and rubble, often near vegetation. This fish may move into moderate flow areas to spawn; eggs are laid under rocks (NatureServe, 2008). This species is known to occur in Clermont and Hamilton counties in Ohio and has recorded occurrences in the Little Miami River upstream and downstream of the Segment II/III study area (ODNR, 2006).

### ***Northern Madtom***

This fish species is generally found in large creeks and small rivers with clear to turbid water and moderate current but avoids extremely silty situations. This fish occurs in streams with shifting sand and mud bottom and in streams with swift rocky riffles; eggs are laid under flat stones in current (NatureServe, 2008). This species is known to occur in Clermont and Hamilton counties in Ohio and has recorded occurrence in the Little Miami River upstream of the Segment II/III study area (ODNR, 2006).

### ***Loggerhead Shrike***

This bird species nests in shrubs or small trees (deciduous or coniferous) in eastern North America, often in isolated woody plants but also along fencelines or hedgerows. In some areas, vine-covered plants are preferred. This bird tends to nest in areas with several potential suitable nesting trees/shrubs. During periods of cold with snow cover, this bird sometimes moves into woodlots. Most nests are made of coarse twigs with a lining of plant material and animal hair (NatureServe, 2008). This species is known to occur in Hamilton County in Ohio and has recorded occurrence southwest of the Segment II/III study area (ODNR, 2006).

### ***Threehorn Wartyback Mussel***

This species prefers large rivers where there is moderately strong current and a stable substrate composed of gravel, sand, and mud. Although found at depths of up to 20 feet, it seems to do well at a depth of no more than four to six feet often in shallow, sand- and mud-bottom river embayments with little or no current. It also occurs in reservoirs (NatureServe, 2008). This species is known to occur in Clermont and Hamilton counties in Ohio and has recorded occurrence in the Little Miami River within the Segment II/III study area (Hoggarth and Goodman, 2007).

### ***Fawnsfoot Mussel***

This species occurs in both large and medium-sized rivers at normal depths varying from less than three feet up to 15 to 18 feet in big rivers. A substrate of either sand or mud is suitable and although it is typically found in moderate current, it can adapt to a lake or embayment environment lacking current (NatureServe, 2008). This species is known to occur in Clermont and Hamilton counties in Ohio and has recorded occurrence in the Little Miami River within the Segment II/III study area (Hoggarth and Goodman, 2007).

### ***Flat Floater Mussel***

This species occurs in sand or mud substrates in lakes and the sluggish portions of streams, medium sized creeks to large river backwaters, as well as in oxbows, sloughs, and impoundments with muddy substrates. This mussel has also been found in riverine habitat in sand with slow current (NatureServe, 2008). This species is known to occur in Clermont and Hamilton counties in Ohio and has recorded occurrence in the Little Miami River within the Segment II/III study area (Hoggarth and Goodman, 2007).

### ***Deertoe Mussel***

This species usually occurs in fine gravel mixed with sand and mud. It is more common in medium-sized rivers but may become numerous in large rivers, where it can live at depths of 12 to 18 feet. It will also establish viable populations in lakes lacking current (NatureServe, 2008). This species is known to occur in Clermont and Hamilton counties in Ohio and has recorded occurrence in the Little Miami River within the Segment II/III study area (Hoggarth and Goodman, 2007).

### ***River Redhorse***

This fish species can be found in major streams to large rivers. Most often it is localized around pools and runs having clean gravel, rubble and boulder substrates, moderate to deep water depths, and moderate to swift current. Small individuals often are in pool shallows and backwaters. This fish is intolerant of pollution and heavy siltation (NatureServe, 2008). This species is known to occur in Clermont and Hamilton counties in Ohio and has recorded occurrence in the Little Miami River downstream of the Segment II/III study area (ODNR, 2006).

### ***Burbot***

This fish species is common in deep cold waters of lakes, reservoirs, and large rivers. In summer, it stays in deep cold waters but may move into shallower water at night. Life history may be confined to lakes or rivers or may migrate between lake and riverine habitats; all three patterns may occur within a single river basin. Often exhibits a post-spawning movement into tributary rivers in late winter and early spring. Spawns usually in lakes but may move into rivers to spawn. River-spawning populations prefer low-velocity areas in main channels or in side channels behind deposition bars. Usually broadcasts eggs over sand or gravel (sometimes silt) in up to about 10 ft of water (NatureServe, 2008). This species is known to occur in Hamilton County in Ohio and has recorded occurrence in the Little Miami River upstream of the Segment II/III study area (ODNR, 2006).

### ***Sora***

This bird species prefers primarily shallow freshwater emergent wetlands (e.g., cattail marshes), sometimes foraging on open mudflats adjacent to marshy habitat. Also occurs in swamps, along slough borders, and in mangroves. Can use very small marshes (e.g., 4 nests have been found in a half-acre marsh) (NatureServe, 2008). This species is known to occur in Hamilton County in Ohio and has recorded occurrence northeast of the Segment II/III study area (ODNR, 2006).

### ***False Map Turtle***

This turtle can be found in lakes, ponds, reservoirs, sloughs, rivers and their backwaters; areas with abundant aquatic vegetation. This species generally basks away from shore and hibernates under water in bottom mud, in muskrat den, or behind rocks and logs on the bottom. It lays eggs in nests dug in sandbars, islands, and beaches and may nest up to about 100 meters from water, but usually closer (NatureServe, 2008). This species is known to occur in Clermont and Hamilton counties in Ohio and has recorded occurrence in the Little Miami River upstream of the Segment II/III study area (ODNR, 2006).



## IV. RESULTS OF THE ECOLOGICAL SURVEY

### A. LITTLE MIAMI RIVER

#### 1. Physical Stream Assessments

Two sites (Sites S6 and S7) on the Little Miami River within the Segment II/III study area were assessed for physical conditions and QHEI's. Each site consisted of an approximately 600 meter reach. Stream survey results are summarized in Table B and survey locations are displayed on Figures 3a and 3b. QHEI forms are included in Appendix C and representative photographs appear in Appendix G.

The Little Miami River in the vicinity of Sites S6 and S7 (approximately RM 4.6 and RM 5.6) has a channel width of about 180-200 feet, with a cobble/gravel/sand bottom and a water surface comprised of mostly glide with scattered pool/riffle/run. Typical water depth (glide/run) at the time of the field survey was 1.5-2.5 feet and scattered pools exhibited depths from 4 feet to greater than 6 feet. Instream cover was diverse, but sparse in occurrence and consisted of undercut banks, overhanging vegetation, shallows in slow water, pools with depths greater than 27.5 inches, rootmats, boulders, oxbows or backwaters, aquatic macrophytes and logs or woody debris. A number of gravel/sand bars occur within these sites. An instream island (vegetated gravel bar) occurs within the Site S7 sample reach. A Hamilton County Metropolitan Sewer District (MSD) Combined Sewer Overflow (CSO Number 656) is located immediately downstream of Site S7 along the west bank.

Potential special aquatic sites occur in these two reaches of the Little Miami River, including vegetated shallows (as defined in 40 CFR 230.43) and riffle and pool complexes (as defined in 40 CFR 230.45). Vegetated shallows were noted at both Sites S6 and S7, and a riffle/pool complex occurs at Site S7 along the upstream portion of the Horseshoe Bend (see Figures 3a and 3b).

Riparian habitat along the Little Miami River at Sites S6 and S7 is similar. Site S6 along the right descending bank has a narrow and incomplete wooded riparian corridor that is disturbed and disrupted by adjacent agricultural and landfill activities; the left descending bank is less disturbed and consists of a wider wooded floodplain corridor. Site S7 has a mostly complete wooded riparian corridor on both banks, but the downstream end is bisected by a high power transmission line crossing. Overall, both riverbanks along Site S6 and Site S7 are high and steep.

#### 2. Provisional Classifications

Calculated QHEI scores for the Little Miami River at Sites S6 and S7 were 65.5 and 73, respectively. The slightly higher score at Site S7 was primarily due to less overall bank erosion, better overall wooded riparian corridor and slightly better quality of pool/glides and riffle/run habitats. The segments of the Little Miami River at Sites S6 and S7 are considered provisional Warmwater Habitats.



## B. OTHER SURFACE STREAMS

### 1. Physical Stream Assessments

Field inspection and qualitative analyses for 49 stream sites (in addition to the two Little Miami River sites previously described) were conducted according to the methods described in Section II.B. Of the 49 stream sites evaluated, 13 involved USGS mapped streams (11 USGS streams total; two stream features sampled in two locations), and the remaining 36 sites involved non-USGS mapped features. Fourteen of the 49 stream sites had sufficient water depth to warrant water quality analyses.

Detailed descriptions for all 49 stream sites can be found on QHEI and HHEI forms in Appendix C and are summarized in Table B. Water quality data are presented in Table 1 (in-text table, see Section IV.B.4). Stream sample site locations are shown on Figure 3a-g. Representative photographs of each stream site are included in Appendix G.

### 2. Provisional Classifications

Using HHEI and QHEI data collected for this ecological study, provisional (non-official) stream class designations (for PHWH streams) and aquatic life use designations (for non-PHWH streams) for the 49 stream sites were determined in accordance with OEPA guidelines (OEPA, 2002). A summary breakdown of provisional classifications is as follows:

- Modified Class I-PHWH: 3 total Stream Sites S11, S32 and S50
- Class I-PHWH: 10 total Stream Sites S5, S22, S23, S25, S26, S35, S36, S37, S39 and S46
- Modified Class II-PHWH: 5 total Stream Sites S10, S12, S16, S42 and S51
- Class II-PHWH: 24 total Stream Sites S1, S9, S15, S17, S18, S19, S21, S24, S27, S28, S29, S30, S31, S33, S34, S38, S40, S41, S43, S44, S45, S47, S48 and S49
- Class III-PHWH: 1 total Stream Site S2 (Unnamed Tributary #2)
- Modified Warmwater Habitat: 3 total Stream Sites S3 (Unnamed Tributary #3), S4 (Duck Creek) and S13 (McCullough Run)
- Warmwater Habitat (WWH) 3 total Stream Sites S8 (Unnamed Tributary #5), S14 (Dry Run) and S20 (Dry Run)  
*Note: the Little Miami River also receives a provisional WWH classification, as described in Section IV.A.2.*

In general, Class I-PHWH streams are lower quality features. Class I-PHWH features are usually dry, with little or no aquatic life present and should require a non-aquatic life level of protection of watershed hydrologic function (such as mitigation of water energy, sediment retention in floodplain areas, and

protection of downstream uses). Class II-PHWH streams represent a moderately diverse assemblage of vertebrate and benthic macroinvertebrates that are well adapted to a spectrum of warmwater flow hydrology, similar to the current WWH aquatic life use designation found in OAC, Chapter 3745-1. As such, Class II-PHWH streams should receive aquatic life use protection identical to larger streams currently designated WWH in OAC, Chapter 3745-1. Class III-PHWH streams represent a unique assemblage of cool-cold water adapted species of fish, and/or salamanders, and/or cool water adapted benthic macroinvertebrates that require flowing water on an annual basis for the resident species to complete their life cycles. As such, Class III-PHWH streams should receive water quality criteria protection identical to larger streams currently designated Cold Water Habitat (CWH) in OAC, Chapter 3745-1 (OEPA, 2002).

Streams that are recovering from channel modification or that exhibit recent or no recovery from channel modification (see Stream Channel Modifications on the HHEI forms in Appendix C) are considered modified streams for purposes of determining the appropriate PHWH stream class (per Figure 7, page 23 per OEPA's Field Evaluation Manual for Ohio's Primary Headwater Streams; OEPA 2002). A modified Class I-PHWH stream is considered to be of slightly lower quality than a Class I-PHWH stream, and likewise, a modified Class II-PHWH stream is considered to be of slightly lower quality than a Class II-PHWH stream.

Streams assigned a Modified Warmwater Habitat (MWH) designation generally exhibit the following habitat characteristics: modified habitats, artificially maintained channel or riparian corridor that is not likely to recover, shallow channel, silt/muck/sand substrates, little in-stream cover, poorly defined habitat, poor to fair riffle pool development, high substrate embeddedness, an IBI score of 20-28 and/or a QHEI score of <45 (OEPA, 1999).

Streams are assigned a Warmwater Habitat (WWH) designation if they exhibit the following habitat characteristics: natural or recovering habitats, well defined habitats, shallow areas and deep pools, gravel, cobble or boulder substrates, good cover, good riffle/pool development and low to normal substrate embeddedness, an IBI score of 30-44 and/or QHEI scores between 60 and 75 (OEPA, 1999).

Further description of the 49 stream sites by provisional stream classification is presented below.

### ***Modified Class I-PHWH***

Based on the results of this ecological study, three stream sites are considered provisional modified Class I-PHWH features, including Sites S11, S32 and S50. All three stream segments are mostly straight, channelized features with moderate to narrow and mostly open riparian corridors. Substrates are dominated by silt (Site S11), cobble and silt (Site S32) and sand and silt (Site S50). Sites S11 and S32 were dry and Site S50 had little flow with a maximum pool depth of 1.2 inches (3.0 centimeters). The HHEI scores for the modified Class I-PHWH stream segments were 13 points, 24 points and 22 points, out of a maximum 100 points for Sites S11, S32 and S50, respectively.

### ***Class I-PHWH***

Based on the results of this ecological study, 10 stream sites are considered provisional Class I-PHWH features, including Sites S5, S22, S23, S25, S26, S35, S36, S37, S39 and S46. All stream segments are characterized by slightly meandering channels with wide, scrubby riparian corridors. Substrates are dominated by silt (all sites) and cobble, gravel, sand and leaf pack/woody debris (varies by site). All stream segments were dry. The HHEI scores for the Class I-PHWH stream segments ranged from 14 points to 25 points, out of a maximum 100 points.

### ***Modified Class II-PHWH***

Based on the results of this ecological study, five stream sites are considered provisional modified Class II-PHWH features, including Sites S10, S12, S16, S42 and S51. These stream segments include mostly straight and channelized and slightly meandering features with wide to narrow and open riparian corridors. Substrates include a range of cobble, gravel, sand, silt, muck and artificial with the dominant substrates being sand and silt. Sites S10, S12 and S16 were dry and Site S51 had standing water with a maximum pool depth of 15.4 inches (39 centimeters). Site S42 had little flow with a maximum pool depth of 1.8 inches (4.5 centimeters). The HHEI scores for the modified Class II-PHWH stream segments ranged from 32 points to 56 points, out of a maximum 100 points.

### ***Class II-PHWH***

Based on the results of this ecological study, 24 stream sites are considered provisional Class II-PHWH features, including Sites S1, S9, S15, S17, S18, S19, S21, S24, S27, S28, S29, S30, S31, S33, S34, S38, S40, S41, S43, S44, S45, S47, S48 and S49. These stream segments include meandering and straight channels with mostly wide to moderately wide and open riparian corridors. Substrates include a range of boulder slab, cobble, gravel, sand, hardpan, artificial and silt with the dominant substrates being boulder slab, cobble and silt. These stream segments were mostly dry with only five sites (Sites S1, S30, S31, S44 and S45) having maximum pool depths ranging from 0.6 to 3.7 inches (1.5 to 9.5 centimeters). The HHEI scores for the Class II-PHWH stream segments ranged from 31 points to 54 points, out of a maximum 100 points.

### ***Class III-PHWH***

Based on the results of this ecological study, one stream site (Site S2 – Unnamed Tributary #2) is considered a provisional Class III-PHWH due to the presence of both juvenile and adult two-lined salamanders (*Eurycea bislineata bislineata*). Site S2 is characterized by a slightly meandering channel with wide riparian corridor. Substrate is dominated by cobble and gravel with some sand and little silt and leaf pack/woody debris also present. Site S2 had a maximum pool depth of 1.8 inches (4.5 centimeters). The HHEI score was 58 points, out of a maximum 100 points.

### ***Modified Warmwater Habitat***

Based on the results of this ecological study, three stream sites are considered provisional Modified Warmwater Habitat features, including Sites S3 (Unnamed Tributary #3), S4 (Duck Creek) and S13 (McCullough Run). These stream segments include mostly straight channels with mostly narrow and

open riparian corridors. Substrates are dominated by gravel and sand with some boulder slabs, cobble, silt and artificial also present. These stream segments are characterized by sparse to nearly absent amounts of in-stream cover in the form of predominantly overhanging vegetation, rootwads and undercut banks and poor development in the form of pool/riffle/run combinations. Sites S3 and S13 were dry and Site S4 had interstitial flow with a maximum pool depth of 12.0 inches (30.5 centimeters). Average channel width ranged from 5.5 to 45 feet (1.7 to 13.7 meters). The QHEI scores ranged from 32.5 points to 40 points, out of a maximum 100 points.

### ***Warmwater Habitat***

Based on the results of this ecological study, three stream sites (in addition to the Little Miami River sites) are considered provisional Warmwater Habitat features, including Site S8 (Unnamed Tributary #5) and Sites S14 and S20 (Dry Run). These stream segments include mostly meandering channels with wide to mostly narrow riparian corridors. Substrates are dominated by cobble, gravel and sand with some boulder and silt also present. These stream segments are characterized by moderate to sparse amounts of in-stream cover in the form of undercut banks, shallows, rootmats, pools, rootwads, boulders and logs or woody debris and poor to fair development in the form of pool/riffle/run combinations. All three sites had moderate to slow and/or interstitial flow with maximum pool depths ranging from 20.4 inches (51.8 centimeters) to 39.6 inches (100.6 centimeters). Average channel width ranged from 15.0 to 50 feet (4.6 to 15.2 meters). The QHEI scores ranged from 51.5 points to 66.5 points, out of a maximum 100 points.

## **3. Biological Observations**

No full aquatic biological sampling was required for any of the stream sites within the study area. However general biological observations were made while completing the physical stream habitat assessments. Overall, observed biology was limited in the stream sites. Forty one stream sites had no evidence of biology present at the time of the 2008 field survey. Small schools of minnows and small frogs were observed at six stream sites. The most frequently encountered and most common taxa included water striders and aquatic sow bugs. Additional macroinvertebrates encountered less frequently included crayfish, leeches and stonefly larvae. Juvenile and adult two-lined salamanders (*Eurycea bislineata bislineata*) were observed at one headwater stream (Site S2 – Unnamed Tributary #2).

## **4. Water Quality Results**

### ***General Conditions***

Overall, water quality data collected at 14 stream sites indicate surface water conditions that are slightly degraded. In general, surface waters were fairly clear, and had suitable dissolved oxygen contents. Physical water quality data by parameter are summarized in Table 1 and briefly described below.

**Table 1. Summary of Water Quality Data**

Site	Stream Name	Figure	Parameter				Descriptive Comments (weather, stage, substrate)
			Temperature °F (°C)	pH (S.U.)	Dissolved Oxygen (mg/l)	Conductivity (µmhos/cm)	
S1	Unnamed Trib. #1	3a	68.0 (20.0)	8.0	2.55	1002	Cloudy, normal flow, gravel/sand dominant
S2	Unnamed Trib. #2	3a	68.4 (20.2)	8.1	4.1	702	Cloudy, normal flow, cobble/gravel dominant
S4	Duck Creek	3a	66.7 (19.3)	8.1	10.2	1,045	Sunny, low flow, gravel/sand dominant
S6	Little Miami River	3b	75.4 (24.1)	8.4	14.7	789	Sunny, normal flow, gravel/sand dominant
S7	Little Miami River	3a	70.3 (21.3)	8.4	12.5	782	Sunny, normal flow, cobble/gravel dominant
S8	Unnamed Trib. #5	3a	73.8 (23.2)	8.4	10.2	983	Sunny, normal flow, gravel/sand dominant
S14	Dry Run	3e	63.1 (17.3)	8.1	9.7	696	Partly cloudy, low flow, cobble/gravel dominant
S20	Dry Run	3e	57.2 (14.0)	8.5	10.8	661	Partly sunny, normal flow, cobble/gravel dominant
S30	Unnamed Trib. #23	3f	59.7 (15.4)	8.0	11.4	2,262	Partly sunny, normal flow, silt/artificial dominant
S31	Unnamed Trib. #24	3f	58.5 (14.7)	7.9	9.04	1,413	Partly sunny, normal flow, cobble/silt dominant
S42	Unnamed Trib. #35	3g	61.9 (16.6)	8.5	11.2	761	Sunny, normal flow, cobble/silt dominant
S44	Unnamed Trib. #37	3g	59.4 (15.2)	8.0	9.1	2,042	Partly sunny, low flow, boulder slabs/silt dominant
S45	Unnamed Trib. #38	3g	58.5 (14.7)	8.3	12.5	1,629	Partly sunny, low flow, boulder slabs/silt dominant
S50	Unnamed Trib. #43	3g	59.5 (15.3)	7.7	6.1	1,093	Sunny, normal flow, sand/silt dominant

### *Temperature*

Water temperatures were recorded from August 27, 2008 to October 13, 2008. Temperatures varied during the sampling period, and as was expected, got generally cooler later in the season. The high temperature of 75.4°F was recorded at Site S6 on September 24, 2008, and the low temperature of 57.2°F was recorded at Site S20 on October 3, 2008. The average standard water quality temperature for streams within the general Ohio River drainage basin between August 1 and September 15 is 82°F, between September 16 and September 30 is 73°F and between October 1 and October 15 is 71°F (OAC 3745-1-07, effective December 30, 2002). The daily maximum standard for this same time period ranges from 85.0°F to 76°F. None of the stream sites sampled had a water temperature above this daily maximum range (see Table 1, above).

### *pH*

The pH of all stream sites sampled was mostly similar, with a range between 7.7 and 8.5 units. The statewide standard for pH in warmwater and modified warmwater habitats in Ohio is a pH range of 6.5-9.0 units (OAC 3745-1-07; effective December 30, 2002). All stream sites sampled had a pH within this range.

### *Dissolved Oxygen*

Dissolved oxygen (DO) levels were highly variable and ranged from a low of 2.6 mg/L at Site S1 to a high of 14.7 mg/L at Site S6. The minimum standard for warmwater habitat streams in Ohio is 4.0 ppm (OAC 3745-1-07; effective December 30, 2002) and is generally considered the lowest level that will support a varied fish population. Only stream Site S1 had a DO level below the minimum standard for warmwater habitat streams in Ohio.

### *Conductivity*

Conductivity readings ranged from a low of 661  $\mu$ mhos/cm to a high of 2,262  $\mu$ mhos/cm. The Ohio statewide average standard for conductivity is 2,400  $\mu$ mhos/cm (OAC 3745-1-07; effective December 30, 2002). All stream sites sampled exhibited conductivity values below the statewide average. High conductivity is usually indicative of agricultural runoff and siltation, and other agricultural and/or construction related activities.

## **5. Other Aquatic Features**

Three distinct features within the Segment II/III study area do not exhibit typical characteristics of surface streams or wetlands, but are still considered important habitat for aquatic biology and birds. The first feature is an abandoned channel of Duck Creek located on the east side of Red Bank Road (see Figure 3a). The abandoned channel has been impounded due to beaver activity. The other two features are high flow channels of the Little Miami River, one located on the north side of the main channel upstream of Site S7, the other located on the east side of the main channel at the confluence of Clear Creek (see Figures 3a and 3b, respectively). The high flow channel on the north side of the Little Miami River appears to have ponded water throughout the year, while the other high flow channel appears to be less frequently inundated. Representative photographs of each feature are included in Appendix G.

## **C. WETLANDS**

### **1. Wetland Determinations**

Based on field surveys conducted for this study according to methods described in Section II.C, 26 features were identified within the Segment II/III study area that met wetland criteria as specified in the U.S. Army Corps of Engineers Wetland Delineation Manual (1987). A summary of these features by wetland category is presented in Table 2 and descriptions by wetland category are presented in Tables 3 and 4. Wetland determination forms are included in Appendix D, ORAM forms are included in Appendix E and representative wetland photographs are included in Appendix G. All 26 wetland features are shown on Figure 3a-g.



Of the 11 NWI features occurring within the Segment II/III study area, only two were determined to have areas that meet USACOE wetland criteria, including wetlands W3 and W21 (see below for further descriptions). The remaining nine NWI features were determined to either not meet USACOE wetland criteria or no longer exist due to land use change or development.

## 2. Wetland Categories

State wetland anti-degradation regulations (OAC 3745-1-54, 2006a) require that all wetlands under review be placed into one of three categories based on biological and functional value as determined by an appropriate wetland evaluation method such as an ORAM score. In general, Category 1 wetlands are limited quality features and Category 3 wetlands are high quality features. Based on the results of ORAM v.5.0 analyses, a breakdown of wetlands identified in the study area by category is presented below:

**Table 2. Summary of Wetlands**

ORAM v.5.0 Category		Wetland(s) <sup>[1]</sup>	Total Number of Features
Limited Quality: Category 1	1	W1, W3, W4, W9, W20, <b>W21</b> , W22, <b>W23</b>	8
Moderate Quality: Category 1 or 2, Modified 2 and Category 2	1 or 2	W24	1
	Modified 2	W5, W6, W7, W8, W11, W13, W14, W15, W16, W17, W18, W19, <b>W25</b>	13
	2	W2, W10, W12, <b>W26</b>	4
Total Number of Wetlands =			26

<sup>[1]</sup> Bolded number indicates that feature is identified as potentially isolated

Overall, limited quality (Category 1) features in the study area are typically small emergent or emergent/scrub-shrub wetlands associated with remnant ponds or drainage features along roadways, field drives and agricultural fields. The moderate quality wetlands (Category 1 or 2, Modified 2 and Category 2) are mostly emergent features with some being emergent having scrub-shrub and/or forested components, are natural or man-made, and are scattered throughout the study area in both bottomland and upland positions.

A preliminary assessment of wetlands identified in the study area was conducted to determine if they were isolated based on USACOE/USEPA regulatory guidance (May 2007 and December 2008). Overall, 4 of the 26 wetlands identified in the Segment II/III study area were determined to be potentially isolated, specifically Wetlands W21, W23, W25 and W26.

## 3. Wetland Descriptions

### *Limited Quality Wetlands - Category 1 Features*

Category 1 wetlands typically support minimal wildlife habitat, minimal hydrological and recreational functions, do not provide critical habitat for or contain rare, threatened or endangered species and are characterized by one or more of the following conditions: hydrologic isolation, low species diversity, a predominance of non-native species, no significant habitat or wildlife use, and limited potential to achieve beneficial wetland functions. The ORAM (v. 5.0) scores for these features range from 0 to 29.9 (Mack, 2001). Category 1 wetlands identified in the study area include the following eight features:

**Table 3. Limited Quality Wetlands (Category 1)**

Wetland	Classification <sup>[1]</sup> and Description	Figure	Approximate Size (ac)	ORAM v.5.0 Score	Wetland Category
<b>Category 1 Wetlands (8 features total)</b>					
W1	Emergent; within remnant Duck Creek channel adjacent to Red Bank Road (palustrine)	3a	0.154	25.0	Category 1
W3	Emergent; within low depression of old Little Miami River slough; NWI feature (palustrine)	3b	0.106	21.0	Category 1
W4	Emergent; low depression bordering agricultural field and landfill dirt road (palustrine)	3a	0.226	25.0	Category 1
W9	Emergent; within and adjacent to Clear Creek drainage swale (palustrine)	3b	0.009	28.0	Category 1
W20	Emergent; within and adjacent to drainage swale next to parking lot of Riverside Park ball fields (palustrine)	3e	0.02	18.0	Category 1
W21	Emergent/Scrub-shrub; retention pond surrounded by town house and commercial development; NWI feature, potentially isolated (palustrine)	3d	0.164	28.0	Category 1
W22	Emergent; within and adjacent to drainage swale at toe of hillside next to field drive (palustrine)	3e	0.074	26.0	Category 1
W23	Emergent/Scrub-shrub; remnant pond adjacent to field drive, potentially isolated (palustrine)	3e	0.036	14.0	Category 1

<sup>[1]</sup> Wetland classification per Cowardin et al., 1979.

Of the eight Category 1 wetlands, six are man-made or have developed out of man-influenced activities (ditch or excavated pond remnant). The remaining two features are natural wetlands; one within a remnant Little Miami River slough depression and the other within and adjacent to Clear Creek. Two of the Category 1 wetlands (W3 and W21) are NWI features. All of the Category 1 wetlands in the study area are less than 0.3 acre in size and half of them are less than 0.1 acre. In general, the Category 1 wetlands observed in the study area have low species diversity, limited community structure and little to no buffer or buffering capacity.

#### ***Moderate Quality Wetlands - Category 1 or 2, Modified 2, Category 2 Features***

Category 1 or 2 wetlands, in general, are “intermediate” wetlands, possessing some of the qualities of both Category 1 and 2 features. Wetlands in this intermediate range must either undergo a detailed functional and/or biological assessment to assign a wetland category per narrative criteria in OAC 3745-1-54 (C) or, in lieu of this, are assigned to the higher of the two categories (Category 2). The ORAM (v. 5.0) scores for Category 1 or 2 wetlands, by OEPA guidelines, range from 30 to 34.9 (Mack, 2001).

Category Modified 2 wetlands are Category 2 features with some degree of disturbance or degradation, but that exhibit reasonable potential for restoration of lost functions. The ORAM scores for these features are at the lower end of the range for Category 2 wetlands (35 to 44.9 per OEPA guidelines; Mack, 2001). Wetlands considered a “solid” Category 2 typically support moderate wildlife habitat or moderate hydrological or recreational functions and, in general, are dominated by native species, but generally without the presence of, or habitat for, rare, threatened or endangered species. The ORAM scores for Category 2 wetlands range from 45 to 59.9 per OEPA guidelines (Mack, 2001).



A total of 18 wetland features in the study area are considered moderate quality wetlands based on the results of field studies. These 18 wetland features are summarized below:

**Table 4. Moderate Quality Wetlands (Category 1 or 2, Modified 2, Category 2)**

Wetland	Classification <sup>[1]</sup> and Description	Figure	Approximate Size (ac)	ORAM v.5.0 Score	Wetland Category
<b>Category 1 or 2 Wetlands (1 feature)</b>					
W24	Emergent; low depression in wooded floodplain of Dry Run (palustrine)	3e	0.02	33.0	Category 1 or 2
<b>Modified 2 Wetlands (13 features total)</b>					
W5	Emergent; low depression in wooded floodplain of Little Miami River (palustrine)	3b	0.087	38.0	Category Modified 2
W6	Emergent; low depression in wooded floodplain of Little Miami River (palustrine)	3b	0.01	37.0	Category Modified 2
W7	Emergent; low depression in wooded floodplain of Little Miami River (palustrine)	3b	0.005	38.0	Category Modified 2
W8	Emergent; low depression in wooded floodplain of Little Miami River (palustrine)	3b	0.004	37.0	Category Modified 2
W11	Emergent; within and adjacent to Clear Creek slough (palustrine)	3a	0.112	36.0	Category Modified 2
W13	Emergent; within Clear Creek slough (palustrine)	3c	0.043	43.0	Category Modified 2
W14	Emergent; within Clear Creek slough (palustrine)	3c	0.017	39.0	Category Modified 2
W15	Emergent; within Clear Creek slough (palustrine)	3c	0.061	41.0	Category Modified 2
W16	Emergent; within Clear Creek slough (palustrine)	3c	0.007	39.0	Category Modified 2
W17	Emergent; within Clear Creek slough (palustrine)	3c	0.017	42.0	Category Modified 2
W18	Emergent; within and adjacent to Clear Creek slough (palustrine)	3c	0.208	42.0	Category Modified 2
W19	Emergent; low depression in wooded floodplain of Clear Creek (palustrine)	3c	0.017	36.0	Category Modified 2
W25	Emergent/Scrub-shrub; remnant quarry pond; potentially isolated (palustrine)	3e	0.302	44.0	Category Modified 2
<b>Category 2 Wetlands (4 features total)</b>					
W2	Forested/Emergent/Scrub-shrub; within and adjacent to remnant Little Miami River slough (palustrine)	3a	1.831	45.0	Category 2
W10	Forested/Emergent; within and adjacent to Clear Creek slough (palustrine)	3b	1.689	49.0	Category 2
W12	Forested/Emergent; within and adjacent to Clear Creek slough (palustrine)	3c	0.375	53.0	Category 2
W26	Emergent/Scrub-shrub; within and adjacent to gravel pit drainage ditch, potentially isolated (palustrine)	3e	0.54	51.0	Category 2

<sup>[1]</sup> Wetland classification per Cowardin et al., 1979.

The one Category 1 or 2 feature (W24) is a 0.02 acre emergent wetland located in a low depression adjacent to Dry Run and associated with an upland drainage swale. Generally, Category 1 or 2 wetlands have greater species and wetland class diversity than typical Category 1 wetlands, but lack the buffer and/or diverse habitat structure and have greater disturbances compared to typical Category 2 wetlands.

The thirteen Category Modified 2 features occur as emergent wetlands (12 total) or as emergent wetlands with a scrub-shrub component (multiple classes; 1 total). All 12 emergent wetlands are associated with low depressions or sloughs in the Little Miami River and Clear Creek floodplains. The emergent/scrub-shrub wetland is associated with a small remnant quarry pond that is potentially isolated. All of the Modified 2 features are less than one acre in size; the largest feature is a 0.302 acre wetland located within a remnant quarry pond (W25). In general, the Modified 2 features in the study area have wider buffers, more buffering capacity, and tend to have better connections to larger woodlands or riparian corridors than do Category 1 or Category 1 or 2 features.

The four Category 2 wetlands occur as a forested/emergent/scrub shrub feature (multiple classes; 1 total), forested/emergent wetlands (multiple classes; 2 total) or as emergent wetland with scrub-shrub components (multiple classes; 1 total). The forested/emergent/scrub-shrub and forested/emergent wetlands are associated with a remnant Little Miami River slough and active Clear Creek slough. The emergent/scrub-shrub wetland is associated with a drainage ditch formed during past quarry activities. The four Category 2 wetlands range in size between 0.375 acres and 1.831 acres. Overall, Category 2 features observed in the study area exhibit moderate to good species diversity and community structure (more diverse vegetation layers than Category 1, 1 or 2 or Modified 2 wetlands), good habitat (logs, snags, pools, deep water) and moderate to good buffers.

#### ***High Quality Wetlands - Category 2 or 3 and Category 3 Features***

No high quality wetlands were identified within the Segment II/III study area.

## **D. PONDS**

Eighteen ponds are located within the Segment II/III study area. Nine are associated with residential and commercial properties. These range in size from 0.17 acre to 0.60 acre and are used for recreation and/or residential activities. Most are highly maintained with decorative features. Three ponds occur on the Ivy Hills Country Club golf course, located south of existing SR 32 in Newtown. These ponds range in size from 0.95 acre to 3.11 acre, are designed as golf course water hazards, and provide aesthetic value to the Ivy Hills Country Club. Six ponds are associated with mining quarries, located on the north side of existing SR 32 just east of Newtown. The four largest quarry lakes, ranging in size from 9.37 acres to 118.1 acres are used for recreational activities, including water skiing, boating and fishing. The smaller quarry features (8.19 acres and 0.31 acre in size) appear to be abandoned.

Ponds associated with residential/commercial properties and the golf course typically provide limited aquatic habitat due to their small size, high levels of maintenance (herbicide/algaecide applications, removal of emergent shoreline growth, etc.) and location in highly modified land uses. Those that have lower maintenance activities, are more difficult to access, and/or are bordered by wetlands and woodland, contribute marginal to good aquatic habitat and ecological value. Inactive quarry lakes provide good habitat for fish, waterfowl, shore-birds, beaver and muskrat, and provide a water source

for woodland wildlife. Ponds identified during field studies are summarized in Table 5 and shown on Figure 3a-g. Photographs of representative features are presented in Appendix G.

**Table 5. Summary of Ponds**

Pond	Figure	Size (acre)	Description <sup>[1]</sup>	Location
P1	3a	0.33	Excavated, stormwater retention use; surrounded by scrubby woods; marginal habitat	Railroad loading yard; north of railroad tracks on north side of Little Miami River
P2	3d	0.36	Excavated, stormwater retention use; surrounded by condominiums; poor habitat	Multi-unit residential area; east of Church Street and north of SR 32 in Newtown
P3	3d	0.17	Excavated, stormwater retention use; in front of commercial building; poor habitat	Commercial/residential area; south side of Valley Avenue in Newtown
P4	3d	0.60	Excavated, stormwater retention and recreational use; behind commercial building; marginal habitat	Commercial/residential area; south side of Valley Avenue in Newtown
P5	3d	0.49	Excavated, stormwater retention and recreational use; behind commercial building; marginal habitat	Commercial/residential area; south side of Valley Avenue in Newtown
P6	3d	0.46	Excavated, stormwater retention use; surrounded by condominiums; poor habitat	Multi-unit residential area; east of English Drive and south of SR 32 in Newtown
P7	3d	0.29	Excavated, stormwater retention use; surrounded by condominiums; poor habitat	Multi-unit residential area; east of Ivy Way and south of SR 32 in Newtown
P8	3d	1.43	Excavated, golf course use; surrounded by golf course; poor habitat	Front nine of Ivy Hills Country Club; south of SR 32
P9	3d	0.95	Excavated, golf course use; surrounded by golf course; poor habitat	Front nine of Ivy Hills Country Club; south of SR 32
P10	3e	3.11	Excavated, golf course use; surrounded by golf course; poor habitat	Front nine of Ivy Hills Country Club; south of SR 32
P11	3d	8.19	Quarry pit, recreational use; surrounded by very narrow scrubby woodline and agricultural row-crop; marginal	Commercial/agricultural area; north of Round Bottom Road
P12	3d	51.9	Quarry pit, recreational use; surrounded by very narrow scrubby woodline and light industrial; moderate habitat	Commercial/industrial area; north of SR 32
P13	3e	118.1	Quarry pit, recreational use; surrounded by narrow scrubby woods, light industrial and agricultural; moderate to good habitat	Commercial/industrial area; east of Round Bottom Road and north of SR 32
P14	3e	9.37	Quarry pit, recreational use; surrounded by oldfield, newfield, and quarry lakes; moderate to good habitat	Old quarry land area; east of Round Bottom Road and north of SR 32
P15	3e	63.6	Quarry pit, recreational use; surrounded by oldfield, newfield, and quarry lakes; moderate to good habitat	Old quarry land area; east of Round Bottom Road and south of Broadwell Road
P16	3e	0.31	Quarry pit, recreational use; surrounded by scrubby steep woods and active quarry; moderate to good habitat	Commercial/industrial area; north of SR 32
P17	3f	0.43	Excavated, stormwater retention and recreational use; residential yard; marginal habitat	Residential area; east of Lake Forest Drive and south of SR 32
P18	3f	0.21	Excavated, stormwater retention and recreational use; residential yard; marginal habitat	Residential area; east of Eight Mile Road and south of SR 32

<sup>[1]</sup> **Definitions:**

**Construction:** Excavated = dug, with no associated stream feature; Quarry pit = depression or basin of abandoned surface mine

**Use:** Retention = designed for stormwater control; Recreational = maintained and used for fishing and/or boating; Golf course = water hazard, irrigation or aesthetic value

**Habitat:** Poor = limited physical habitat for aquatic organisms and/or poor water quality; Marginal = some physical habitat for aquatic organisms and acceptable water quality conditions; Moderate = physical habitat for aquatic and/or terrestrial organisms and acceptable water quality conditions; Good = physical habitat for aquatic and terrestrial organisms and good water quality conditions.

## E. TERRESTRIAL RESOURCES

### 1. General Conditions

The Segment II/III study area consists of a mix of agricultural land, park/greenspace areas and dense concentrations of residential and commercial/industrial development. Agricultural land and parks are mostly located west and north of Newtown along the Little Miami River 100-year floodplain. Residential and commercial development occurs along Red Bank Road and US 50 in the Fairfax vicinity and along existing SR 32 and other local roads throughout the study area. Industrial development is concentrated in the vicinity of the existing Red Bank Road/US 50 interchange in Fairfax and along existing SR 32 and Round Bottom Road in Newtown. Woodlands and other natural features primarily occur along the Little Miami River bottomland, narrow stream corridors and along steep upland valley walls that preclude development.

### 2. Terrestrial Habitat Types

Based on aerial photos, topographic map review and detailed field studies, six terrestrial habitat types have been identified within the Segment II/III study area. The locations of these habitats are shown on Figure 4a-g and representative photographs are included in Appendix G. Habitat types and their corresponding map codes are as follows:

**Table 6. Terrestrial Habitat Types**

Terrestrial Habitat	Map Code
Right-of-Way (roadway, railroad and utility)	RW
Developed Land (residential, commercial, industrial)	D
Maintained Openspace (parks, cemeteries, golf courses)	MO
Agricultural Land (rowcrop, sod farm, pasture/hayfield)	AG
Wooded (riparian, bottomland and upland woods)	W
Field (oldfield and newfield)	F

#### ***Right-of-Way (Map Code: RW; See Photographs 92 through 97 in Appendix G)***

Right-of-way habitat consists of existing roadway, railroad and utility corridors and includes existing pavement and shoulders, railroad tracks, narrow strips of maintained (unpaved) land and ditches along existing roads, and cleared areas under power lines. The widest right-of-way areas occur along US 50 and SR 32, particularly in four-lane sections and interchange areas. Narrower strips of right-of-way occur throughout the study area along existing state, county and township streets and roads. Several linear utility transmission corridors cross the study area as well.

Right-of-way habitat is typically vegetated by a mixture of grasses and herbaceous perennials that are regularly disturbed by mowing, herbicide application or some other type of maintenance activity. Roadside ditches in the area typically have grassy, maintained banks, but also contain scattered pockets

of invader species, especially along the lower banks. Utility corridors typically consist of occasionally mowed/maintained grass, weed, and thicket areas which include more extensive invader species, such as dense honeysuckle, multiflora rose, sumac, blackberry and black raspberry, along with young black locust.

The biological value of right-of-way habitat is limited due to continual mowing, spraying and maintenance and close proximity to on-going human activities. Estimated replacement time is 1 to 5 years for the typical non-wooded right-of-way habitats. Estimated replacement time for areas having a more mature mixture of trees and shrubs can be 20 years or more.

***Developed Land (Map Code: D; See Photographs 98 through 106 in Appendix G)***

This habitat consists of concentrations of development where the natural environment has been extensively altered, including residential and commercial areas, industrial sites, school and church facilities, landfills and gravel mines. These areas are characterized by disturbed ground surface areas and man-made structures including buildings, outbuildings and storage areas, paved or gravel parking lots, driveways, and maintained yards and frontage property. Typical vegetation ranges from sparse, weedy cover to a mixture of grasses, ornamental plantings, and scattering of trees common to the area (oaks, maples, ashes, elms).

The biological value of developed land is limited due to the close proximity to human activities and the typically sterile (paved) and highly disturbed nature of the environment. Estimated replacement time is 1 to 5 years for areas that are mostly paved and contain only limited herbaceous or ornamental cover, but can be over 20 years for areas (such as residences) having a more mature mixture of trees and shrubs.

***Maintained Openspace (Map Code: MO; See Photographs 107 and 108 in Appendix G)***

Maintained openspace includes existing soccer fields, picnic areas and similar park facilities, cemeteries, and golf courses/driving ranges that are generally cleared of woodland and regularly mowed and maintained for human activities. Typical vegetation ranges from grassy monocultures in playfields and driving ranges to a more diverse habitat mix of herbaceous groundcover with scattered trees, shrubs, weedy areas and ponds.

The biological value of maintained openspace is variable. Highly maintained soccer and other playfield areas have limited value because of the lack of vegetative diversity and habitat structure. By comparison, the wooded, scrubby and/or pond habitat associated with picnic areas, cemeteries and golf courses provide cover and structure for breeding and foraging activities for birds and small mammals. Maintained openspace also serves as a stormwater runoff buffer for the protection of streams and groundwater in the largely urban environment that characterizes and surrounds the Segment II/III study area. Estimated replacement time for maintained openspace ranges from 1 to 5 years for highly maintained/monoculture areas to over 20 years for areas with more complex vegetative structure.

***Agricultural Land (Map Code: AG; See Photographs 109 through 112 in Appendix G)***

Agricultural land primarily occurs in the western half of the study area in the flat lowland floodplain areas of the Little Miami River. The major agricultural use in these areas consists of rowcrop, including

large tracts of sod farm turf, as well as smaller fields of soybeans and corn. Cropland can provide excellent summer refuge and forage for small mammals and birds, and corn stubble fields can provide excellent winter refuge and forage as well. Sod turf areas, by comparison, generally have limited biological value because of the lack of vegetative diversity and habitat structure.

Agricultural pastureland was also observed in the Segment II/II vicinity, primarily as small plots used for horse grazing located in the eastern half of the study area. Pastureland is typically composed of seeded forage crops such as legumes mixed with bluegrass, alfalfa, orchardgrass, red clover and/or timothy grass, as well as common grasses and opportunistic weedy species. Due to the continual disturbances by grazing and mowing, agricultural pastureland provides limited value as terrestrial habitat. As a result, the habitat is not considered to have notable ecological value in the local environment.

Estimated replacement time for agricultural land ranges from one year (for rowcrop areas) to two years (for pastureland).

### ***Wooded Habitat (Map Code: W; See Photographs 113 through 116 in Appendix G)***

Wooded habitat covers about 29% of the Segment II/III study area and consists of wooded riparian corridors along surface streams, wooded bottomlands in floodplain areas, and, in the east half of the study area, wooded uplands along steep slopes. Most of the wooded habitat occurs in areas that are unsuitable for development due to flooding or topography.

Several of the larger wooded tracts in the Segment II/III study area are associated with designated public or privately-owned greenspace (see Section IV.E.5). Anderson Township has a program that purchases land with public funds obtained by township levy. The purpose is to preserve sites as permanent greenspace and although public use is allowed, no improvements (parking, trails or other amenities) are provided. Five township greenspace parcels occur in the Segment II/III study area (see Figure 4a-g); all but one are located in the east half of the study area on steep slopes along existing SR 32. Wooded bottomlands/riparian corridor also occur in portions of public parks in the area, including Ault Park, Clear Creek Park, Little Miami Golf Center and Mariemont Community Gardens. In addition, privately owned wooded parcels at the Horseshoe Bend of the Little Miami River and the public owned Broadwell Woods along SR 32 in the east part of the study area are maintained as natural areas/nature preserves. Woodlands in the vicinity are also protected by local zoning regulations, such as required riparian corridor setbacks along the Little Miami River.

Wooded habitat in the study area ranges from young, scrubby tracts to well-developed communities with mature canopy development and limited disturbances or modifications. Vegetative composition varies by topography (bottomland versus upland communities), with typical canopy species including a variety of maples (*Acer* sp.), oaks (*Quercus* sp.), beech (*Fagus grandifolia*), hickories (*Carya* sp.), ash (*Fraxinus* sp.), black cherry (*Prunus serotina*) and black locust (*Robinia pseudoacacia*). Typical shrub species include spice bush (*Lindera benzoin*) and multiflora rose (*Rosa multiflora*). Ground cover typically consists of garlic mustard (*Alliaria petiolata*), Virginia knotweed (*Polygonum virginianum*), great ragweed (*Ambrosia trifida*), wood nettle (*Laportea canadensis*) and fern species (various genera).

Six of the larger woodlands in the Segment II/III study area were evaluated in detail during the 2008 field surveys conducted for this ecological study. Composition, structure and disturbances are presented in Section IV.E.3.



Wooded habitat provides stormwater runoff moderation that protects streams and groundwater, slope stability, erosion control and bank stability along streams, and protected foraging, nesting sites and travel corridor for local wildlife. This habitat is considered biologically valuable in an otherwise heavily developed urban environment that characterizes and surrounds the Segment II/III study area. The estimated replacement time for woodlands located in the study area is approximately 75 to 150 years, based on the average size of the largest trees in the habitat.

***Field (Map Code: F; See Photographs 117 and 118 in Appendix G)***

Field habitat is widely scattered throughout the Segment II/III study area and consists of oldfield and newfield types. Oldfield habitat, primarily associated with minimally maintained right-of-way and gravel mine areas in Segment II/III, is characterized by an herbaceous groundcover, 3 to 6 feet in height, comprising up to 90 percent of species composition, in combination with irregular occurrences of young woody species (sapling trees, shrubs, woody vines) comprising the remainder of the cover. Typical herbaceous species include ragweed (*Ambrosia* sp.), aster (*Aster* sp.), field thistle (*Cirsium discolor*), Queen Anne's lace (*Daucus carota*), teasel (*Dipsacus laciniatus*), goldenrod (*Solidago* sp.) and mixed grasses. Invasive woody species observed include honeysuckle (*Lonicera* sp.), autumn olive (*Elaeagnus umbellata*), berry bushes (*Rubus* sp.) and multiflora rose (*Rosa multiflora*).

Newfield areas, by comparison, lack young woody species due to periodic clearing or other disruption. Typical herbaceous plants include mixed grasses, ragweed, milkweed species, aster species, teasel and goldenrod. If left undisturbed, newfield areas would eventually evolve into oldfield habitat. Newfield, within the Segment II/III study area, primarily occurs on recently disturbed sites and temporarily fallow agricultural land.

Field habitat, especially oldfield, have biological value in providing cover and structure for breeding and foraging activities and protected open spaces for birds and small mammals. Estimated replacement time ranges from 1 to 3 years (for newfield) to up to 10 years (for oldfield).

### **3. Surveyed Woodlands**

As discussed in Section IV.E.2, woodland habitat is an important terrestrial habitat component in the Segment II/III study area, and exists in several different habitat forms (riparian corridors along streams, bottomland in floodplain areas and steep upland slopes).

For this ecological study, six contiguous woodland tracts in the study area were evaluated in detail during 2008 field surveys. Field evaluation consisted of a walk-over survey at each site to document stand structure, composition, integrity, general size of specimens and disturbances present as well as the occurrence of any important ecological features. A summary of conditions observed for each of the woodlands is presented in Table 7 and woodland data forms and photographs are included in Appendices F and G, respectively. The six woodlands are also depicted on Figure 4a-g.



**Table 7. Woodlands Surveyed**

Woodland	Location and Size	Dominant Canopy	Dominant Subcanopy	General Description	Disturbance
A	Figure 4a  West of US 50 / Red Bank Road interchange  117 acres	White oak, red oak, white ash, American sycamore  Average DBH = 20" (range from 18"-38")	Sugar maple, yellow buckeye, pawpaw	Steep sloped hills and ravines; mostly open with scattered large canopy trees; sycamore and cottonwood along streams; understory dominated by sugar maple; public owned (Cincinnati Park District)	Edge disturbance along walking trails and railroad with dense honeysuckle invasion
B	Figure 4a  Along Little Miami River north of Horseshoe Bend  25 acres	Silver maple, eastern cottonwood, white ash, American sycamore  Average DBH = 12" (range from 6"-34")	Box elder, silver maple, American elm, sandbar willow, crack willow, red mulberry, elderberry, honeysuckle	Mostly open, level to gently rolling floodplain /bottomland with large canopy trees; edges scrubby with some honeysuckle and elderberry mixed with sandbar and crack willow; private owned	Foot paths on western edge used to access LMR; some refuse related to flood debris at eastern edge; mosaic of all terrain vehicle (ATV) tracks
C	Figures 4a and 4b  Along Little Miami River east bank, south of Horseshoe Bend  44 acres	Silver maple, eastern cottonwood, American sycamore  Average DBH = 18" (range from 8"-38")	Box elder, American elm, sandbar willow, crack willow, elderberry, honeysuckle	Mostly open level to gently rolling floodplain with large canopy trees; edges scrubby with honeysuckle and elderberry on the landward side and sandbar and crack willow along the LMR; flood debris concentrated at northern and southern ends; private owned; northwest portion part of Little Miami Inc. Horseshoe Bed Preserve	Northern edge of site cleared for high tension power line and towers; some refuse associated with flood debris at northern edge of woods
D	Figure 4c  Along Little Miami River floodplain adjacent to Clear Creek  12 acres	Silver maple, American sycamore, eastern cottonwood, green ash  Average DBH = 12" (range from 4"-30")	Box elder, northern hackberry, red elm, silver maple, red mulberry, honeysuckle	Mostly scrubby flat floodplain/bottomland with medium to larger canopy trees; edges very scrubby with honeysuckle and red mulberry; public owned (Anderson Township)	Western edge abuts sod farm; mostly undisturbed
E	Figure 4e  South side of Broadwell Road, east of Newtown  110 acres	Chestnut oak, mockernut hickory, black locust, black walnut, white ash  Average DBH = 15" (range from 6"-36")	Sugar maple, hackberry, box elder, honey locust, black cherry, yellow buckeye, American beech, pawpaw, honeysuckle	Mostly large wooded ravines, open with large canopy trees. Edges scrubby with small trees and dense honeysuckle; partly public owned (Broadwell Nature Preserve; Anderson Township)	Edge effect disturbance along railroad grade; walking paths across site; one area clear cut

**Table 7. Woodlands Surveyed**

Woodland	Location and Size	Dominant Canopy	Dominant Subcanopy	General Description	Disturbance
F	Figure 4g  South side of SR 32 at Hamilton / Clermont County line  68 acres	White ash, black cherry  Average DBH = 10" (range from 6"-25")	Sugar maple, yellow buckeye, pawpaw, honeysuckle	Scrubby hillside in south portion of woodlot with mostly young second- growth and honeysuckle understory; generally older scrubby second-growth in north portion of woodlot with subcanopy dominated by sugar maple; public owned (Anderson Township)	Logging road dividing north and south portions of woodlot; walking paths throughout; power line right-of-way easement

Three of the surveyed woodland areas (A, E and F) occur on moderate to very steep hillsides, generally leading to an apex peak or ridge top. The other three woodlands (B, C and D) occur on generally flat bottomland floodplain areas bordering the Little Miami River. Four of the woodlands occur in parks or greenspaces, including Woodland A (Ault Park), Woodland D (Clear Creek Park), Woodland E (Broadwell Road Nature Preserve) and Woodland F (Anderson Township Greenspace). The two remaining woodlands (B and C) have multiple private owners. A portion of Woodland C is a privately owned nature preserve (Horseshoe Bend). All of the woodlands are located within Hamilton County.

#### 4. **Faunal Components**

Faunal activity was noted to be generally moderate throughout the study area. Multiple bird species were observed during field surveys, but were mostly those species common to the area - such as red-tailed hawk (*Buteo jamaicensis*), northern cardinal (*Cardinalis cardinalis*), crow (*Corvus brachyrhynchos*), great blue heron (*Ardea herodias*), belted kingfisher (*Megasceryle alcyon*), red-wing blackbird (*Agelaius phoeniceus*) and mourning dove (*Zenaida macroura*). A few mammals, amphibians and reptiles were encountered or evidence observed (tracks, scats, road kills, calls) during the field surveys conducted for this project including coyote (*Canis latrans*), white-tailed deer (*Odocoileus virginianus*), raccoon (*Procyon lotor*), fox squirrel (*Sciurus niger*), groundhog (*Marmota monax*), opossum (*Didelphis marsupialis*), beaver (*Castor canadensis*), frogs, tadpoles, salamanders, lizards, turtles and black rat snake (*Elaphe obsoleta obsoleta*).

The Little Miami River is listed as an Important Bird Area (IBA) by the Ohio Audubon Society. IBAs are identified as providing essential habitat for one or more species of birds and are typically areas that stand out as special from the surrounding landscape. Although the entire Little Miami River corridor is identified as an IBA, the focus area for this IBA is the Spring Valley Wildlife Area, located about 50 miles northeast of Cincinnati in Green and Warren counties.

No unusual or unique populations of faunal species were encountered during field surveys conducted for this study. All faunal species encountered in the study area are listed in Table D.

## 5. Parks and Greenspace

### *Public Owned Facilities*

Eighteen public owned parks and greenspace occur within the Segment II/III study area (entirely or in part), as listed in Table 8 and shown on Figure 4a-g. These facilities include county, township and city/village owned parks, athletic fields, golf courses, and undeveloped or minimally developed (unnamed) greenspaces. Several of these facilities contain identified ecological resources, including large woodland tracts, wetlands and stream corridors.

**Table 8. Public Owned Parks and Greenspace**

Park or Greenspace Name	Size (acres)	County	Owner	Description
Ault Park	224	Hamilton	Cincinnati Parks	City (regional) park
Little Miami Golf Center	273	Hamilton	Hamilton County Park District	Golf, lawn bowling, driving range
Little Miami River Scenic Trail	n/a	Hamilton (portion in study area)	Hamilton County Park District	Current trail from Milford ends at Little Miami Golf Center, with planned extension through Short and Clear Creek Parks.
Mariemont Community Gardens	76	Hamilton	Village of Mariemont	Community garden, greenspace
Mariemont Pool / Dogwood Park	16	Hamilton	Village of Mariemont	Swimming / hiking trails
Miami Bluff Park (The Concourse)	12	Hamilton	Village of Mariemont	Greenspace, concourse overlook
Short Park (Robert W. Short Park)	22	Hamilton	Village of Newtown	Basketball, baseball, picnic areas, trails
Newtown Firefighters Memorial	0.31	Hamilton	Village of Newtown	Memorial, gazebo, benches
Village of Newtown Mini-Park	0.3	Hamilton	Village of Newtown	Greenspace, benches
Old Fort Greenspace Acquired Area	21.4	Hamilton	Anderson Township	Greenspace (former residential area)
Clear Creek Park	83	Hamilton	Anderson Township	Soccer fields
Greenspace - Batavia Road 1	34	Hamilton	Anderson Township	Greenspace
Greenspace - Batavia Road 2	2	Hamilton	Anderson Township	Greenspace
Anderson Township Greenspace	49	Hamilton	Anderson Township	Greenspace
Riverside Park	45	Hamilton	Anderson Township	Athletic fields, playground, trails
Broadwell Woods	69	Hamilton	Anderson Township	Nature preserve
Greenspace - Whiting Way	10	Hamilton	Anderson Township	Greenspace
Mt. Carmel Park	6	Clermont	Union Township	Soccer fields, playground

### ***Private Owned Facilities***

Seven privately owned recreational greenspaces occur within the Segment II/III study area (see Appendix A, Eastern Corridor Parks and Greenspace map). These facilities include a private country club and golf course (Ivy Hills), a gun club/practice range and horse riding/boarding facilities. Also included in this category is one privately-owned nature preserve, Horseshoe Bend, located along both sides of the Little Miami River across from the US 50/ Red Bank Road interchange area.

## **F. THREATENED AND ENDANGERED SPECIES**

### **1. Potential Habitat for Federal Listed Species**

Five federal-listed species have known ranges that include the Segment II/III study area, including the federal endangered Indiana bat (*Myotis sodalis*) and running buffalo clover (*Trifolium stoloniferum*), the federal candidate rayed bean mussel (*Villosa fabalis*) and sheepsnose mussel (*Plethobasus cyphus*) and the federal species of concern snuffbox mussel (*Epioblasma triquetra*). No known locations of these species are reported from within the Segment II/III study area boundaries, however potential habitat was observed, as described below.

#### ***Indiana bat***

Summer habitat requirements for the federal endangered Indiana bat include dead or live trees and snags with peeling or exfoliating bark, split tree trunks and/or branches, or cavities, which may be used as maternity roost areas, live trees (such as shagbark hickory) which have exfoliating bark, and/or stream corridors, riparian areas, upland woodlots and wetland forests which provide forage sites. No detailed biological assessments for Indiana bat were conducted as part of this study; however, it was noted during field studies that habitat fitting these characteristics was located within the Segment II/III study area boundaries, including: 1) along surface stream with wooded riparian corridors, 2) forested wetlands and wetlands with standing dead habitat, and 3) other wooded habitat with deadfall and downed logs and branches scattered throughout the study area. There is approximately 956 acres of wooded habitat in the Segment II/III study area comprising about 29% of the total area.

#### ***Running buffalo clover***

Suitable habitat for the federal endangered running buffalo clover in the study area occurs in the form of a cemetery in Newtown, wooded terraces adjacent to the Little Miami River and tributaries, wooded areas within the Little Miami River 100-year floodplain and several trails (horse paths, deer trails and all terrain vehicle trails) through bottomland and upland wooded areas.

#### ***Rayed bean mussel, sheepsnose mussel, and snuffbox mussel***

The rayed bean mussel inhabits streams and small rivers having clean, coarse sand and gravel runs and the sheepsnose mussel occurs in rivers with gravel substrates, relatively deep waters and moderate current. Snuffbox mussel inhabits riffles of medium and large rivers with stony or sandy bottoms, usually buried deep in swift currents. Suitable habitat for all three mussel species is found in the Little Miami River

within the Segment II/III study area boundaries, specifically in a riffle/pool reach of the Little Miami river occurring in the upstream portion of the Horseshoe Bend (see Section IV.A.1).

## **2. Potential Habitat for State Listed Species**

Five state-listed mussels (wartback, threehorn wartback, fawnsfoot, flat floater and deertoe) have known occurrences within the Segment II/III study area, and suitable habitat occurs within the Little Miami River in the Horseshoe Bend vicinity.

Five state-listed fish species (blue sucker, mountain madtom, northern madtom, river redhorse and burbot) have reported occurrences in the Little Miami River, but outside of the Segment II/III study area. Suitable habitat for these species within the Segment II/III study area is restricted to the Little Miami River.

Two state-listed birds (loggerhead shrike and sora) have known ranges that include the Segment II/III study area. Suitable habitat for the loggerhead shrike (shrubs and small trees in oldfield, scrubby fencelines and utility easements) and sora (small emergent cattail wetlands, slough areas of the Little Miami River and Clear Creek) was observed within the Segment II/III study area boundaries.

Suitable habitat for a state-listed reptile (false map turtle) was observed in the Segment II/III study area in the Little Miami River and slough areas, as well as ponded areas of Clear Creek and several of the less disturbed lakes and ponds.

## **G. SUMMARY OF IMPORTANT ECOLOGICAL FEATURES**

Several features were identified from this ecological survey that will require (if impacted) special consideration during project development due to regulatory requirements. Notable ecological resources include the following:

- ***Surface streams, especially provisional Warmwater Habitat, Class III-PHWH and Class II-PHWH features*** (NEPA-required avoidance and minimization and 404/401 involvement):
  - Three provisional WWH features, including the Little Miami River, Unnamed Tributary #5 and Dry Run.
  - The Little Miami River is also a State and National Scenic River and an OEPA designated Outstanding State Water and Exceptional Warmwater Habitat.
  - Three provisional modified WWH features, including Unnamed Tributary #3, Duck Creek and McCullough Run.
  - One Class III-PHWH (Unnamed Tributary #2).
  - Twenty-four provisional Class II-PHWH features.
  - Four provisional modified Class II-PHWH features.

- **Wetlands** (NEPA required avoidance, minimization and mitigation and 404/401 involvement): Twenty-six wetlands were identified in the Segment II/III study area, the majority of which are moderate-quality Category 1 or 2, Modified 2 and Category 2 features.
- **Potential habitat for federal and state-listed species** (NEPA-required avoidance and minimization): Suitable habitat was identified in the Segment II/III study area for the federal endangered Indiana bat and running buffalo clover, and three mussels listed as federal candidate or special concern species. Suitable habitat was also identified for several state-listed species, including five fishes, two birds and one reptile.
- **Wooded Habitat:** Several large woodland tracts were identified in the Segment II/III study area, including riparian corridors along the Little Miami River and other streams, wooded bottoms along the Little Miami River floodplain, and upland wooded tracts along existing SR 32. Several of these woodlands occur in public parks and locally designated/zoned greenspace areas.

***INFORMATION SOURCES/LITERATURE CITED***



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## *TABLES*

Ecological Resources Inventory Report  
Eastern Corridor Multi-Modal Projects  
Segment II/III (SR 32 Relocated)

**Table A. Summary of USGS Streams in the Study Area**

Stream Name	USGS Flow Regime	Drainage Area (mi <sup>2</sup> )	Drains Into	OEPA Use Designation <sup>[1]</sup>	Sample Site #'s (see Table B)
Unnamed Tributary #1	Intermittent	0.12	Unnamed Tributary #2	- - -	S1
Unnamed Tributary #2	Intermittent	0.47	Duck Creek	- - -	S2
Unnamed Tributary #3	Intermittent	1.90	Duck Creek	- - -	S3
Duck Creek	Perennial	8.76	Little Miami River	WWH	S4
Little Miami River	Perennial	1,600	Ohio River	EWH, WWH	S6, S7
Unnamed Tributary #5	Intermittent	0.51	Little Miami River	- - -	S8
Clear Creek	Perennial	0.92	Little Miami River	- - -	S10, S51
McCullough Run	Perennial	1.23	Little Miami River	WWH	S13
Dry Run	Intermittent	4.69	Little Miami River	WWH	S14, S20
Unnamed Tributary #24	Intermittent	0.10	Dry Run	- - -	S31
Unnamed Tributary #26	Intermittent	0.07	Dry Run	- - -	S33
Unnamed Tributary #33	Intermittent	0.02	Dry Run	- - -	S40

[1] Source: Ohio Administrative Code Section 3745-1-18 (designations based on draft rules; November 2008 subject to final approval)

Use Designation Codes:

EW H = Exceptional Warmwater Habitat

WW H = Warmwater Habitat

LR W = Limited Resource Water

**Table B. Summary of Conditions at Stream Survey Sites**

Site #	Stream Name	Drainage Basin / Receiving Stream	USGS Designation / Stream Category	Observed Stream Features / Conditions				QHEI / HHEI Score	Provisional (Non-Official) Stream Designation / Class
				Flow Regime	Bottom Substrate	Riparian Corridor	Adjacent Habitats		
S1	Unnamed Tributary #1	Little Miami River / Unnamed Tributary #2	USGS / soil survey mapped	Moist channel with isolated pools, no flow; natural channel	Mostly sand and gravel; some cobble	Continuous, wide; scrubby, wooded	Upland woods	54	Class II PHWH
S2	Unnamed Tributary #2	Little Miami River / Duck Creek	USGS / soil survey mapped	Moist channel with isolated pools, no flow; natural channel	Mostly gravel and cobble; some sand and silt	Continuous, wide; scrubby, wooded	Upland woods	58	Class III PHWH (due to presence of two-lined salamander)
S3	Unnamed Tributary #3	Little Miami River / Duck Creek	USGS / soil survey mapped	Dry, no flow; recovering natural channel	Mostly gravel and sand; some cobble and silt	Discontinuous, narrow to open; scrubby, wooded	Scrubby woods	38.5 (QHEI)	Modified Warmwater Habitat
S4	Duck Creek	Little Miami River / Little Miami River	USGS / soil survey mapped	Moist channel with isolated pools, no flow; recovering natural channel	Mostly gravel and sand; some cobble, boulder slab, artificial and silt	Continuous, very narrow to moderately wide; scrubby, wooded	Upland woods and urban/industrial	40 (QHEI)	Modified Warmwater Habitat
S5	Unnamed Tributary #4	Little Miami River / Duck Creek	Non-USGS / non-soil survey mapped, headwater	Dry, no flow; natural channel	Mostly silt; some gravel and sand	Continuous, wide; scrubby, wooded	Upland woods	24	Class I PHWH
S6	Little Miami River	Little Miami River / Ohio River	USGS / soil survey mapped	Flowing; natural channel	Mostly gravel and sand; some boulder, cobble, and silt	Discontinuous narrow to very narrow; scrubby, wooded	Upland woods and urban/industrial	65.5 (QHEI)	Warmwater Habitat
S7	Little Miami River	Little Miami River / Ohio River	USGS / soil survey mapped	Flowing; natural channel	Mostly cobble and gravel; some sand and silt	Discontinuous moderate to narrow; scrubby, wooded	Upland woods	73 (QHEI)	Warmwater Habitat
S8	Unnamed Tributary #5	Little Miami River / Little Miami River	USGS / soil survey mapped	Flowing; natural channel	Mostly gravel and sand; some cobble and silt	Continuous, narrow to very narrow; wooded	Scrubby woods	51.5 (QHEI) <sup>[1]</sup>	Warmwater Habitat



**Table B. Summary of Conditions at Stream Survey Sites**

Site #	Stream Name	Drainage Basin / Receiving Stream	USGS Designation / Stream Category	Observed Stream Features / Conditions				QHEI / HHEI Score	Provisional (Non-Official) Stream Designation / Class
				Flow Regime	Bottom Substrate	Riparian Corridor	Adjacent Habitats		
S9	Unnamed Tributary #6	Little Miami River / Unnamed Tributary #5	Non-USGS / soil survey mapped, headwater	Dry, no flow; natural channel	Mostly sand and gravel; some boulder, cobble and silt	Continuous, wide; scrubby, wooded	Upland woods and residential	41	Class II PHWH
S10	Clear Creek	Little Miami River / Little Miami River	USGS / soil survey mapped	Dry, no flow; recovering natural channel	Mostly silt; some sand and gravel	Continuous, narrow; scrubby, wooded	Rowcrop	34	Modified Class II PHWH
S11	Unnamed Tributary #7	Little Miami River / Clear Creek	Non-USGS / soil survey mapped, headwater	Dry, no flow; recovering natural channel	Mostly silt; some sand	Open and continuous, moderately wide riparian corridor	Newfield and scrubby woods	13	Modified Class I PHWH
S12	Unnamed Tributary #8	Little Miami River / Clear Creek	Non-USGS / non-soil survey mapped, headwater	Dry, no flow; recovering natural channel	Mostly sand and silt; some gravel	Continuous, wide to narrow; scrubby, wooded	Upland scrubby woods and park/newfield	32	Modified Class II PHWH
S13	McCullough Run	Little Miami River / Little Miami River	USGS / soil survey mapped	Dry, no flow; recovering natural channel	Mostly gravel and sand; some boulder slabs, cobble and silt	Open riparian corridor	Residential and urban/industrial	32.5 (QHEI)	Modified Warmwater Habitat
S14	Dry Run	Little Miami River / Little Miami River	USGS / soil survey mapped	Flowing; natural channel	Mostly cobble and gravel; some boulder, sand and silt	Continuous, wide to narrow; scrubby, wooded	Upland woods and mining/construction	66.5 (QHEI)	Warmwater Habitat
S15	Unnamed Tributary #9	Little Miami River / Dry Run	Non-USGS / soil survey mapped, headwater	Dry, no flow; recovered natural channel	Mostly gravel and sand; some leaf pack/woody debris and silt	Continuous, wide to moderately wide; scrubby, wooded	Upland woods	35	Class II PHWH
S16	Unnamed Tributary #10	Little Miami River / Dry Run	Non-USGS / soil survey mapped, headwater	Dry, no flow; recovering natural channel	Mostly gravel and artificial; some cobble and sand	Continuous, wide; steep sloped, scrubby, wooded	Upland woods	36	Modified Class II PHWH

**Table B. Summary of Conditions at Stream Survey Sites**

Site #	Stream Name	Drainage Basin / Receiving Stream	USGS Designation / Stream Category	Observed Stream Features / Conditions				QHEI / HHEI Score	Provisional (Non-Official) Stream Designation / Class
				Flow Regime	Bottom Substrate	Riparian Corridor	Adjacent Habitats		
S17	Unnamed Tributary #11	Little Miami River / Unnamed Tributary #10	Non-USGS / non-soil survey mapped, headwater	Dry, no flow; natural channel	Mostly silt and boulder slabs; some gravel, sand and leaf pack/woody debris	Continuous, wide; steep sloped, scrubby, wooded	Upland woods	44	Class II PHWH
S18	Unnamed Tributary #12	Little Miami River / Unnamed Tributary #10	Non-USGS / non-soil survey mapped, headwater	Dry, no flow; natural channel	Mostly silt and boulder slabs; some gravel, sand and leaf pack/woody debris	Continuous, wide; steep sloped, scrubby, wooded	Upland woods	44	Class II PHWH
S19	Unnamed Tributary #13	Little Miami River / Unnamed Tributary #10	Non-USGS / non-soil survey mapped, headwater	Dry, no flow; natural channel	Mostly silt and boulder slabs; some sand	Continuous, wide; steep sloped, scrubby, wooded	Upland woods	42	Class II PHWH
S20	Dry Run	Little Miami River / Little Miami River	USGS / soil survey mapped	Flowing; natural channel	Mostly cobble and gravel; some boulder, sand and silt	Continuous, narrow; scrubby, wooded	Upland woods and residential	59 (QHEI)	Warmwater Habitat
S21	Unnamed Tributary #14	Little Miami River / Dry Run	Non-USGS / soil survey mapped, headwater	Moist channel, no flow; recovered natural channel	Mostly cobble and gravel; some boulder and sand	Continuous, wide; steep sloped, scrubby, wooded	Scrubby woods and residential	45	Class II PHWH
S22	Unnamed Tributary #15	Little Miami River / Dry Run	Non-USGS / soil survey mapped, headwater	Dry, no flow; natural channel	Mostly gravel and silt; some cobble	Continuous, wide; scrubby, wooded	Upland woods	20	Class I PHWH
S23	Unnamed Tributary #16	Little Miami River / Unnamed Tributary #15	Non-USGS / non-soil survey mapped, headwater	Dry, no flow; natural channel	Mostly cobble and silt; some gravel and sand	Continuous, wide; scrubby, wooded	Upland woods	24	Class I PHWH
S24	Unnamed Tributary #17	Little Miami River / Unnamed Tributary #14	Non-USGS / non-soil survey mapped, headwater	Moist channel, no flow; natural channel	Mostly cobble and gravel; some boulder, sand and leaf pack/woody debris	Continuous, wide; steep sloped, scrubby, wooded	Upland woods	46	Class II PHWH

**Table B. Summary of Conditions at Stream Survey Sites**

Site #	Stream Name	Drainage Basin / Receiving Stream	USGS Designation / Stream Category	Observed Stream Features / Conditions				QHEI / HHEI Score	Provisional (Non-Official) Stream Designation / Class
				Flow Regime	Bottom Substrate	Riparian Corridor	Adjacent Habitats		
S25	Unnamed Tributary #18	Little Miami River / Unnamed Tributary #14	Non-USGS / non-soil survey mapped, headwater	Dry, no flow; natural channel	Mostly silt and leaf pack/woody debris; some boulder, cobble and gravel	Continuous, wide; steep sloped, scrubby, wooded	Upland woods	16	Class I PHWH
S26	Unnamed Tributary #19	Little Miami River / Unnamed Tributary #14	Non-USGS / soil survey mapped, headwater	Dry, no flow; natural channel	Mostly silt and leaf pack/woody debris; some boulder and cobble	Continuous, wide; steep sloped, scrubby, wooded	Upland woods	15	Class I PHWH
S27	Unnamed Tributary #20	Little Miami River / Dry Run	Non-USGS / soil survey mapped, headwater	Dry, no flow; natural channel	Mostly cobble and gravel; some sand and silt	Continuous, wide; steep sloped, scrubby, wooded	Upland woods	45	Class II PHWH
S28	Unnamed Tributary #21	Little Miami River / Dry Run	Non-USGS / soil survey mapped, headwater	Dry, no flow; natural channel	Mostly cobble and gravel; some sand and silt	Continuous, wide; steep sloped, scrubby, wooded	Upland woods	40	Class II PHWH
S29	Unnamed Tributary #22	Little Miami River / Dry Run	Non-USGS / soil survey mapped, headwater	Dry, no flow; natural channel	Mostly boulder slabs and clay or hardpan; some boulder, gravel, sand and silt	Continuous, wide; steep sloped, scrubby, wooded	Upland woods	41	Class II PHWH
S30	Unnamed Tributary #23	Little Miami River / Dry Run	Non-USGS / soil survey mapped, headwater	Flowing; natural channel	Mostly silt and artificial; some cobble, gravel and sand	Discontinuous, wide to narrow and open; scrubby, wooded	Scrubby woods and residential	31	Class II PHWH
S31	Unnamed Tributary #24	Little Miami River / Dry Run	USGS / soil survey mapped	Flowing; natural channel	Mostly cobble and silt; some gravel, sand, clay or hardpan and artificial	Discontinuous, narrow; scrubby, wooded	Residential	46	Class II PHWH
S32	Unnamed Tributary #25	Little Miami River / Dry Run	Non-USGS / non-soil survey mapped, headwater	Dry, no flow; recovering natural channel	Mostly cobble and silt; some gravel and sand	Open riparian corridor	Fenced pasture	24	Modified Class I PHWH
S33	Unnamed Tributary #26	Little Miami River / Dry Run	USGS / soil survey mapped	Dry, no flow; recovered natural channel	Mostly cobble and silt; some gravel and sand	Open riparian corridor	Residential	39	Class II PHWH

**Table B. Summary of Conditions at Stream Survey Sites**

Site #	Stream Name	Drainage Basin / Receiving Stream	USGS Designation / Stream Category	Observed Stream Features / Conditions				QHEI / HHEI Score	Provisional (Non-Official) Stream Designation / Class
				Flow Regime	Bottom Substrate	Riparian Corridor	Adjacent Habitats		
S34	Unnamed Tributary #27	Little Miami River / Unnamed Tributary #26	Non-USGS / soil survey mapped, headwater	Dry, no flow; natural channel	Mostly cobble and silt; some boulder and gravel	Continuous, wide; steep sloped, scrubby, wooded	Upland woods	34	Class II PHWH
S35	Unnamed Tributary #28	Little Miami River / Unnamed Tributary #26	Non-USGS / soil survey mapped, headwater	Dry, no flow; natural channel	Mostly silt and leaf pack/woody debris; some gravel and sand	Continuous, wide; steep sloped, scrubby, wooded	Upland woods	25	Class I PHWH
S36	Unnamed Tributary #29	Little Miami River / Unnamed Tributary #28	Non-USGS / soil survey mapped, headwater	Dry, no flow; natural channel	Mostly silt and leaf pack/woody debris; some gravel and sand	Continuous, wide; steep sloped, scrubby, wooded	Upland woods	25	Class I PHWH
S37	Unnamed Tributary #30	Little Miami River / Unnamed Tributary #29	Non-USGS / non-soil survey mapped, headwater	Dry, no flow; natural channel	Mostly silt and leaf pack/woody debris; some sand	Continuous, wide; steep sloped, scrubby, wooded	Upland woods	14	Class I PHWH
S38	Unnamed Tributary #31	Little Miami River / Unnamed Tributary #33	Non-USGS / soil survey mapped, headwater	Dry, no flow; natural channel	Mostly cobble and silt; some boulder, gravel and sand	Continuous, wide; steep sloped, scrubby, wooded	Upland woods	40	Class II PHWH
S39	Unnamed Tributary #32	Little Miami River / Unnamed Tributary #33	Non-USGS / soil survey mapped, headwater	Dry, no flow; natural channel	Mostly silt and leaf pack/woody debris; some cobble and gravel	Continuous, wide; steep sloped, scrubby, wooded	Scrubby woods	25	Class I PHWH
S40	Unnamed Tributary #33	Little Miami River / Dry Run	USGS / soil survey mapped	Dry, no flow; natural channel	Mostly cobble and sand; some boulder, gravel and silt	Continuous, wide; steep sloped, scrubby, wooded	Scrubby woods	43	Class II PHWH
S41	Unnamed Tributary #34	Little Miami River / Unnamed Tributary #33	Non-USGS / non-soil survey mapped, headwater	Dry, no flow; natural channel	Mostly sand and silt; some cobble and gravel	Continuous, wide to moderately wide; scrubby, wooded	Scrubby woods	34	Class II PHWH

**Table B. Summary of Conditions at Stream Survey Sites**

Site #	Stream Name	Drainage Basin / Receiving Stream	USGS Designation / Stream Category	Observed Stream Features / Conditions				QHEI / HHEI Score	Provisional (Non-Official) Stream Designation / Class
				Flow Regime	Bottom Substrate	Riparian Corridor	Adjacent Habitats		
S42	Unnamed Tributary #35	Little Miami River / Hall Run	Non-USGS / soil survey mapped, headwater	Flowing; recovering natural channel	Mostly cobble and silt; some boulder slabs, boulder, gravel and sand	Continuous, moderately wide; scrubby, wooded	Scrubby woods	46	Modified Class II PHWH
S43	Unnamed Tributary #36	Little Miami River / Unnamed Tributary #24	Non-USGS / non-soil survey mapped, headwater	Dry, no flow; recovered natural channel	Mostly boulder slabs and sand; some cobble, gravel and leaf pack/woody debris	Continuous, wide; steep sloped, scrubby, wooded	Scrubby woods	47	Class II PHWH
S44	Unnamed Tributary #37	Little Miami River / Unnamed Tributary #24	Non-USGS / soil survey mapped, headwater	Moist channel with isolated pools, no flow; natural channel	Mostly boulder slabs and silt; some bedrock, cobble and sand	Continuous, wide; steep sloped, scrubby, wooded	Scrubby woods	49	Class II PHWH
S45	Unnamed Tributary #38	Little Miami River / Unnamed Tributary #37	Non-USGS / non-soil survey mapped, headwater	Moist channel with isolated pools, no flow; natural channel	Mostly boulder slabs and silt; some cobble, sand and leaf pack/woody debris	Continuous, wide; steep sloped, scrubby, wooded	Scrubby woods	49	Class II PHWH
S46	Unnamed Tributary #39	Little Miami River / Unnamed Tributary #38	Non-USGS / soil survey mapped, headwater	Dry, no flow; recovered natural channel	Mostly sand and silt; some gravel and leaf pack/woody debris	Continuous, wide; steep sloped, scrubby, wooded	Scrubby woods	18	Class I PHWH
S47	Unnamed Tributary #40	Little Miami River / Unnamed Tributary #24	Non-USGS / non-soil survey mapped, headwater	Dry, no flow; natural channel	Mostly cobble and sand; some boulder slabs and silt	Continuous, wide; steep sloped, scrubby, wooded	Scrubby woods	42	Class II PHWH
S48	Unnamed Tributary #41	Little Miami River / Unnamed Tributary #24	Non-USGS / non-soil survey mapped, headwater	Dry, no flow; recovered natural channel	Mostly cobble and sand; some boulder slabs, gravel and silt	Continuous, wide; steep sloped, scrubby, wooded	Scrubby woods	43	Class II PHWH
S49	Unnamed Tributary #42	Little Miami River / Unnamed Tributary #37	Non-USGS / non-soil survey mapped, headwater	Dry, no flow; natural channel	Mostly boulder slabs and sand; some gravel and silt	Continuous, wide; steep sloped, scrubby, wooded	Scrubby woods	46	Class II PHWH

**Table B. Summary of Conditions at Stream Survey Sites**

Site #	Stream Name	Drainage Basin / Receiving Stream	USGS Designation / Stream Category	Observed Stream Features / Conditions				QHEI / HHEI Score	Provisional (Non-Official) Stream Designation / Class
				Flow Regime	Bottom Substrate	Riparian Corridor	Adjacent Habitats		
S50	Unnamed Tributary #43	Little Miami River / Hall Run	Non-USGS / soil survey mapped, headwater	Flowing; recovering natural channel	Mostly silt and sand; some gravel	Discontinuous, narrow to open riparian corridor	Residential	22	Modified Class I PHWH
S51	Clear Creek	Little Miami River / Little Miami River	USGS / soil survey mapped, headwater	Moist channel with isolated pools, no flow; natural channel	Mostly silt and muck; some leaf pack/woody debris	Discontinuous, narrow to open riparian corridor	Sod Farm	56	Modified Class II PHWH

<sup>[1]</sup> Assessed using a QHEI form due to the presence of pools greater than 15.7 inches (40 centimeters) deep.

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Table C. Summary of Flora Observed in the Study Area

Scientific Name	Common Name	Habitat Type <sup>[1]</sup>							
		RW	D	MO	AG	W	F	Wetland	Pond
Herbaceous Species									
<i>Achillea millefolium</i>	yarrow	X					X		
<i>Agrimonia parviflora</i>	agrimony					X			
<i>Alisma subcordatum</i>	water plantain							X	X
<i>Alliaria petiolata</i>	garlic mustard					X			
<i>Ambrosia artemisiifolia</i>	common ragweed	X					X		
<i>Amphicarpaea bracteata</i>	hog-peanut					X			
<i>Ambrosia trifida</i>	giant ragweed	X				X	X		
<i>Asclepias syriaca</i>	common milkweed	X			X		X		
<i>Aster ericoides</i>	heath aster	X				X			
<i>Aster sp.</i>	aster, unidentified	X			X	X	X		
<i>Bidens cernua</i>	drooping beggar-ticks					X		X	X
<i>Bidens frondosa</i>	devil's beggar-ticks							X	
<i>Boehmeria cylindrica</i>	false nettle					X			
<i>Bromus inermis</i>	smooth brome grass		X	X			X		
<i>Carex frankii</i>	Frank's sedge							X	X
<i>Carex vulpinoidea</i>	foxtail sedge							X	
<i>Chenopodium album</i>	lamb's quarters		X		X				



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Scientific Name	Common Name	Habitat Type <sup>[1]</sup>							
		RW	D	MO	AG	W	F	Wetland	Pond
<i>Chenopodium hybridum</i>	maple-leaved goosefoot						X		
<i>Cichorium intybus</i>	chicory	X	X	X			X		
<i>Cirsium arvense</i>	Canada creeping thistle	X					X		
<i>Cirsium discolor</i>	field thistle	X	X	X	X		X		
<i>Coronilla varia</i>	crown-vetch	X							
<i>Cryptotaenia Canadensis</i>	honewort					X			
<i>Cyperus strigosus</i>	umbrella sedge (strawcolor flat)							X	
<i>Daucus carota</i>	Queen Anne's lace	X		X	X		X		
<i>Dipsacus laciniatus</i>	teasel	X					X		
<i>Dipsacus sylvestris</i>	teasel (not cup stem)	X	X						
<i>Echinochloa crusgalli</i>	barnyard grass	X	X				X	X	
<i>Echinochloa muricata</i>	rough barnyard grass							X	
<i>Eleocharis obtusa</i>	short spike rush							X	X
<i>Eleocharis palustris</i>	long spike rush							X	
<i>Eleusine indica</i>	indian goosegrass						X		
<i>Elymus virginicus</i>	Virginia wild rye					X			
<i>Equisetum hyemale</i>	scouring rush	X					X		
<i>Erigeron annuus</i>	daisy fleabane	X					X		

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Table C. Summary of Flora Observed in the Study Area

Scientific Name	Common Name	Habitat Type <sup>[1]</sup>							
		RW	D	MO	AG	W	F	Wetland	Pond
<i>Eupatoriadelphus maculatus</i>	spotted joe-pye-weed					X			
<i>Eupatorium perfoliatum</i>	boneset							X	
<i>Eupatorium rugosum</i>	white snakeroot					X			
<i>Festuca rubra</i>	Red fescue	X	X	X	X		X		
<i>Fragaria virginiana</i>	strawberry (common)		X			X			
<i>Glechoma hederacea</i>	ground ivy		X	X		X			
<i>Glycine max</i>	soybean				X				
<i>Impatiens capensis</i>	jewelweed (touch-me-not)					X		X	
<i>Iris versicolor</i>	larger blue flag							X	
<i>Juncus effusus</i>	soft rush							X	
<i>Juncus tenuis</i>	yard rush	X	X					X	
<i>Laportea canadensis</i>	wood nettle					X		X	
<i>Leersia oryzoides</i>	rice cutgrass							X	X
<i>Leersia virginica</i>	white cutgrass							X	X
<i>Lemna minor</i>	least duckweed							X	X
<i>Leucanthemum vulgare</i>	ox-eye daisy	X							
<i>Ludwigia alternifolia</i>	seedbox							X	X
<i>Ludwigia peploides</i>	creeping primrose-willow								X

Ecological Resources Inventory Report  
Eastern Corridor Multi-Modal Projects  
Segment II/III (Relocated SR 32)

Table C. Summary of Flora Observed in the Study Area

Scientific Name	Common Name	Habitat Type <sup>[1]</sup>							
		RW	D	MO	AG	W	F	Wetland	Pond
<i>Lycopodium complanatum</i>	ground cedar (trailing clubmoss)					X			
<i>Lysimachia nummularia</i>	moneywort					X		X	
<i>Medicago lupulina</i>	black medick	X	X	X					
<i>Melilotus alba</i>	white sweet clover	X							
<i>Melilotus officinalis</i>	yellow sweet clover	X	X				X		
<i>Onoclea sensibilis</i>	sensitive fern					X			
<i>Osmunda cinnamomea</i>	cinnamon fern					X			
<i>Oxalis europea</i>	yellow wood sorrel	X	X	X	X				
<i>Oxalis grandis</i>	Large yellow wood sorrel						X		
<i>Panicum latifolium</i>	broad-leaved panic grass					X			
<i>Phalaris arundinacea</i>	reed canarygrass							X	
<i>Phytolacca americana</i>	pokeweed	X				X	X		
<i>Pilea pumila</i>	clearweed					X		X	
<i>Plantago lanceolata</i>	English plantain	X	X	X			X		
<i>Plantago major</i>	common plantain	X	X	X	X				
<i>Poa pratensis</i>	Kentucky bluegrass	X	X	X	X		X		
<i>Podophyllum peltatum</i>	may-apple					X			
<i>Polygonum amphibian</i>	water smartweed							X	

Ecological Resources Inventory Report  
Eastern Corridor Multi-Modal Projects  
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Table C. Summary of Flora Observed in the Study Area

Scientific Name	Common Name	Habitat Type <sup>[1]</sup>							
		RW	D	MO	AG	W	F	Wetland	Pond
<i>Polygonum hydropiper</i>	waterpepper							X	
<i>Polygonum pennsylvanicum</i>	Pennsylvania smartweed	X				X			
<i>Polygonum persicaria</i>	lady's thumb	X	X		X	X		X	
<i>Polygonum virginicum</i>	Virginia knotweed					X			
<i>Potamogeton nodosus</i>	long-leaf pondweed (American)							X	X
<i>Ranunculus sceleratus</i>	buttercup							X	
<i>Rumex crispus</i>	curly dock	X	X					X	
<i>Sagittaria latifolia</i>	arrowhead (duck-potato)							X	
<i>Sagittaria engelmanniana</i>	long-beaked arrowhead							X	
<i>Sanicula marilandica</i>	black snakeroot					X			
<i>Saururus cernuus</i>	lizard's tail							X	
<i>Scirpus atrovirens</i>	small bulrush							X	
<i>Scirpus validus</i>	great bulrush							X	
<i>Setaria faberii</i>	japanese bristle grass						X		
<i>Setaria glauca</i>	yellow foxtail						X		
<i>Stellaria media</i>	chickweed	X							
<i>Solidago altissima</i>	tall goldenrod	X				X	X	X	
<i>Solidago nemoralis</i>	gray goldenrod						X		

Ecological Resources Inventory Report  
Eastern Corridor Multi-Modal Projects  
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Table C. Summary of Flora Observed in the Study Area

Scientific Name	Common Name	Habitat Type <sup>[1]</sup>							
		RW	D	MO	AG	W	F	Wetland	Pond
<i>Sorghum halepense</i>	johnson grass	X					X		
<i>Taraxacum officinale</i>	dandelion	X	X	X	X		X		
<i>Tanacetum vulgare</i>	common tansy						X		
<i>Trifolium pretense</i>	red clover	X	X	X	X		X		
<i>Trifolium repens</i>	white clover	X	X	X			X		
<i>Triodia flava</i>	purpletop grass						X		
<i>Typha angustifolia</i>	narrow-leaved cattail							X	
<i>Typha latifolia</i>	common cattail							X	
<i>Urtica dioica</i>	stinging nettle					X			
<i>Verbascum thapsus</i>	common mullein	X							
<i>Verbesina alternifolia</i>	wingstem					X	X	X	
<i>Vernonia altissima</i>	ironweed	X			X		X		
<i>Viola sp.</i>	violet sp.		X			X			
<i>Wolffia sp.</i>	watermeal, unidentified								X
<i>Xanthium chinense</i>	cocklebur	X			X				
<i>Xanthium strumarium</i>	clotbur							X	
<i>Zea mays</i> ssp. <i>mays</i>	corn				X				

Ecological Resources Inventory Report  
Eastern Corridor Multi-Modal Projects  
Segment II/III (Relocated SR 32)

Table C. Summary of Flora Observed in the Study Area

Scientific Name	Common Name	Habitat Type <sup>[1]</sup>							
		RW	D	MO	AG	W	F	Wetland	Pond
Woody Species									
<i>Acer negundo</i>	box elder					X		X	
<i>Acer rubrum</i>	red maple					X		X	
<i>Acer saccharinum</i>	silver maple					X		X	
<i>Acer saccharum</i>	sugar maple					X			
<i>Aesculus glabra</i>	Ohio buckeye					X			
<i>Aesculus flava</i>	yellow buckeye					X			
<i>Asimina triloba</i>	pawpaw					X			
<i>Campsis radicans</i>	trumpet creeper					X			
<i>Carya ovata</i>	shagbark hickory					X			
<i>Celtis occidentalis</i>	common hackberry					X			
<i>Crateagus crus-galli</i>	hawthorn		X			X			
<i>Elaeagnus umbellata</i>	autumn olive		X				X		
<i>Fagus grandifolia</i>	beech		X			X			
<i>Fraxinus americana</i>	white ash					X			
<i>Fraxinus pennsylvanica</i>	green ash					X		X	
<i>Gleditsia tricanthos</i>	honey locust				X	X	X		
<i>Juglans nigra</i>	black walnut		X			X			

Ecological Resources Inventory Report  
Eastern Corridor Multi-Modal Projects  
Segment II/III (Relocated SR 32)

Table C. Summary of Flora Observed in the Study Area

Scientific Name	Common Name	Habitat Type <sup>[1]</sup>							
		RW	D	MO	AG	W	F	Wetland	Pond
<i>Lindera benzoin</i>	spice bush					X			
<i>Lonicera mackii</i>	bush honeysuckle	X	X			X	X		
<i>Lonicera japonica</i>	Japanese honeysuckle		X			X			
<i>Maclura pomifera</i>	Osage-orange					X			
<i>Malus sylvestris</i>	apple		X			X			
<i>Morus rubra</i>	red mulberry		X			X			
<i>Parthenocissus quinquefolia</i>	Virginia creeper					X			
<i>Pinus spp.</i>	Pine species, unidentified	X	X	X		X			
<i>Platanus occidentalis</i>	American sycamore	X	X			X			
<i>Populus deltoides</i>	cottonwood		X			X			
<i>Prunus serotina</i>	black cherry					X			
<i>Quercus alba</i>	white oak	X	X	X		X			
<i>Quercus palustris</i>	pin oak		X	X		X		X	
<i>Quercus prinus</i>	chestnut oak		X			X			
<i>Quercus rubra</i>	red oak		X	X		X			
<i>Rhus glabra</i>	smooth sumac						X		
<i>Rhus typhina</i>	staghorn sumac	X				X	X		
<i>Robinia pseudoacacia</i>	black locust	X				X	X		



Ecological Resources Inventory Report  
Eastern Corridor Multi-Modal Projects  
Segment II/III (Relocated SR 32)

Table C. Summary of Flora Observed in the Study Area

Scientific Name	Common Name	Habitat Type <sup>[1]</sup>							
		RW	D	MO	AG	W	F	Wetland	Pond
<i>Rosa multiflora</i>	multiflora rose	X	X			X	X		
<i>Rubus allegheniensis</i>	blackberry	X				X	X		
<i>Rubus occidentalis</i>	black raspberry	X			X	X	X		
<i>Salix fragilis</i>	crack willow	X	X			X		X	
<i>Salix interior</i>	sandbar willow					X	X		
<i>Salix nigra</i>	black willow	X	X			X		X	
<i>Sambucus canadensis</i>	black elderberry					X		X	
<i>Sassafras albidum</i>	sassafras	X				X			
<i>Smilax rotundifolia</i>	common greenbrier	X				X			
<i>Smilax hispida</i>	hispid greenbrier	X				X			
<i>Tilia americana</i>	American basswood					X			
<i>Toxicodendron radicans</i>	poison ivy	X		X		X			
<i>Ulmus americana</i>	American elm	X	X			X			
<i>Ulmus rubra</i>	red elm					X			
<i>Vitis riparia</i>	riverbank grape		X			X			
<i>Vitis vulpina</i>	frost grape	X	X			X			

<sup>[1]</sup> Habitat code:    RW = Right of Way            MO = Maintained Openspace            W = Wooded  
                             D = Developed Land            AG = Agricultural Land            F = Field

Ecological Resources Inventory Report  
Eastern Corridor Multi-Modal Projects  
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**Table D. Summary of Fauna Observed in the Study Area**

Scientific Name	Common Name	Habitat Type <sup>[1]</sup>							
		RW	D	MO	AG	W	F	Wetland	Pond
Birds									
<i>Agelaius phoeniceus</i>	red-wing blackbird			X		X		X	X
<i>Anas platyrhynchos</i>	mallard duck					X			X
<i>Ardea herodias</i>	great blue heron					X		X	X
<i>Branta canadensis</i>	Canada goose			X	X				X
<i>Buteo jamaicensis</i>	red-tailed hawk	X	X		X	X	X		
<i>Cardinalis cardinalis</i>	northern cardinal		X	X					
<i>Cathartes aura</i>	buzzard (turkey vulture)	X				X			
<i>Charadrius vociferus</i>	killdeer								X
<i>Corvus brachyrhynchos</i>	American crow	X			X				
<i>Cyanocitta cristata</i>	blue jay	X	X	X		X			
<i>Megasceryle alcyon</i>	belted kingfisher					X			
<i>Pandion haliaetus</i>	osprey					X			X
<i>Zenaidura macroura</i>	mourning dove	X	X	X		X			
Reptiles/Amphibians									
<i>Bufo sp.</i>	toad					X			
<i>Elaphe obsoleta obsoleta</i>	black rat snake					X			
<i>Eurycea bislineata bislineata</i>	two-lined salamander					X			

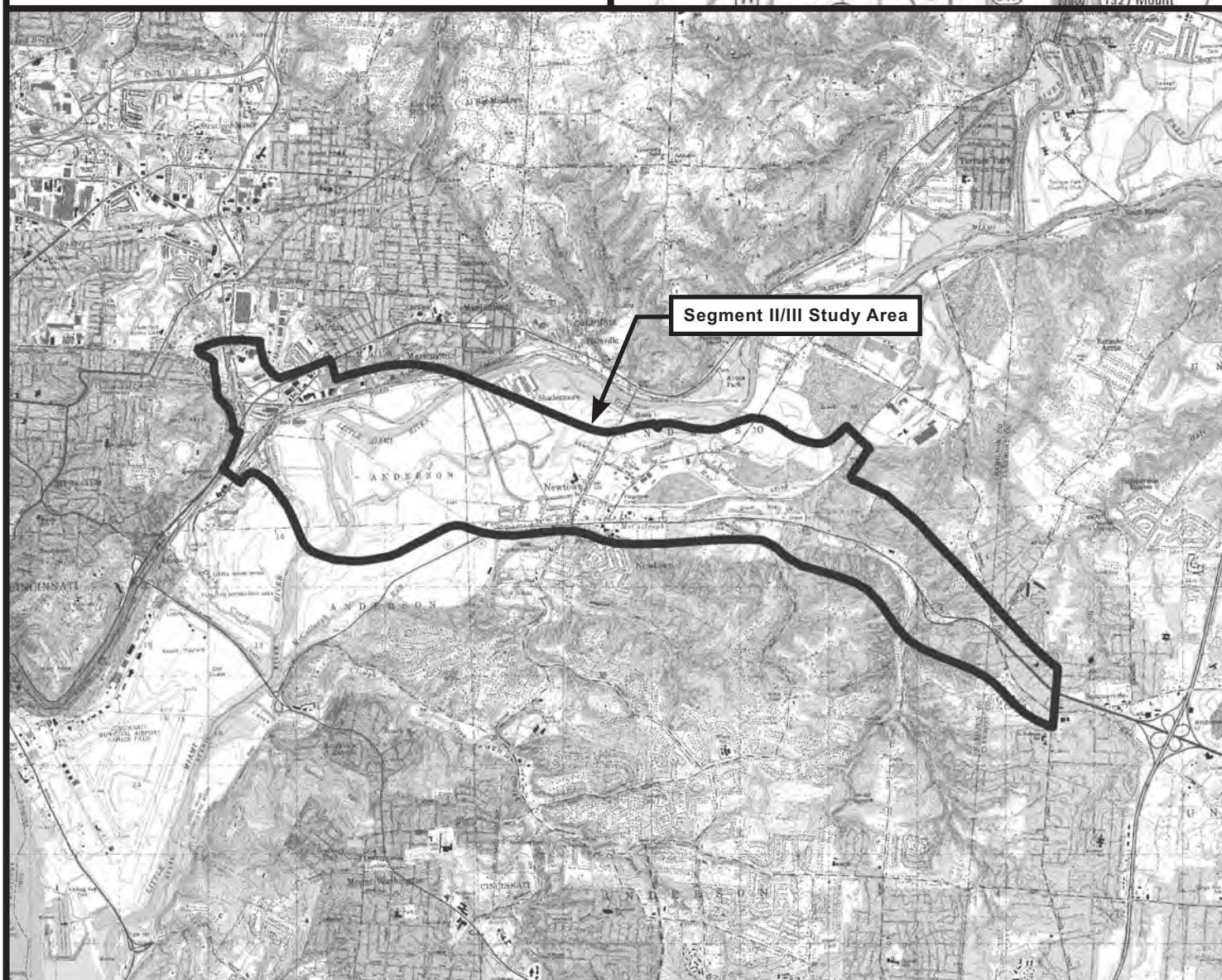
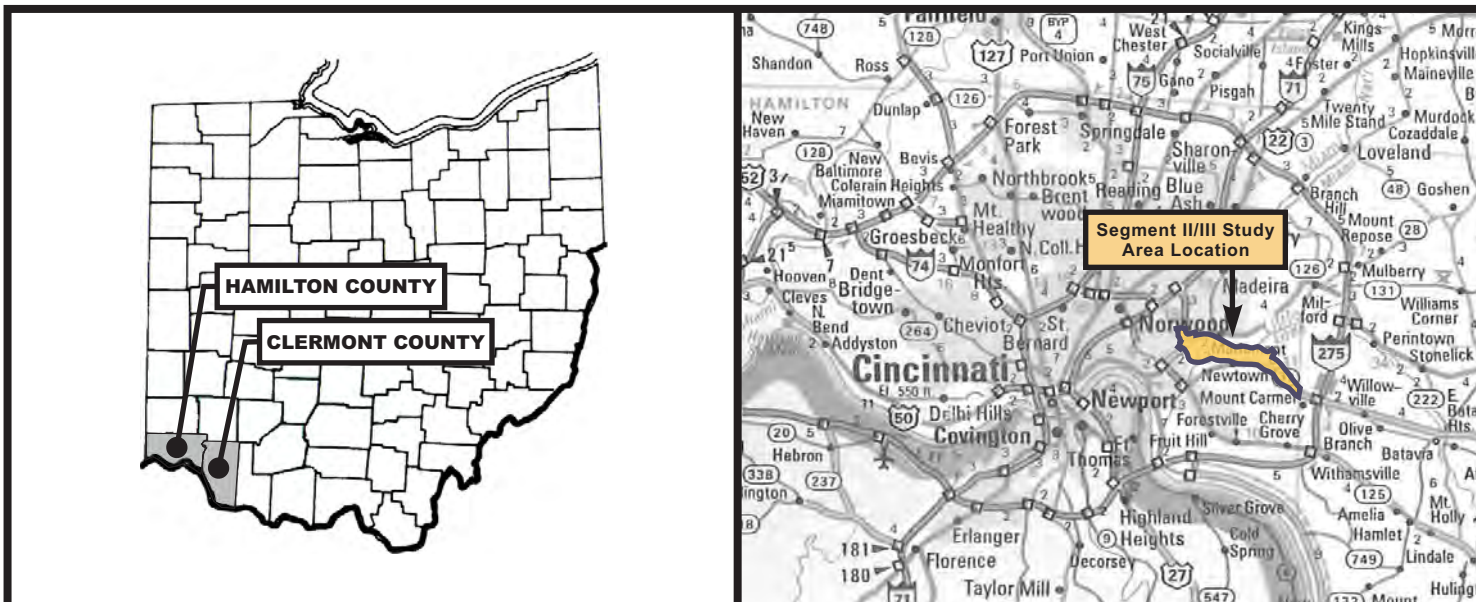
Ecological Resources Inventory Report  
 Eastern Corridor Multi-Modal Projects  
 Segment II/III (Relocated SR 32)

**Table D. Summary of Fauna Observed in the Study Area**

Scientific Name	Common Name	Habitat Type <sup>[1]</sup>							
		RW	D	MO	AG	W	F	Wetland	Pond
<i>Rana catesbeiana</i>	bull frog							X	X
<i>Terrapene carolina carolina</i>	eastern box turtle					X			
<b>Mammals</b>									
<i>Canis latrans</i>	coyote				X				
<i>Castor canadensis</i>	beaver					X		X	X
<i>Dedelpbis marsupialis</i>	opossum	X							
<i>Marmota monax</i>	groundhog					X	X		
<i>Odocoileus virginianus</i>	white-tailed deer				X	X	X		
<i>Ondatra zibethicus</i>	muskrat					X			X
<i>Procyon lotor</i>	raccoon		X			X		X	X
<i>Sciurus niger</i>	fox squirrel		X	X		X			
<i>Sylvilagus floridanus</i>	eastern cottontail rabbit	X			X	X	X		
<i>Tamias striatus</i>	eastern chipmunk					X			

<sup>[1]</sup> Habitat code:    RW = Right of Way            MO = Maintained Openspace            W = Wooded  
                              D = Developed Land            AG = Agricultural Land                 F = Field

## ***FIGURES***



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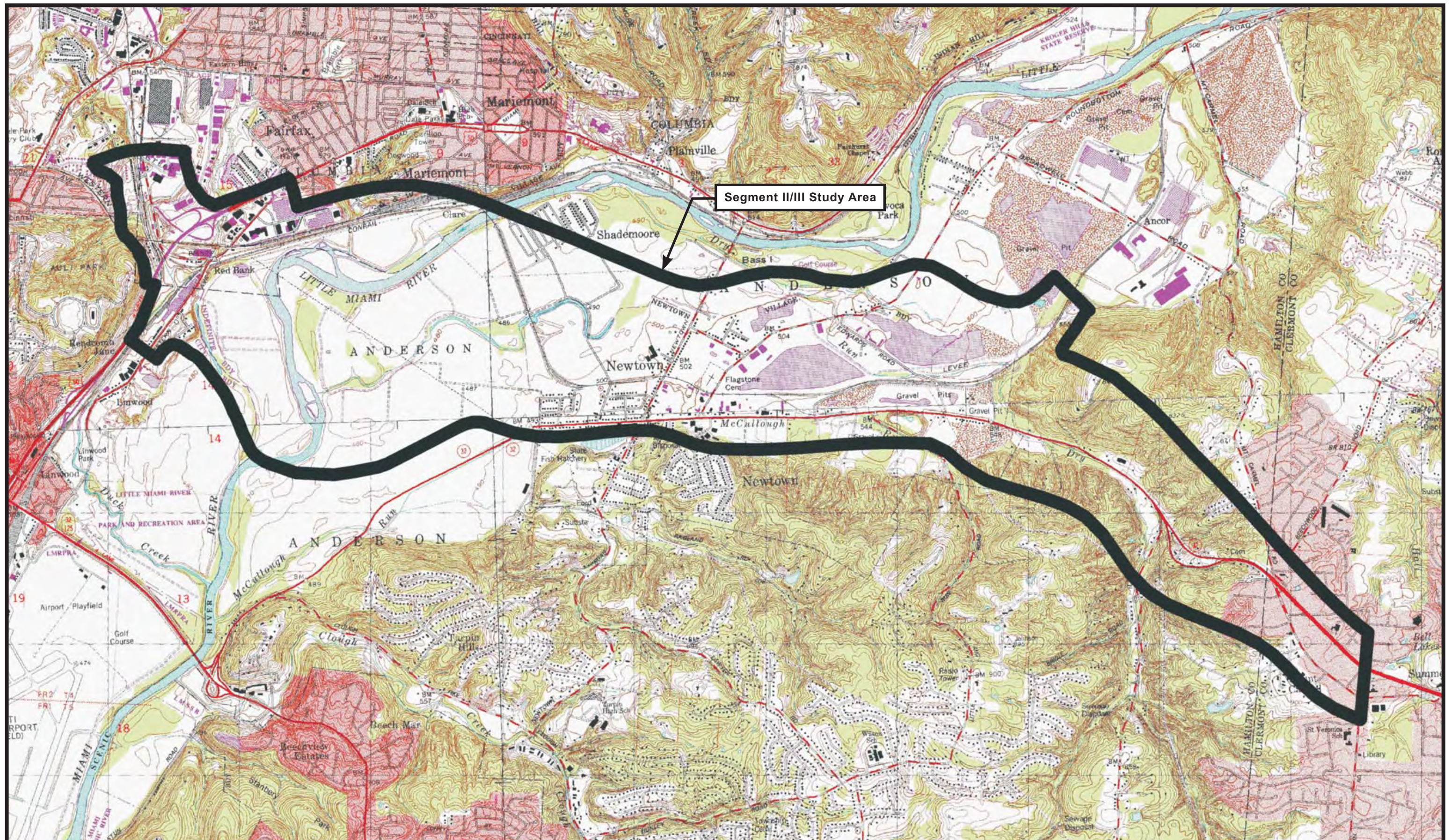
## Ecological Resources Inventory Report

Eastern Corridor Multi-Modal Projects  
Segment II/III (Relocated SR 32)



**Figure 1**  
Project Location Map





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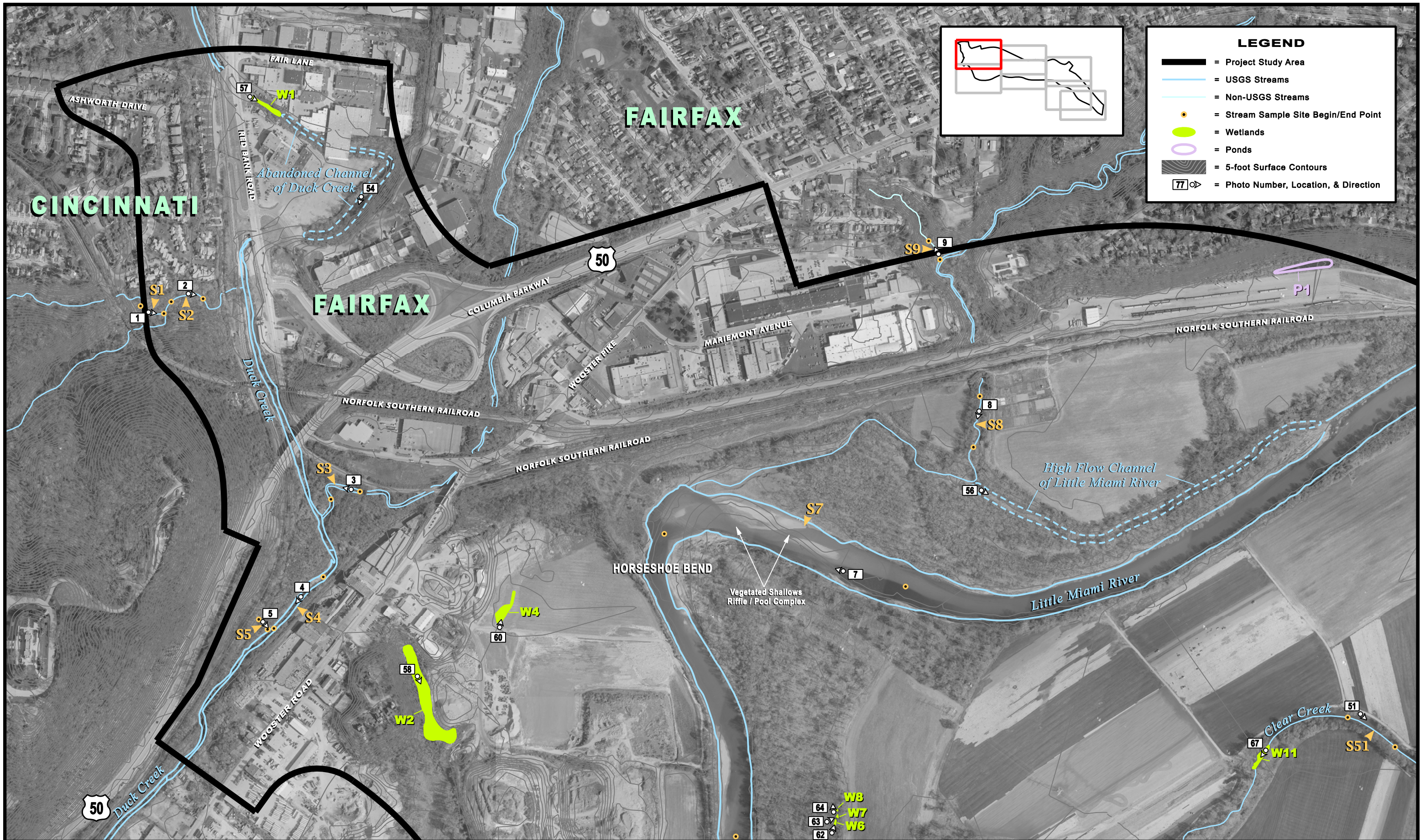


## Ecological Resources Inventory Report

Eastern Corridor Multi-Modal Projects  
Segment II/III (Relocated SR 32)

**Figure 2**  
Study Area Map





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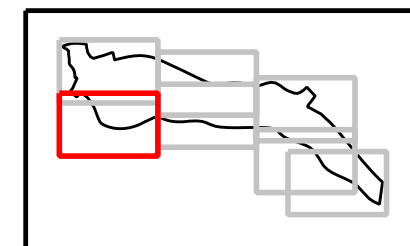
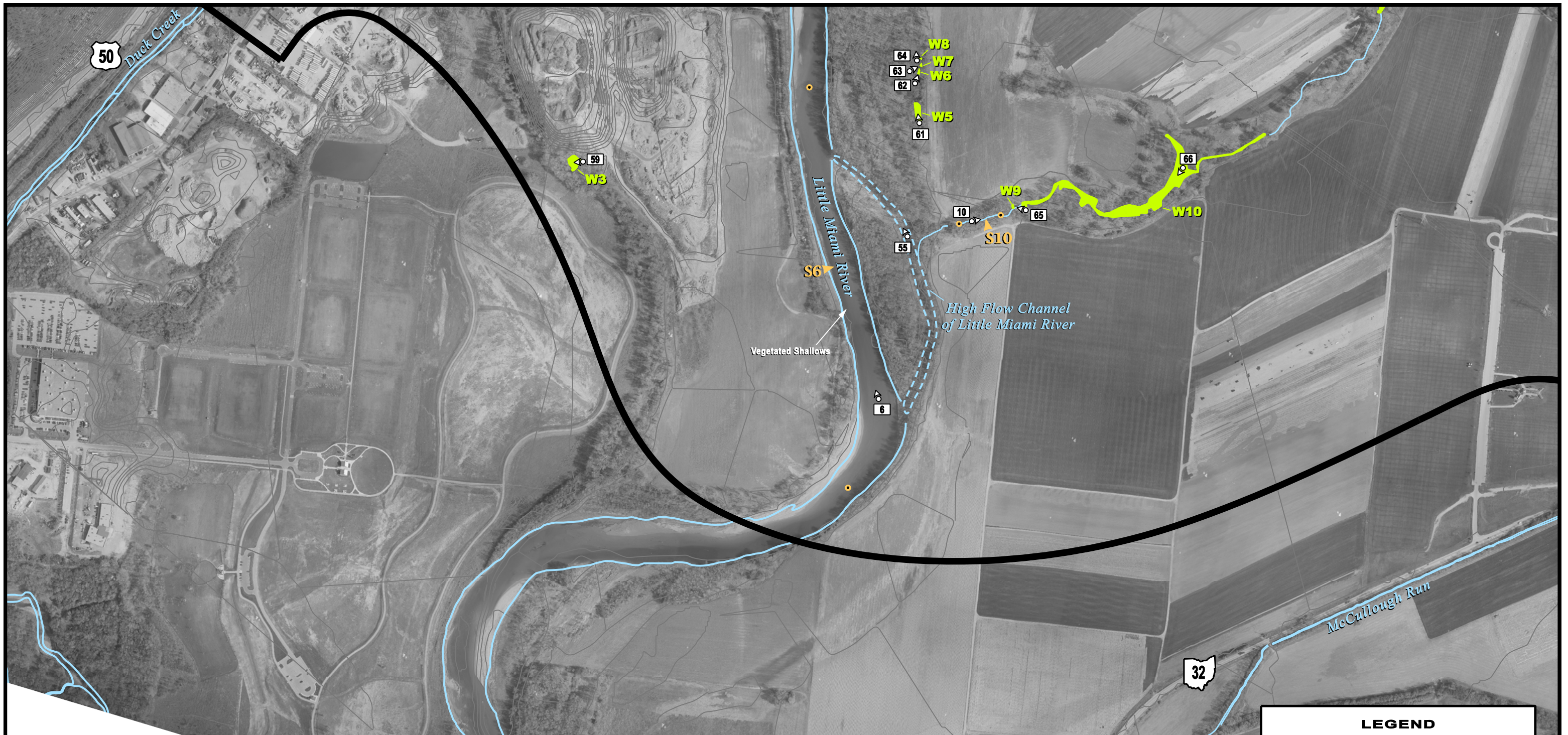


## Ecological Resources Inventory Report

Eastern Corridor Multi-Modal Projects  
Segment II / III (Relocated SR 32)

**Figure 3a**  
Aquatic Resources





**LEGEND**

- = Project Study Area
- = USGS Streams
- = Non-USGS Streams
- = Stream Sample Site Begin/End Point
- = Wetlands
- = Ponds
- = 5-foot Surface Contours
- 77➤ = Photo Number, Location, & Direction

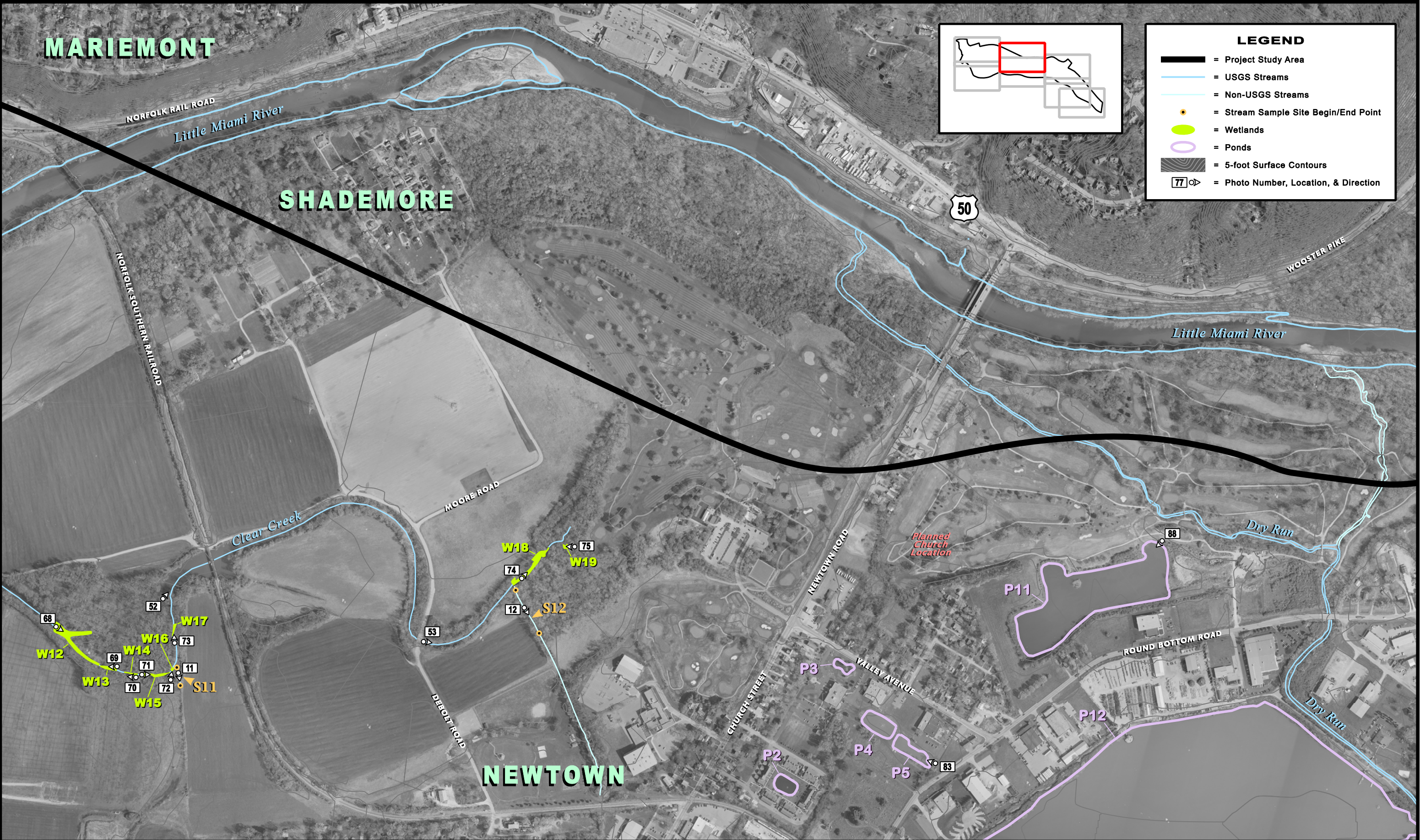
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**Ecological Resources Inventory Report**  
Eastern Corridor Multi-Modal Projects  
Segment II / III (Relocated SR 32)

**Figure 3b**  
Aquatic Resources





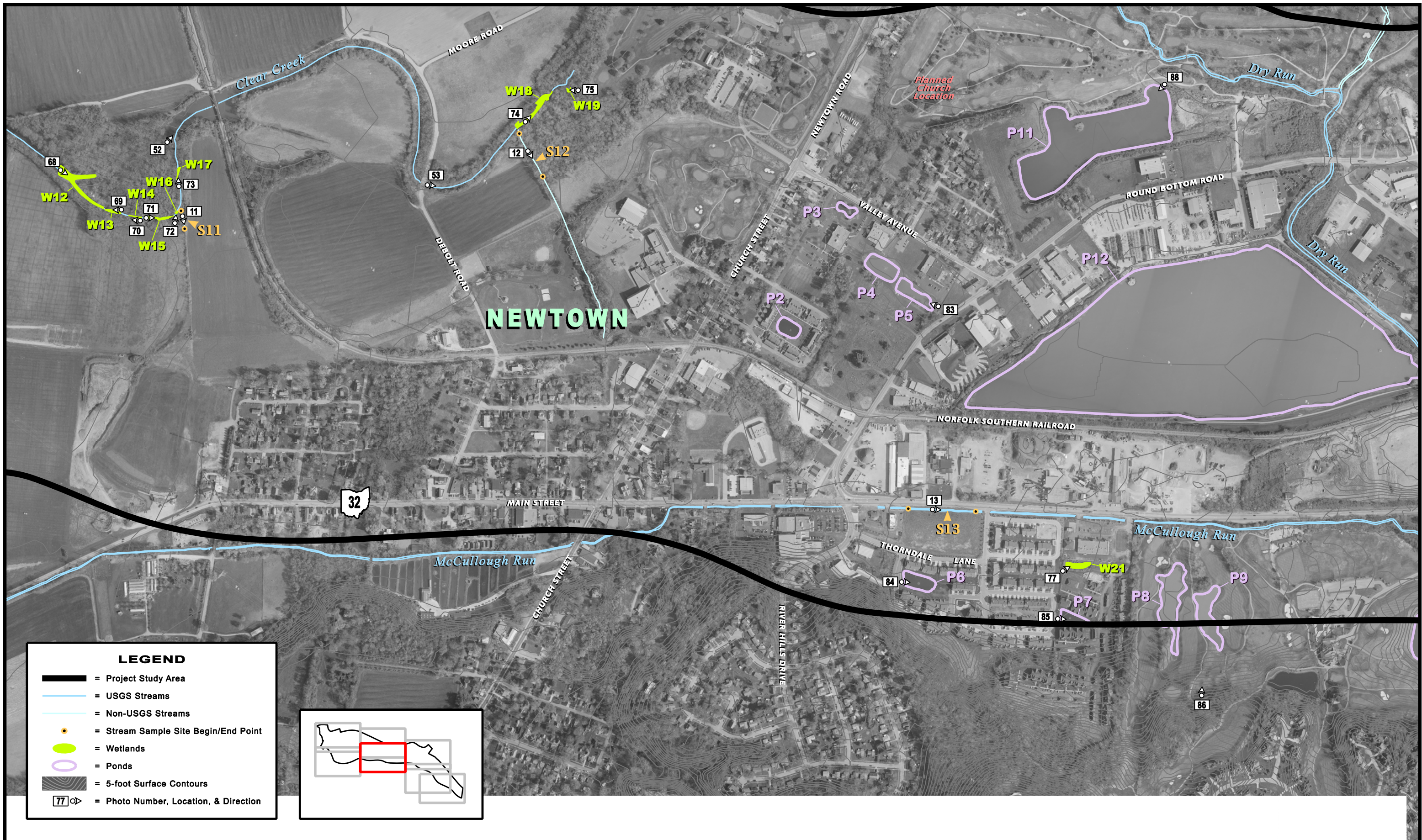
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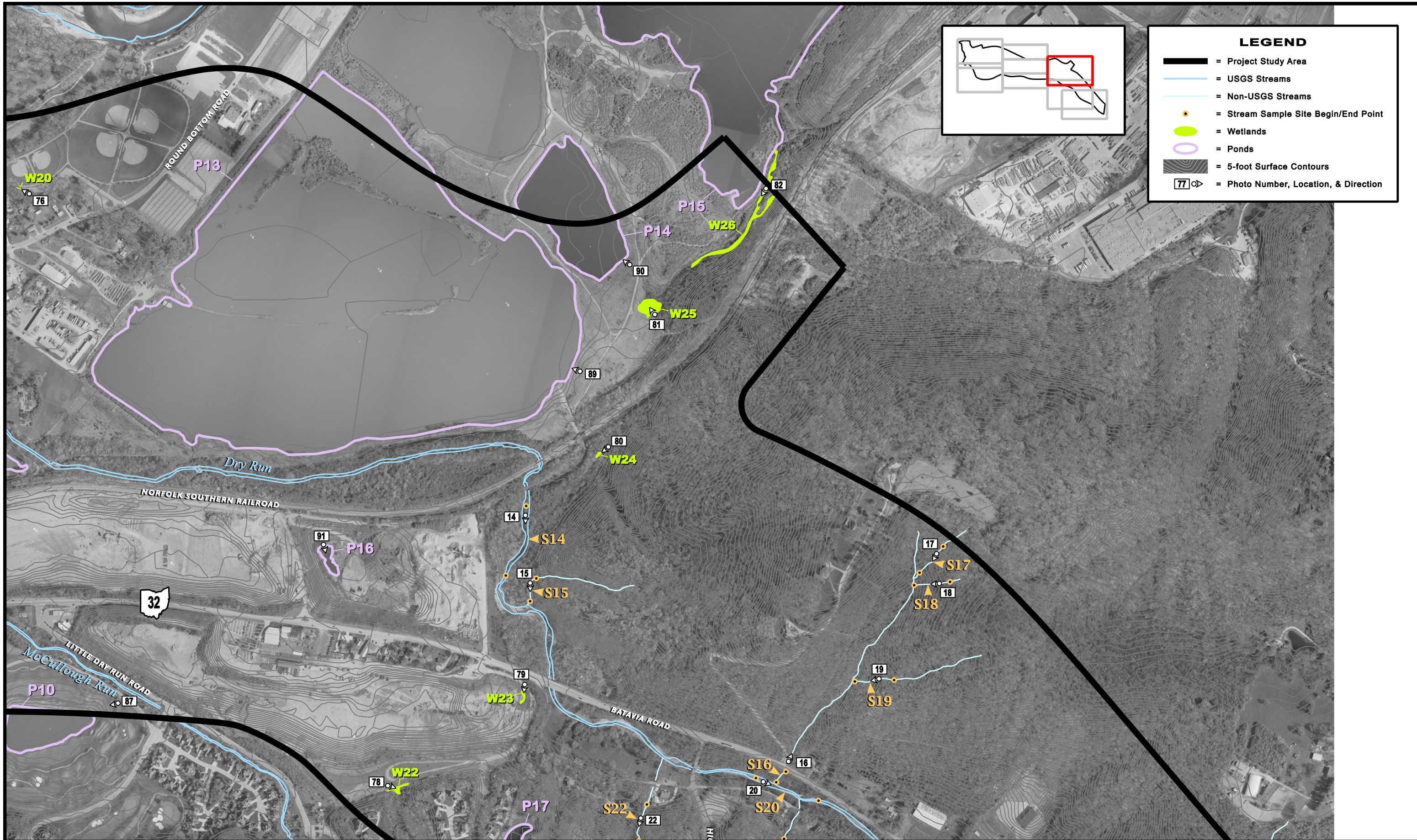
**Ecological Resources Inventory Report**  
Eastern Corridor Multi-Modal Projects  
Segment II / III (Relocated SR 32)

**Figure 3c**  
Aquatic Resources









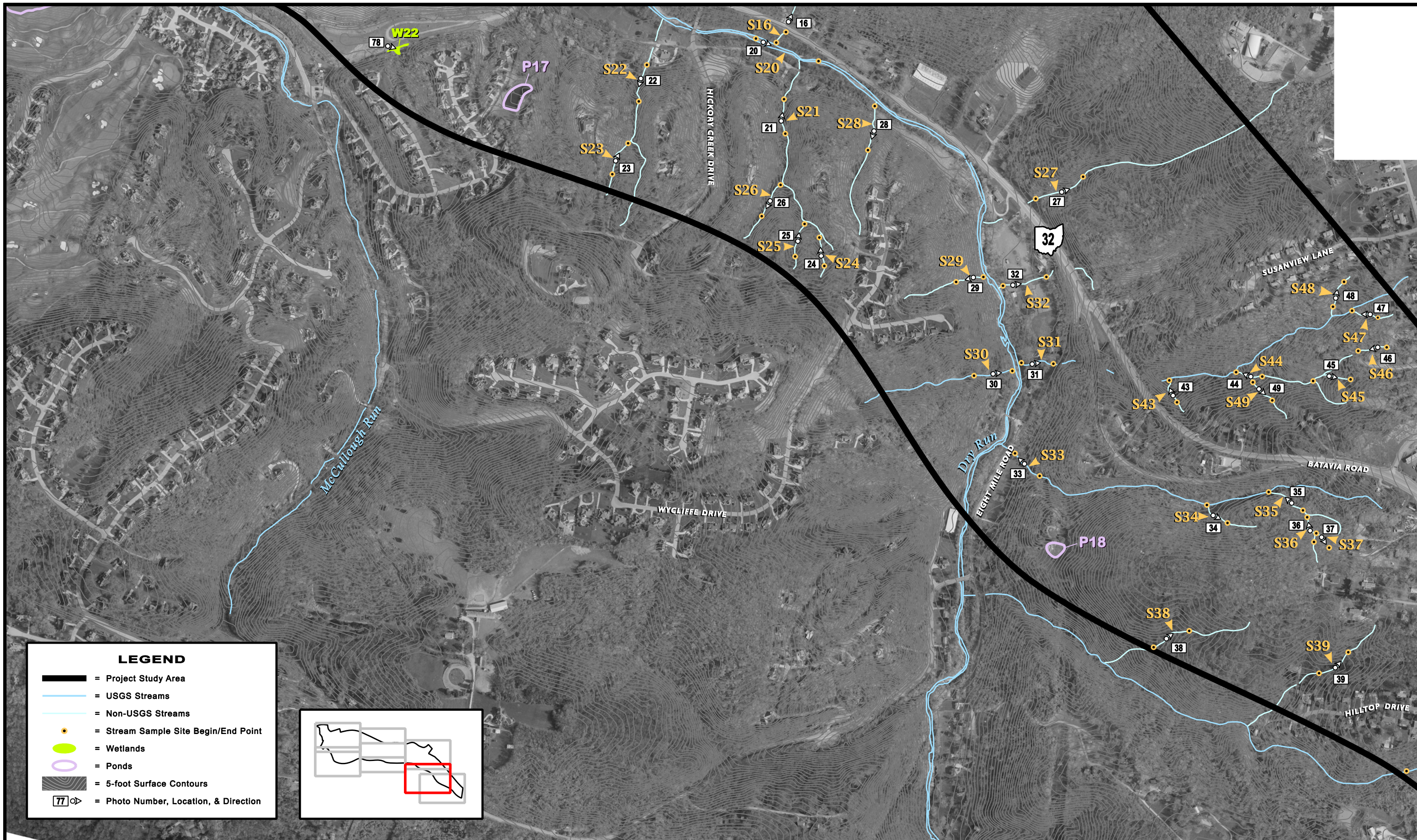
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**Ecological Resources Inventory Report**  
Eastern Corridor Multi-Modal Projects  
Segment II / III (Relocated SR 32)

**Figure 3e**  
Aquatic Resources





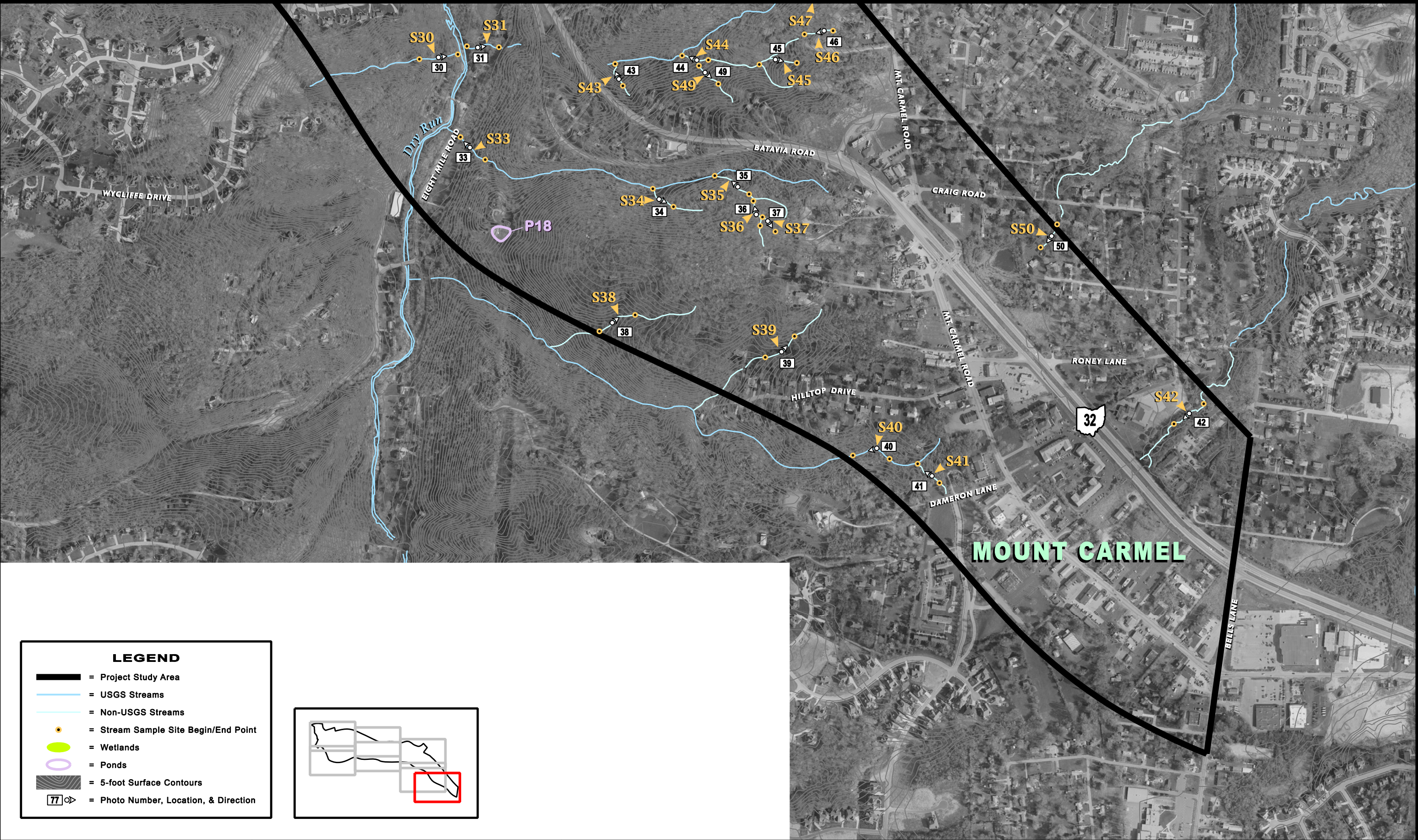
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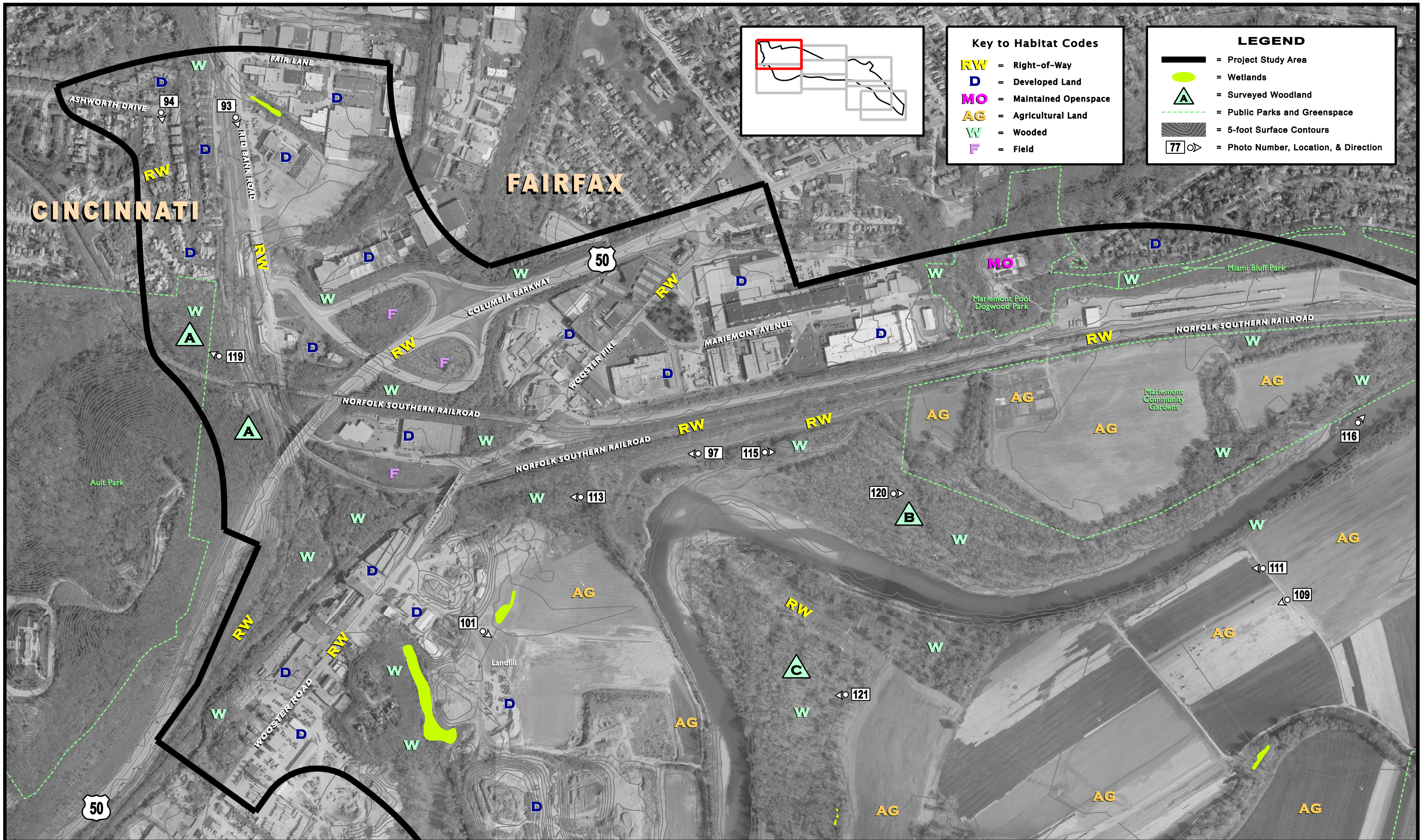
**Ecological Resources Inventory Report**  
Eastern Corridor Multi-Modal Projects  
Segment II / III (Relocated SR 32)

**Figure 3f**  
Aquatic Resources









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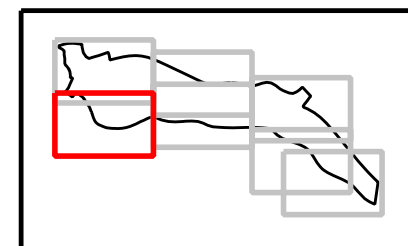
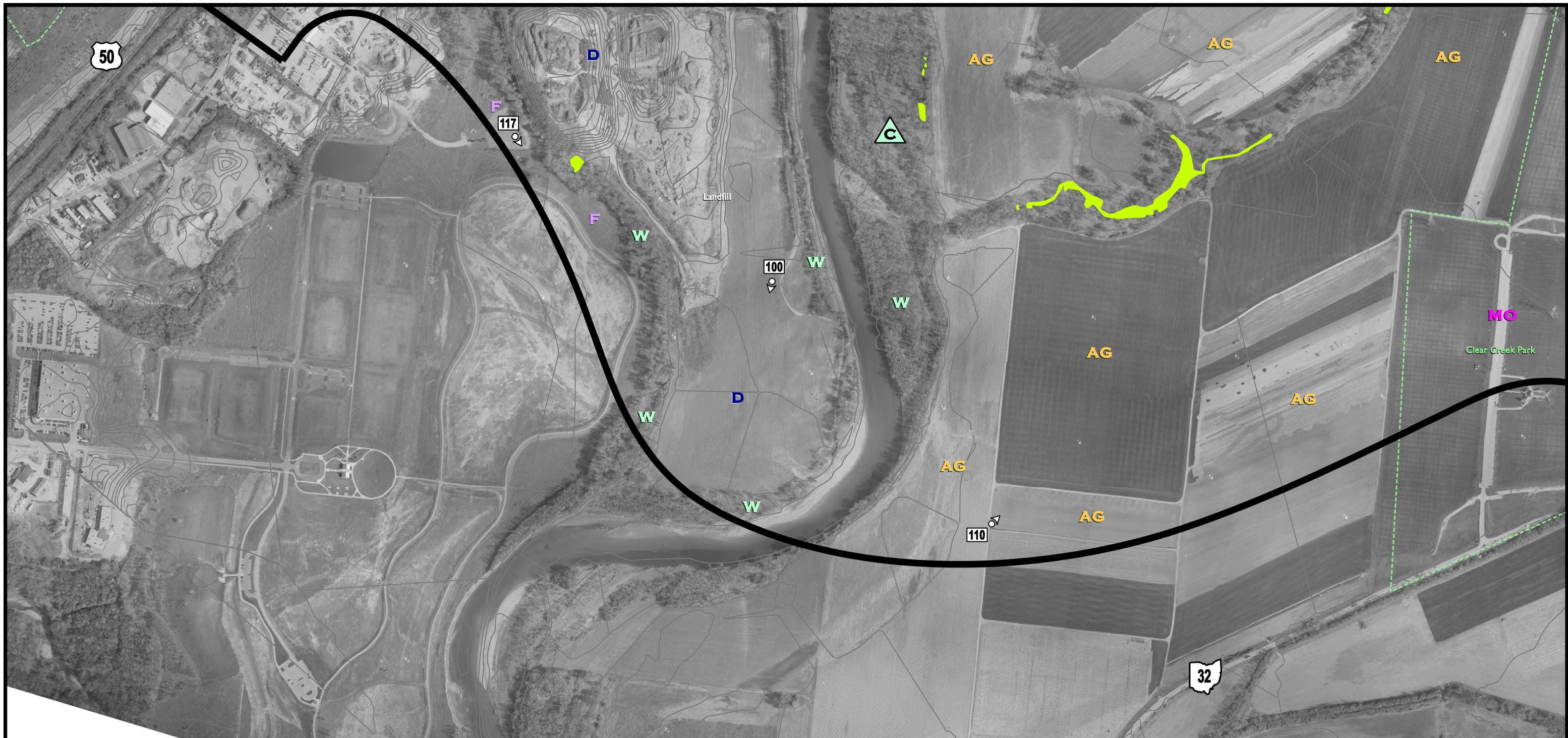


### Ecological Resources Inventory Report

Eastern Corridor Multi-Modal Projects  
Segment II / III (Relocated SR 32)

**Figure 4a**  
Terrestrial Habitats and Features





#### Key to Habitat Codes

- RW** = Right-of-Way
- D** = Developed Land
- MO** = Maintained Openspace
- AG** = Agricultural Land
- W** = Wooded
- F** = Field

#### LEGEND

- = Project Study Area
- = Wetlands
- = Surveyed Woodland
- = Public Parks and Greenspace
- = 5-foot Surface Contours
- = Photo Number, Location, & Direction

## Ecological Resources Inventory Report

Eastern Corridor Multi-Modal Projects  
Segment II / III (Relocated SR 32)

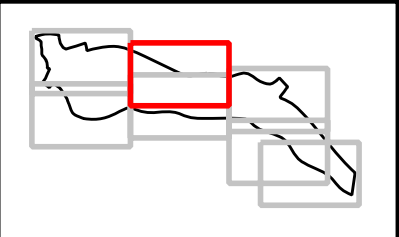
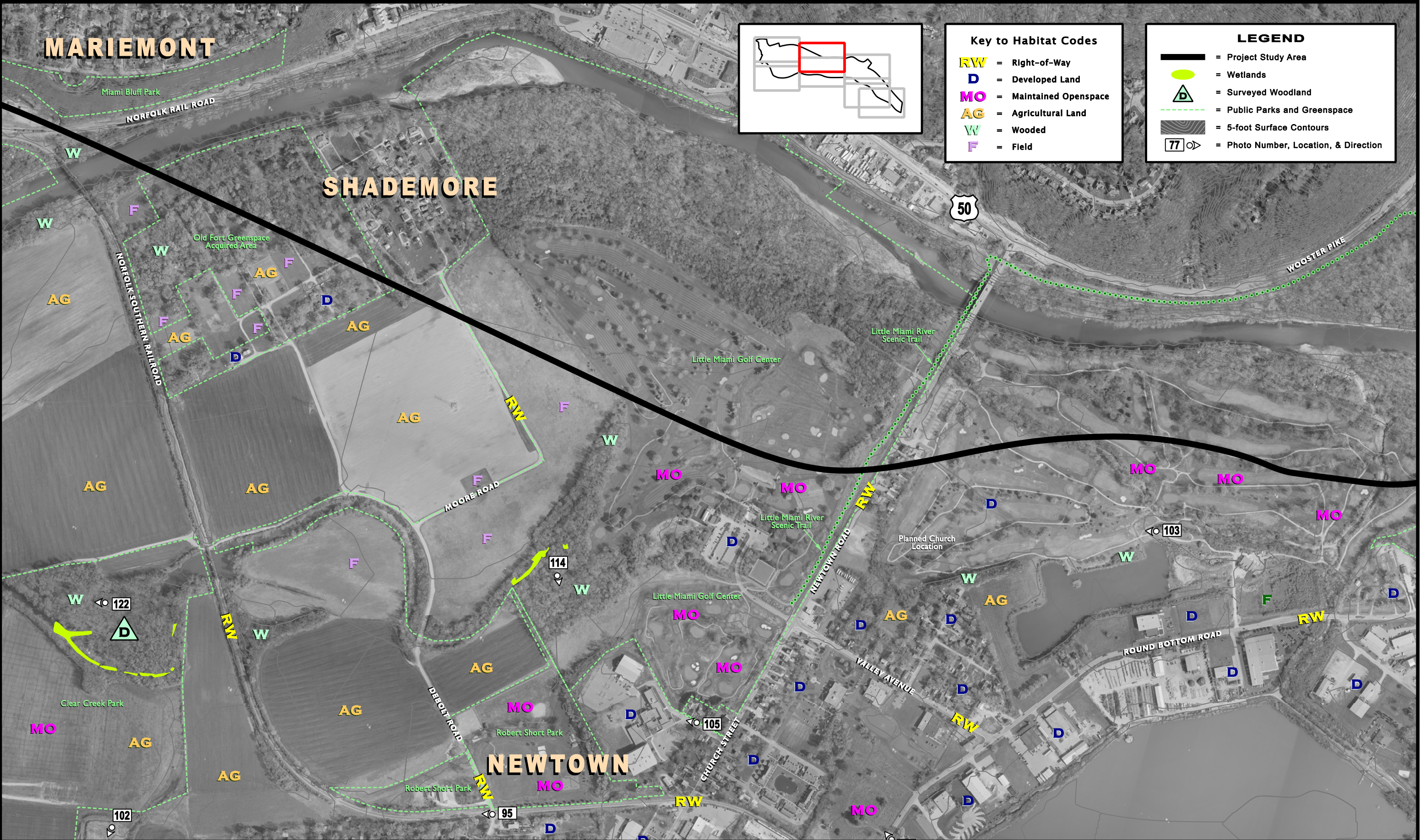
## Figure 4b

Terrestrial Habitats and Features

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Key to Habitat Codes	
<b>RW</b>	= Right-of-Way
<b>D</b>	= Developed Land
<b>MO</b>	= Maintained Openspace
<b>AG</b>	= Agricultural Land
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<b>F</b>	= Field

LEGEND	
	= Project Study Area
	= Wetlands
	= Surveyed Woodland
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	= Photo Number, Location, & Direction

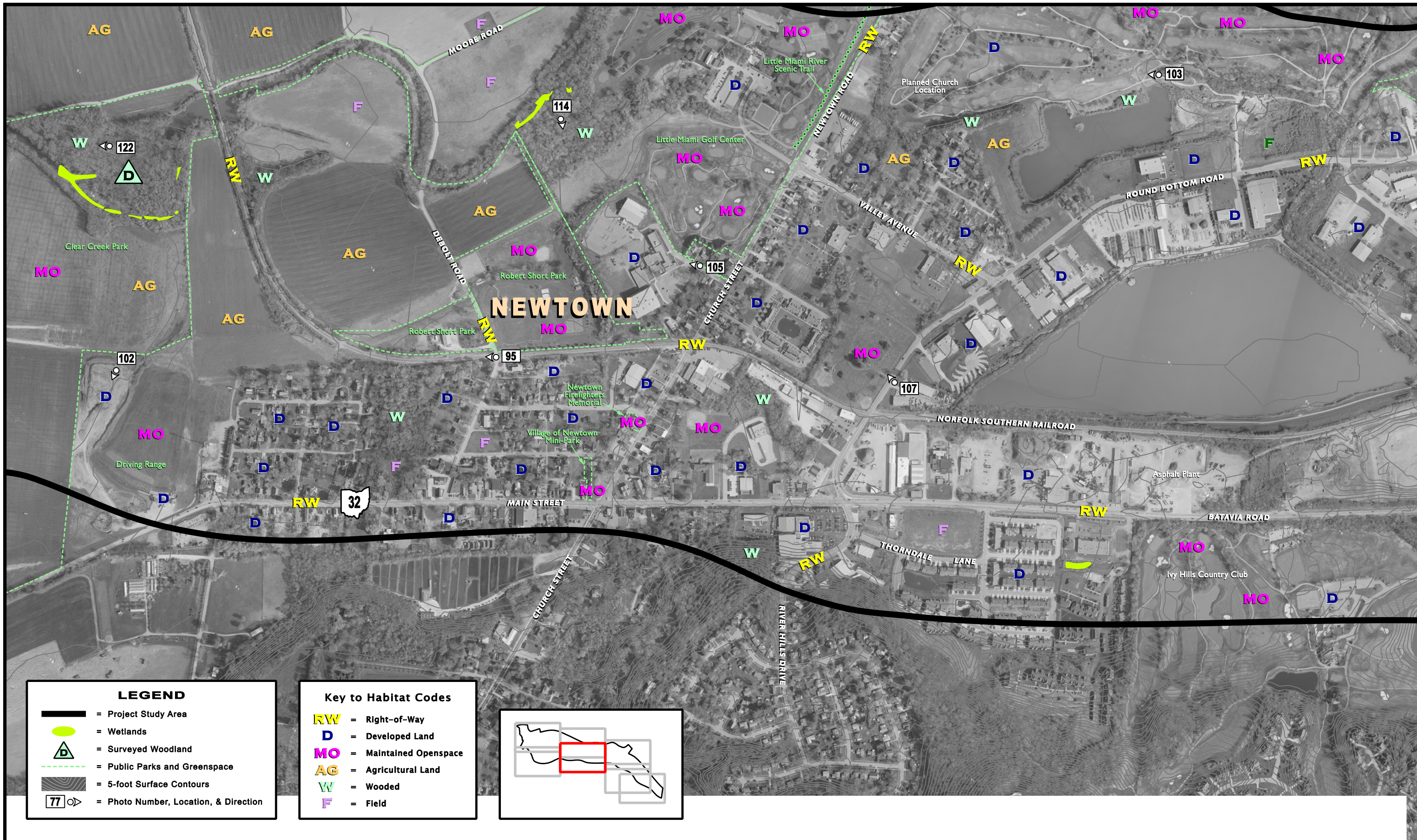
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**Ecological Resources Inventory Report**  
Eastern Corridor Multi-Modal Projects  
Segment II / III (Relocated SR 32)

**Figure 4c**  
Terrestrial Habitats and Features



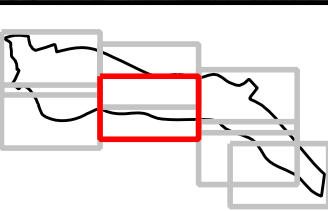


# LEGEND

- = Project Study Area
- = Wetlands
- = Surveyed Woodland
- = Public Parks and Greenspace
- = 5-foot Surface Contours
- = Photo Number, Location, & Direction

# Key to Habitat Codes

- = Right-of-Way
- = Developed Land
- = Maintained Openspace
- = Agricultural Land
- = Wooded
- = Field



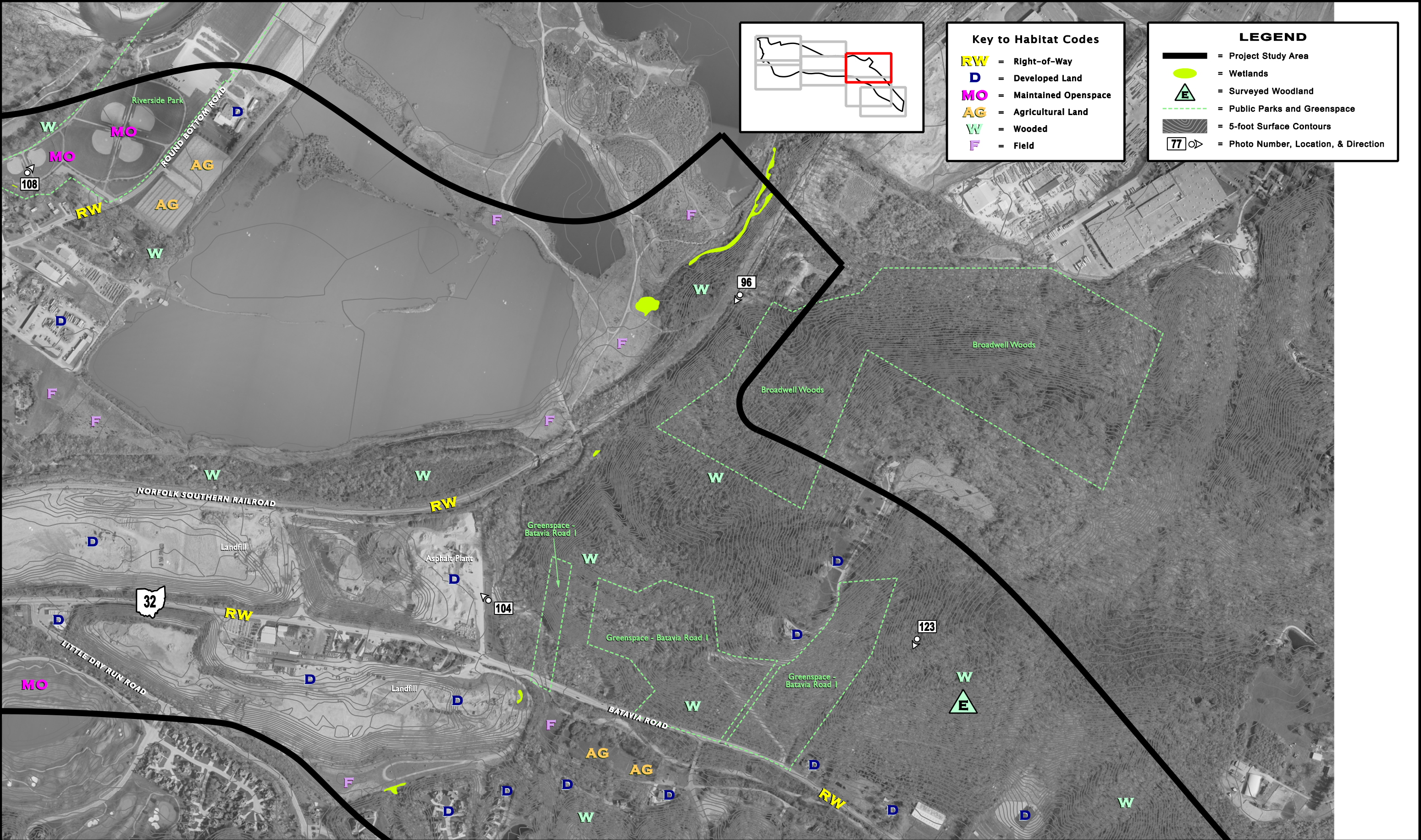
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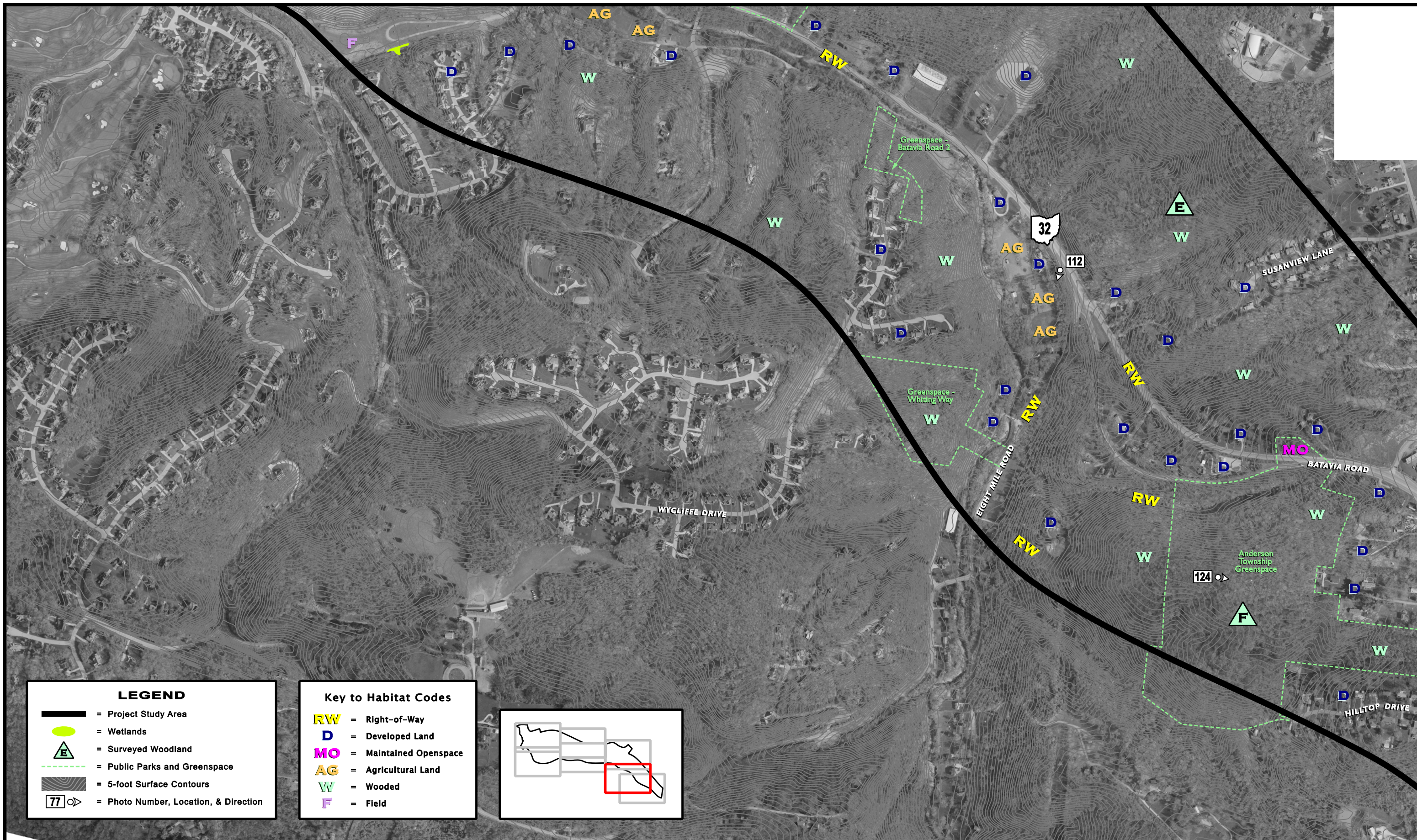
# Ecological Resources Inventory Report Eastern Corridor Multi-Modal Projects Segment II / III (Relocated SR 32)

**Figure 4d**  
Terrestrial Habitats and Features







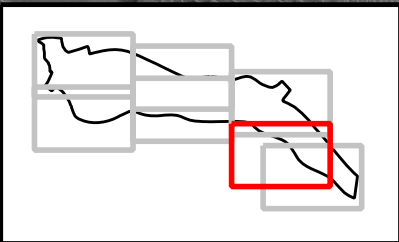


# LEGEND

- = Project Study Area
- = Wetlands
- = Surveyed Woodland
- = Public Parks and Greenspace
- = 5-foot Surface Contours
- = Photo Number, Location, & Direction

# Key to Habitat Codes

- = Right-of-Way
- = Developed Land
- = Maintained Openspace
- = Agricultural Land
- = Wooded
- = Field



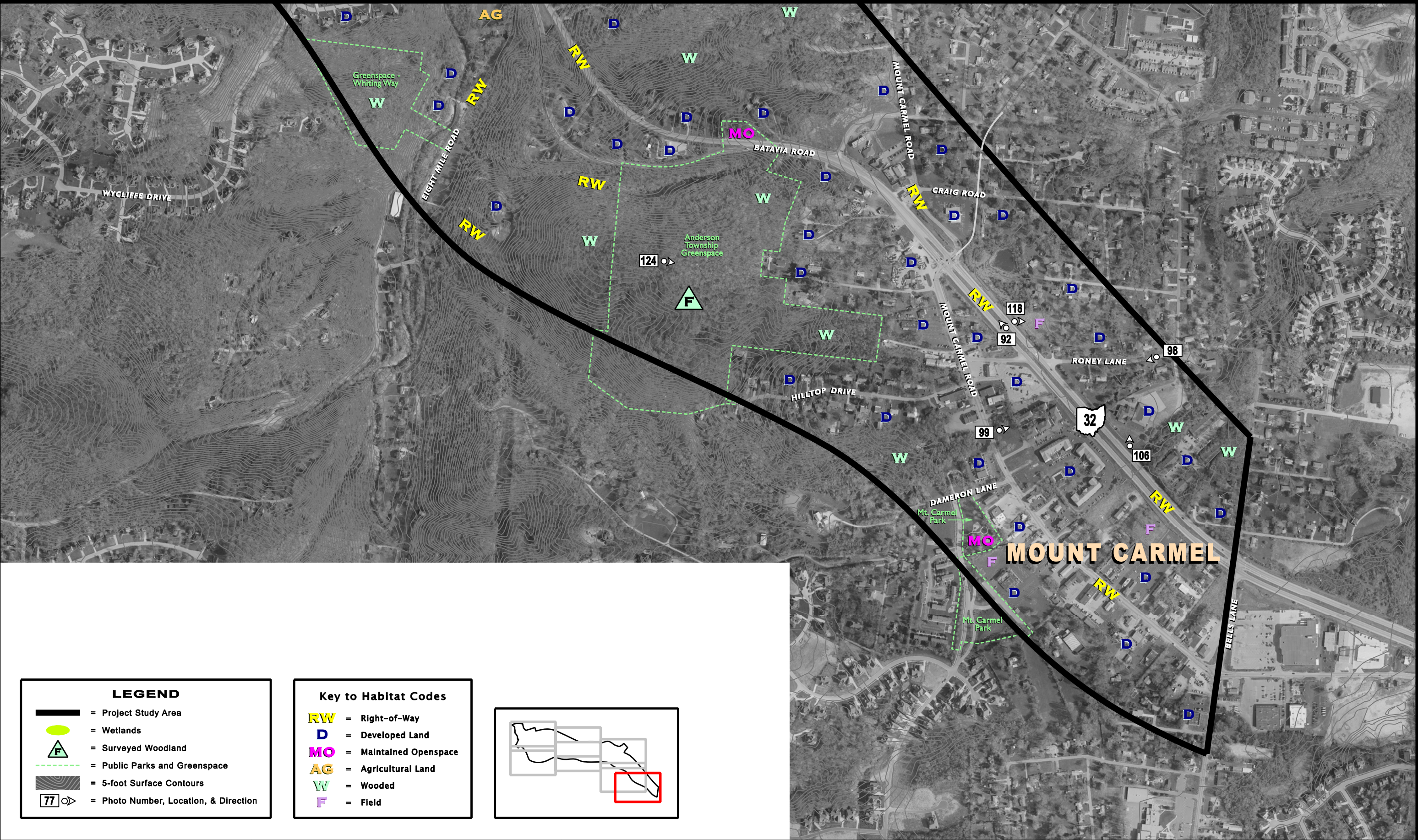
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# Ecological Resources Inventory Report Eastern Corridor Multi-Modal Projects Segment II / III (Relocated SR 32)

**Figure 4f**  
Terrestrial Habitats and Features



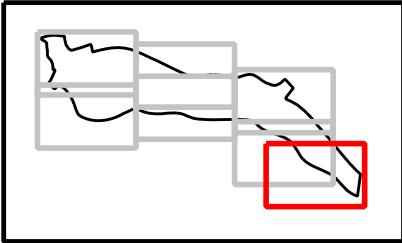


**LEGEND**

- = Project Study Area
- = Wetlands
- = Surveyed Woodland
- = Public Parks and Greenspace
- = 5-foot Surface Contours
- = Photo Number, Location, & Direction

**Key to Habitat Codes**

- RW** = Right-of-Way
- D** = Developed Land
- MO** = Maintained Openspace
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- W** = Wooded
- F** = Field



0 100 200 400 600 FEET  
December 2008



**Ecological Resources Inventory Report**  
Eastern Corridor Multi-Modal Projects  
Segment II / III (Relocated SR 32)

**Figure 4g**  
Terrestrial Habitats and Features



## ***APPENDICES***



***APPENDIX A***

*Literature Review Materials*

***APPENDIX B***

*Agency Response Information (ODNR)*

***APPENDIX C***

*Stream Survey Forms (HHEI and QHEI)*

***APPENDIX D***

*Wetland Determination Forms*

***APPENDIX E***

*Wetland Ohio Rapid Assessment Method (ORAM) v.5.0 Forms*

***APPENDIX F***

*Woodlot/Community Data Forms*

***APPENDIX G***

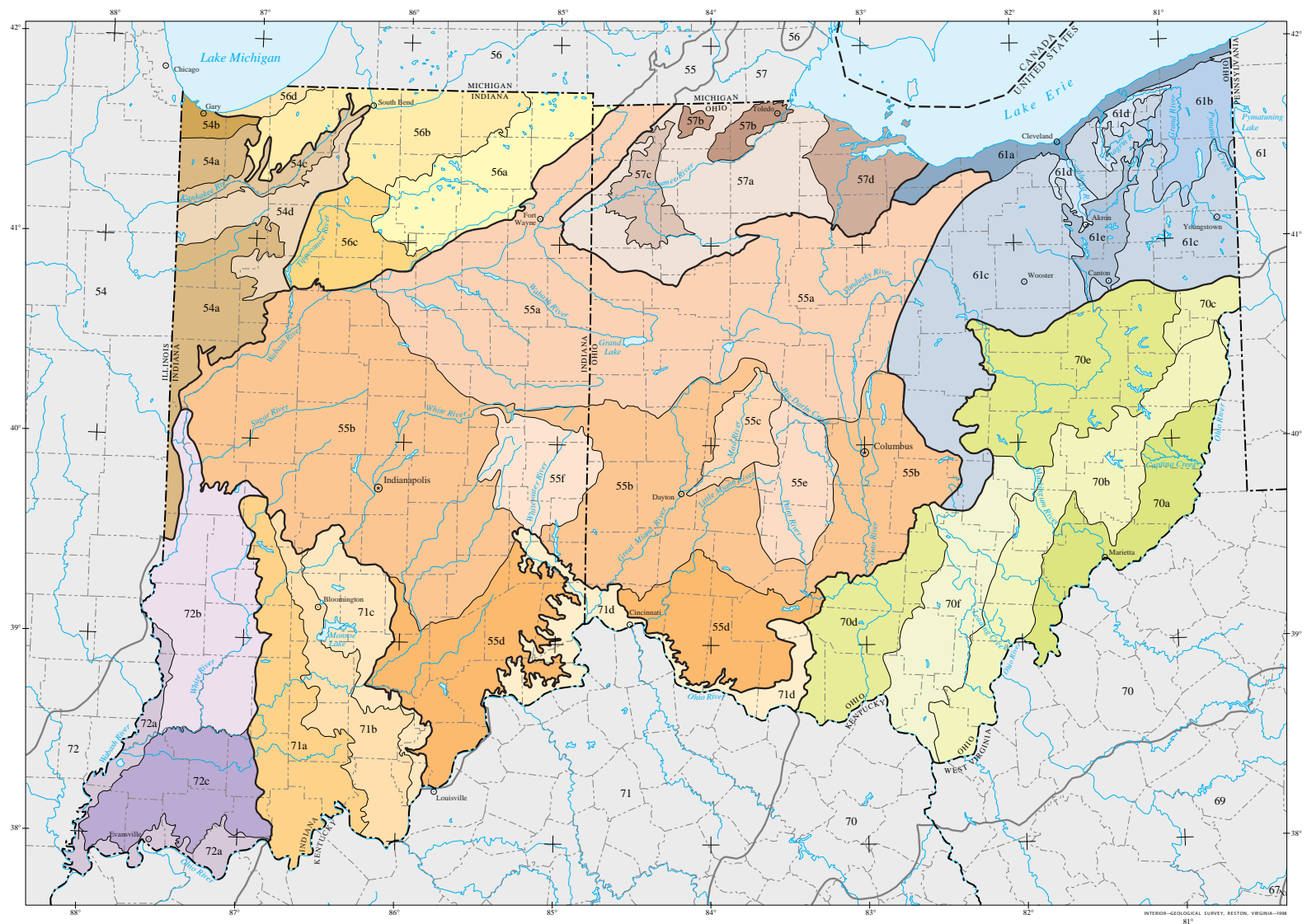
*Photograph Sheets*

## ***APPENDIX A***

### ***Literature Review Materials***

- *Ecoregions of Ohio and Indiana*
- *Physiographic Regions of Ohio*
- *Ohio 2002 Integrated Report Watershed (HUC11) Assessment Units*
- *Geologic Map and Cross Section of Ohio*
- *Ohio Karst Areas*
- *Glacial Map of Ohio*
- *Eastern Corridor Mapped Soils*
- *OAC 3745-1-05 excerpt: Outstanding state waters*
- *OAC 3745-1-18 excerpt: Little Miami River drainage basin Use Designations (November 2008 Draft)*
- *Ohio Total Maximum Daily Load Program Progress*
- *NWI Wetlands*
- *Great Miami/Little Miami River Buried Valley Aquifer System Map*
- *FEMA Floodplain Maps*
- *Eastern Corridor Land Use Vision Plan Map*
- *Eastern Corridor Agricultural Lands Map*
- *Eastern Corridor Parks and Greenspace Map*
- *Known Ranges of Federally Listed Species in Ohio (Map of Ohio)*
- *USFWS Federally-Listed Species by Ohio Counties (November 2008)*
- *USFWS Federally Endangered, Threatened, Candidate Species and Species of Concern in Ohio (November 2008)*

# Ecoregions of Indiana and Ohio



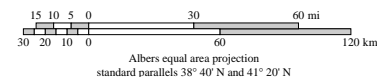
- 54 Central Corn Belt Plains**
- 54a Illinois/Indiana Prairies
  - 54b Chicago Lake Plain
  - 54c Kankakee Marsh
  - 54d Kankakee Sand Area
- 55 Eastern Corn Belt Plains**
- 55a Clayey, High Lime Till Plains
  - 55b Loamy, High Lime Till Plains
  - 55c Mad River Interlobate Area
  - 55d Pre-Wisconsinan Drift Plains
  - 55e Darby Plains
  - 55f Whitewater Interlobate Area

- 56 Southern Michigan/Northern Indiana Drift Plains**
- 56a Lake Country
  - 56b Elkhart Till Plains
  - 56c Middle Tippecanoe Plains
  - 56d Michigan Lake Plain
- 57 Huron/Erie Lake Plains**
- 57a Maumee Lake Plains
  - 57b Oak Openings
  - 57c Paulding Plains
  - 57d Marblehead Drift/Limestone Plain

- 61 Erie/Ontario Drift and Lake Plain**
- 61a Erie Lake Plain
  - 61b Mosquito Creek/Pymatuning Lowlands
  - 61c Low Lime Drift Plain
  - 61d Erie Gorges
  - 61e Summit Interlobate Area
- 70 Western Allegheny Plateau**
- 70a Permian Hills
  - 70b Monongahela Transition Zone
  - 70c Pittsburgh Low Plateau
  - 70d Lower Scioto Dissected Plateau
  - 70e Unglaciated Upper Muskingum Basin
  - 70f Ohio/Kentucky Carboniferous Plateau

- 71 Interior Plateau**
- 71a Crawford Uplands
  - 71b Mitchell Plain
  - 71c Norman Upland
  - 71d Northern Bluegrass
- 72 Interior River Lowland**
- 72a Wabash Bottomlands
  - 72b Glaciated Wabash Lowlands
  - 72c Southern Wabash Lowlands

- Level III ecoregion
- Level IV ecoregion
- County boundary
- State boundary
- International boundary

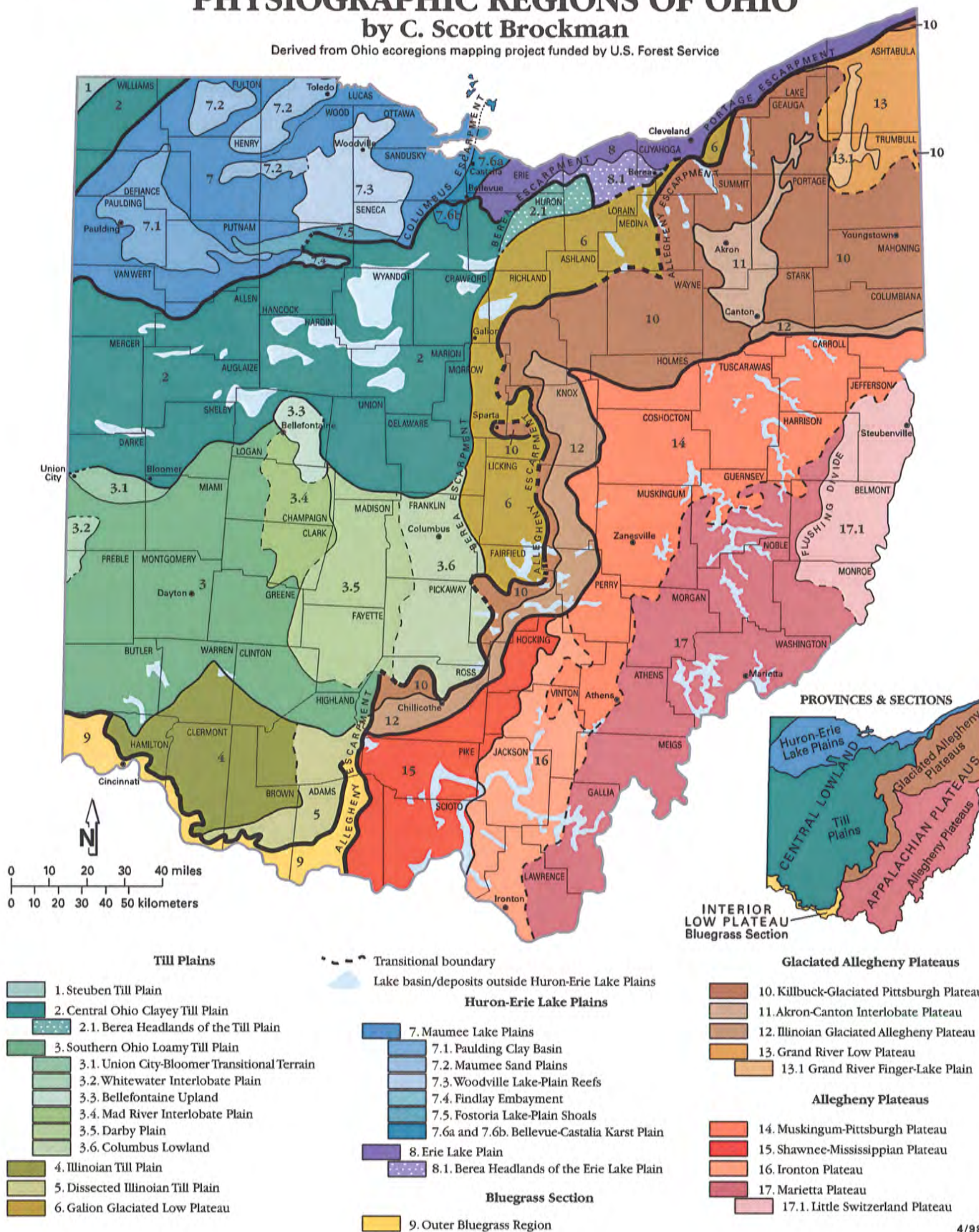




# PHYSIOGRAPHIC REGIONS OF OHIO

by C. Scott Brockman

Derived from Ohio ecoregions mapping project funded by U.S. Forest Service





# PHYSIOGRAPHIC REGIONS OF OHIO

Major Divisions	Provinces	Sections *	DISTINGUISHING CHARACTERISTICS OF REGIONS & DISTRICTS	GEOLOGY	BOUNDARIES
INTERIOR PLAINS	CENTRAL LOWLAND	Till Plains	1. <b>Steuben Till Plain.</b> Hummocky terrain with rolling hills, interspersed flats and closed depressions; wetlands, few streams, deranged drainage; only a small part of the region is in Ohio; elevation 950'-1100', moderately low relief (60')	Wisconsinan-age (latest Ice-Age) loamy till from a northern source (Saginaw glacial lobe) over Mississippian-age Coldwater Shale	Southeast: edge of Wabash Moraine
			2. <b>Central Ohio Clayey Till Plain.</b> Surface of clayey till; well-defined moraines with intervening flat-lying ground moraine and intermoraine lake basins; no boulder belts; about a dozen silt-, clay- and till-filled lake basins range in area from a few to 200 square miles; few large streams; limited sand & gravel outwash; elevation 700'-1150', moderate relief (100')	Clayey, high-lime Wisconsinan-age till from a northeastern source (Erie glacial lobe) and lacustrine materials over Lower Paleozoic-age carbonate rocks and, in the east, shales; loess thin to absent	North: Lake Plain; northeast: limit of Berea Sandstone; east: Berea Escarpment; south: Powell and Union City/Bloomer Moraines; northern segment boundaries: Wabash Moraine and lake plain
			2.1. <b>Berea Headlands of the Till Plain.</b> Gently rolling to flat terrain of thin drift descending to Lake Erie, punctuated by more than 20 streamlined "whalebacks" of Berea Sandstone, 0.5 to 2.5 miles long, 30'-60' high; somewhat poorly drained; elevation 800'-1000', low relief (20')	Thin, clayey, medium-lime Wisconsinan-age till over resistant Mississippian-age Berea Sandstone	South: limit of Berea Sandstone; elsewhere: Berea Escarpment and/or margin of highest Pleistocene lake
			3. <b>Southern Ohio Loamy Till Plain.</b> Surface of loamy till; end and recessional moraines, commonly associated with boulder belts, between relatively flat-lying ground moraine, cut by steep-valleyed large streams; stream valleys filled with outwash and alternate between broad floodplains and narrow; buried valleys common; elevation 530'-1150', moderate relief (200')	Loamy, high-lime Wisconsinan-age till, outwash, and loess over Lower Paleozoic-age carbonate rocks and, in the east, shales	East: Berea and Allegheny Escarpments; north: Powell and Union City/Bloomer Moraines; south: limit of Wisconsinan-age till
			3.1. <b>Union City-Bloomer Transitional Terrain.</b> Well-defined moraines with low-relief, hummocky ground moraine like the Central Ohio Clayey Till Plain to the north; loamy till with loess cap like Southern Ohio Loamy Till Plain to the south; elevation 920'-1075', moderately low relief (30')	Loamy, high-lime Wisconsinan-age till with thin loess cap over Silurian-age dolomites	North: Bloomer Moraine and limit of loamy till; south: Union City Moraine
			3.2. <b>Whitewater Interlobate Plain.</b> An upland between two converging glacial lobes with hummocky moraines, moraine complexes, kames, boulder belts, and broad outwash trains/plateaus; contains highest elevations in Indiana (1257') and in adjacent Ohio counties (1240'); elevation in Ohio 980'-1240', moderate relief (150')	Loamy, high-lime Wisconsinan-age till and sand and gravel outwash over resistant Silurian-age carbonate rocks (north) and less resistant Ordovician-age shales and limestones (south)	North: limit of Knightsdown/Farmersville Moraines and kame fields; east: high, dissected hills draining to Whitewater River
		Huron-Erie Lake Plains	3.3. <b>Bellefontaine Upland.</b> Moderately high relief (250') dissected topography with moraine complexes, boulder belts, high-gradient major streams, caves and sinkholes; few glacial depressions/kettles compared to surrounding areas; elevation 1100'-1549'; includes highest elevation in Ohio (Campbell Hill, 1549')	Loamy, high-lime Wisconsinan-age till over generally deeply buried Silurian- to Devonian-age carbonate rocks and Ohio Shale	North: areas with hilltops above 1200'; elsewhere: hilltops above about 1300'
			3.4. <b>Mad River Interlobate Plain.</b> Area between two major converging glacial lobes with extensive outwash, outwash terraces, and bordering moraines; springs and cool, ground-water-fed surface waters; elevation 800'-1350', moderate relief (200')	Loamy, high-lime Wisconsinan-age till and sand and gravel outwash over Silurian- to Devonian-age carbonate rocks and Ohio Shale	East and north: rear edge of Cable Moraine Complex; south: outwash to Clifton Gorge; west: western edge of Mad River Outwash
			3.5. <b>Darby Plain.</b> Moderately low relief (25'), broadly hummocky ground moraine with several broad, indistinct recessional moraines; between hummocks are broad, poorly drained swales which held wet prairies/meadows in pioneer days; few large streams; elevation 750'-1100'	Loamy, high-lime Wisconsinan-age till and sparse outwash over Silurian- and Devonian-age carbonate rocks and Ohio Shale in the southeast	South and west: front of Reesville and rear of Cable Moraines; north: Powell Moraine; east: increasing eastward slope (see 3.6)
			3.6. <b>Columbus Lowland.</b> Lowland surrounded in all directions by relative uplands, having a broad regional slope toward the Scioto Valley; many larger streams; elevation 600'-850' (950' near Powell Moraine), moderately low relief (25')	Loamy, high-lime (west) to medium-lime (east) Wisconsinan-age till and extensive outwash in Scioto Valley over deep Devonian- to Mississippian-age carbonate rocks, shales, and siltstones	North: Powell Moraine; east and south: Berea and/or Allegheny Escarpments; west: flatter and higher Darby Plain
			4. <b>Illinoian Till Plain.</b> Rolling ground moraine of older till generally lacking ice-constructural features such as moraines, kames, and eskers; many buried valleys; modern valleys alternating between broad floodplains and bedrock gorges; elevation 600'-1100', moderately low relief (50')	Silt-loam, high-lime, Illinoian-age till with loess cap; soils leached several feet; underlain by Ordovician- and Silurian-age carbonate rocks and calcareous shales	North: Wisconsinan glacial margin (Cuba and Hartwell Moraines); elsewhere: limit of common till-covered hilltops
			5. <b>Dissected Illinoian Till Plain.</b> Hilly former till plain in which glacial deposits have been eroded from many valley sides; relatively high stream density; elevation 600'-1340', moderate relief (200')	Hilltops of high-lime Illinoian-age till with loess cap; slopes of bedrock- and till-derived colluvium and Ordovician- and Silurian-age carbonate rocks and calcareous shales	East: maximum glacial margin; elsewhere: limit of general absence of till on hillslopes
	INT. LOW PLATEAUS	Bluegrass Section	6. <b>Gallon Glaciated Low Plateau.</b> Rolling upland transitional between the gently rolling Till Plain and the hilly Glaciated Allegheny Plateau; mantled with thin to thick drift; elevation 800'-1400', moderate relief (100')	Medium- to low-lime Wisconsinan-age till over Mississippian-age shales and sandstones	North: limit of Berea Sandstone; west: Berea Escarpment; south and east: Allegheny Escarpment
			7. <b>Maumee Lake Plains.</b> Flat-lying Ice-Age lake basin with beach ridges, bars, dunes, deltas, and clay flats; contained the former Black Swamp; slightly dissected by modern streams; elevation 570'-800', very low relief (5')	Pleistocene-age silt, clay, and wave-planed clayey till over Silurian- and Devonian-age carbonate rocks and shales	Northeast: Lake Erie; elsewhere: margin of highest Pleistocene lake
			7.1. <b>Paulding Clay Basin.</b> Nearly flat lacustrine plain; most clayey of all Lake Plain subregions; low-gradient, highly meandering streams; easily ponded soils; elevation 700'-725', extremely low relief (less than 5')	Pleistocene-age lacustrine clay over clay till and Silurian-age dolomites	Northeast: subdued ("drowned") remnant of Defiance Moraine; elsewhere: limit of lacustrine clay
			7.2. <b>Maumee Sand Plains.</b> Lacustrine plain mantled by sand; includes low dunes, inter-dunal pans, beach ridges, and sand sheets of glacial lakeshores; well to poorly drained; elevation 600'-800', very low relief (10')	Late Wisconsinan-age sand over clay till and lacustrine deposits; Silurian- and Devonian-age carbonate rocks and shales buried deeply	Limit of sandy deposits and/or low dunes
			7.3. <b>Woodville Lake-Plain Reefs.</b> Very low relief (10') lacustrine plain with low dunes and lake-margin features, punctuated by more than 75 ancient bedrock reefs rising 10' to 40' above the level of the plain and ranging in area from 0.1 to 3.0 square miles; the oblong reefs are thinly draped with drift; elevation 600'-775'	Thin to absent Wisconsinan-age wave-planed clay till, lacustrine deposits, and sand over Silurian-age reefal Lockport Dolomite	Limit of thinly mantled Lockport Dolomite (Bowling Green Fault to the west and the Defiance Moraine to the south)
			7.4. <b>Findlay Embayment.</b> Very low relief (10'), broadly rolling lacustrine plain; embayment of ancestral Lake Erie in which relatively coarse lacustrine sediments collected; elevation 775'-800'	Silty to gravelly Wisconsinan-age lacustrine deposits and wave-planed clay till over Silurian-age Lockport Dolomite	West: 775' beach ridge; north: Defiance Moraine; south: margin of highest Pleistocene lake level
		Allegheny (Kanawha) Plateaus	7.5. <b>Fostoria Lake-Plain Shoals.</b> Portion of the Defiance Moraine lightly eroded by shallow Lake Maumee with low north-south trending hillocks and shallow, closed depressions; many sandy areas; elevation 750'-825', low relief, decreasing westward (10'-15')	Silty to gravelly Wisconsinan-age lacustrine deposits and wave-planed clay till over deeply covered Silurian-age dolomite	South and east: unmodified Defiance Moraine; elsewhere: very low-relief lake plain
			7.6a and 7.6b. <b>Bellevue-Castalia Karst Plain.</b> Hummocky plain of rock knobs and numerous sinkholes, large solution features, and caves; large springs; thinly mantled by drift; region straddles both Lake Plain (7.6a) and Till Plain (7.6b); 7.6a has greatest relief of any Lake Plain region (25'); elevation 570'-825'	Columbus and Delaware Limestones overlain by thin clay till in 7.6b, and thin silty and sandy Wisconsinan-age lacustrine deposits and wave-planed clay till in 7.6a	Limit of thinly mantled Columbus and Delaware Limestones, which is marked in the west by the Columbus Escarpment
			8. <b>Erie Lake Plain.</b> Edge of very low-relief (10') Ice-Age lake basin separated from modern Lake Erie by shoreline cliffs; major streams in deep gorges; elevation 570'-800'	Pleistocene-age lacustrine sand, silt, clay, and wave-planed till over Devonian- and Mississippian-age shales and sandstones	North: Lake Erie; south: margin of highest Pleistocene lake
			8.1. <b>Berea Headlands of the Erie Lake Plain.</b> Portion of the Erie Lake Plain underlain by resistant Berea Sandstone; several large sandstone headlands jut into the Ice-Age lake basin; contains several streamlined "whalebacks" of Berea Sandstone, 0.5 to 2.0 miles long, 20'-35' high; poorly drained; elevation 670'-800', very low relief (10')	Thin lacustrine deposits over thin, wave-planed, clayey, medium-lime Wisconsinan-age till; underlain by resistant Berea Sandstone	North: portion of Lake Plain underlain by soft shales; south: margin of highest Pleistocene lake
			9. <b>Outer Bluegrass Region.</b> Moderately high relief (300') dissected plateau of carbonate rocks; in east, caves and other karst features relatively common; in west, thin, early drift caps narrow ridges; elevation 455'-1120'	Ordovician- and Silurian-age dolomites, limestones, and calcareous shales; thin pre-Wisconsinan drift on ridges in west; silt-loam colluvium	Eastern segment: maximum glacial margin and high eastern ridges capped by noncarbonate rocks; connected by Ohio River bluffs to western segment which is bounded by nondissected till plain
			APPALACHIAN HIGHLANDS	Glaciated Allegheny (southern New York) Plateaus	10. <b>Killbuck-Glaciated Pittsburgh Plateau.</b> Ridges and flat uplands generally above 1200', covered with thin drift and dissected by steep valleys; valley segments alternate between broad drift-filled and narrow rock-walled reaches; elevation 600'-1505', moderate relief (200')
11. <b>Akron-Canton Interlobate Plateau.</b> Hummocky area between two converging glacial lobes dominated by kames, kame terraces, eskers, kettles, kettle lakes, and bogs/fens; deranged drainage with many natural lakes; elevation 900'-1200', moderate relief (200')	Sandy Wisconsinan-age and older drift over Devonian- to Pennsylvanian-age sandstones, conglomerates and shales	Limit of common, sandy ice-contact features and deposits			
12. <b>Illinoian Glaciated Allegheny Plateau.</b> Dissected, rugged hills; loess and older drift on ridgetops, but absent on bedrock slopes; dissection similar to unglaciated regions of the Allegheny Plateau; elevation 600'-1400', moderate relief (200')	Colluvium and Illinoian-age till over Devonian- to Pennsylvanian-age shales, siltstones and sandstones	North and west: Wisconsinan glacial margin; south and east: Illinoian (maximum) glacial margin			
13. <b>Grand River Low Plateau.</b> Gently rolling ground and end moraine having thin to thick drift; poorly drained areas and wetlands relatively common; elevation 760'-1200', low relief (20') except near Grand River Valley (200')	Clayey, low-lime Wisconsinan-age till over deeply buried, soft Devonian-age shales and near-surface Mississippian-age sandstones and shales	North: Portage Escarpment; south and west: Defiance Moraine; southeast: increasing relief from proximity of buried Pennsylvanian-age sandstones			
13.1. <b>Grand River Finger-Lake Plain.</b> Very low relief (10') lake deposits in steep-sided troughs (200' relief) within the Grand River Low Plateau; cut by glacial and stream erosion; extensive wetlands; elevation 800'-900'	Surficial lacustrine clay and drift over deeply buried, soft Devonian-age shales	Margins of steeply sloping troughs containing the Grand River and parts of Rock and Mosquito Creeks			
14. <b>Muskingum-Pittsburgh Plateau.</b> Moderately high to high relief (300'-600') dissected plateau having broad major valleys that contain outwash terraces, and tributaries with lacustrine terraces; medium-grained bedrock sequences coarser than those in Marietta Plateau (17) but finer than those in Ironton Plateau (16); remnants of ancient Teays-age drainage system uncommon; elevation 650'-1400'	Mississippian and Pennsylvanian-age siltstones, shales, sandstones and economically important coals and claystones; Wisconsinan-age sand, gravel, and lacustrine silt; silt-loam colluvium	North and west: maximum glacial margin; southeast: transition to finer grained bedrock; southwest: transition to coarser grained bedrock			
15. <b>Shawnee-Mississippian Plateau.</b> High relief (400'-800'), highly dissected plateau of coarse and fine grained rock sequences; most rugged area in Ohio; remnants of ancient lacustrine clay-filled Teays drainage system are extensive in lowlands, absent in uplands; elevation 490'-1340'	Devonian- and Mississippian-age shales, siltstones, and locally thick sandstones; Pleistocene-age sandy outwash in Scioto River; Teays-age Minford Clay; silt-loam and channelry colluvium	North: Maximum glacial margin; west: carbonate bedrock; east: limit of Mississippian-age bedrock			
16. <b>Ironton Plateau.</b> Moderately high relief (300') dissected plateau; coarser grained coal-bearing rock sequences more common than in other regions of the Allegheny Plateau; common lacustrine clay-filled Teays Valley remnants; elevation 515'-1060'	Pennsylvanian-age (Pottsville, Allegheny and Conemaugh Groups) cycles of sandstones, siltstones, shales and economically important coals; Pleistocene (Teays)-age Minford Clay; silt-loam and channelry colluvium	West: limit of common Pennsylvanian-age bedrock; north and east: gradation to finer rock sequences			
17. <b>Marietta Plateau.</b> Dissected, high-relief (generally 350', to 600' near Ohio River) plateau; mostly fine-grained rocks; red shales and red soils relatively common; landslides common; remnants of ancient lacustrine clay-filled Teays drainage system common; elevation 515'-1400'	Pennsylvanian-age Upper Conemaugh Group through Permian-age Dunkard Group cyclic sequences of red and gray shales, and siltstones, sandstones, limestones and coals; Pleistocene (Teays)-age Minford Clay; red and brown silty-clay loam colluvium; landslide deposits	North and west: transition to medium-grained Lower Conemaugh rocks; east: Flushing Divide			
17.1. <b>Little Switzerland Plateau.</b> Highly dissected, high-relief (generally 450', to 750' along Ohio River) plateau; mostly fine-grained rocks; red shales and red soils relatively common; landslides common; high-gradient shale-bottomed streams subject to flash flooding; no remnants of ancient Teays drainage system; elevation 540'-1400'	Similar to Marietta Plateau but lacking Pleistocene (Teays)-age Minford Clay	North: transition to medium-grained rocks; west and south: Flushing Divide; east: Ohio River			

\* Section names modified from Fenneman (1938, 1946).



010 Last 3 digits of Watershed ID

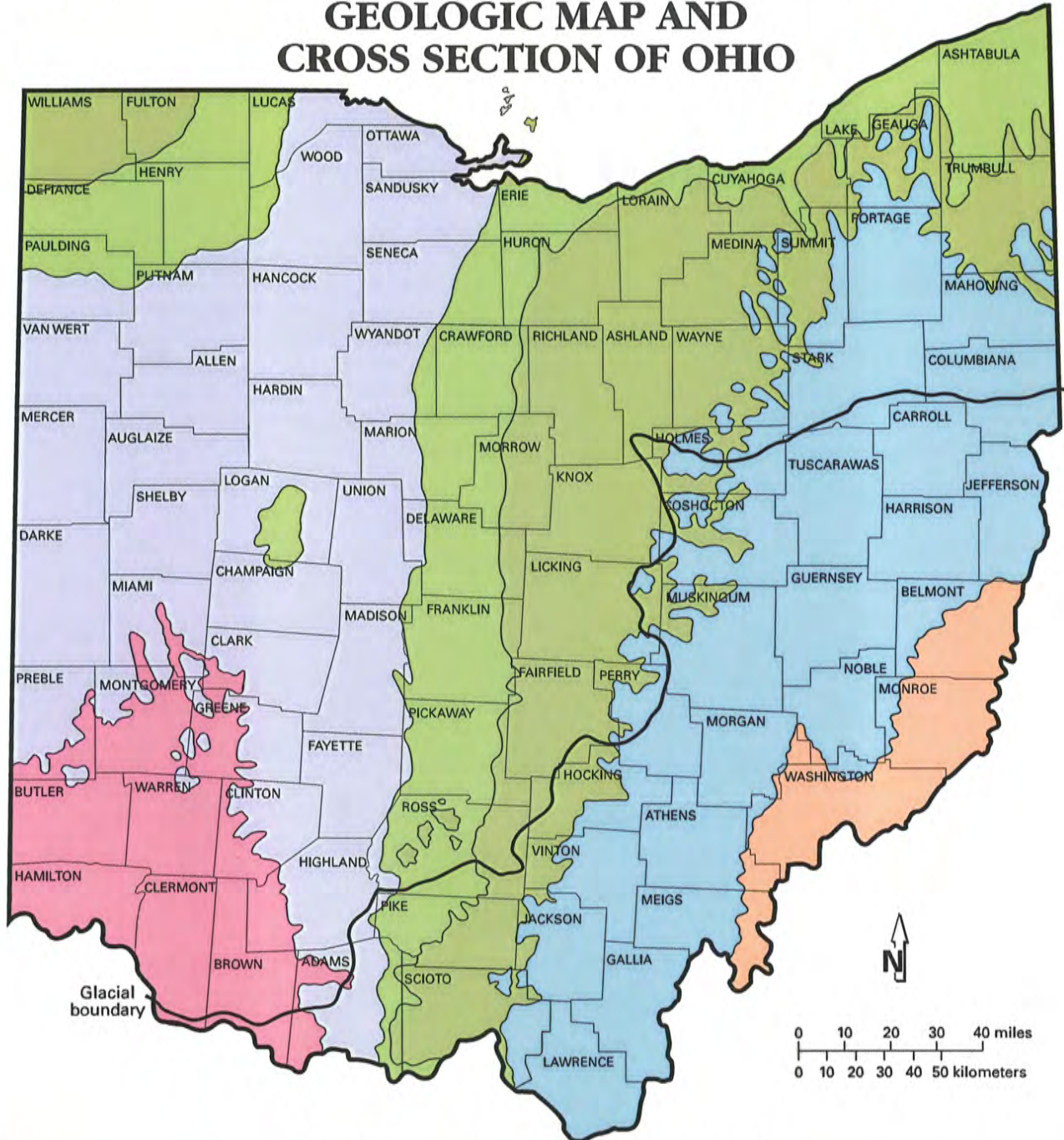


Division of Surface Water  
BAW 8/14/02

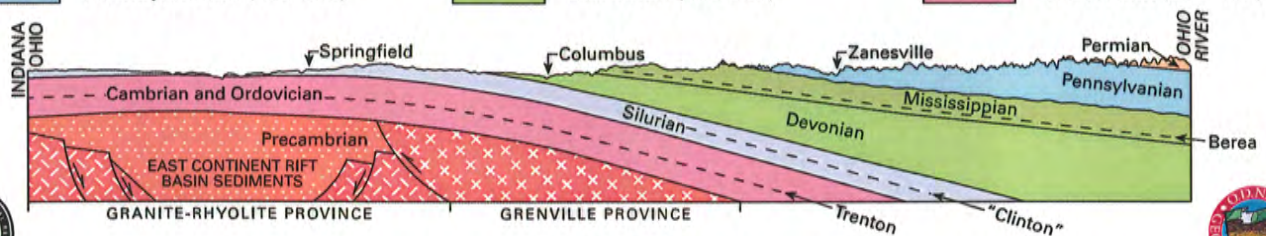
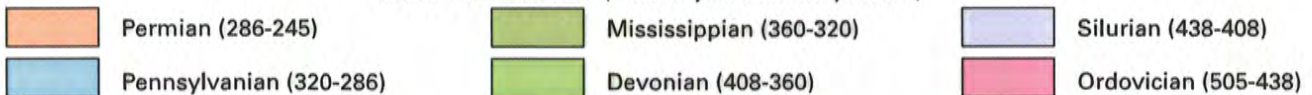




# GEOLOGIC MAP AND CROSS SECTION OF OHIO



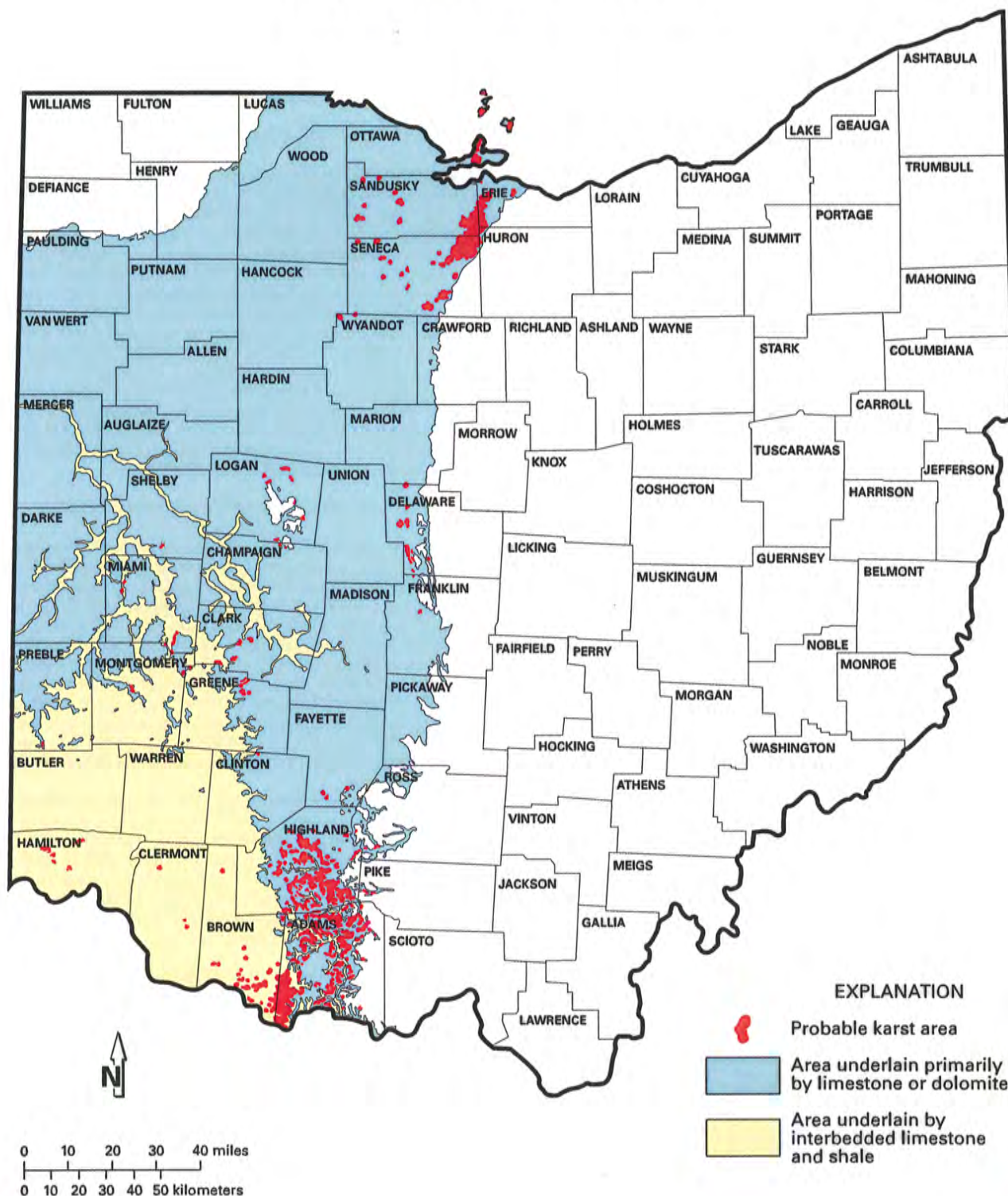
GEOLOGIC SYSTEM (million years before present)







## OHIO KARST AREAS





# OHIO KARST AREAS

Karst is a landform that develops on or in limestone, dolomite, or gypsum by dissolution and that is characterized by the presence of characteristic features such as sinkholes, underground (or internal) drainage through solution-enlarged fractures (joints), and caves. While karst landforms and features are commonly striking in appearance and host to some of Ohio's rarest fauna, they also can be a significant geologic hazard. Sudden collapse of an underground cavern or opening of a sinkhole can cause surface subsidence that can severely damage or destroy any overlying structure such as a building, bridge, or highway. Improperly backfilled sinkholes are prone to both gradual and sudden subsidence, and similarly threaten overlying structures. Sewage, animal wastes, and agricultural, industrial, and ice-control chemicals entering sinkholes as surface drainage are conducted directly and quickly into the ground-water system, thereby posing a severe threat to potable water supplies. Because of such risks, many of the nation's state geological surveys, and the U.S. Geological Survey, are actively mapping and characterizing the nation's karst regions.

The five most significant Ohio karst regions are described below.

## BELLEVUE-CASTALIA KARST PLAIN

The Bellevue-Castalia Karst Plain occupies portions of northeastern Seneca County, northwestern Huron County, southeastern Sandusky County, and western Erie County. Adjacent karst terrain in portions of Ottawa County, including the Marblehead Peninsula, Catawba Island, and the Bass Islands, is related in geologic origin to the Bellevue-Castalia Karst Plain. The area is underlain by up to 175 feet of Devonian carbonates (Delaware Limestone, Columbus Limestone, Lucas Dolomite, and Amherstburg Dolomite) overlying Silurian dolomite, anhydrite, and gypsum of the Bass Islands Dolomite and Salina Group.

The Bellevue-Castalia Karst Plain is believed to contain more sinkholes than any of Ohio's other karst regions. Huge, irregularly shaped, closed depressions up to 270 acres in size and commonly enclosing smaller, circular-closed depressions 5 to 80 feet in diameter pockmark the land between the village of Flat Rock in northeastern Seneca County and Castalia in western Erie County. Surface drainage on the plain is very limited, and many of the streams which are present disappear into sinkholes called swallow holes.

Karst in the Bellevue-Castalia and Lake Erie islands region is due to collapse of overlying carbonate rocks into voids created by the dissolution and removal of underlying gypsum beds. According to Verber and Stansbery (1953, Ohio Journal of Science), ground water is introduced into Salina Group anhydrite ( $\text{CaSO}_4$ ) through pores and fractures in the overlying carbonates. The anhydrite chemically reacts with the water to form gypsum ( $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ ), undergoing a 33 to 62 percent increase in volume in the process. This swelling lifts overlying strata, thereby opening fractures and creating massive passageways for conduction of greater volumes of ground water through the Silurian Bass Islands Dolomite and into underlying Salina Group strata. Gypsum, being readily soluble in water, is dissolved, creating huge voids. Overlying carbonates then collapse or break down, leaving surface depressions similar to those resulting from roof failure of an underground mine.

## DISSECTED NIAGARA ESCARPMENT

The dissected Niagara Escarpment of southwestern Ohio includes the largest single area of karst terrain in the state and the greatest number of surveyed caves. It also is estimated to include the second-largest number of sinkholes in the state. The area is underlain by Silurian rocks of the Peebles Dolomite, Lilley Formation, Bisher Formation, Estill Shale, and Noland Formation in Adams, Highland, and Clinton Counties and the Cedarville Dolomite, Springfield Dolomite, Euphemia Dolomite, Massie Shale, Laurel Dolomite, Osgood Shale, and Dayton Formation in Greene, Clark, Miami, Montgomery, and Preble Counties. The Peebles-Lilley-Bisher sequence and the Cedarville-Springfield-Euphemia sequence constitute the Lockport Group.

Most karst features along the Niagara Escarpment in southwestern Ohio are developed in Lockport Group strata. More than 100 sinkholes and caves developed in the Lockport have been documented in the field, and more than 1,000 probable sinkholes in the Lockport have been identified on aerial photographs, soils maps, and topographic maps. As with most karst terrain, sinkholes developed on the Niagara Escarpment commonly show linear orientations aligned with prevailing joint trends in the area. The greatest concentration of sinkholes on the escarpment is south of the Wisconsin

glacial border in southern Highland and Adams Counties, where highly dissected ridges capped by Silurian carbonate rocks rise 150 to 200 feet above surrounding drainage. Illinoian till in these areas is thin to absent, and soils are completely leached with respect to calcium and calcium-magnesium carbonate. Such geologic settings are ideal for active karst processes, as downward-percolating, naturally acidic rain water is not buffered until it has dissolved some of the underlying carbonate bedrock. Other significant karst features of the Niagara Escarpment include small caves in escarpment re-entrants created by the valleys of the Great Miami and Stillwater Rivers in Miami County.

## BELLEFONTAINE OUTLIER

The Bellefontaine Outlier in Logan and northern Champaign Counties is an erosionally resistant "island" of Devonian carbonates capped by Ohio Shale and surrounded by a "sea" of Silurian strata. Though completely glaciated, the outlier was such an impediment to Ice Age glaciers that it repeatedly separated advancing ice sheets into two glacial lobes—the Miami Lobe on the west and the Scioto Lobe on the east. Most Ohioans recognize the outlier as the location of Campbell Hill—the highest point in the state at an elevation of 1,549 feet above mean sea level.

Although it is not known for having an especially well-developed karst terrain, the outlier is the location of Ohio's largest known cave, Ohio Caverns. The greatest sinkhole concentrations are present in McArthur and Rushcreek Townships of Logan County, where the density of sinkholes in some areas approaches 30 per square mile. Sinkholes here typically occur in upland areas of Devonian Lucas Dolomite or Columbus Limestone that are 30 to 50 feet or more above surrounding drainage and are covered by less than 20 feet of glacial drift and/or Ohio Shale.

## SCIOTO AND OLENTANGY RIVER GORGES

The uplands adjacent to the gorges of the Scioto and Olentangy Rivers in northern Franklin and southern Delaware Counties include areas of well-developed, active karst terrain. These uplands also are among the most rapidly developing areas of the state, which means karst should be a consideration in site assessments for commercial and residential construction projects.

The Scioto River in this area has been incised to a depth of 50 to 100 feet into underlying bedrock, creating a shallow gorge. The floor, walls, and adjacent uplands of the gorge consist of Devonian Delaware and Columbus Limestones mantled by up to 20 feet of Wisconsin till. Sinkhole concentrations up to 1 sinkhole per acre are not uncommon in Concord, Scioto, and Radnor Townships of Delaware County. The sinkholes range in diameter from about 10 to 100 feet and commonly are aligned linearly along major joint systems.

The Olentangy River is approximately 5 miles east of the Scioto River in southern Delaware County and occupies a gorge that is narrower and up to 50 feet deeper than the Scioto River gorge. The floor and the lower half of the walls along the Olentangy gorge are composed of Delaware and Columbus Limestones, the upper half of the walls is composed of Devonian Ohio and Olentangy Shales mantled by a thin veneer of glacial drift. Karst terrain has developed along portions of the gorge in a manner similar to karst terrain along the Scioto River.

## ORDOVICIAN UPLANDS

The Ordovician uplands of southwestern Ohio are the location of surprisingly well-developed karst terrain despite the large component of shale in local bedrock. Numerous sinkholes are present in Ordovician rocks of Adams, Brown, Clermont, and Hamilton Counties.

The carbonate-rich members of the Grant Lake Formation (Bellevue and Mount Auburn), Grant Lake Limestone (Bellevue and Straight Creek), and the upper portion of the Arnheim formation are the Ordovician units most prone to karstification; however, the shale-rich (70 percent shale, 30 percent limestone) Waynesville Formation also has been subjected to a surprising amount of karst development in southeastern Brown and southwestern Adams Counties, just north of the Ohio River.

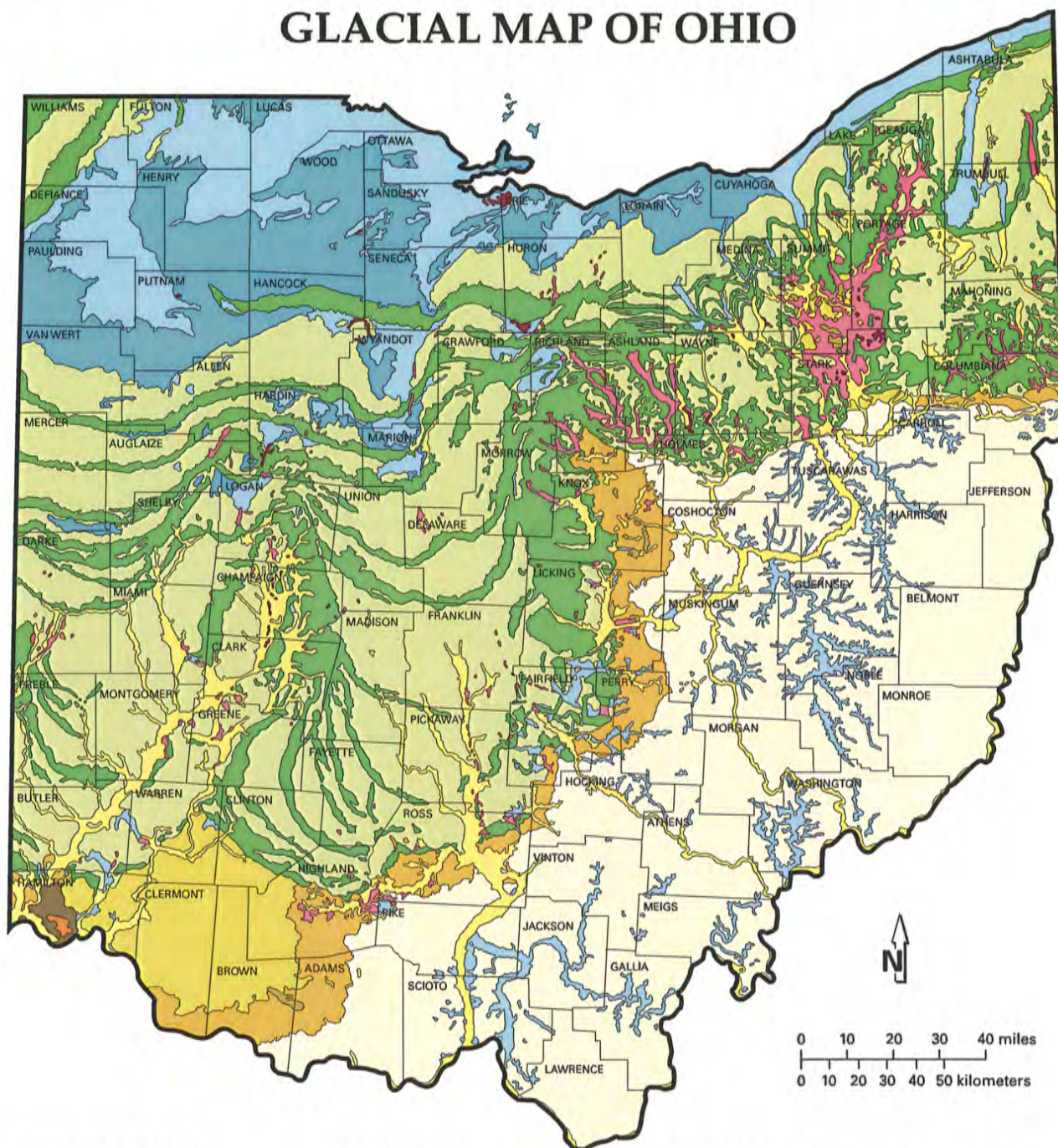
## ACKNOWLEDGMENT

The Division of Geological Survey gratefully acknowledges the Ohio Low-Level Radioactive-Waste Facility Development Authority for its financial support for mapping Ohio karst terrain.





# GLACIAL MAP OF OHIO



## WISCONSINAN (14,000 to 24,000 years old)

- Ground moraine
- Wave-planed ground moraine
- End moraine

## ILLINOIAN (130,000 to 300,000 years old)

- Ground moraine
- Dissected ground moraine
- Hummocky moraine

## PRE-ILLINOIAN (older than 300,000 years)

- Ground moraine
- Dissected ground moraine

- Kames and eskers
- Outwash
- Lake deposits
- Peat
- Colluvium







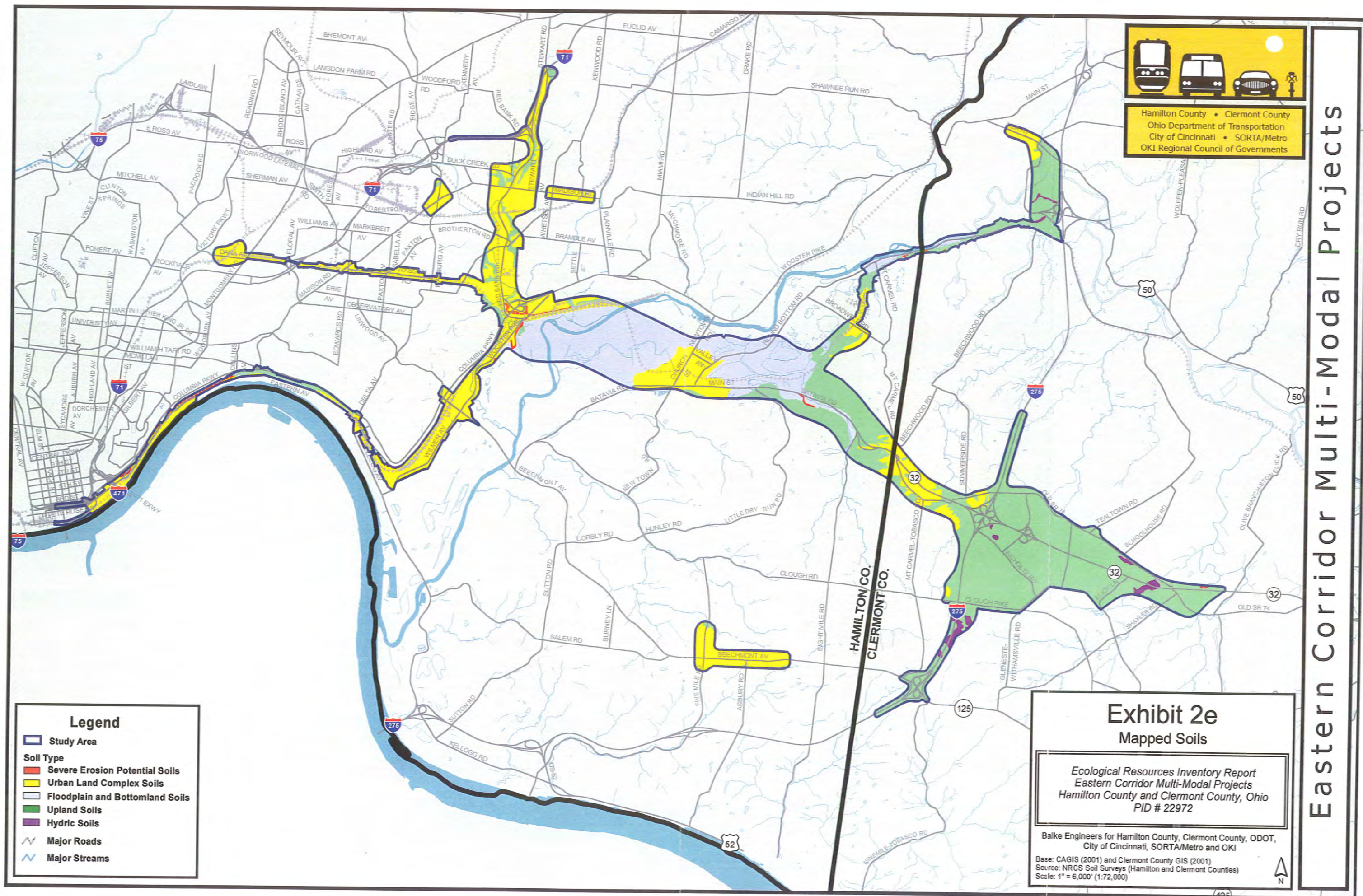








Table 5-5. Outstanding state waters based on exceptional ecological values.

Water body name	Flows into	Drainage basin
Aurora branch - state route 82 (RM 17.08) to the mouth	Chagrin river	Chagrin
Bantas fork	Twin creek	Great Miami
Big Darby creek	Scioto river	Scioto
Captina creek - North/South forks (RM 25.42) to state route 7 (RM 0.70)	Ohio river	Central Ohio tributaries
Chagrin river - Woodiebrook road (RM 49.14) to state route 6 (RM 11.1)	Lake Erie	Chagrin
Conneaut creek - state line (RM 23.83) to the mouth	Lake Erie	Ashtabula
Cuyahoga river - Troy-Burton township line (RM 83.9) to U.S. route 14 (RM 60.75)	Lake Erie	Cuyahoga
Deer creek - Deer creek dam (RM 23.89) to the mouth	Scioto river	Scioto
East Branch Chagrin river - Heath road (RM 14.49) to the mouth	Chagrin river	Chagrin
Fish creek - Indiana state line (RM 5.57) to the mouth	St. Joseph river	Maumee
Grand river - state route 322 (RM 67.08) to U.S. route 20 (RM 5.67)	Lake Erie	Grand
Greenville creek - Indiana state line (RM 34.48) to the mouth	Stillwater river	Great Miami
Kokosing river	Walhonding river	Muskingum
Little Beaver creek	Ohio river	Little Beaver creek

Little Darby creek	Big Darby creek	Scioto
Little Miami river	Ohio river	Little Miami
Middle Fork Little Beaver creek - Middle run (RM 8.57) to the mouth	Little Beaver creek	Little Beaver creek
North Branch Kokosing river	Kokosing river	Muskingum
North Fork Little Beaver creek - Pennsylvania state line (RM 7.75) to the mouth	Little Beaver creek	Little Beaver creek
North Fork Little Miami river	Little Miami river	Little Miami
North Fork Paint creek - Compton creek (RM 24.57) to the mouth	Paint creek	Scioto
Olentangy river - Delaware dam (RM 32.35) to Old Wilson Bridge road (RM 11.45)	Scioto river	Scioto
Paint creek - Rocky fork (RM 37.12) to North fork (RM 3.80)	Scioto river	Scioto
Pleasant run	Big Darby creek	Scioto
Rocky fork	Licking river	Muskingum
Salt creek	Scioto river	Scioto
Sandusky river - U.S. route 30 (RM 82.1) to Roger Young Memorial park in Fremont (RM 16.6)	Lake Erie	Sandusky
Scioto Brush Creek - McCullough creek (RM 10.20) to the mouth	Scioto river	Scioto
South Fork Scioto Brush creek - Shawnee creek (RM 8.30) to the mouth	Scioto Brush creek	Scioto

Stillwater river - Riffle road (RM 55.90) to the Englewood dam (RM 9.01)	Great Miami river	Great Miami
Twin creek	Great Miami river	Great Miami
Unnamed tributary to East Branch Black river at RM 39.06	East Branch Black river	Black
Vermilion river - Southwest branch (RM 47.66) to state route 2 (RM 3.15)	Lake Erie	Vermilion
Wakatomika creek	Muskingum river	Muskingum
Walhonding river	Tuscarawas river	Muskingum
West Fork Little Beaver creek - Brush creek (RM 15.99) to the mouth	Little Beaver creek	Little Beaver creek

Table 5-6. Outstanding state waters based on exceptional recreational values.

Water body name	Flows into	Drainage basin
Cuyahoga river - Sand run (RM 39.12) to Rockside road (RM 13.13)	Lake Erie	Cuyahoga
Maumee river - Indiana state line (RM 108.1) to the U.S. route 25 bridge (RM 15.05)	Maumee bay	Maumee

Table 5-7. Outstanding national resource waters.

Water body name	Flows into	Drainage basin

Effective: 7/01/2003

R.C. Section 119.032 review dates: 3/25/2002 and 7/01/2008

Promulgated under: R.C. Section 119.03

Rule authorized by: R.C. Section 6111.041

Rule amplifies: R.C. Section 6111.041

Prior effective dates: 2/14/1978, 4/4/1985, 10/1/1996, 10/31/1997, 5/1/1998, 4/17/2001 (Emer.)





## For Interested Party Review - November 2008 Draft

### 3745-1-18 Little Miami river drainage basin.

- (A) The water bodies listed in table 18-1 of this rule are ordered from downstream to upstream. Tributaries of a water body are indented. The aquatic life habitat, water supply and recreation use designations are defined in rule 3745-1-07 of the Administrative Code. The state resource water use designation is defined in rule 3745-1-05 of the Administrative Code. The most stringent criteria associated with any one of the use designations assigned to a water body will apply to that water body.
- (B) Figure 1 of the appendix to this rule is a generalized map of the little Miami river drainage basin. A generalized map of Ohio outlining the twenty-three major drainage basins and listing associated rule numbers in Chapter 3745-1 of the Administrative Code is in figure 1 of the appendix to rule 3745-1-08 of the Administrative Code.
- (C) RM, as used in this rule, stands for river mile and refers to the method used by the Ohio environmental protection agency to identify locations along a water body. Mileage is defined as the lineal distance from the downstream terminus (i.e., mouth) and moving in an upstream direction.
- (D) The following symbols are used throughout this rule:
  - \* Designated use based on the 1978 water quality standards;
  - + Designated use based on the results of a biological field assessment performed by the Ohio environmental protection agency;
  - o Designated use based on justification other than the results of a biological field assessment performed by the Ohio environmental protection agency; and
  - L An L in the warmwater habitat column signifies that the water body segment is designated limited warmwater habitat.

Table 18-1. Use designations for water bodies in the little Miami river drainage basin.

Water Body Segment	Use Designations												Comments	
		Aquatic Life Habitat						Water Supply			Recreation			
	S R W	W W H	E W H	M W H	S S H	C W H	L R W	P W S	A W S	I W S	B W	P C R		S C R
<div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div></div> <div>Little Miami river - <del>North fork (RM 91.64) to RM 3.0 (downstream of Beechmont ave.) to the mouth</del></div> <div><del>headwaters to North fork (RM 91.64)</del></div> <div>- all other segments</div> <div>Cluff creek (Clough creek)</div> <div>McCullough run</div> <div>Duck creek - downstream Red Bank road (RM 2.4) to the mouth</div> <div>- confluence of East fork and West fork to Red Bank road</div> <div>East fork</div> <div>West fork</div> <div>Dry run</div> <div><del>East fork - RM 75 to W.H. Harsha lake</del></div> <div><u>East fork</u> - headwaters to RM 75</div> <div><u>- at RM 22.6</u></div> <div>- all other segments</div> <div>Hall run</div> <div>Wolfpen run</div> <div>Salt run</div> <div>Sugarcamp run</div>	+	+	±						+	+		+		
	+	+							+	+		+		
	+	±	+						+	+		+		
		±							±	±	±	±		
		*							*	*		*		
		+							*	*			+	
							+		*	*			+	Small drainageway maintenance
							+		*	*			+	Small drainageway maintenance
							+		*	*			+	Small drainageway maintenance
		*							*	*		*		
	+		+					+	+	+		±		
		+							+	+		*		
				±					±	±	±	±		<u>PWS intake - Clermont county</u>
	+		+					+	+	+		+		
		+							+	+		*		
		+							+	+		*		
		+							+	+		*		

Table 18-1. Use designations for water bodies in the little Miami river drainage basin.

Water Body Segment	Use Designations												Comments	
		Aquatic Life Habitat						Water Supply			Recreation			
	S R W	W W H	E W H	M W H	S S H	C W H	L R W	P W S	A W S	I W S	B W	P C R		S C R
Shayler run		+							+	+		*		
Unnamed tributary (Shayler run RM 4.4)		+							*	*		+		
Dry run		+							+	+		*		
Stonelick creek - at RM 23.37	+	+						+	+	+		+		<u>PWS intake - Village of Blanchester</u>
- all other segments		±							±	±		±		
Lick fork		+							+	+		*		
Brushy fork		+							+	+		*		
Rocky run		+							+	+		*		
Paterson run		+							+	+		*		
Moores fork		+							+	+		*		
Greenbush creek		+							+	+		*		
Hunter creek		+							+	+		*		
Backbone creek		+							+	+		*		
Lucy run		+							+	+		*		
Fourmile run		+							+	+		*		
Back run		+							+	+		*		
Ulrey run		+							+	+		*		
Slabcamp run		+							+	+		*		



Table 18-1. Use designations for water bodies in the little Miami river drainage basin.

Water Body Segment	Use Designations												Comments	
		Aquatic Life Habitat						Water Supply			Recreation			
	S R W	W W H	E W H	M W H	S S H	C W H	L R W	P W S	A W S	I W S	B W	P C R		S C R
Cloverlick creek - at RM 3.23		+						o	+	+		*		PWS intake - Village of Bethel (formerly)
- all other segments		+							+	+		*		
Barnes run		+							+	+		*		
Poplar creek		+							+	+		*		
Sugartree creek		+							+	+		*		
Town run		+							+	+		*		
Guest run		+							+	+		*		
Tribble run		+							+	+		*		
Light run		+							+	+		*		
Snow run		+							+	+		*		
Polecat run		+							+	+		*		
Cabin run		+							+	+		*		
Kain run		+							+	+		*		
Todd run		+							+	+		*		
Indian Camp run		+							+	+		*		
Crane run		+							+	+		*		
Fourmile creek		+							+	+		*		
Pleasant run		+							+	+		*		

Table 18-1. Use designations for water bodies in the little Miami river drainage basin.

Water Body Segment	Use Designations												Comments	
		Aquatic Life Habitat						Water Supply			Recreation			
	S R W	W W H	E W H	M W H	S S H	C W H	L R W	P W S	A W S	I W S	B W	P C R		S C R
Fivemile creek		+							+	+		*		
East fork		+							+	+		*		
Sixmile creek		+							+	+		*		
Howard run		+							+	+		*		
Grassy fork		+							+	+		*		
Glady run		+							+	+		*		
Saltlick creek		+							+	+		*		
Indian creek		+							+	+		*		
Little Indian creek		+							+	+		*		
Solomon run - at RM 3.33		+						+	+	+		*		PWS intake (formerly)
- all other segments		±							±	±		*		
Murray run		+							+	+		*		
Sycamore creek		+							+	+		*		
Unnamed tributary (Sycamore creek RM 1.13)							+		*	*			+	Irretrievable flow modification
West fork - at RM 4.62		+						+	+	+		*		PWS intake - Village of Westboro (formerly)
- all other segments		±							±	±		*		
Dodson creek			+						+	+		*		
Anthony run		+							+	+		*		

Table 18-1. Use designations for water bodies in the little Miami river drainage basin.

Water Body Segment	Use Designations												Comments	
		Aquatic Life Habitat						Water Supply			Recreation			
	S R W	W W H	E W H	M W H	S S H	C W H	L R W	P W S	A W S	I W S	B W	P C R		S C R
South fork		+							+	+		*		
Turtle creek		+							+	+		*		
Horner run		*							*	*		*		
Sycamore creek		+							+	+		+		
North branch		*							*	*		*		
Polk run		+							+	+		+		
O'Bannon creek		+							+	+		+		
Grog run		*							*	*		*		
Stony run		+							+	+		+		
Indiancamp creek		*							*	*		*		
Ertel run		*							*	*		*		
Salt run		*							*	*		*		
Hen run		*							*	*		*		
Simpson creek		+							+	+		+		
Bear run		*							*	*		*		
Union run		*							*	*		*		
Muddy creek		+							+	+		+		
Turtle creek		+							+	+		+		



Table 18-1. Use designations for water bodies in the little Miami river drainage basin.

Water Body Segment	Use Designations												Comments		
		Aquatic Life Habitat						Water Supply			Recreation				
		S R W	W W H	E W H	M W H	S S H	C W H	L R W	P W S	A W S	I W S	B W		P C R	S C R
<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div> <div>Dry run - <u>headwaters to RM 1.2</u></div> <div><u>- RM 1.2 to the mouth</u></div> <div>Little Muddy creek</div> <div>Bigfoot run</div> <div>Halls creek</div> <div>Todd fork</div> <div>First creek</div> <div>Martin run</div> <div>Second creek</div> <div><u>Whitakers run (Second creek RM 10.2) - at RM 1.37</u></div> <div>Lick run</div> <div>Sugar run</div> <div>East fork (little East fork)</div> <div>Stony hollow</div> <div>Sewell run</div> <div><del>Cowan creek - Cowan lake (RM 6.3) to the mouth</del></div> <div><u>Cowan creek - at RM 11.6</u></div> <div>- all other segments</div>			+				±			+	+		±	+	
			±							±	±		±		
			±							±	±		±	+	
			*							*	*		*		
				*						*	*		*		
			+							+	+		+		
			±							±	±		±		
			*							*	*		*		
			±							±	±		±		
								0							<u>PWS intake - Village of Blanchester</u>
		±	±	±					±	±	±		±		
			*						*	*	*		*		
			+						+	+	+		+		
			*						*	*	*		*		
			*						*	*	*		*		
		±	+						+	+	+		+		<u>PWS intake - City of Wilmington</u>
			+					0	+	+	+		+		
			+						+	+	+		+		

Table 18-1. Use designations for water bodies in the little Miami river drainage basin.

Water Body Segment	Use Designations												Comments	
		Aquatic Life Habitat						Water Supply			Recreation			
		S R W	W W H	E W H	M W H	S S H	C W H	L R W	P W S	A W S	I W S	B W		P C R
Wilson creek		*							*	*		*		
Indian run		+							+	+		+	+	
Lytle creek		+							+	+		+		
Little creek		*							*	*		*		
Moore branch		*							*	*		*		
Dutch creek		+	*						+	+		+		
Dry run		*							*	*		*		
Stony run		*							*	*		*		
Cowen run		*							*	*		*		
Randall run		*							*	*		*		
Olive branch	*	+							+	+		*		
Caesar creek - headwaters to South branch (RM 23.78)		+							+	+		+		
- at RM 7.77			+					+	+	+		+	PWS intake - City of Wilmington	
- South branch to Anderson fork all other segments			+						+	+		+		
- Anderson fork to the mouth	*		+						+	+		+		
Flat fork	*	+							+	+		+		
Jonahs run	*	+							+	+		+		
Trace run	*	+							+	+		+		

Table 18-1. Use designations for water bodies in the little Miami river drainage basin.

Water Body Segment	Use Designations												Comments	
		Aquatic Life Habitat						Water Supply			Recreation			
		S R W	W W H	E W H	M W H	S S H	C W H	L R W	P W S	A W S	I W S	B W		P C R
Turkey run	*	*							*	*		*		
Buck run	*	+							+	+		+		
Anderson fork - Grog run to the mouth	*		+						+	+		+		
- all other segments	*	+							+	+		+		
Painters creek		+							+	+		+		
Grog run		*							*	*		*		
Love run		*							*	*		*		
Grassy run		*							*	*		*		
South branch - Paintersville-New Jasper rd. (RM 4.0) to the mouth			+						+	+		+		
- all other segments		+							+	+		+		
North branch		+							+	+		+		
Newman run			+						+	+		+		
Mill run		+							+	+		+		
Unnamed tributary (Little Miami river RM 60.50)			+						+	+		+		
Unnamed tributary (Little Miami river RM 62.01)		+							+	+		+		
Glady run - Hedges rd. (RM 4.0) to the mouth		+							+	+		+		
- all other segments		+							+	+			+	
Glady run swale		+							*	*			+	



Table 18-1. Use designations for water bodies in the little Miami river drainage basin.

Water Body Segment	Use Designations												Comments	
		Aquatic Life Habitat						Water Supply			Recreation			
	S R W	W W H	E W H	M W H	S S H	C W H	L R W	P W S	A W S	I W S	B W W	P C R		S C R
Sugar creek--within Sugar creek reserve  --all other segments  Little Sugar creek  Unnamed tributary (Little Miami river RM 69.85)  Beaver creek  Little Beaver creek  Unnamed tributary (RM 6.1)  Shawnee creek  Ludlow creek  Massie creek  Oldtown creek  Clark run  Unnamed tributary (Massie creek RM 5.3)  North fork  South fork  Conner branch  Jacoby branch  Yellow Springs creek	0  <													

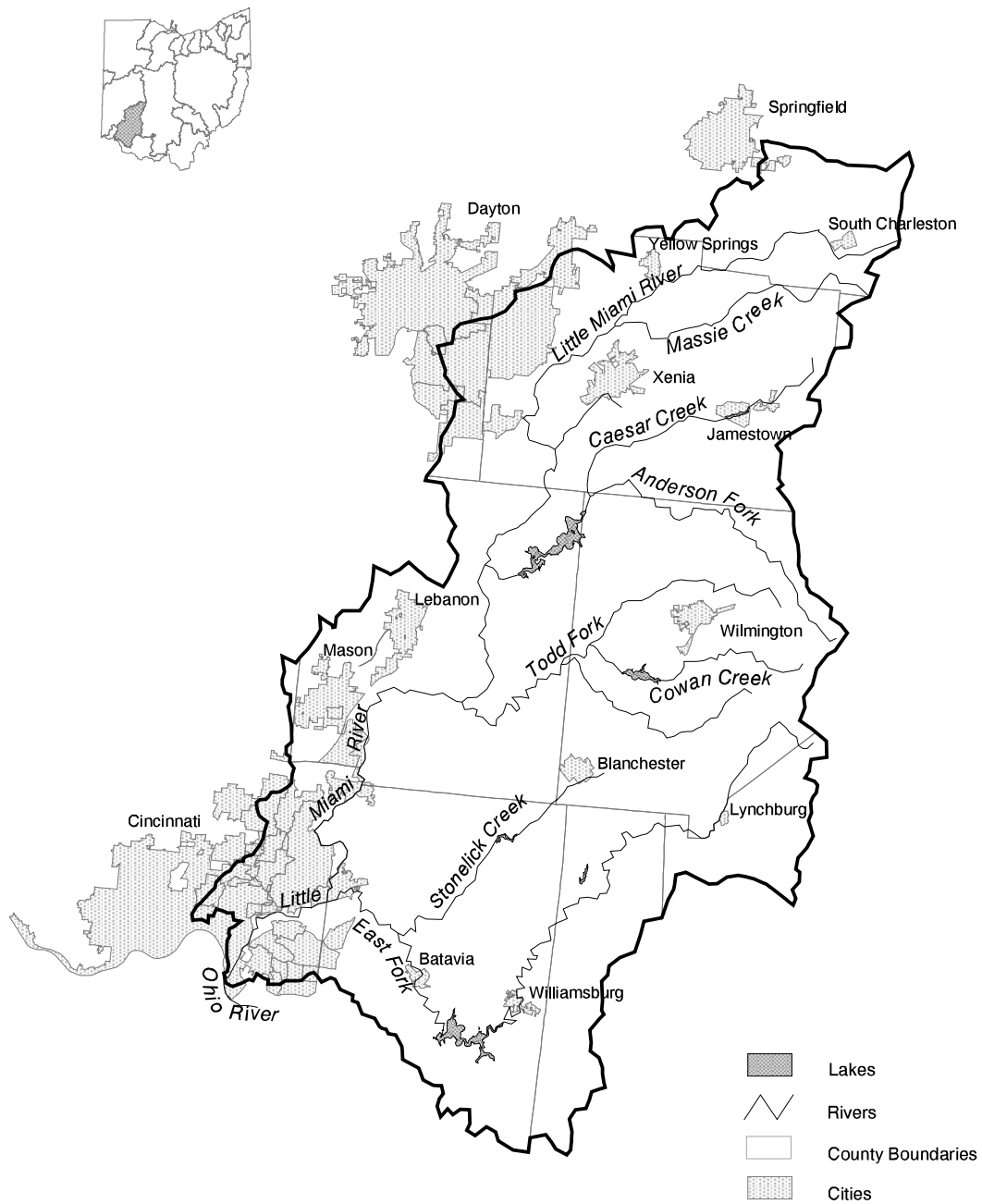
Table 18-1. Use designations for water bodies in the little Miami river drainage basin.

Water Body Segment	Use Designations												Comments	
		Aquatic Life Habitat						Water Supply			Recreation			
	S R W	W W H	E W H	M W H	S S H	C W H	L R W	P W S	A W S	I W S	B W	P C R		S C R
<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div> <div>North fork</div> <div>Goose creek</div> <div>Lisbon fork</div> <div>Gilroy ditch</div>	K	+							+	+		+		

SRW = state resource water; WWH = warmwater habitat; EWH = exceptional warmwater habitat; MWH = modified warmwater habitat; SSH = seasonal salmonid habitat; CWH = coldwater habitat; LRW = limited resource water; PWS = public water supply; AWS = agricultural water supply; IWS = industrial water supply; BW = bathing water; PCR = primary contact recreation; SCR = secondary contact recreation.

## Appendix

Figure 1. Little Miami river drainage basin.





Effective:

R.C. 119.032 rule review date: 7/23/2012

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Certification

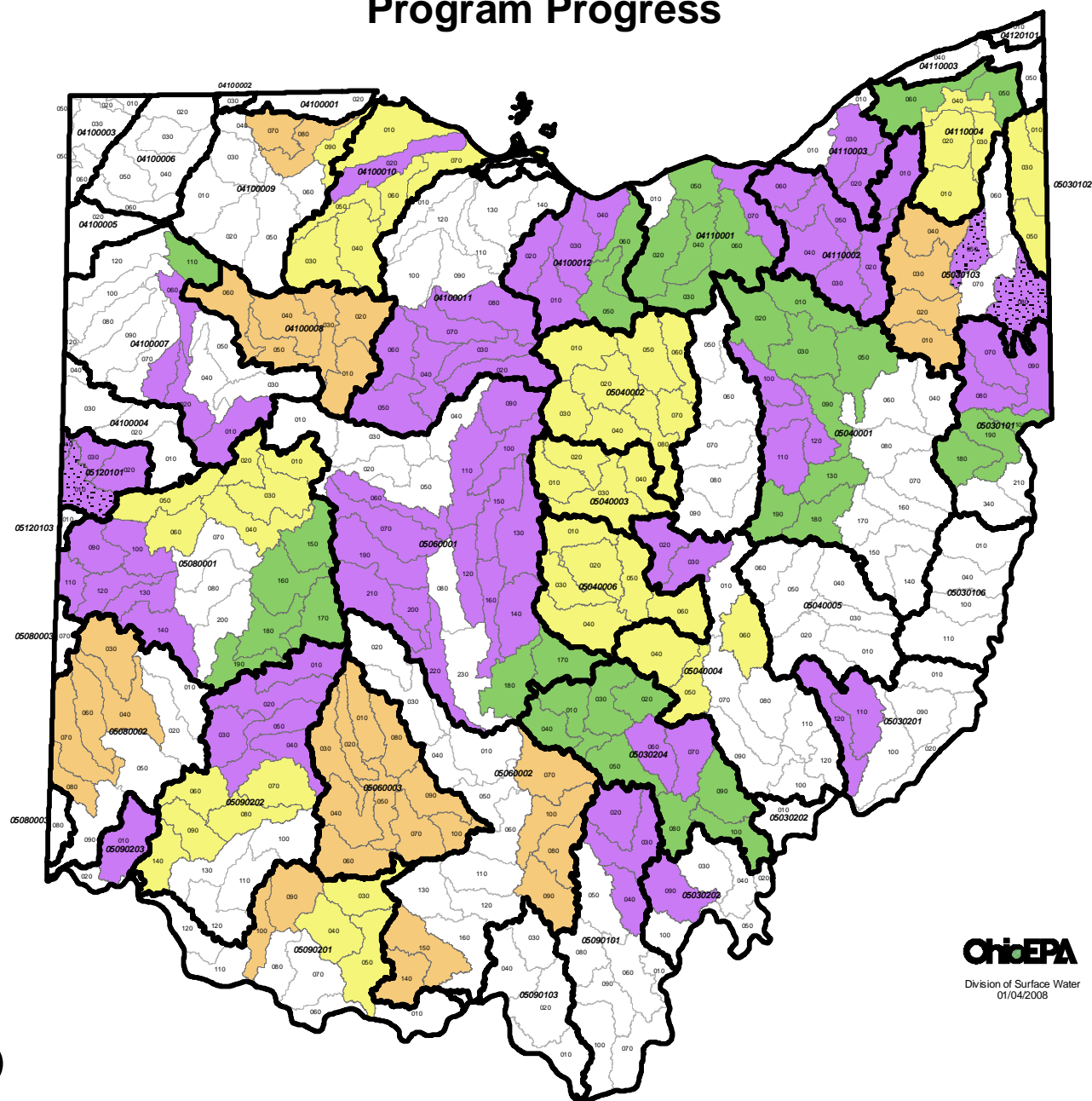
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Date

Promulgated Under: R.C. 119.03  
Statutory Authority: R.C. 6111.041  
Rule Amplifies: R.C. 6111.041  
Prior Effective Dates: 4/4/1985, 8/19/1985, 1/3/1989, 4/26/1997, 7/21/2002



# Ohio Total Maximum Daily Load Program Progress



**OhioEPA**  
Division of Surface Water  
01/04/2008



## Total Maximum Daily Load (TMDL) Status (Watershed Name in *Italics*)

- Final report approved by USEPA; currently being implemented by watershed groups, Ohio EPA, others**  
*Auglaize R (upper), Beaver Cr (Wabash R), Big Darby Cr, Big Walnut Cr, Bokes Cr, Chagrin R, Cuyahoga R (upper, middle, and lower), Euclid Cr, Huron R, Leading Cr, Little Beaver Cr, Little Miami R (upper), Mahoning R (bacteria), Mill Cr (Ohio R), Mill Cr (Scioto R), Monday Cr, Old Woman Cr, Olentangy R, Plum Cr (Rocky R), Raccoon Cr (upper), Sandusky R (upper), Stillwater R, Sugar Cr (bacteria & aquatic life), Sunday Cr, Toussaint R, Wabash R, Wakatomika Cr*
- TMDL nearing completion; some implementation may be initiated**  
*Black R, Grand R (lower), Hocking R, Mad R, Powell Cr, Rocky R (bacteria), Tuscarawas R, Vermilion R, Walnut Cr*
- Load analysis in progress**  
*Blanchard R, Fourmile Cr, Indian Cr, Mahoning R (upper), Paint Cr, Salt Cr, Scioto Brush Cr, Swan Cr, Twin Cr, Walnut Cr, White Oak Cr, Yellow Cr*
- Watershed assessment in progress**  
*Grand R (upper), Great Miami R (upper), Jonathan C, Kokosing R, Lake Erie Tribs. (from Maumee R to Toussaint R), Licking R, Little Miami R (lower), Lower Maumee R Tribs, Mohican R, Moxahala C, Ohio Brush Cr, Portage R, Pymatuning R, Salt C (Muskingum Trib.)*
- Federal TMDLs completed**  
*Wabash R, Mahoning R (bacteria)*



8-digit Hydrologic Unit Boundary

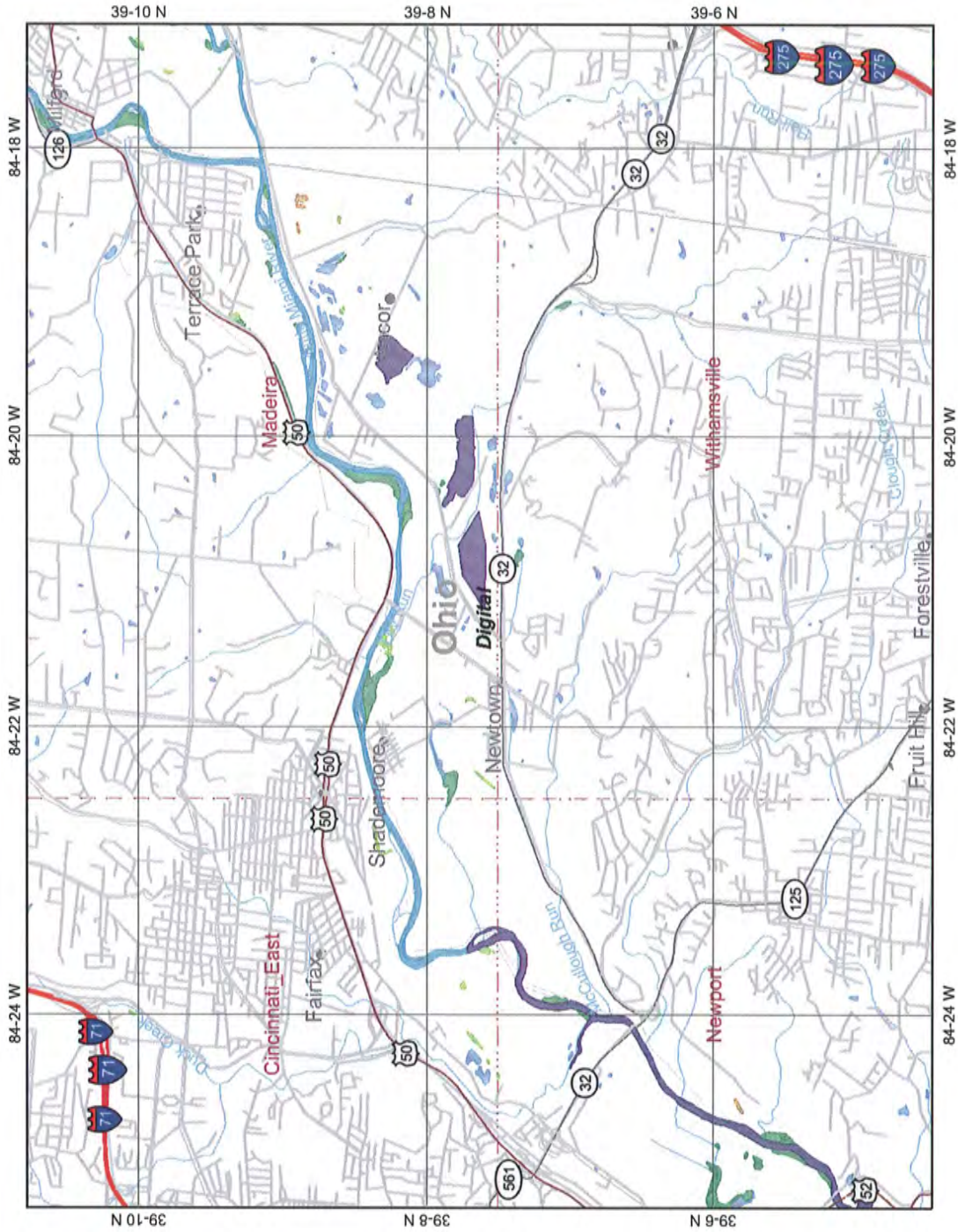


11-digit Hydrologic Unit Boundary





# NWI Mapped Wetlands



## Legend

- Interstate
- Major Roads
- Other Road
- Interstate
- State highway
- US highway
- Roads
- Cities
- USGS Quad Index 24K
- Lower 48 Wetland Polygons
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine
- Lower 48 Available Wetland Data
- Non-Digital
- Digital
- No Data
- Scan
- NHD Streams
- Counties 100K
- Urban Areas 300K
- States 100K
- South America
- North America

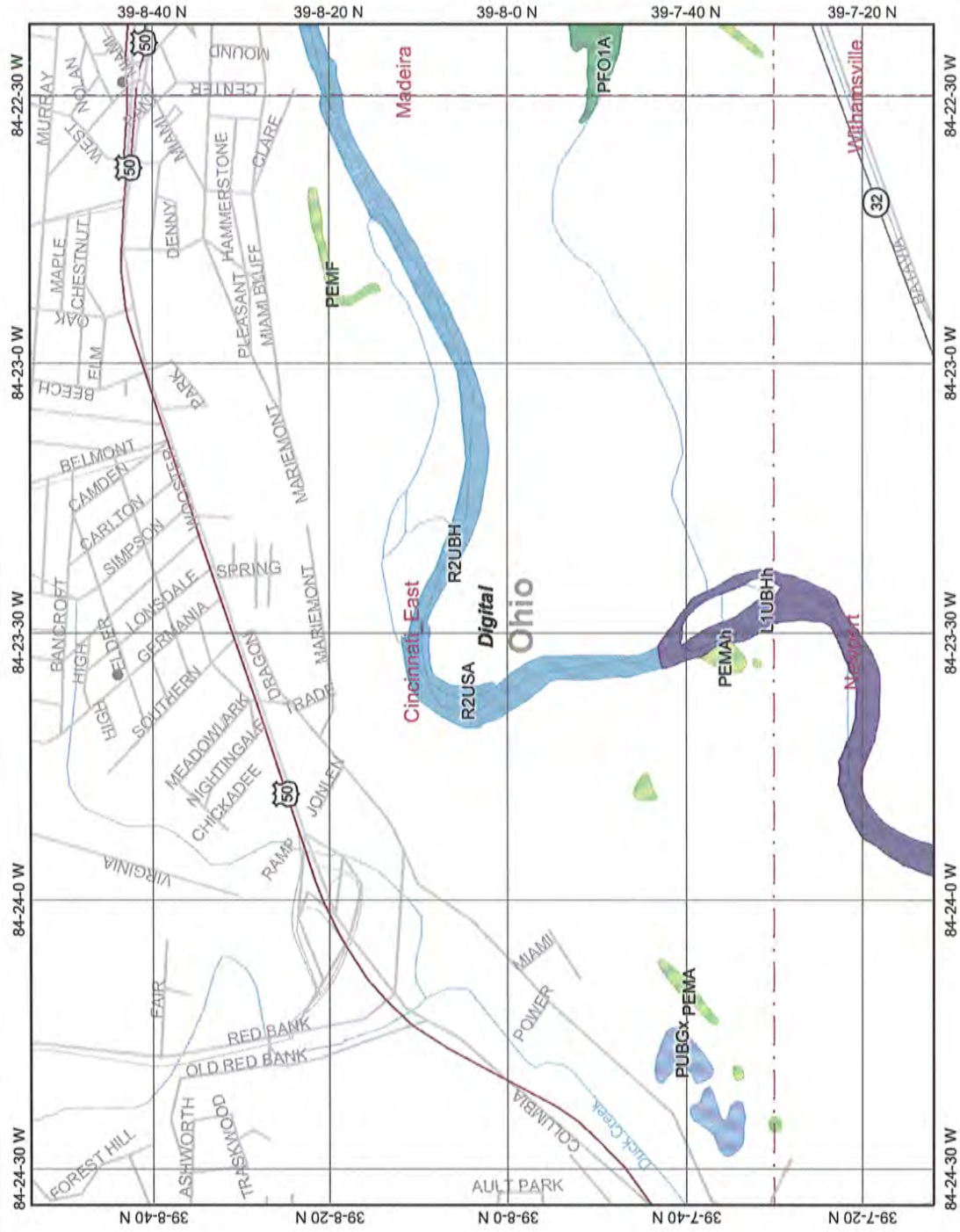


Scale: 1:81,719

Map center: 39° 7' 38" N, 84° 21' 14" W

This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.

# NWI Mapped Wetlands Pg 1



Map center: 39° 8' 3" N, 84° 23' 28" W

This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.



## Legend

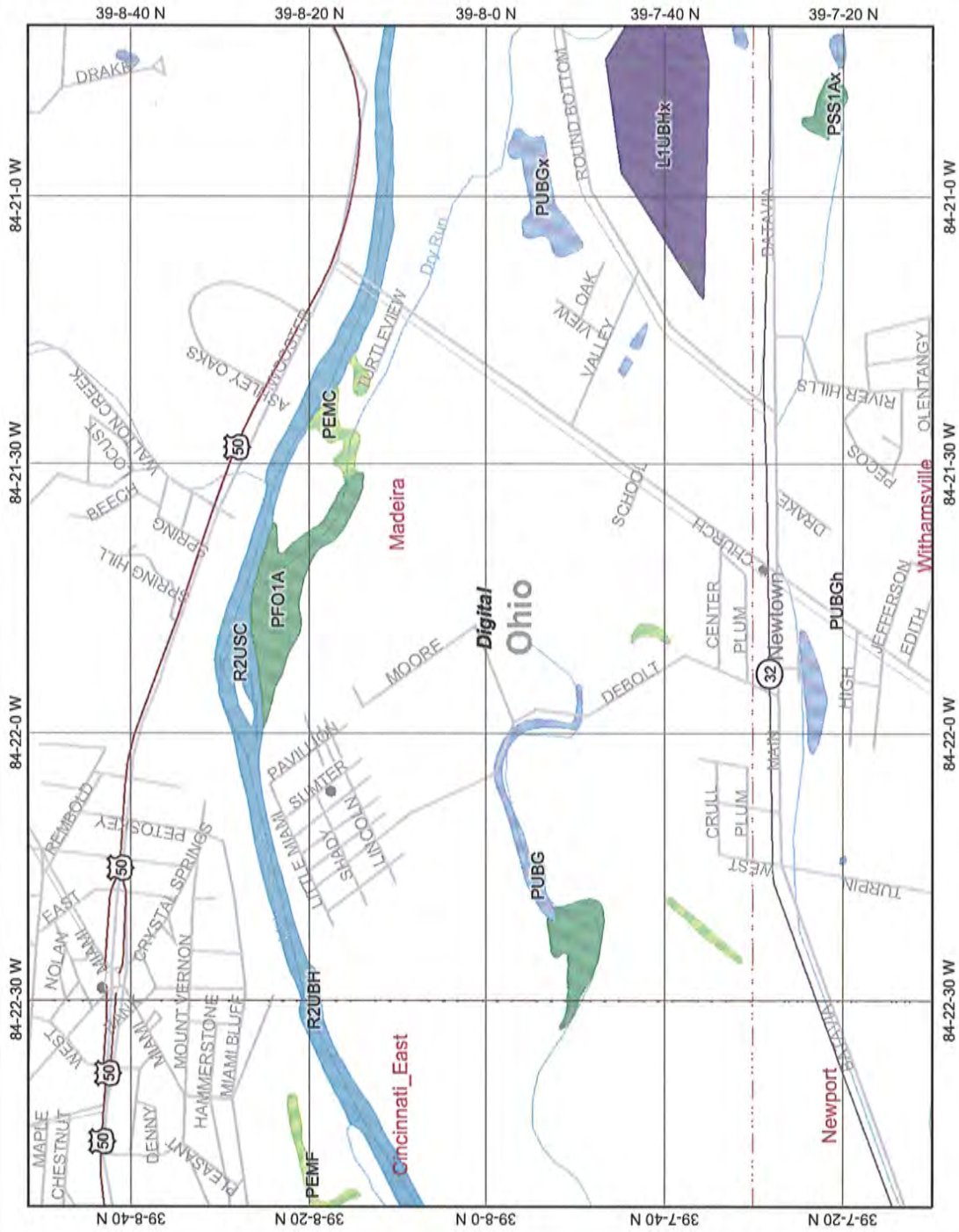
- Ohio\_wet\_scan
  - 0
  - 1
- Out of range
- Interstate
- Major Roads
- Other Road
- Interstate
- State highway
- US highway
- Roads
- Cities
- USGS Quad Index 24K
- Lower 48 Wetland Polygons
  - Estuarine and Marine Deepwater
  - Estuarine and Marine Wetland
  - Freshwater Emergent Wetland
  - Freshwater Forested/Shrub Wetland
  - Freshwater Pond
  - Lake
  - Other
  - Riverine
- Lower 48 Available Wetland Data
  - Non-Digital
  - Digital
  - No Data
  - Scan
- NHD Streams
- Counties 100K
- States 100K
- South America
- North America

Scale: 1:21,978





# NWI Mapped Wetlands Pg 2



Map center: 39° 8' 1" N, 84° 21' 47" W

This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.



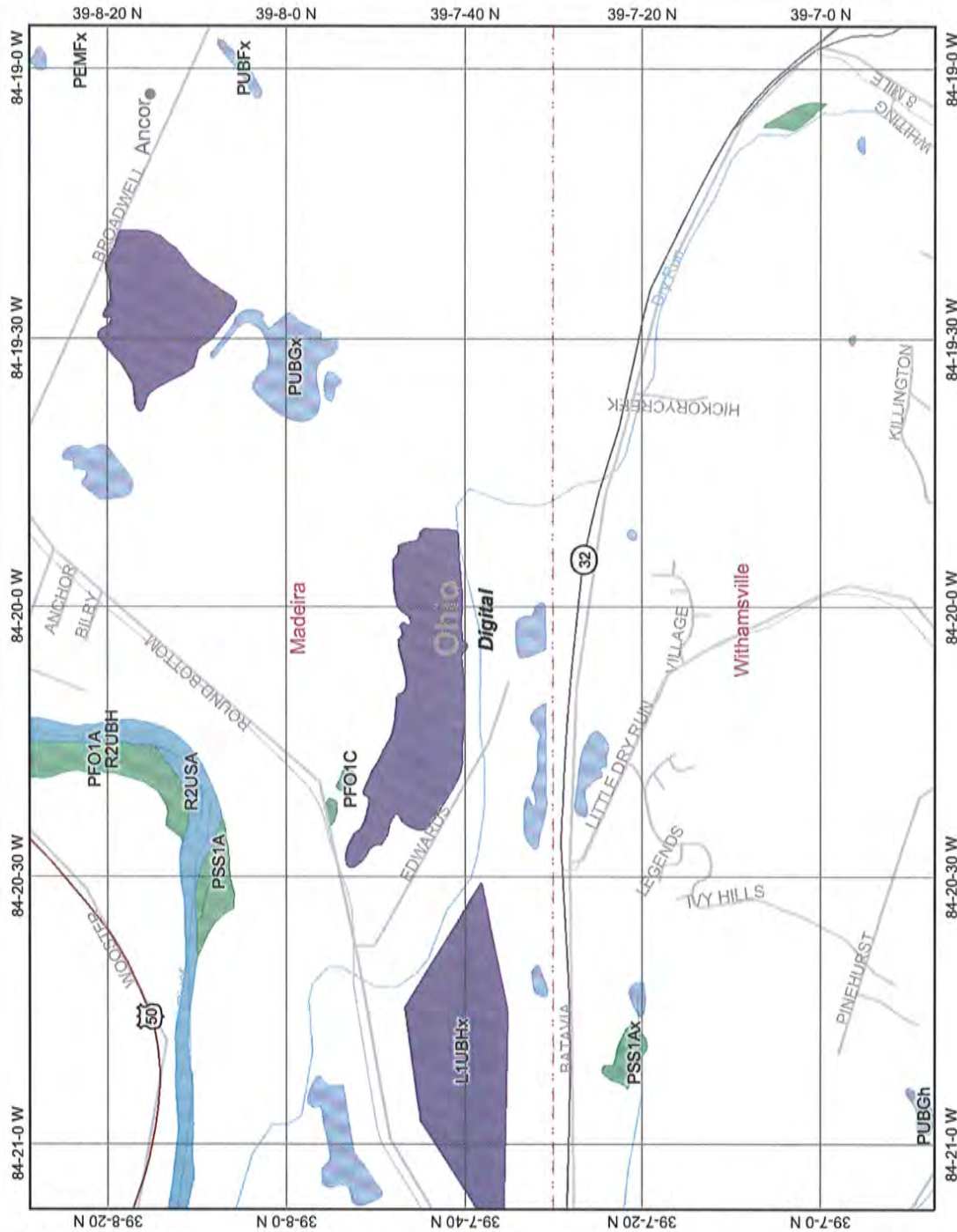
## Legend

- Ohio\_wet\_scan
  - 0
  - 1
  - Out of range
- Interstate
- Major Roads
- Other Road
- Interstate
- State highway
- US highway
- Roads
- Cities
- USGS Quad Index 24K
- Lower 48 Wetland Polygons
  - Estuarine and Marine Deepwater
  - Estuarine and Marine Wetland
  - Freshwater Emergent Wetland
  - Freshwater Forested/Shrub Wetland
  - Freshwater Pond
  - Lake
  - Other
  - Riverine
- Lower 48 Available Wetland Data
  - Non-Digital
  - Digital
  - No Data
  - Scan
- NHD Streams
- Counties 100K
- States 100K
- South America
- North America



Scale: 1:21,978

# NWI Mapped Wetlands Pg 3



Map center: 39° 7' 38" N, 84° 20' 1" W

This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.



## Legend

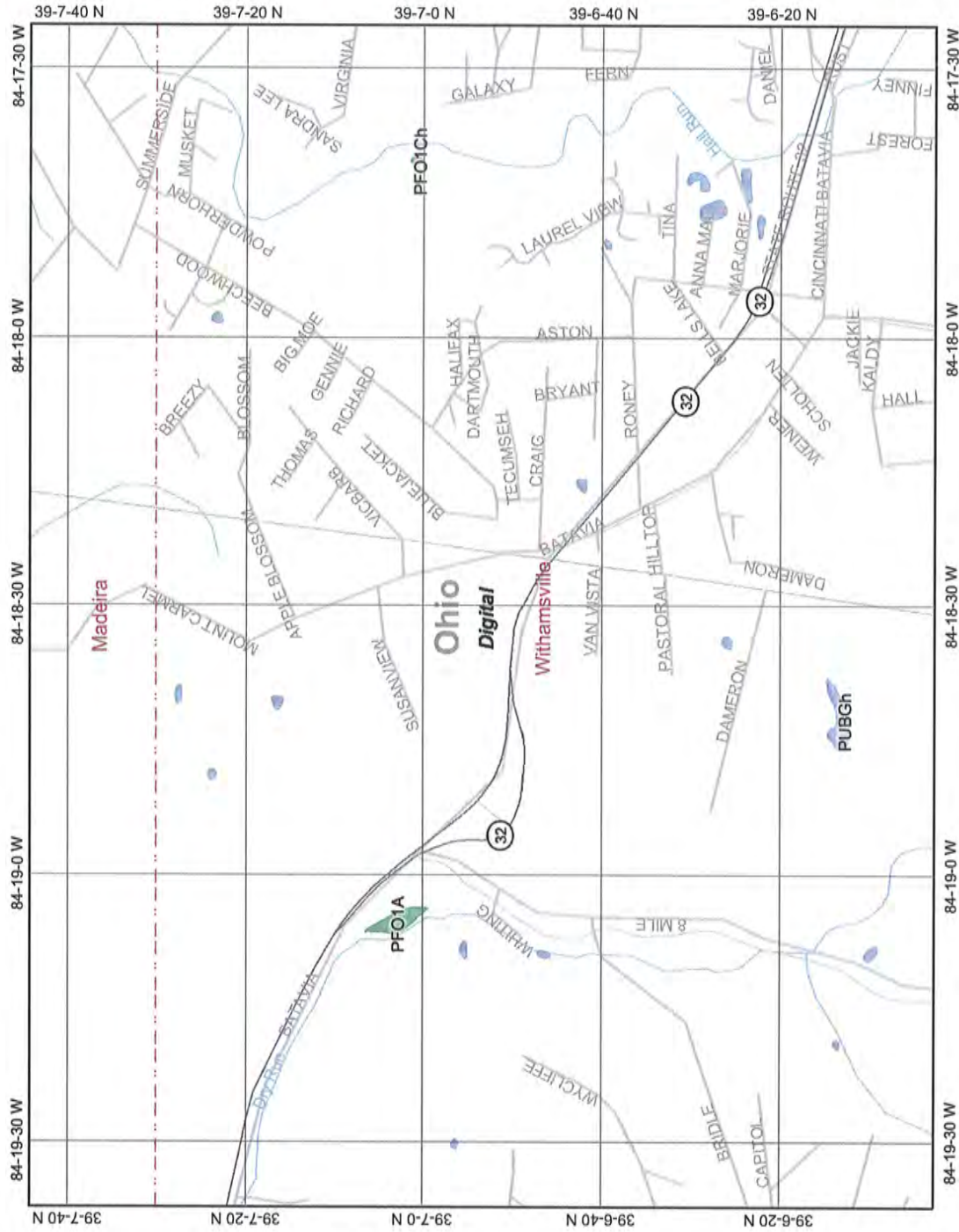
- Ohio\_wet\_scan
  - 0
  - 1
  - Out of range
- Interstate
- Major Roads
- Other Road
- Interstate
- State highway
- US highway
- Roads
- Cities
- USGS Quad Index 24K
- Lower 48 Wetland Polygons
  - Estuarine and Marine Deepwater
  - Estuarine and Marine Wetland
  - Freshwater Emergent Wetland
  - Freshwater Forested/Shrub Wetland
  - Freshwater Pond
  - Lake
  - Other
  - Riverine
- Lower 48 Available Wetland Data
  - Non-Digital
  - Digital
  - No Data
  - Scan
- NHD Streams
- Counties 100K
- States 100K
- South America
- North America



Scale: 1:21,978



# NWI Mapped Wetlands Pg 4



Map center: 39° 6' 53" N, 84° 18' 31" W

This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.



## Legend

- Ohio\_wet\_scan
  - 0
  - 1
  - Out of range
- Interstate
- Major Roads
- Other Road
- Interstate
- State highway
- US highway
- Roads
- Cities
- USGS Quad Index 24K
- Lower 48 Wetland Polygons
  - Estuarine and Marine Deepwater
  - Estuarine and Marine Wetland
  - Freshwater Emergent Wetland
  - Freshwater Forested/Shrub Wetland
  - Freshwater Pond
  - Lake
  - Other
  - Riverine
- Lower 48 Available Wetland Data
  - Non-Digital
  - Digital
  - No Data
  - Scan
- NHD Streams
- Counties 100K
- States 100K
- South America
- North America



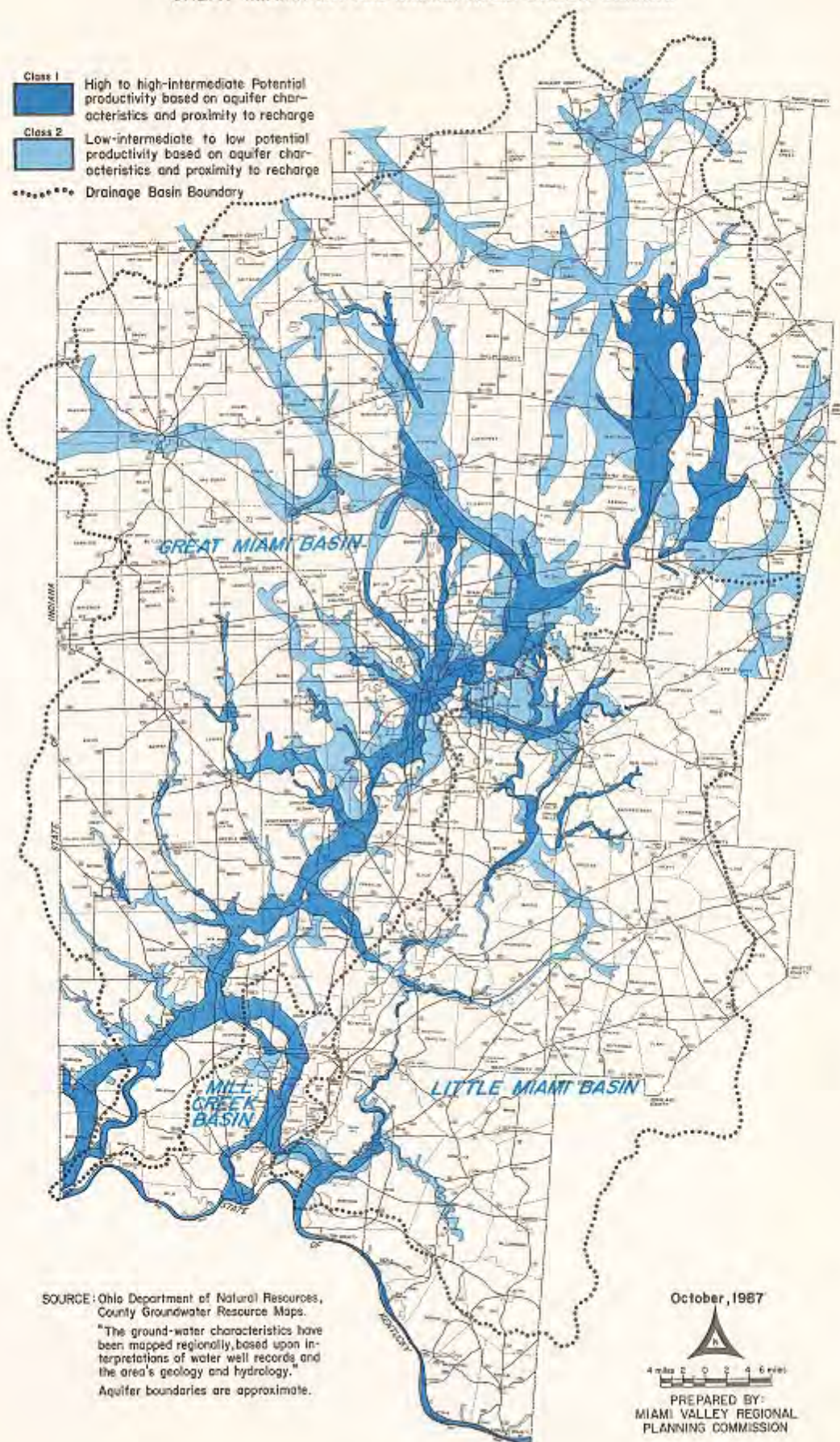
Scale: 1:21,978





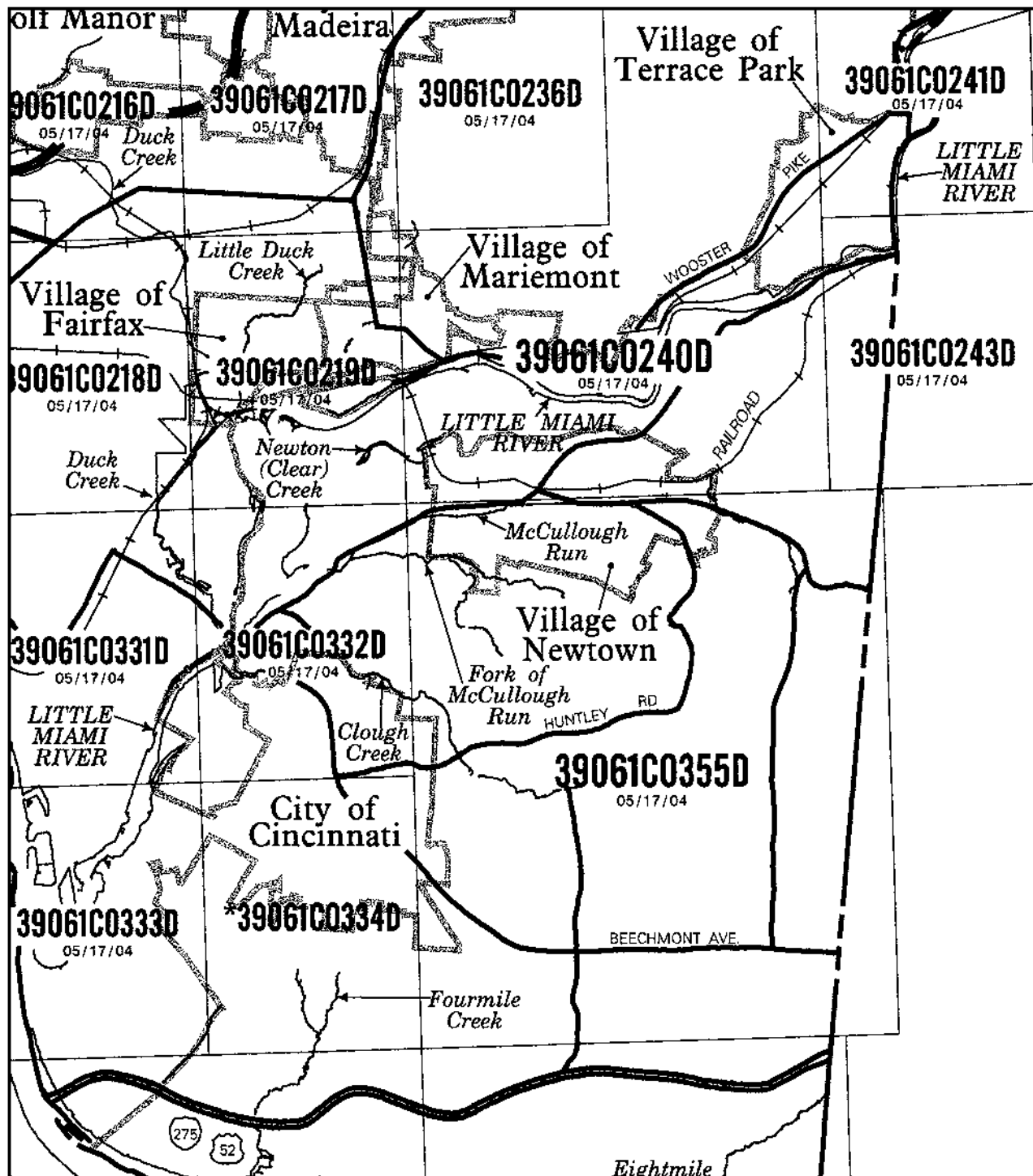
FIGURE 4.2

# BURIED VALLEY AQUIFER SYSTEM GREAT MIAMI/LITTLE MIAMI/MILL CREEK BASINS









#### MAP INDEX

### FIRM FLOOD INSURANCE RATE MAP

HAMILTON COUNTY,  
OHIO

AND INCORPORATED AREAS

(SEE LISTING OF COMMUNITIES TABLE)

### MAP INDEX

**PANELS PRINTED:** 15, 20, 40, 45, 65, 70, 86, 87, 88, 89, 91, 92, 93, 94, 113, 114, 115, 118, 120, 130, 135, 140, 145, 155, 160, 164, 165, 170, 180, 181, 183, 185, 187, 191, 192, 193, 201, 202, 203, 204, 206, 207, 208, 211, 216, 217, 218, 219, 226, 227, 228, 229, 235, 236, 240, 241, 243, 255, 260, 277, 281, 282, 284, 303, 304, 305, 306, 307, 308, 309, 326, 327, 331, 332, 333, 345, 355, 365

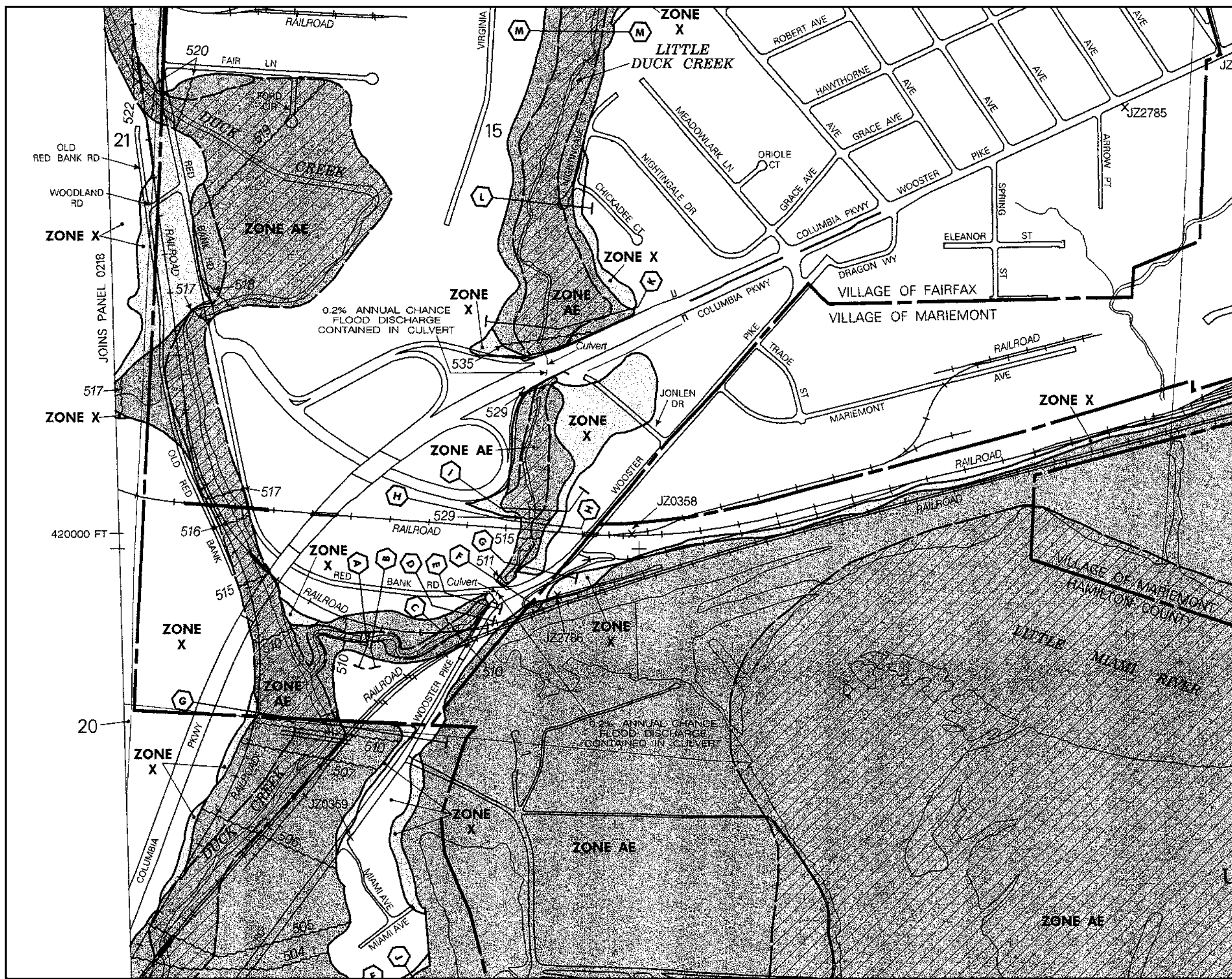


**MAP NUMBER**  
39061CIND0A

**EFFECTIVE DATE:**  
MAY 17, 2004

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)



SCALE 1" = 500'

500 1000 FEET

METERS

PANEL 0219D

# FIRM

## FLOOD INSURANCE RATE MAP

### HAMILTON COUNTY, OHIO

#### AND INCORPORATED AREAS

PANEL 219 OF 365

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
CINCINNATI, CITY OF	390210	0219	D
FAIRFAX, VILLAGE OF	390215	0219	D
HAMILTON COUNTY	390204	0219	D
MARIEMONT, VILLAGE OF	390226	0219	D
THE VILLAGE OF INDIAN HILL, CITY OF	390221	0219	D

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

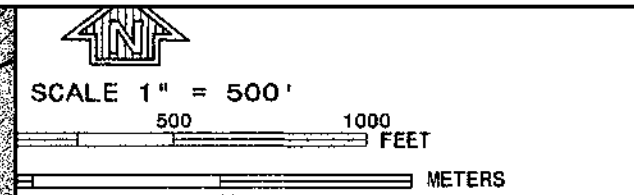
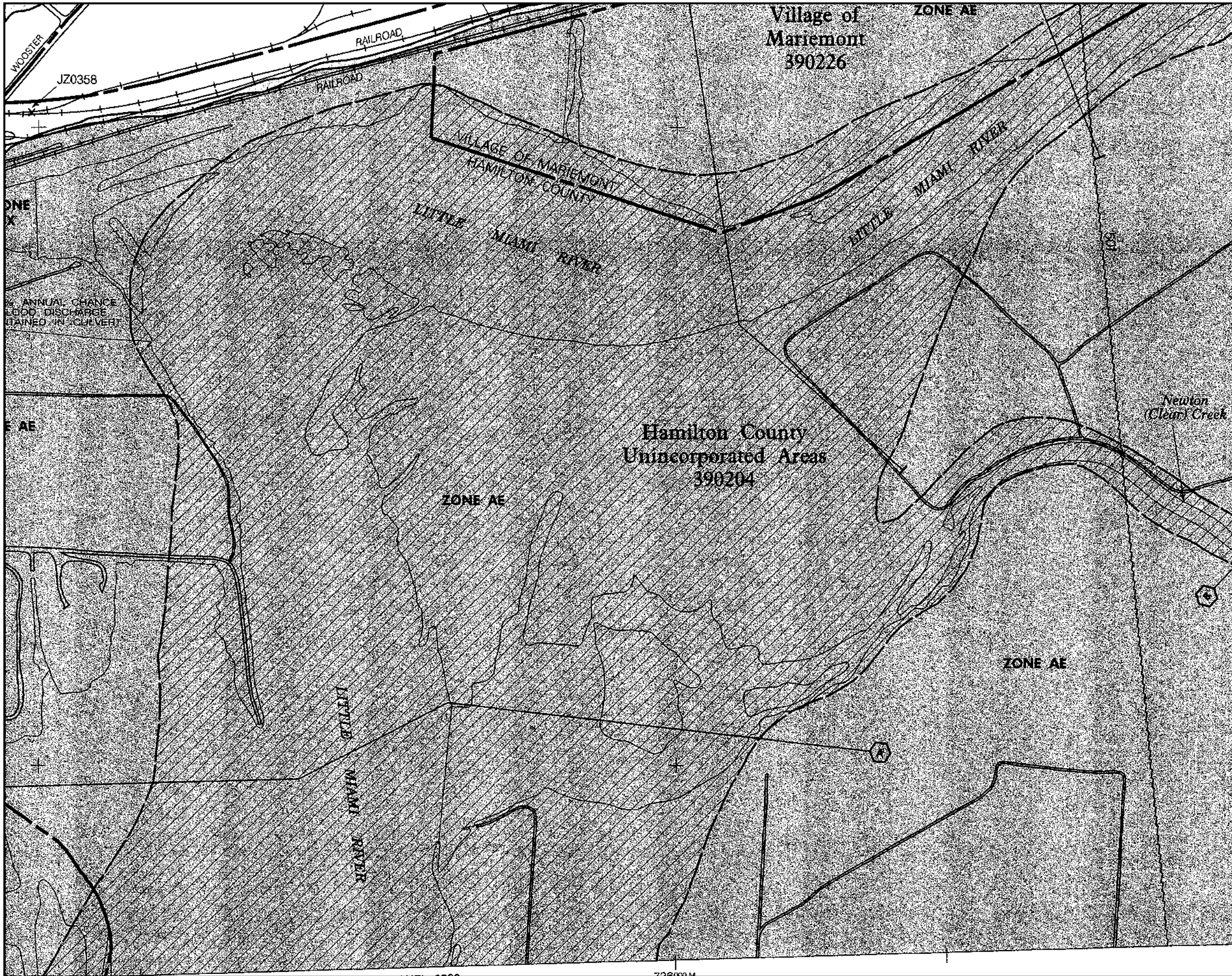
**MAP NUMBER**  
39061C0219D

**EFFECTIVE DATE**  
MAY 17, 2004

Federal Emergency Management Agency

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PANEL 0219D

# FIRM

## FLOOD INSURANCE RATE MAP

### HAMILTON COUNTY, OHIO

#### AND INCORPORATED AREAS

PANEL 219 OF 365

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
CINCINNATI, CITY OF	390210	0219	D
FAIRFAX, VILLAGE OF	390215	0219	D
HAMILTON COUNTY	390204	0219	D
MARIEMONT, VILLAGE OF	390226	0219	D
THE VILLAGE OF INDIAN HILL, CITY OF	390221	0219	D

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.



**MAP NUMBER**  
**39061C0219D**

**EFFECTIVE DATE**  
**MAY 17, 2004**

Federal Emergency Management Agency

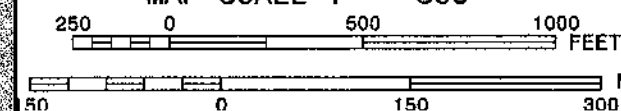
This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)



JOINS PANEL 0219



MAP SCALE 1" = 500'



## ZONE A5

14  
City of Cincinnati  
390210

Hamilton County  
Unincorporated Areas  
390204

McCULLOUGH  
RUN

**PANEL 03320**

# FIRM

## FLOOD INSURANCE RATE MAP

### HAMILTON COUNTY, OHIO

### AND INCORPORATED AREAS

PANEL 332 OF 365

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

<u>COMMUNITY</u>	<u>NUMBER</u>	<u>PANEL</u>	<u>SUFF. X</u>
CINCINNATI, CITY OF	390210	0332	D
HAMILTON COUNTY	390204	0332	D

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.



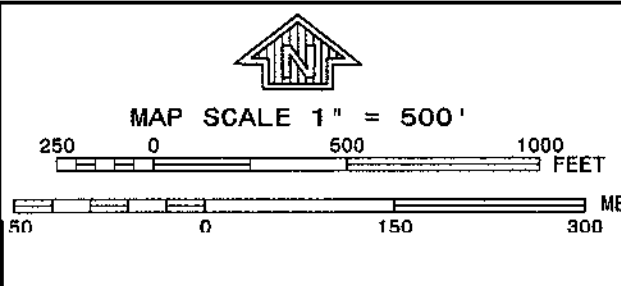
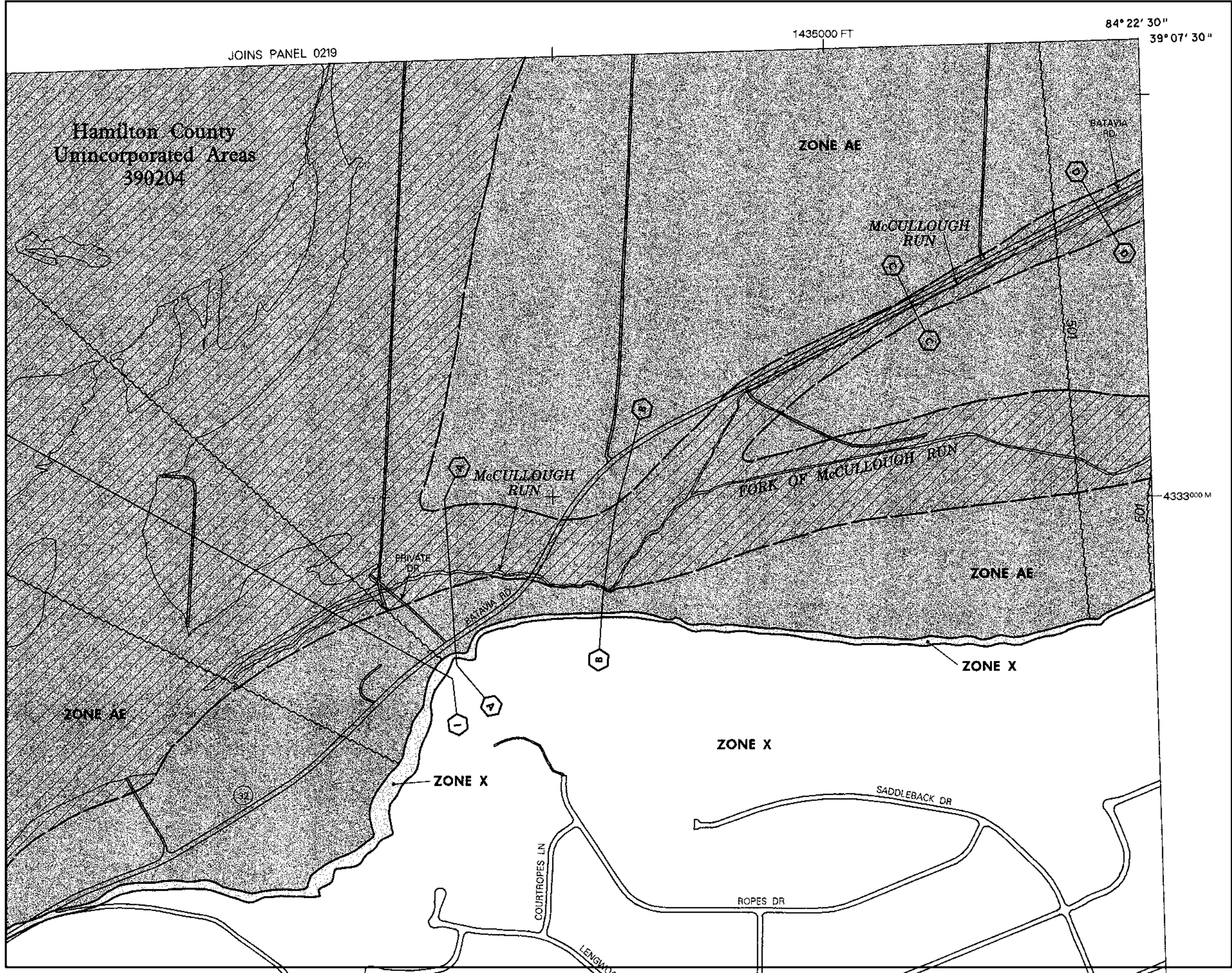
**MAP NUMBER**  
**39061C0332D**

**EFFECTIVE DATE**  
**MAY 17, 2004**

Federal Emergency Management Agency

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**NFIP**  
**NATIONAL FLOOD INSURANCE PROGRAM**

**PANEL 0332D**

**FIRM**  
**FLOOD INSURANCE RATE MAP**  
**HAMILTON COUNTY,**  
**OHIO**  
**AND INCORPORATED AREAS**

**PANEL 332 OF 365**  
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

**CONTAINS:**

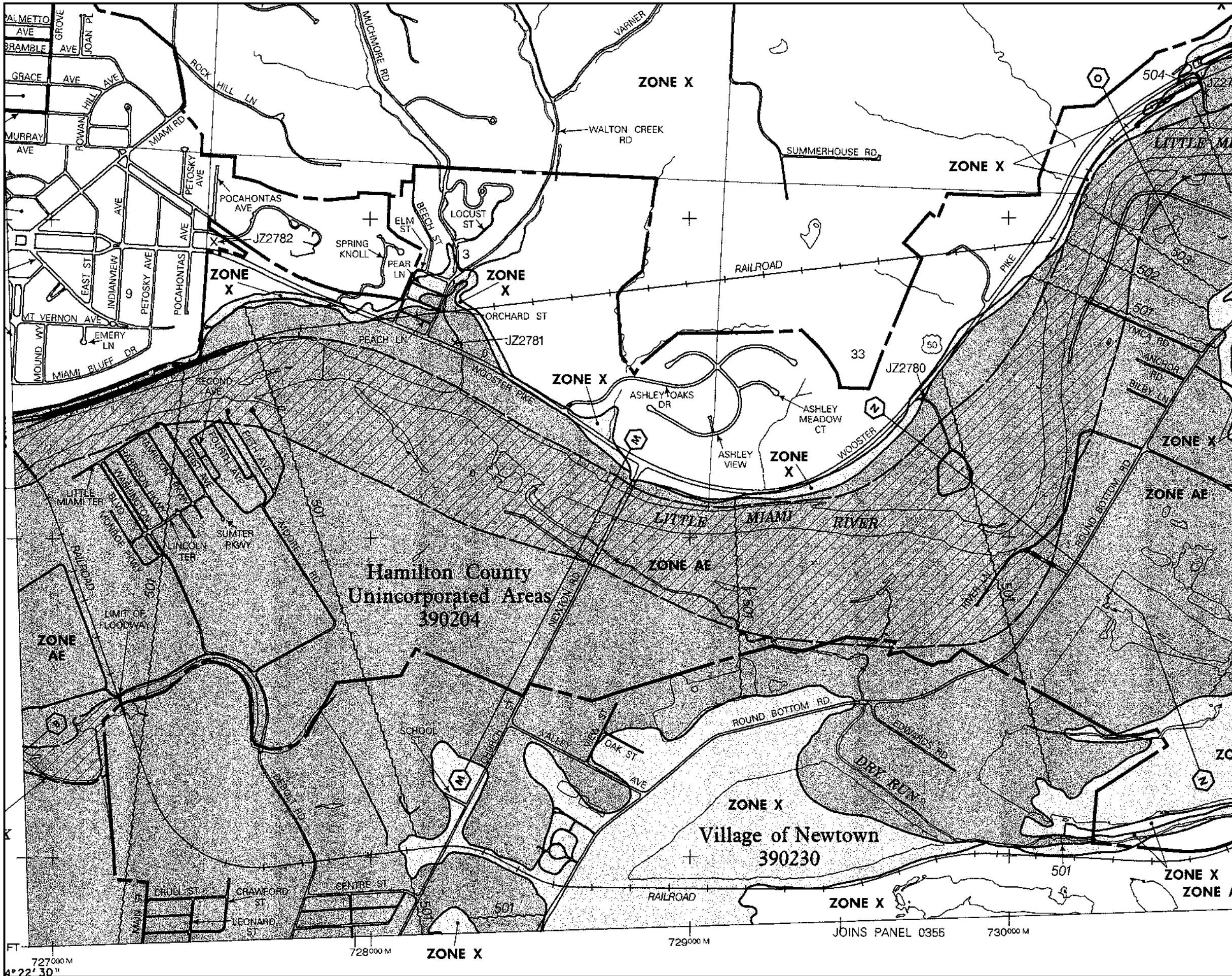
COMMUNITY	NUMBER	PANEL	SUFF-X
CINCINNATI, CITY OF	390210	0332	D
HAMILTON COUNTY	390204	0332	D

Notice to User: The Map Number shown below should be used when placing map orders. The Community Number shown above should be used on insurance applications for the subject community.

**MAP NUMBER**  
**39061C0332D**  
**EFFECTIVE DATE**  
**MAY 17, 2004**  
**Federal Emergency Management Agency**

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)





SCALE 1" = 1000'

1000 2000 FEET

0 300 600 METERS

**PANEL 0240D**

**FIRM**  
**FLOOD INSURANCE RATE MAP**  
**HAMILTON COUNTY,**  
**OHIO**  
**AND INCORPORATED AREAS**

**PANEL 240 OF 365**  
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
CINCINNATI, CITY OF	390210	0240	D
HAMILTON, COUNTY	390204	0240	D
MARIEMONT, VILLAGE OF	390226	0240	D
NEWTOWN, VILLAGE OF	390230	0240	D
TERRACE PARK, VILLAGE OF	390833	0240	D
THE VILLAGE OF INDIAN HILL, CITY OF	390221	0240	D

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

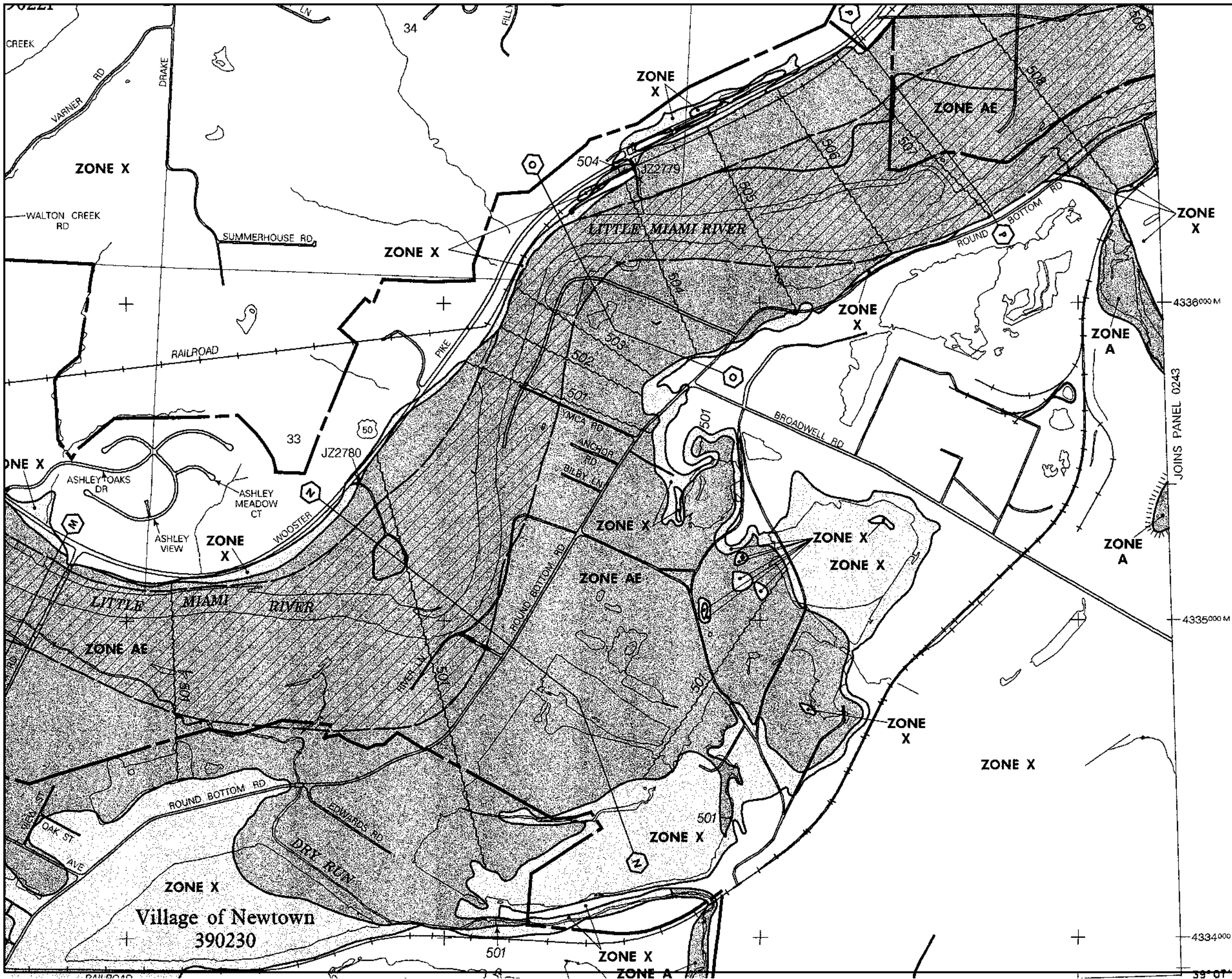
**MAP NUMBER**  
**39061C0240D**


**EFFECTIVE DATE**  
**MAY 17, 2004**

**Federal Emergency Management Agency**

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)







SCALE 1" = 1000'

1000 2000 FEET

0 300 600 METERS

**PANEL 0240D**

**FIRM**

**FLOOD INSURANCE RATE MAP**

**HAMILTON COUNTY, OHIO**

**AND INCORPORATED AREAS**


**PANEL 240 OF 365**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
CINCINNATI, CITY OF	390210	0240	D
HAMILTON, COUNTY	390204	0240	D
MARIEMONT, VILLAGE OF	390226	0240	D
NEWTOWN, VILLAGE OF	390230	0240	D
TERRACE PARK, VILLAGE OF	390833	0240	D
THE VILLAGE OF INDIAN HILL, CITY OF	390221	0240	D

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.



**MAP NUMBER**

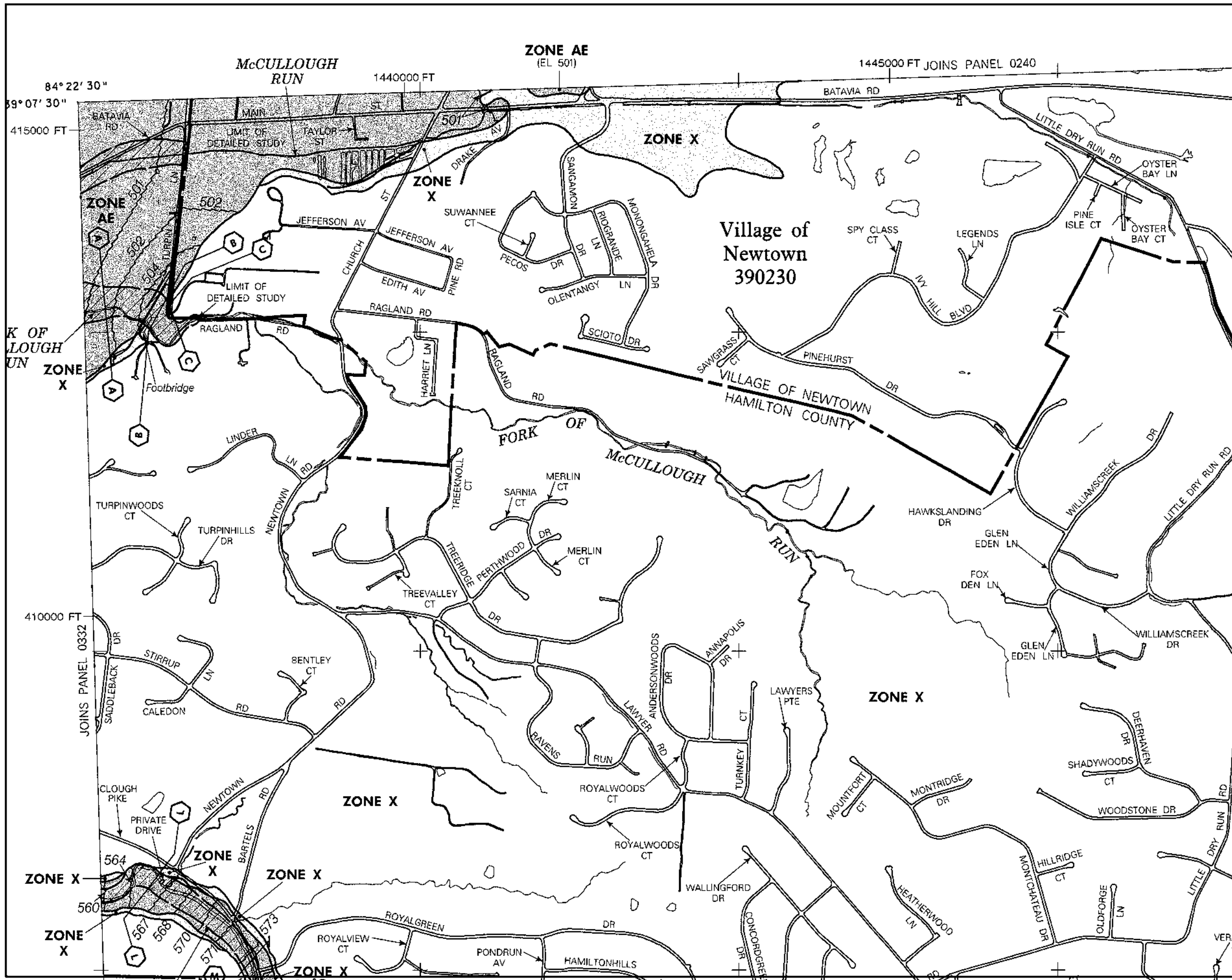
**39061C0240D**

**EFFECTIVE DATE**

**MAY 17, 2004**

**Federal Emergency Management Agency**

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)



SCALE 1" = 1000'  
1000 2000 FEET  
METERS

PANEL 0355D

# FIRM FLOOD INSURANCE RATE MAP HAMILTON COUNTY, OHIO AND INCORPORATED AREAS

PANEL 355 OF 365

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
CINCINNATI, CITY OF	390213	0355	D
HAMILTON COUNTY	390204	0355	D
NEWTOWN, VILAGE OF	390230	0355	D

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

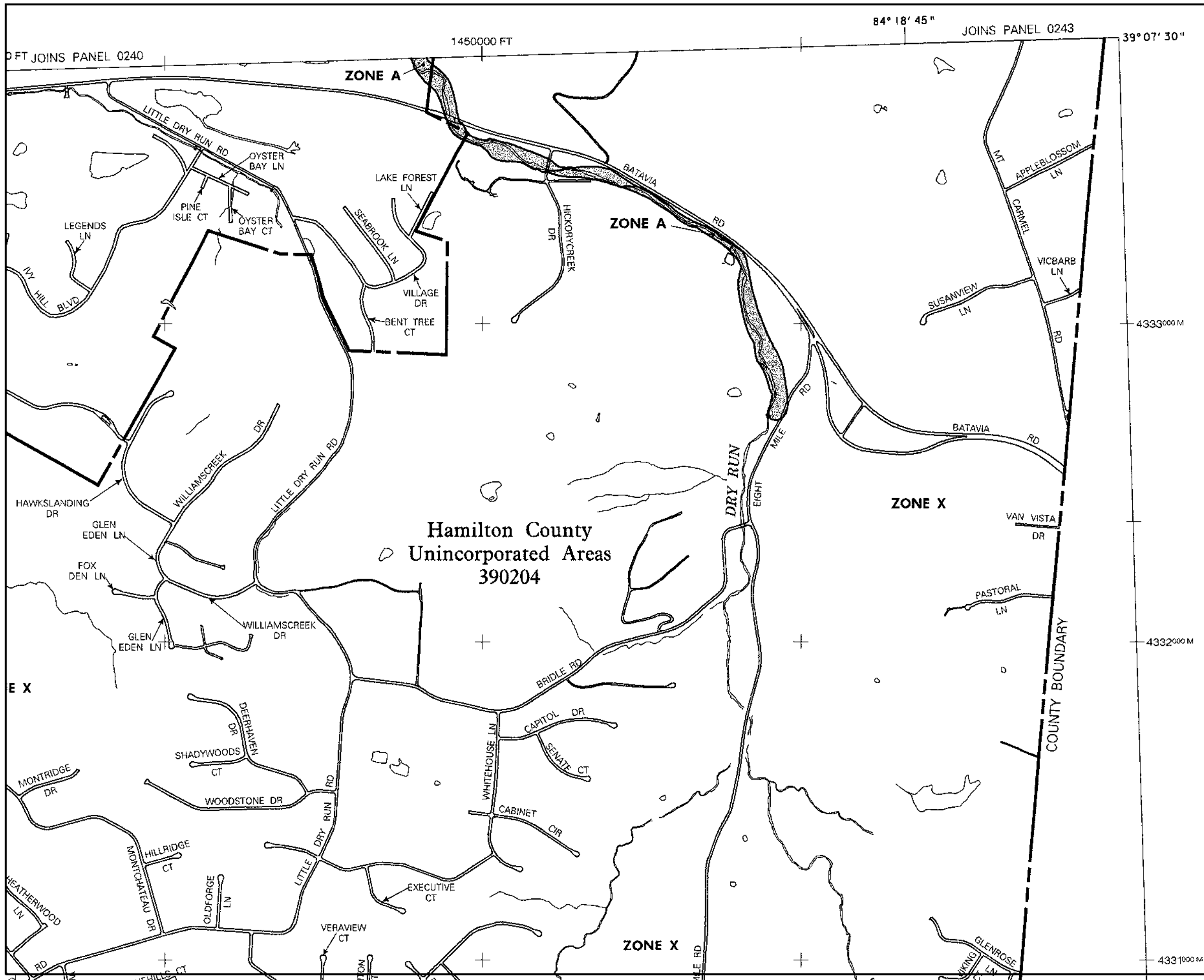


MAP NUMBER  
39061C0355D

EFFECTIVE DATE  
MAY 17, 2004

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)



SCALE 1" = 1000'

1000 2000 FEET

METERS

PANEL 0355D

# FIRM

## FLOOD INSURANCE RATE MAP

### HAMILTON COUNTY, OHIO

#### AND INCORPORATED AREAS

PANEL 355 OF 365

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
CINCINNATI, CITY OF	390210	0355	D
HAMILTON COUNTY	390204	0355	D
NEWTOWN, VILAGE OF	390230	0355	D

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

**MAP NUMBER**  
39061C0355D

**EFFECTIVE DATE**  
MAY 17, 2004

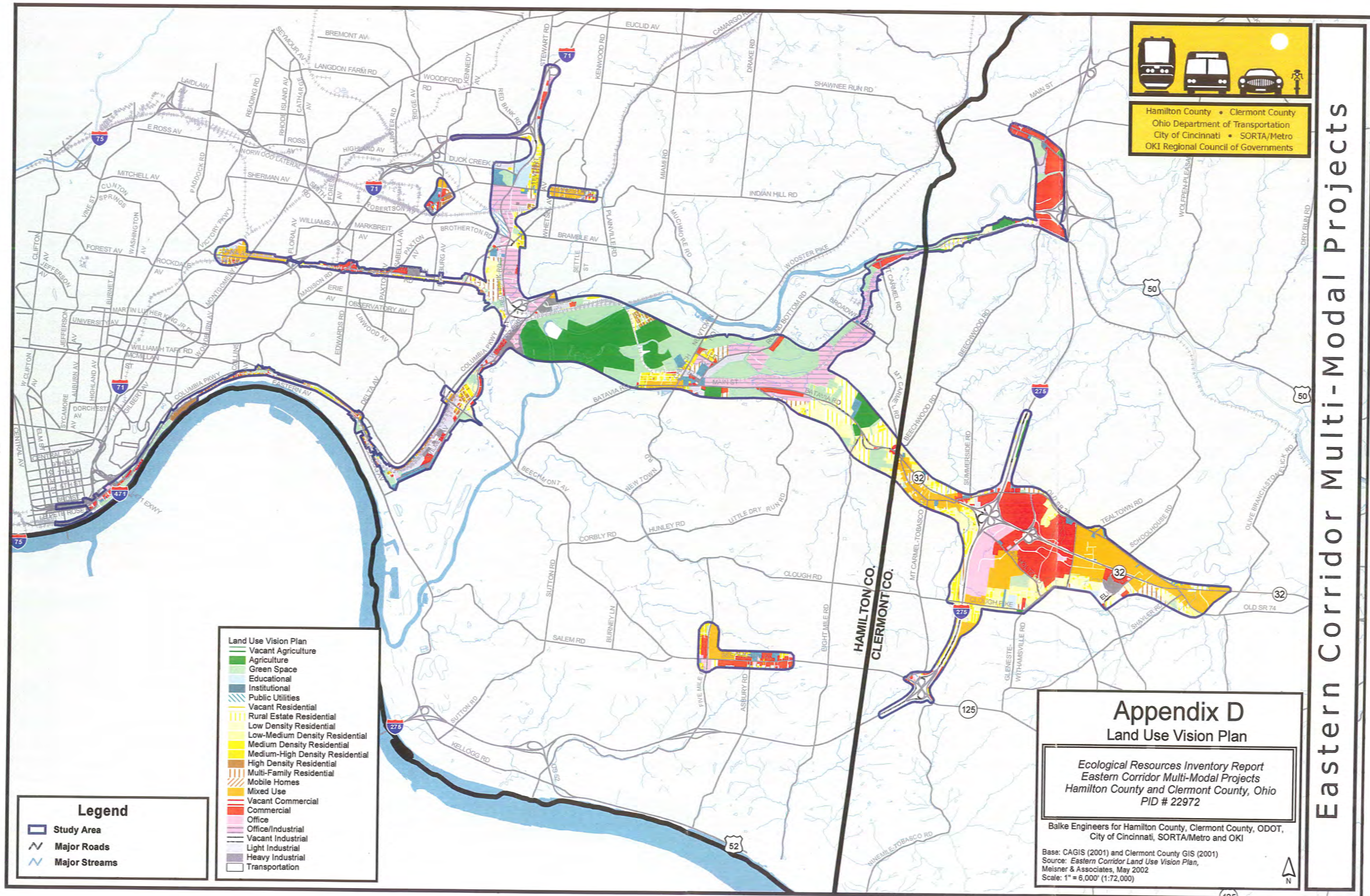
Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)





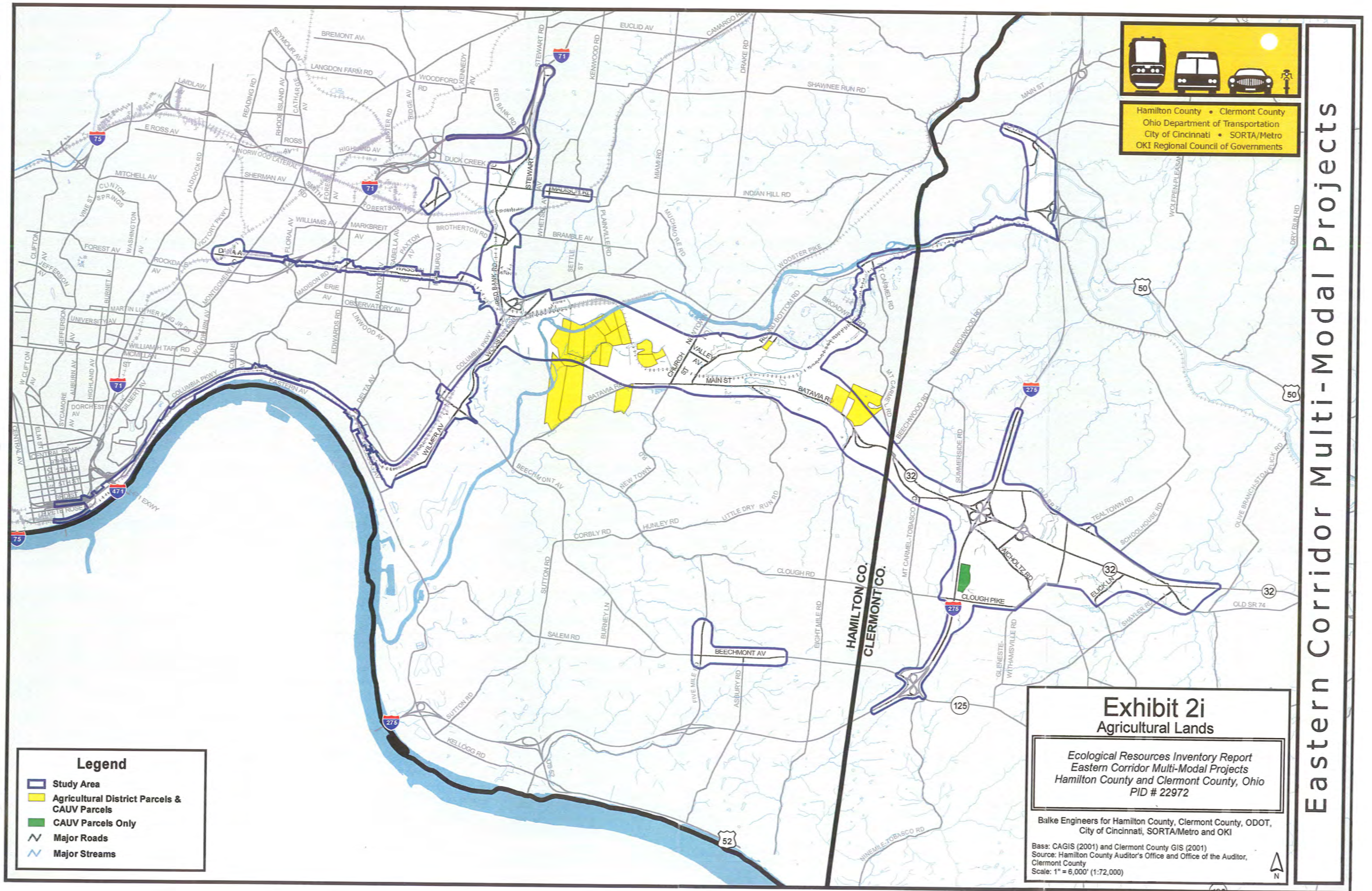














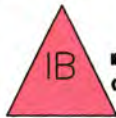






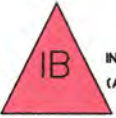
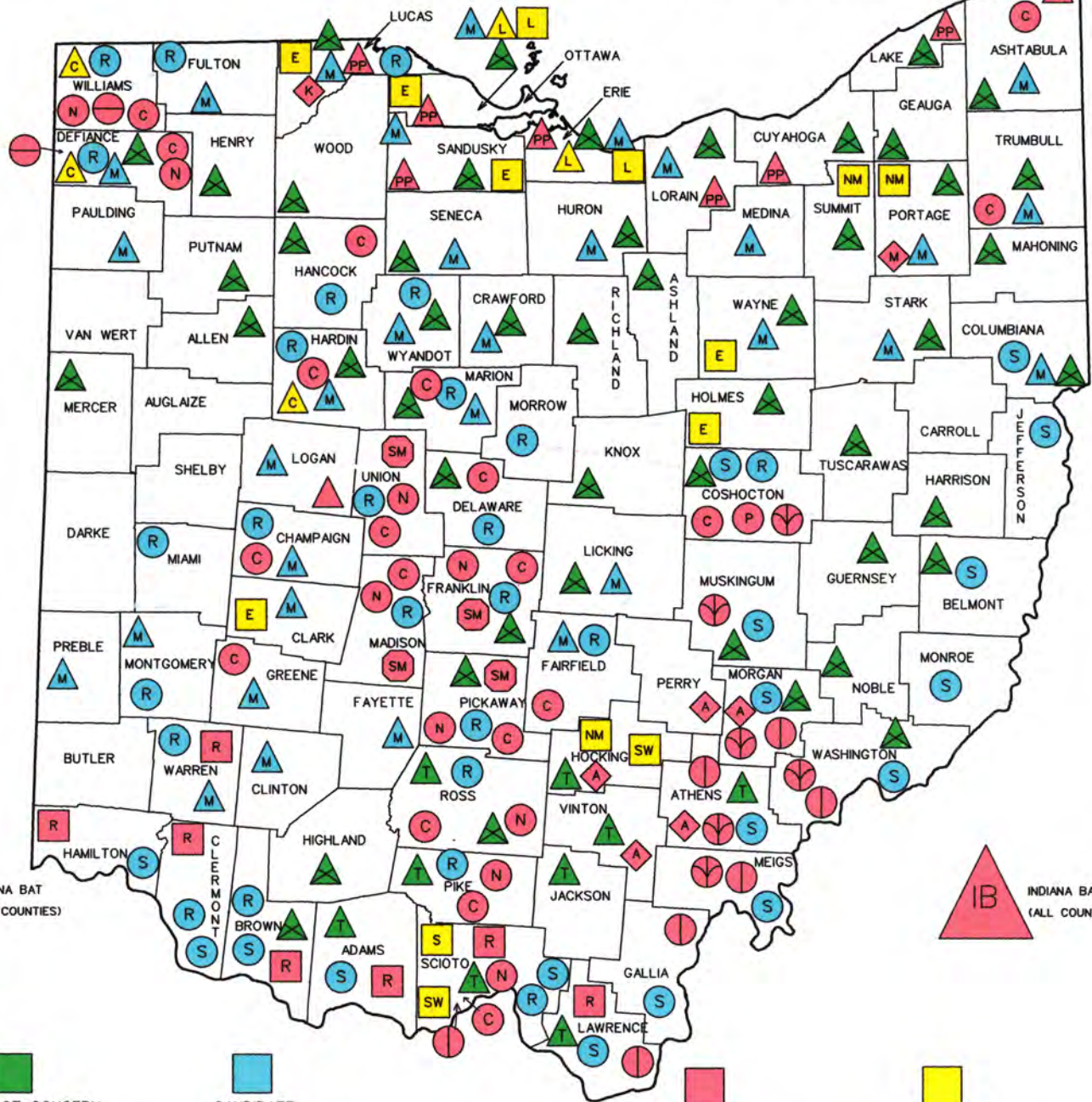




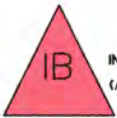


INDIANA BAT  
(ALL COUNTIES)

# KNOWN RANGES OF FEDERALLY LISTED SPECIES IN OHIO



INDIANA BAT  
(ALL COUNTIES)



INDIANA BAT  
(ALL COUNTIES)

SPECIES OF CONCERN	CANDIDATE	ENDANGERED	THREATENED
BALD EAGLE	EASTERN MASSASAUGA (CANDIDATE SPECIES)	FANSHALL MUSSEL (SEE STREAM LIST)	NORTHERN MONKSHOOD
TIMBER RATTLESNAKE	KARNER BLUE	NORTHERN RIFFLESHELL MUSSEL (SEE STREAM LIST)	EASTERN PRAIRIE FRINGED ORCHID
SHEEPNOSE MUSSEL (SEE STREAM LIST)	PIPING PLOVER (CRITICAL HABITAT (IN ERIE CO. IN SHELDO'S MARSH SNP & IN LAKE CO. IN HEADLANDS DUNE SNP))	PINK MUCKET PEARLY MUSSEL (SEE STREAM LIST)	SMALL WHORLED POGONIA
RAYED BEAN MUSSEL (SEE STREAM LIST)	SCIOTO MADTOM (BIG DARBY CREEK ONLY)	PURPLE CAT'S PAW PEARLY MUSSEL (SEE STREAM LIST)	VIRGINIA SPIRAEA (SCIOTO BRUSH CREEK WATERSHED ONLY)
	CLUBSHELL MUSSEL (SEE STREAM LIST)	WHITE CAT'S PAW PEARLY MUSSEL (SEE STREAM LIST)	LAKE ERIE WATER SNAKE (ISLANDS ONLY)
		MITCHELL'S SATYR	
		RUNNING BUFFALO CLOVER	
		AMERICAN BURYING BEETLE	
		COPPERBELLY WATER SNAKE	
		LAKESIDE DAISY (MARBLEHEAD AND KELLEYS ISLAND ONLY)	







# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

Ecological Services  
4625 Morse Road, Suite 104  
Columbus, Ohio 43230  
(614) 416-8993 / FAX (614) 416-8994

### Federally-Listed Species by Ohio Counties November 2008

COUNTY	SPECIES	E = Endangered T = Threatened C = Candidate	CH = Critical Habitat SC = Species of Concern
ADAMS	Indiana bat (E), running buffalo clover (E), sheepnose (C), snuffbox (SC), timber rattlesnake (SC)		
ALLEN	Indiana bat (E), bald eagle (SC)		
ASHLAND	Indiana bat (E), bald eagle (SC)		
ASHTABULA	Indiana bat (E), clubshell (E), piping plover (E), eastern massasauga (C), bald eagle (SC), snuffbox (SC)		
ATHENS	Indiana bat (E), American burying beetle (E), pink mucket pearly mussel (E), fanshell (E), sheepnose (C), snuffbox (SC), timber rattlesnake (SC)		
AUGLAIZE	Indiana bat (E)		
BELMONT	Indiana bat (E), sheepnose (C), snuffbox (SC), bald eagle (SC)		
BROWN	Indiana bat (E), running buffalo clover (E), rayed bean (C), sheepnose (C), bald eagle (SC), snuffbox (SC)		
BUTLER	Indiana bat (E)		
CARROLL	Indiana bat (E)		
CHAMPAIGN	Indiana bat (E), clubshell (E), eastern massasauga (C), rayed bean (C), snuffbox (SC)		
CLARK	Indiana bat (E), eastern prairie fringed orchid (T), eastern massasauga (C)		
CLERMONT	Indiana bat (E), running buffalo clover (E), rayed bean (C), sheepnose (C), snuffbox (SC)		
CLINTON	Indiana bat (E), eastern massasauga (C)		
COLUMBIANA	Indiana bat (E), eastern massasauga (C), sheepnose (C), snuffbox (SC), bald eagle (SC)		
COSHOCTON	Indiana bat (E), clubshell (E), fanshell (E), purple cat’s paw pearly mussel (E), rayed bean (C), sheepnose (C), bald eagle (SC), snuffbox (SC)		
CRAWFORD	Indiana bat (E), eastern massasauga (C), bald eagle (SC)		
CUYAHOGA	Indiana bat (E), piping plover (E), bald eagle (SC)		

DARKE	Indiana bat (E)
DEFIANCE	Indiana bat (E), white cat's paw pearly mussel (E), clubshell (E), northern riffleshell (E), copperbelly watersnake (T), rayed bean (C), eastern massasauga (C), bald eagle (SC)
DELAWARE	Indiana bat (E), clubshell (E), rayed bean (C), bald eagle (SC), snuffbox (SC)
ERIE	Indiana bat (E), piping plover (E/CH), Lake Erie watersnake (T), Lakeside daisy (T), eastern massasauga (C), bald eagle (SC)
FAIRFIELD	Indiana bat (E), clubshell (E), eastern massasauga (C), rayed bean (C)
FAYETTE	Indiana bat (E), eastern massasauga (C)
FRANKLIN	Indiana bat (E), Scioto madtom (E), clubshell (E), northern riffleshell (E), rayed bean (C), bald eagle (SC), snuffbox (SC)
FULTON	Indiana bat (E), rayed bean (C), eastern massasauga (C)
GALLIA	Indiana bat (E), pink mucket pearly mussel (E), sheepnose (C), snuffbox (SC)
GEAUGA	Indiana bat (E), bald eagle (SC), snuffbox (SC)
GREENE	Indiana bat (E), clubshell (E), eastern massasauga (C), snuffbox (SC)
GUERNSEY	Indiana bat (E), bald eagle (SC)
HAMILTON	Indiana bat (E), running buffalo clover (E), sheepnose (C), snuffbox (SC)
HANCOCK	Indiana bat (E), clubshell (E), rayed bean (C), bald eagle (SC)
HARDIN	Indiana bat (E), clubshell (E), copperbelly watersnake (T), rayed bean (C), eastern massasauga (C), bald eagle (SC)
HARRISON	Indiana bat (E), bald eagle (SC)
HENRY	Indiana bat (E), bald eagle (SC)
HIGHLAND	Indiana bat (E), bald eagle (SC)
HOCKING	Indiana bat (E), American burying beetle (E), northern monkshood (T), small whorled pogonia (T), timber rattlesnake (SC)
HOLMES	Indiana bat (E), eastern prairie fringed orchid (T), bald eagle (SC)
HURON	Indiana bat (E), eastern massasauga (C), bald eagle (SC)
JACKSON	Indiana bat (E), timber rattlesnake (SC)
JEFFERSON	Indiana bat (E), sheepnose (C), snuffbox (SC)
KNOX	Indiana bat (E), bald eagle (SC)
LAKE	Indiana bat (E), piping plover (E/CH), bald eagle (SC), snuffbox (SC)

LAWRENCE	Indiana bat (E), pink mucket pearly mussel (E), running buffalo clover (E), sheepnose (C), snuffbox (SC), timber rattlesnake (SC)
LICKING	Indiana bat (E), eastern massasauga (C), bald eagle (SC)
LOGAN	Indiana bat (E), eastern massasauga (C)
LORAIN	Indiana bat (E), piping plover (E), eastern massasauga (C), bald eagle (SC)
LUCAS	Indiana bat (E), Karner blue butterfly (E), piping plover (E), eastern prairie fringed orchid (T), rayed bean (C), eastern massasauga (C), bald eagle (SC)
MADISON	Indiana bat (E), Scioto madtom (E), clubshell (E), northern riffleshell (E), rayed bean (C), snuffbox (SC)
MAHONING	Indiana bat (E), bald eagle (SC)
MARION	Indiana bat (E), clubshell (E), eastern massasauga (C), rayed bean (C), bald eagle (SC), snuffbox (SC)
MEDINA	Indiana bat (E), eastern massasauga (C)
MEIGS	Indiana bat (E), pink mucket pearly mussel (E), fanshell (E), sheepnose (C), snuffbox (SC)
MERCER	Indiana bat (E), bald eagle (SC)
MIAMI	Indiana bat (E), rayed bean (C), snuffbox (SC)
MONROE	Indiana bat (E), sheepnose (C), snuffbox (SC)
MONTGOMERY	Indiana bat (E), eastern massasauga (C) rayed bean (C), snuffbox (SC)
MORGAN	Indiana bat (E), American burying beetle (E), fanshell (E), pink mucket pearly mussel (E), sheepnose (C), bald eagle (SC), snuffbox (SC)
MORROW	Indiana bat (E)
MUSKINGUM	Indiana bat (E), fanshell (E), sheepnose (C), bald eagle (SC), snuffbox (SC)
NOBLE	Indiana bat (E), bald eagle (SC)
OTTAWA	Indiana bat (E), piping plover (E), Lake Erie watersnake (T), Lakeside daisy (T), eastern prairie fringed orchid (T), eastern massasauga (C), bald eagle (SC)
PAULDING	Indiana bat (E), eastern massasauga (C)
PERRY	Indiana bat (E), American burying beetle (E)
PICKAWAY	Indiana bat (E), Scioto madtom (E), clubshell (E), northern riffleshell (E), rayed bean (C), bald eagle (SC), snuffbox (SC)
PIKE	Indiana bat (E), clubshell (E), northern riffleshell (E), rayed bean (C), timber rattlesnake (SC)
PORTAGE	Indiana bat (E), Mitchell's satyr (E), northern monkshood (T), eastern massasauga (C),



	bald eagle (SC)
PREBLE	Indiana bat (E), eastern massasauga (C)
PUTNAM	Indiana bat (E), bald eagle (SC)
RICHLAND	Indiana bat (E), bald eagle (SC)
ROSS	Indiana bat (E), clubshell (E), northern riffleshell (E), rayed bean (C), bald eagle (SC), snuffbox (SC), timber rattlesnake (SC)
SANDUSKY	Indiana bat (E), piping plover (E), eastern prairie fringed orchid (T), eastern massasauga (C), bald eagle (SC)
SCIOTO	Indiana bat (E), running buffalo clover (E), clubshell (E), northern riffleshell (E), pink mucket pearly mussel (E), Virginia spiraea (T), small whorled pogonia (T), rayed bean (C), sheepnose (C), snuffbox (SC), timber rattlesnake (SC)
SENECA	Indiana bat (E), eastern massasauga (C), bald eagle (SC)
SHELBY	Indiana bat (E)
STARK	Indiana bat (E), eastern massasauga (C), bald eagle (SC)
SUMMIT	Indiana bat (E), northern monkshood (T), bald eagle (SC)
TRUMBULL	Indiana bat (E), clubshell (E), eastern massasauga (C), bald eagle (SC), snuffbox (SC)
TUSCARAWAS	Indiana bat (E), bald eagle (SC)
UNION	Indiana bat (E), Scioto madtom (E), clubshell (E), northern riffleshell (E), rayed bean (C), snuffbox (SC)
VAN WERT	Indiana bat (E)
VINTON	Indiana bat (E), American burying beetle (E), timber rattlesnake (SC)
WARREN	Indiana bat (E), running buffalo clover (E), eastern massasauga (C), rayed bean (C)
WASHINGTON	Indiana bat (E), fanshell (E), pink mucket pearly mussel (E), sheepnose (C), bald eagle (SC), snuffbox (SC)
WAYNE	Indiana bat (E), eastern prairie fringed orchid (T), eastern massasauga (C), bald eagle (SC)
WILLIAMS	Indiana bat (E), white cat's paw pearly mussel (E), clubshell (E), northern riffleshell (E), copperbelly watersnake (T), rayed bean (C)
WOOD	Indiana bat (E), bald eagle (SC)
WYANDOT	Indiana bat (E), eastern massasauga (C), rayed bean (C), bald eagle (SC)

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# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

Ecological Services  
4625 Morse Road, Suite 104  
Columbus, Ohio 43230  
(614) 416-8993 / FAX (614) 416-8994

### Federally Endangered, Threatened, Candidate Species and Species of Concern in Ohio November 2008

E = Endangered CH = Critical Habitat  
T = Threatened SC = Species of Concern  
C = Candidate

SPECIES	Counties of Current, Recent, and Possible Distribution
<b>Indiana Bat</b> (E) <i>Myotis sodalis</i>	All counties in Ohio
<b>Bald Eagle</b> (SC) <i>Haliaeetus leucocephalus</i>	The following counties have nesting records:  Allen, Ashland, Ashtabula, Belmont, Brown, Columbiana, Coshocton, Crawford, Cuyahoga, Defiance, Delaware, Erie, Franklin, Geauga, Guernsey, Hancock, Hardin, Harrison, Henry, Highland, Holmes, Huron, Knox, Lake, Licking, Lorain, Lucas, Mahoning, Marion, Mercer, Morgan, Muskingum, Noble, Ottawa, Pickaway, Portage, Putnam, Richland, Ross, Sandusky, Seneca, Stark, Summit, Trumbull, Tuscarawas, Washington, Wayne, Wood, Wyandot
<b>Piping Plover</b> (E) <i>Charadrius melodus</i>	Ashtabula, Cuyahoga, Erie (CH), Lake (CH), Lorain, Lucas, Ottawa, Sandusky
<b>Scioto Madtom</b> (E) <i>Noturus trautmani</i>	Franklin, Madison, Pickaway, Union
<b>Purple Cat's Paw Pearly Mussel</b> (E) <i>Epioblasma obliquata obliquata</i>	Coshocton
<b>Northern Riffleshell</b> (E) <i>Epioblasma torulosa rangiana</i>	Defiance, Franklin, Madison, Pickaway, Pike, Ross, Scioto, Union, Williams
<b>Fanshell</b> (E) <i>Cyprogenia stegaria</i>	Athens, Coshocton, Meigs, Morgan, Muskingum, Washington
<b>Clubshell</b> (E) <i>Pleurobema clava</i>	Ashtabula, Champaign, Coshocton, Defiance, Delaware, Fairfield, Franklin, Greene, Hancock, Hardin, Madison, Marion, Pickaway, Pike, Ross, Scioto, Trumbull, Union, Williams



<b>White Cat's Paw Pearly Mussel</b> (E) <i>Epioblasma obliquata perobliqua</i>	Defiance, Williams
<b>Pink Mucket Pearly Mussel</b> (E) <i>Lampsilis abrupta</i>	Athens, Gallia, Lawrence, Meigs, Morgan, Scioto, Washington
<b>Rayed Bean</b> (C) <i>Villosa fabalis</i>	Brown, Champaign, Clermont, Coshocton, Defiance, Delaware, Fairfield, Franklin, Fulton, Hancock, Hardin, Lucas, Madison, Marion, Miami, Montgomery, Pickaway, Pike, Ross, Scioto, Union, Warren, Williams, Wyandot
<b>Sheepnose</b> (C) <i>Plethobasus cyphus</i>	Adams, Athens, Belmont, Brown, Clermont, Columbiana, Coshocton, Gallia, Hamilton, Jefferson, Lawrence, Meigs, Monroe, Morgan, Muskingum, Scioto, Washington
<b>Snuffbox</b> (SC) <i>Epioblasma triquetra</i>	Adams, Ashtabula, Athens, Belmont, Brown, Champaign, Clermont, Columbiana, Coshocton, Delaware, Franklin, Gallia, Geauga, Greene, Hamilton, Jefferson, Lake, Lawrence, Madison, Marion, Meigs, Miami, Monroe, Montgomery, Morgan, Muskingum, Pickaway, Ross, Scioto, Trumbull, Union, Washington
<b>American Burying Beetle</b> (E) <i>Nicrophorus americanus</i>	Athens, Hocking, Morgan, Perry, Vinton
<b>Mitchell's Satyr</b> (E) <i>Neonympha m. mitchellii</i>	Portage
<b>Karner Blue Butterfly</b> (E) <i>Lycaeides melissa samuelis</i>	Lucas
<b>Running Buffalo Clover</b> (E) <i>Trifolium stoloniferum</i>	Adams, Brown, Clermont, Hamilton, Lawrence, Scioto, Warren
<b>Lakeside Daisy</b> (T) <i>Hymenoxys herbacea</i>	Erie, Ottawa
<b>Northern Monkshood</b> (T) <i>Aconitum noveboracense</i>	Hocking, Portage, Summit
<b>Eastern Prairie Fringed Orchid</b> (T) <i>Platanthera leucophaea</i>	Clark, Holmes, Lucas, Ottawa, Sandusky, Wayne

<b>Virginia Spiraea</b> (T) <i>Spiraea virginiana</i>	Scioto
<b>Small Whorled Pogonia</b> (T) <i>Isotria medeoloides</i>	Hocking, Scioto
<b>Lake Erie Watersnake</b> (T) <i>Nerodia sipedon insularum</i>	Erie, Ottawa
<b>Copperbelly Watersnake</b> (T) <i>Nerodia erythrogaster neglecta</i>	Defiance, Hardin, Williams
<b>Eastern Massasauga</b> (C) <i>Sistrurus catenatus</i>	Ashtabula, Champaign, Clark, Clinton, Columbiana, Crawford, Defiance, Erie, Fairfield, Fayette, Fulton, Greene, Hardin, Huron, Licking, Logan, Lorain, Lucas, Marion, Medina, Montgomery, Ottawa, Paulding, Portage, Preble, Sandusky, Seneca, Stark, Trumbull, Warren, Wayne, Wyandot
<b>Timber Rattlesnake</b> (SC) <i>Crotalus horridus horridus</i>	Adams, Athens, Hocking, Jackson, Lawrence, Pike, Ross, Scioto, Vinton

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## ***APPENDIX B***

### ***Agency Response Information (ODNR)***



**From:** Woischke, Debbie [Debbie.Woischke@dnr.state.oh.us]  
**Sent:** Wednesday, June 14, 2006 11:20 AM  
**To:** Leopold, William  
**Subject:** Natural Heritage Data

**Attachments:** sr.shx; data.dbf; data.sbn; data.sbx; data.shp; data.shx; ma.dbf; ma.sbn; ma.sbx; ma.shp; ma.shx; sites.dbf; sites.sbn; sites.sbx; sites.shp; sites.shx; sr.dbf; sr.sbn; sr.sbx; sr.shp

Dear Mr. Leopold:

Per your request, I have e-mailed you a set of ArcView shape files with our Natural Heritage Database records for the Eastern Corridor - Part B - Tier 2 Studies project ('data'), in Hamilton County and on the Cincinnati East, Cincinnati West, Madeira, Goshen, Covington, Newport, Withamsville and Batavia Quads (project #6052113). The projection is NAD83 Ohio South. Records included may be for rare and endangered plants and animals, geologic features, high quality plant communities and breeding and non-breeding animal concentrations. Fields included are scientific and common names, state and federal statuses, as well as managed area, date of the most recent observation and feature ID and elcode. The feature ID and elcode fields are codes we use to differentiate between records of the same species. State and federal statuses are defined as: E = endangered, T = threatened, P = potentially threatened, SC = species of concern, SI = special interest, FE = federal endangered and FT = federal threatened.

Also included are layers for managed areas ('ma') and scenic rivers ('sr'). The 'ma' layer includes state nature preserves, parks, forests and wildlife areas, national wildlife refuges, county metro parks, as well as sites owned by non-profit groups (such as The Nature Conservancy), museums (such as the Cleveland Museum of Natural History), and others. Please be aware that the managed areas layer may not be complete. We are continually updating this layer as additional information becomes available to us.

Another layer is of Conservation Sites ('sites'). These are sites deemed by the Division of Natural Areas and Preserves to be high quality natural areas not currently under formal protection. They may, for example, harbor one or more rare species, be an outstanding example of a plant community or have geologically significant features, etc. These sites may be in private ownership and our listing of them does not imply permission for access.

You may notice that some of the locations are represented by circles of two sizes. This represents the locational accuracy of the record, and can be translated as follows: an exact location = a circle with a 328 foot radius and a general location within a square mile = a circle with a half mile radius. As time allows, these circles will be edited into more appropriate shapes.

Our inventory program has not completely surveyed Ohio and relies on information supplied by many individuals and organizations. Therefore, a lack of records for any particular area is not a statement that rare species or unique features are absent from that area. Please note that although we inventory all types of plant communities, we only maintain records on the highest quality areas. Also, we do not have data for all Ohio wetlands. For National Wetlands Inventory maps, please contact Madge Fitak in the Division of Geological Survey at 614-265-6576.

Please contact me at 614-265-6818 if I can be of further assistance. I will send a hard copy of this letter along with the invoice.

**Debbie Woischke, Data Specialist**  
**Ohio Department of Natural Resources**  
**Division of Natural Areas & Preserves**  
**Natural Heritage Program**  
**2045 Morse Rd., Bldg. F-1**  
**Columbus, OH 43229**

**(phone) 614-265-6818**

**(fax) 614-267-3096**

**(e-mail) [debbie.woischke@dnr.state.oh.us](mailto:debbie.woischke@dnr.state.oh.us)**

FEATURE	EO_ID	ELCODE	EO_NUM	NAME_CATEG	EO_ID	SCIENCE_NA	COMMON_NAM	MANAGED_AR	LAST_OBSER	STATE_STAT	CONSERV_SI	FEDERAL_ST
1738	2798.000000	OMUSSEL000	127.000000	Animal Assemblage	2798.000000	Mussel Bed		EAST FORK STATE PARK	1990-07			
4564	10251.000000	OMUSSEL000	107.000000	Animal Assemblage	10251.000000	Mussel Bed			1991-07-21			
4754	10726.000000	OMUSSEL000	126.000000	Animal Assemblage	10726.000000	Mussel Bed			1990-07			
7536	1212.000000	OMUSSEL000	123.000000	Animal Assemblage	1212.000000	Mussel Bed			1990-07			
11772	4071.000000	OMUSSEL000	125.000000	Animal Assemblage	4071.000000	Mussel Bed			1990-07			
13382	5097.000000	OMUSSEL000	199.000000	Animal Assemblage	5097.000000	Mussel Bed			2001-03-11			
13486	5156.000000	OMUSSEL000	111.000000	Animal Assemblage	5156.000000	Mussel Bed			1991-08-03			
13760	5338.000000	OMUSSEL000	129.000000	Animal Assemblage	5338.000000	Mussel Bed			2001-03-11			
17514	7876.000000	OMUSSEL000	128.000000	Animal Assemblage	7876.000000	Mussel Bed			1990-07			
18792	8743.000000	OMUSSEL000	124.000000	Animal Assemblage	8743.000000	Mussel Bed			1990-07			
23464	11830.000000	OMUSSEL000	200.000000	Animal Assemblage	11830.000000	Mussel Bed		WOODLAND MOUND PARK	2001-03-11			
24092	12248.000000	OMUSSEL000	109.000000	Animal Assemblage	12248.000000	Mussel Bed			1991-07-22			
542	10058.000000	IMBIV04130	4.000000	Invertebrate Animal	10058.000000	Anodonta suborbiculata	Flat Floater		1991-08	SC		
5478	12654.000000	IMBIV09010	48.000000	Invertebrate Animal	12654.000000	Cyclonaias tuberculata	Purple Wartyback		1965-08-09	SC		
406	7373.000000	IMBIV13010	6.000000	Invertebrate Animal	7373.000000	Ellipsaria lineolata	Butterfly		1964-01	E		
4634	10390.000000	IMBIV13010	7.000000	Invertebrate Animal	10390.000000	Ellipsaria lineolata	Butterfly		1965-08-09	E		
646	12242.000000	IMBIV14080	7.000000	Invertebrate Animal	12242.000000	Elliptio crassidens	Elephant-ear		1964-01	E		
1678	2572.000000	IMBIV14080	8.000000	Invertebrate Animal	2572.000000	Elliptio crassidens	Elephant-ear		1965-08-09	E		
24282	12372.000000	IMBIV14080	12.000000	Invertebrate Animal	12372.000000	Elliptio crassidens	Elephant-ear		1988-06-16	E		
5532	12786.000000	IMBIV17060	1.000000	Invertebrate Animal	12786.000000	Fusconaia ebena	Ebonyshell		1965-08-09	E		
11904	4156.000000	IMBIV17060	8.000000	Invertebrate Animal	4156.000000	Fusconaia ebena	Ebonyshell	WOODLAND MOUND PARK	1985	E		
12922	4843.000000	IMBIV21070	16.000000	Invertebrate Animal	4843.000000	Lampsilis fasciola	Wavy-rayed Lampmussel		1990-07	SC		
2128	3765.000000	IMBIV29020	6.000000	Invertebrate Animal	3765.000000	Megaloniaias nervosa	Washboard		1965-08-09	E		
48	653.000000	IMBIV30010	52.000000	Invertebrate Animal	653.000000	Obliquaria reflexa	Threehorn Wartyback		1991-08	T		
252	4130.000000	IMBIV30010	27.000000	Invertebrate Animal	4130.000000	Obliquaria reflexa	Threehorn Wartyback		1964-01	T		
4970	11308.000000	IMBIV30010	28.000000	Invertebrate Animal	11308.000000	Obliquaria reflexa	Threehorn Wartyback		1965-08-09	T		
6254	405.000000	IMBIV30010	42.000000	Invertebrate Animal	405.000000	Obliquaria reflexa	Threehorn Wartyback		2001-03-11	T		
24708	12671.000000	IMBIV30010	46.000000	Invertebrate Animal	12671.000000	Obliquaria reflexa	Threehorn Wartyback	WOODLAND MOUND PARK	1985	T		
25476	2608.000000	IMBIV30010	50.000000	Invertebrate Animal	2608.000000	Obliquaria reflexa	Threehorn Wartyback		1991-07-21	T		
2956	6095.000000	IMBIV31020	1.000000	Invertebrate Animal	6095.000000	Obovaria olivaria	Hickorynut		1965-08-09	X		
2610	5061.000000	IMBIV34030	6.000000	Invertebrate Animal	5061.000000	Plethobasus cyphus	Sheepnose		1965-08-09	E		
536	9844.000000	IMBIV35090	5.000000	Invertebrate Animal	9844.000000	Pleurobema cordatum	Ohio Pigtoe		1964-01	E		
1544	2153.000000	IMBIV35090	6.000000	Invertebrate Animal	2153.000000	Pleurobema cordatum	Ohio Pigtoe		1965-08-09	E		
11984	4209.000000	IMBIV35090	3.000000	Invertebrate Animal	4209.000000	Pleurobema cordatum	Ohio Pigtoe		1965-08	E		
15256	6316.000000	IMBIV35090	15.000000	Invertebrate Animal	6316.000000	Pleurobema cordatum	Ohio Pigtoe	WOODLAND MOUND PARK	1985	E		
512	9238.000000	IMBIV39080	6.000000	Invertebrate Animal	9238.000000	Quadrula metanevra	Monkeyface		1964-01	E		
1704	2688.000000	IMBIV39080	5.000000	Invertebrate Animal	2688.000000	Quadrula metanevra	Monkeyface		1965-08-09	E		
8526	1881.000000	IMBIV39080	8.000000	Invertebrate Animal	1881.000000	Quadrula metanevra	Monkeyface		1985	E		
4468	9958.000000	IMBIV39090	4.000000	Invertebrate Animal	9958.000000	Quadrula nodulata	Wartyback		1991-08	E		
25474	2597.000000	IMBIV39090	3.000000	Invertebrate Animal	2597.000000	Quadrula nodulata	Wartyback		1965-08-09	E		
4278	9476.000000	IMBIV41010	15.000000	Invertebrate Animal	9476.000000	Simpsonaias ambigua	Salamander Mussel		1973-03	SC		
9866	2785.000000	IMBIV41010	24.000000	Invertebrate Animal	2785.000000	Simpsonaias ambigua	Salamander Mussel		1990-07	SC		
5552	12832.000000	IMBIV45020	25.000000	Invertebrate Animal	12832.000000	Truncilla donaciformis	Fawnsfoot		1973-03	T		
17394	7788.000000	IMBIV45020	61.000000	Invertebrate Animal	7788.000000	Truncilla donaciformis	Fawnsfoot	WOODLAND MOUND PARK	1990-07	T		
25696	5031.000000	IMBIV45020	62.000000	Invertebrate Animal	5031.000000	Truncilla donaciformis	Fawnsfoot		2001-03-11	T		
25804	6646.000000	IMBIV45020	28.000000	Invertebrate Animal	6646.000000	Truncilla donaciformis	Fawnsfoot		1991-08-05	T		
26076	9636.000000	IMBIV45020	65.000000	Invertebrate Animal	9636.000000	Truncilla donaciformis	Fawnsfoot		1991-07-22	T		
2638	5182.000000	IMBIV45040	15.000000	Invertebrate Animal	5182.000000	Truncilla truncata	Deertoe		1965-08-09	SC		
17036	7544.000000	IMBIV45040	33.000000	Invertebrate Animal	7544.000000	Truncilla truncata	Deertoe		1985	SC		
25354	1085.000000	IMBIV45040	41.000000	Invertebrate Animal	1085.000000	Truncilla truncata	Deertoe		1991-08-05	SC		
25514	3045.000000	IMBIV45040	37.000000	Invertebrate Animal	3045.000000	Truncilla truncata	Deertoe		2001-03-11	SC		
26116	10108.000000	IMBIV45040	39.000000	Invertebrate Animal	10108.000000	Truncilla truncata	Deertoe		1991-07-21	SC		
23920	12135.000000	GF40.40500	80.000000	Other (Ecological)	12135.000000	Cave or cavern		KROGER HILLS PARK	1986-02-09			
23922	12136.000000	GF40.40500	79.000000	Other (Ecological)	12136.000000	Cave or cavern			1986-02-09			
14604	5891.000000	C053.12000	29.000000	Plant Community	5891.000000	Beech-sugar maple forest			1986-05			
8834	2109.000000	C053.31000	19.000000	Plant Community	2109.000000	Mixed mesophytic forest		CALIFORNIA WOODS NATURAL	1981-09			



FEATURE	EO_ID	ELCODE	EO_NUM	NAME_CATEG	EO_ID	SCIENCE_NA	COMMON_NAM	MANAGED_AR	LAST_OBSER	STATE_STAT	CONSERV_SI	FEDERAL_ST
9420	2492.000000	C053.31000	54.000000	Plant Community	2492.000000	Mixed mesophytic forest		WITHROW NATURE PRESER\	1986-06			
11662	4001.000000	C053.31000	8.000000	Plant Community	4001.000000	Mixed mesophytic forest			1981-09			
6162	342.000000	C053.41000	7.000000	Plant Community	342.000000	Oak-maple forest			1981-09			
8298	1720.000000	C053.41000	8.000000	Plant Community	1720.000000	Oak-maple forest		NEWBERRY WILDLIFE SANCT	1981-09			
18272	8398.000000	C053.41000	13.000000	Plant Community	8398.000000	Oak-maple forest		KROGER HILLS PARK	1981-09			
10072	2928.000000	PDEUP010L1	1.000000	Vascular Plant	2928.000000	Acalypha virginica var. de	Deam's Three-seeded Mercury		2001-09-20	P		
52266	16657.000000	PDASTE8700	8.000000	Vascular Plant	16657.000000	Aster ontarionis	Bottomland Aster		2005-10-25	P		
53645	16838.000000	PDASTE8700	13.000000	Vascular Plant	16838.000000	Aster ontarionis	Bottomland Aster	WOODLAND MOUND PARK	2005-10-05	P		
6788	759.000000	PDFAB0G030	3.000000	Vascular Plant	759.000000	Baptisia australis	Blue False Indigo	EAST FORK STATE PARK	1994-08-16	E		
18732	8700.000000	PDFAB0G030	2.000000	Vascular Plant	8700.000000	Baptisia australis	Blue False Indigo	EAST FORK STATE PARK	1994-08-16	E		
22810	11396.000000	PDFAB0G030	4.000000	Vascular Plant	11396.000000	Baptisia australis	Blue False Indigo		1994-05-29	E		
16564	7216.000000	PMORC0M060	8.000000	Vascular Plant	7216.000000	Corallorhiza wisteriana	Spring Coral-root	EAST FORK STATE PARK	1990-05	P		
20812	10046.000000	PMORC0M060	9.000000	Vascular Plant	10046.000000	Corallorhiza wisteriana	Spring Coral-root		1991-05-08	P		
39929	13914.000000	PMORC0M060	17.000000	Vascular Plant	13914.000000	Corallorhiza wisteriana	Spring Coral-root	MT. AIRY FOREST	2002-05	P		
4166	9191.000000	PDJUG02030	19.000000	Vascular Plant	9191.000000	Juglans cinerea	Butternut	FARBACH WERNER NATURE	1992-08-19	P		
39853	13907.000000	PDJUG02030	257.000000	Vascular Plant	13907.000000	Juglans cinerea	Butternut	CALIFORNIA WOODS NATUR	2001-05	P		
10342	3110.000000	PMJUN02040	7.000000	Vascular Plant	3110.000000	Luzula bulbosa	Southern Woodrush	EAST FORK STATE PARK	1990-06-16	T		
11150	3652.000000	PMPOA4P2C0	6.000000	Vascular Plant	3652.000000	Paspalum repens	Riverbank Paspalum		1993-10-26	P		
15786	6682.000000	PMPOA4P2C0	5.000000	Vascular Plant	6682.000000	Paspalum repens	Riverbank Paspalum		1989-09-21	P		
17810	8085.000000	PMPOA4P2C0	16.000000	Vascular Plant	8085.000000	Paspalum repens	Riverbank Paspalum	WOODLAND MOUND PARK	1999-09-04	P		
18476	8531.000000	PMPOA4P2C0	15.000000	Vascular Plant	8531.000000	Paspalum repens	Riverbank Paspalum		1999-09-04	P		
19668	9269.000000	PMPOA4P2C0	1.000000	Vascular Plant	9269.000000	Paspalum repens	Riverbank Paspalum		1981-10-08	P		MOUTH OF LITTLE MIAMI RIVER
22	261.000000	PDPAS01080	8.000000	Vascular Plant	261.000000	Passiflora incarnata	Maypop		1979-09-11	T		
24622	12606.000000	PDHYD0C0F0	26.000000	Vascular Plant	12606.000000	Phacelia bipinnatifida	Fern-leaved Scorpion-weed		1990-05-21	P		
8354	1757.000000	PDGRO02120	2.000000	Vascular Plant	1757.000000	Ribes missouriense	Missouri Gooseberry		2002-04-25	T		
20168	9612.000000	PMALI04040	21.000000	Vascular Plant	9612.000000	Sagittaria montevidensis	Southern Wapato		1996-10-19	P		
21250	10338.000000	PMALI04040	16.000000	Vascular Plant	10338.000000	Sagittaria montevidensis	Southern Wapato		1989-08-12	P		
8476	1840.000000	PDSAL020M0	13.000000	Vascular Plant	1840.000000	Salix caroliniana	Carolina Willow		1991-08-25	P		
13672	5271.000000	PDSAL020M0	15.000000	Vascular Plant	5271.000000	Salix caroliniana	Carolina Willow		1991-08-25	P		
15572	6537.000000	PDSAL020M0	12.000000	Vascular Plant	6537.000000	Salix caroliniana	Carolina Willow		1991-08-25	P		
22686	11304.000000	PDSAL020M0	6.000000	Vascular Plant	11304.000000	Salix caroliniana	Carolina Willow	EAST FORK STATE PARK	1991-07	P		
22754	11351.000000	PDSAL020M0	14.000000	Vascular Plant	11351.000000	Salix caroliniana	Carolina Willow		1994-08-16	P		
8758	2053.000000	PDMAL100C0	42.000000	Vascular Plant	2053.000000	Sida hermaphrodita	Virginia-mallow		1989-10-17	P		
17506	7870.000000	PDMAL100C0	40.000000	Vascular Plant	7870.000000	Sida hermaphrodita	Virginia-mallow		1988-09-13	P		
24268	12363.000000	PDMAL100C0	5.000000	Vascular Plant	12363.000000	Sida hermaphrodita	Virginia-mallow	WOODLAND MOUND PARK	1998-09-05	P		
6180	355.000000	PDRUB1Q020	10.000000	Vascular Plant	355.000000	Spermacoce glabra	Smooth Buttonweed		1993-10-26	P		
7368	1103.000000	PDRUB1Q020	31.000000	Vascular Plant	1103.000000	Spermacoce glabra	Smooth Buttonweed	WOODLAND MOUND PARK	1999-09-04	P		
10008	2887.000000	PDRUB1Q020	28.000000	Vascular Plant	2887.000000	Spermacoce glabra	Smooth Buttonweed	WOODLAND MOUND PARK	1989-08-20	P		
11994	4221.000000	PDRUB1Q020	8.000000	Vascular Plant	4221.000000	Spermacoce glabra	Smooth Buttonweed		1986-10-02	P		
12636	4660.000000	PDRUB1Q020	16.000000	Vascular Plant	4660.000000	Spermacoce glabra	Smooth Buttonweed		1981-10-08	P		
23570	11909.000000	PDRUB1Q020	17.000000	Vascular Plant	11909.000000	Spermacoce glabra	Smooth Buttonweed		1981-10-08	P		
25036	12884.000000	PDRUB1Q020	25.000000	Vascular Plant	12884.000000	Spermacoce glabra	Smooth Buttonweed		1985-07-30	P		
7640	1291.000000	PDFAB40250	11.000000	Vascular Plant	1291.000000	Trifolium stoloniferum	Running Buffalo Clover		2003-05-28	E		FE
10102	2945.000000	PDFAB40250	20.000000	Vascular Plant	2945.000000	Trifolium stoloniferum	Running Buffalo Clover		2001-05-10	E		FE
13114	4927.000000	PDFAB40250	21.000000	Vascular Plant	4927.000000	Trifolium stoloniferum	Running Buffalo Clover	AULT PARK	2001-09-21	E		FE
14962	6119.000000	PDFAB40250	4.000000	Vascular Plant	6119.000000	Trifolium stoloniferum	Running Buffalo Clover		1995-08	E		FE
15224	6291.000000	PDFAB40250	15.000000	Vascular Plant	6291.000000	Trifolium stoloniferum	Running Buffalo Clover		1999-05-20	E		FE
21360	10413.000000	PDFAB40250	14.000000	Vascular Plant	10413.000000	Trifolium stoloniferum	Running Buffalo Clover	CINCINNATI NATURE CENTE	2000-05-29	E		FE
53095	16781.000000	PDFAB40250	28.000000	Vascular Plant	16781.000000	Trifolium stoloniferum	Running Buffalo Clover		2005-05-17	E		FE
5524	12762.000000	PMLIL200R0	18.000000	Vascular Plant	12762.000000	Trillium recurvatum	Prairie Wake-robin	EAST FORK STATE PARK	1990-05	T		
4220	9369.000000	ABNKC12020	10.000000	Vertebrate Animal	9369.000000	Accipiter striatus	Sharp-shinned Hawk	MT. AIRY FOREST	1978-05	SC		
3528	7580.000000	ABPBX96010	10.000000	Vertebrate Animal	7580.000000	Chondestes grammacus	Lark Sparrow		1988-06-01	E		
1012	811.000000	ABNKC11010	2.000000	Vertebrate Animal	811.000000	Circus cyaneus	Northern Harrier		1976	E		
4610	10342.000000	ABPBG10010	3.000000	Vertebrate Animal	10342.000000	Cistothorus platensis	Sedge Wren		1975	SC		
1196	1284.000000	ARADB06010	14.000000	Vertebrate Animal	1284.000000	Clonophis kirtlandii	Kirtland's Snake		1985	T		
1376	1792.000000	ARADB06010	13.000000	Vertebrate Animal	1792.000000	Clonophis kirtlandii	Kirtland's Snake		1985	T		

FEATURE	EO_ID	ELCODE	EO_NUM	NAME_CATEG	EO_ID	SCIENCE_NA	COMMON_NAM	MANAGED_AR	LAST_OBSE	STATE_STAT	CONSERV_SI	FEDERAL_ST
1920	3250.000000	ARADB06010	11.000000	Vertebrate Animal	3250.000000	Clonophis kirtlandii	Kirtland's Snake	BURNET WOODS	1985	T		
3094	6445.000000	ARADB06010	12.000000	Vertebrate Animal	6445.000000	Clonophis kirtlandii	Kirtland's Snake		1970	T		
5718	57.000000	ARADB06010	3.000000	Vertebrate Animal	57.000000	Clonophis kirtlandii	Kirtland's Snake		1985	T		
23736	12020.000000	AFCJC04010	3.000000	Vertebrate Animal	12020.000000	Cycleptus elongatus	Blue Sucker		1993-09-30	E		
4666	10478.000000	AAAAD05050	3.000000	Vertebrate Animal	10478.000000	Eurycea lucifuga	Cave Salamander		196-	E		
17360	7763.000000	AAAAD05050	7.000000	Vertebrate Animal	7763.000000	Eurycea lucifuga	Cave Salamander	EMBSHOFF WOODS & NATUR	1993-07-07	E		
18098	8284.000000	AAAAD05050	2.000000	Vertebrate Animal	8284.000000	Eurycea lucifuga	Cave Salamander	MT. AIRY FOREST	1980-05	E		
18352	8446.000000	AAAAD05050	1.000000	Vertebrate Animal	8446.000000	Eurycea lucifuga	Cave Salamander	MT. AIRY FOREST	1975-09	E		
26024	9118.000000	AAAAD05050	11.000000	Vertebrate Animal	9118.000000	Eurycea lucifuga	Cave Salamander	NEWBERRY WILDLIFE SANCT	1991-09-11	E		
41369	14018.000000	AMAJH03020	40.000000	Vertebrate Animal	14018.000000	Felis rufus	Bobcat		2002-01-28	E		
8016	1536.000000	ARAAD05080	7.000000	Vertebrate Animal	1536.000000	Graptemys pseudogeogr:	False Map Turtle		1991-06	SC		
15854	6734.000000	ARAAD05080	5.000000	Vertebrate Animal	6734.000000	Graptemys pseudogeogr:	False Map Turtle		1991-06-09	SC		
1820	3021.000000	ABPBR01030	12.000000	Vertebrate Animal	3021.000000	Lanius ludovicianus	Loggerhead Shrike		1984-06	E		
52	725.000000	AFCMA01010	5.000000	Vertebrate Animal	725.000000	Lota lota	Burbot		1960	SC		
4298	9510.000000	AFCMA01010	4.000000	Vertebrate Animal	9510.000000	Lota lota	Burbot		1963-08	SC		
12262	4408.000000	AFCJC10040	42.000000	Vertebrate Animal	4408.000000	Moxostoma carinatum	River Redhorse		1983-09-27	SC		
16862	7419.000000	AFCJC10040	31.000000	Vertebrate Animal	7419.000000	Moxostoma carinatum	River Redhorse		1986-09	SC		
23048	11558.000000	AFCJC10040	38.000000	Vertebrate Animal	11558.000000	Moxostoma carinatum	River Redhorse		1993	SC		
25470	2562.000000	AFCJC10040	16.000000	Vertebrate Animal	2562.000000	Moxostoma carinatum	River Redhorse		1982-10-13	SC		
25922	7930.000000	AFCJC10040	44.000000	Vertebrate Animal	7930.000000	Moxostoma carinatum	River Redhorse		1983-09-27	SC		
25702	5178.000000	AFCJB28200	1.000000	Vertebrate Animal	5178.000000	Notropis boops	Bigeye Shiner		1995-07-14	T		
9458	2517.000000	AFCKA02040	9.000000	Vertebrate Animal	2517.000000	Noturus eleutherus	Mountain Madtom		1993-08-11	E		
12024	4247.000000	AFCKA02040	12.000000	Vertebrate Animal	4247.000000	Noturus eleutherus	Mountain Madtom		1998-09-04	E		
27818	12388.000000	AFCKA02040	13.000000	Vertebrate Animal	12388.000000	Noturus eleutherus	Mountain Madtom		1993-09-02	E		
27838	6293.000000	AFCKA02040	14.000000	Vertebrate Animal	6293.000000	Noturus eleutherus	Mountain Madtom		1998-09-03	E		
3860	8397.000000	AFCKA02220	2.000000	Vertebrate Animal	8397.000000	Noturus stigmosus	Northern Madtom		1964-01	E		
28379	8450.000000	AFCKA02220	14.000000	Vertebrate Animal	8450.000000	Noturus stigmosus	Northern Madtom		1998-07-25	E		
28392	4238.000000	AFCKA02220	15.000000	Vertebrate Animal	4238.000000	Noturus stigmosus	Northern Madtom		1998-10-14	E		
5014	11423.000000	ABNGA11010	3.000000	Vertebrate Animal	11423.000000	Nycticorax nycticorax	Black-crowned Night-heron		1997-07-30	T		
2438	4651.000000	ARADB23010	20.000000	Vertebrate Animal	4651.000000	Opheodrys aestivus	Rough Green Snake	WOODLAND MOUND PARK	1990-05	SC		
15292	6348.000000	ARADB23010	24.000000	Vertebrate Animal	6348.000000	Opheodrys aestivus	Rough Green Snake	EAST FORK STATE PARK	1996-09-18	SC		
23828	12070.000000	ARADB23010	23.000000	Vertebrate Animal	12070.000000	Opheodrys aestivus	Rough Green Snake	EAST FORK STATE PARK	1996-04-20	SC		
8434	1808.000000	AFCQC04270	6.000000	Vertebrate Animal	1808.000000	Percina shumardi	River Darter		1986-09	T		
25662	4692.000000	AFCQC04270	5.000000	Vertebrate Animal	4692.000000	Percina shumardi	River Darter		1986-09-24	T		
870	527.000000	ABNME08020	6.000000	Vertebrate Animal	527.000000	Porzana carolina	Sora		1976-07	SC		

## ***APPENDIX C***

***Stream Survey Forms (HHEI and QHEI)***





# Primary Headwater Habitat Evaluation Form

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

54

SITE NAME/LOCATION Unnamed Tributary #1

SITE NUMBER S1

RIVER BASIN Little Miami River

DRAINAGE AREA (mi<sup>2</sup>) 0.12

LENGTH OF STREAM REACH (ft) 200

LAT. 39.1393

LONG. 84.4056

RIVER CODE

RIVER MILE 0.0

DATE 08/27/08

SCORER Michael de Villiers

COMMENTS

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

## STREAM CHANNEL MODIFICATIONS:

☒ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]		<input type="checkbox"/> SILT [3 pts]	5
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input checked="" type="checkbox"/> COBBLE (65-256 mm) [12 pts]	20	<input type="checkbox"/> CLAY or HARDPAN [0 pts]	
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	30	<input type="checkbox"/> MUCK [0 pts]	
<input type="checkbox"/> SAND (<2 mm) [6 pts]	45	<input type="checkbox"/> ARTIFICIAL [3 pts]	

Total of Percentages of  
Bldr Slabs, Boulder, Cobble, Bedrock 20

(A)

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

15

TOTAL NUMBER OF SUBSTRATE TYPES:

4

## HHEI METRIC POINTS

Substrate  
Max = 40

19

A + B

Pool Depth  
Max = 30

15

Bankfull  
Width  
Max = 30

20

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

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

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

9.5

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

<input type="checkbox"/> > 4.0 meters [30 pts]	<input type="checkbox"/> > 1.0 - 1.5 m [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m [25 pts]	<input type="checkbox"/> ≤ 1.0 m [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

2.8

This information must also be completed

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

### RIPARIAN WIDTH

L	R	(Per Bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Wide > 10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow < 5m
<input type="checkbox"/>	<input type="checkbox"/>	None

COMMENTS

### FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture

L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

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

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry Channel, no water (Ephemeral)

COMMENTS

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

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input checked="" type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

## STREAM GRADIENT ESTIMATE

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

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

**QHEI PERFORMED?** - ☐ Yes ☒ No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☒ WWH Name: Duck Creek Distance from Evaluated Stream 748 feet  
☐ CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☐ EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangle Name: Cincinnati East NRCS Soil Map Page: 47 NRCS Soil Map Stream Order 1

County: Hamilton Township / City Columbia

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 8-27-08 Quantity: 0.06 inch

Photograph Information: 9-upstream, 10-downstream

Elevated Turbidity? (Y/N): N Canopy (% open): 10

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) 20.0 Dissolved Oxygen (mg/l) 2.55 pH (S.U.) 8.0 Conductivity (µmhos/cm) 1,002

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: limited residential trash present

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

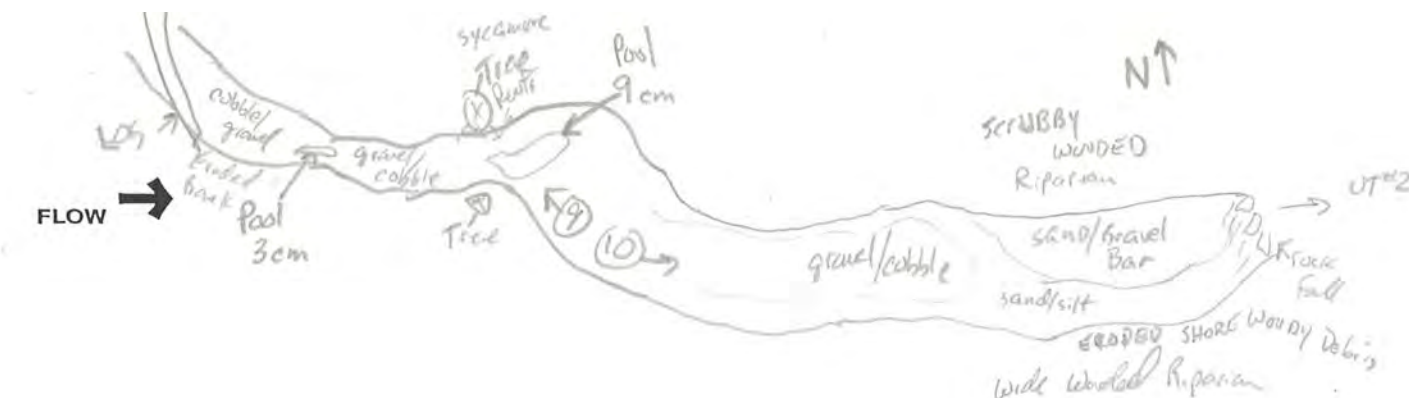
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) Y Voucher? (Y/N) N

Comments Regarding Biology: Crayfish, aquatic sow bugs, leeches, water striders, stonefly nymph

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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



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

SITE NAME/LOCATION Unnamed Tributary #2

SITE NUMBER S2 RIVER BASIN Little Miami River DRAINAGE AREA (mi<sup>2</sup>) 0.47

LENGTH OF STREAM REACH (ft) 200 LAT. 39.1393 LONG. 84.4057 RIVER CODE RIVER MILE 0.13

DATE 08/27/08 SCORER Michael de Villiers COMMENTS

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

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

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]		<input type="checkbox"/> SILT [3 pts]	5
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	5
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input checked="" type="checkbox"/> COBBLE (65-256 mm) [12 pts]	30	<input type="checkbox"/> CLAY or HARDPAN [0 pts]	
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	40	<input type="checkbox"/> MUCK [0 pts]	
<input type="checkbox"/> SAND (<2 mm) [6 pts]	20	<input type="checkbox"/> ARTIFICIAL [3 pts]	

Total of Percentages of  
Bldr Slabs, Boulder, Cobble, Bedrock 30 (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

23

TOTAL NUMBER OF SUBSTRATE TYPES:

5 (B)

HHEI  
METRIC  
POINTSSubstrate  
Max = 40

28

A + B

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

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

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

4.5

Pool Depth  
Max = 30

5

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

<input type="checkbox"/> > 4.0 meters [30 pts]	<input type="checkbox"/> > 1.0 - 1.5 m [15 pts]
<input checked="" type="checkbox"/> > 3.0 m - 4.0 m [25 pts]	<input type="checkbox"/> ≤ 1.0 m [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

3.7

Bankfull  
Width  
Max = 30

25

This information must also be completed

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

## RIPARIAN WIDTH

L	R	(Per Bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Wide > 10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow < 5m
<input type="checkbox"/>	<input type="checkbox"/>	None

COMMENTS

## FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture

L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

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

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry Channel, no water (Ephemeral)

COMMENTS

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

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input checked="" type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

## STREAM GRADIENT ESTIMATE

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



**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

**QHEI PERFORMED?** - ☐ Yes ☒ No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☒ WWH Name: Duck Creek Distance from Evaluated Stream 433 feet  
☐ CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☐ EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangle Name: Cincinnati East NRCS Soil Map Page: 47 NRCS Soil Map Stream Order 3

County: Hamilton Township / City Columbia

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 8-27-08 Quantity: 0.06 inch

Photograph Information: 15-upstream, 16-downstream; 6 photos of adult salamanders observed within site/reach

Elevated Turbidity? (Y/N): N Canopy (% open): 15

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) 20.2 Dissolved Oxygen (mg/l) 4.1 pH (S.U.) 8.1 Conductivity (µmhos/cm) 702

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: limited residential trash present

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

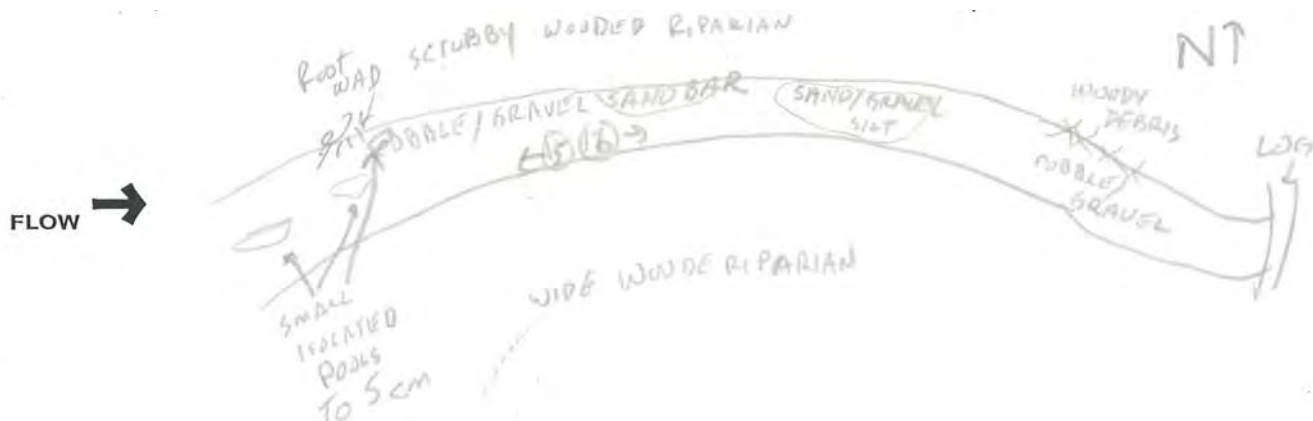
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) Y Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) Y Voucher? (Y/N) N

Comments Regarding Biology: juvenile salamander (unidentifiable), adult salamander (confirmed two-lined salamander via photos at office), aquatic sow bugs, leeches, earthworm, centipede

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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



Stream &amp; Location: Unnamed Tributary #3; S3

RM: 00 Date: 09/24/08

Scorers Full Name &amp; Affiliation: Michael de Villiers; ENTRAN

River Code: - - - STORET #: - - - Lat./Long.: 39.1359 / 84.4021 Office verified location ☐

1] SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

Check ONE (Or 2 &amp; average)

BEST TYPES		POOL RIFFLE		OTHER TYPES		POOL RIFFLE		ORIGIN		QUALITY		Substrate 13 Maximum 20
<input type="checkbox"/> BLDR / SLABS [10]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> HARDPAN [4]	<input type="checkbox"/>	<input type="checkbox"/> HARDPAN [4]	<input type="checkbox"/>	<input type="checkbox"/> LIMESTONE [1]	<input type="checkbox"/>	<input type="checkbox"/> HEAVY [-2]	<input type="checkbox"/>	
<input type="checkbox"/> BOULDER [9]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> DETRITUS [3]	<input type="checkbox"/>	<input type="checkbox"/> DETRITUS [3]	<input type="checkbox"/>	<input type="checkbox"/> TILLS [1]	<input type="checkbox"/>	<input type="checkbox"/> MODERATE [-1]	<input type="checkbox"/>	
<input type="checkbox"/> COBBLE [8]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> MUCK [2]	<input type="checkbox"/>	<input type="checkbox"/> MUCK [2]	<input type="checkbox"/>	<input type="checkbox"/> WETLANDS [0]	<input type="checkbox"/>	<input type="checkbox"/> NORMAL [0]	<input type="checkbox"/>	
<input checked="" type="checkbox"/> GRAVEL [7]	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> SILT [2]	<input type="checkbox"/>	<input type="checkbox"/> SILT [2]	<input checked="" type="checkbox"/>	<input type="checkbox"/> HARDPAN [0]	<input type="checkbox"/>	<input type="checkbox"/> FREE [1]	<input type="checkbox"/>	
<input checked="" type="checkbox"/> SAND [6]	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> ARTIFICIAL [0]	<input type="checkbox"/>	<input type="checkbox"/> ARTIFICIAL [0]	<input type="checkbox"/>	<input type="checkbox"/> SANDSTONE [0]	<input type="checkbox"/>	<input type="checkbox"/> EXTENSIVE [-2]	<input type="checkbox"/>	
<input type="checkbox"/> BEDROCK [5]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(Score natural substrates; ignore sludge from point-sources)				<input type="checkbox"/> RIP/RAP [0]	<input type="checkbox"/>	<input type="checkbox"/> MODERATE [-1]	<input type="checkbox"/>	
								<input type="checkbox"/> LACUSTURINE [0]	<input type="checkbox"/>	<input type="checkbox"/> NORMAL [0]	<input type="checkbox"/>	
								<input type="checkbox"/> SHALE [-1]	<input type="checkbox"/>	<input type="checkbox"/> NONE [1]	<input type="checkbox"/>	
								<input type="checkbox"/> COAL FINES [-2]	<input type="checkbox"/>			

NUMBER OF BEST TYPES: ☐ 4 or more [2] ☒ 3 or less [0]

Comments

Dry

2] INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

AMOUNT

Check ONE (Or 2 &amp; average)

UNDERCUT BANKS [1]		POOLS > 70cm [2]		OXBOWS, BACKWATERS [1]		AMOUNT	
<input type="0"/> UNDERCUT BANKS [1]	<input type="0"/>	<input type="1"/> POOLS > 70cm [2]	<input type="0"/>	<input type="0"/> OXBOWS, BACKWATERS [1]	<input type="0"/>	<input type="checkbox"/> EXTENSIVE >75% [11]	<input type="checkbox"/>
<input type="1"/> OVERHANGING VEGETATION [1]	<input type="1"/>	<input type="1"/> POOLS > 70cm [2]	<input type="0"/>	<input type="0"/> OXBOWS, BACKWATERS [1]	<input type="0"/>	<input type="checkbox"/> MODERATE 25-75% [7]	<input type="checkbox"/>
<input type="0"/> SHALLOWS (IN SLOW WATER) [1]	<input type="0"/>	<input type="0"/> BOULDERS [1]	<input type="1"/>	<input type="0"/> AQUATIC MACROPHYTES [1]	<input type="0"/>	<input checked="" type="checkbox"/> SPARSE 5-<25% [3]	<input type="checkbox"/>
<input type="0"/> ROOTMATS [1]	<input type="0"/>	<input type="0"/> BOULDERS [1]	<input type="1"/>	<input type="0"/> LOGS OR WOODY DEBRIS [1]	<input type="0"/>	<input type="checkbox"/> NEARLY ABSENT <5% [1]	<input type="checkbox"/>

Comments

Dry

3] CHANNEL MORPHOLOGY Check ONE in each category (Or 2 &amp; average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY	Channel Maximum 20 10
<input type="checkbox"/> HIGH [4]	<input type="checkbox"/> EXCELLENT [7]	<input checked="" type="checkbox"/> NONE [6]	<input type="checkbox"/> HIGH [3]	
<input type="checkbox"/> MODERATE [3]	<input type="checkbox"/> GOOD [5]	<input type="checkbox"/> RECOVERED [4]	<input type="checkbox"/> MODERATE [2]	
<input checked="" type="checkbox"/> LOW [2]	<input type="checkbox"/> FAIR [3]	<input type="checkbox"/> RECOVERING [3]	<input checked="" type="checkbox"/> LOW [1]	
<input type="checkbox"/> NONE [1]	<input checked="" type="checkbox"/> POOR [1]	<input type="checkbox"/> RECENT OR NO RECOVERY [1]		

Comments

4] BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank &amp; average)

EROSION		RIPARIAN WIDTH		FLOOD PLAIN QUALITY		RIPARIAN	
<input checked="" type="checkbox"/> NONE / LITTLE [3]	<input type="checkbox"/>	<input type="checkbox"/> WIDE > 50m [4]	<input type="checkbox"/>	<input checked="" type="checkbox"/> FOREST, SWAMP [3]	<input type="checkbox"/>	<input type="checkbox"/> CONSERVATION TILLAGE [1]	<input type="checkbox"/>
<input type="checkbox"/> MODERATE [2]	<input type="checkbox"/>	<input type="checkbox"/> MODERATE 10-50m [3]	<input type="checkbox"/>	<input checked="" type="checkbox"/> SHRUB OR OLD FIELD [2]	<input type="checkbox"/>	<input type="checkbox"/> URBAN OR INDUSTRIAL [0]	<input type="checkbox"/>
<input type="checkbox"/> HEAVY / SEVERE [1]	<input type="checkbox"/>	<input type="checkbox"/> NARROW 5-10m [2]	<input type="checkbox"/>	<input type="checkbox"/> RESIDENTIAL, PARK, NEW FIELD [1]	<input type="checkbox"/>	<input type="checkbox"/> MINING / CONSTRUCTION [0]	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/> VERY NARROW < 5m [1]	<input type="checkbox"/>	<input type="checkbox"/> FENCED PASTURE [1]	<input type="checkbox"/>	Indicate predominant land use(s) past 100m riparian.	
	<input type="checkbox"/>	<input type="checkbox"/> NONE [0]	<input type="checkbox"/>	<input type="checkbox"/> OPEN PASTURE, ROWCROP [0]	<input type="checkbox"/>	Riparian Maximum 10	

Comments

Commercial and right-of-way

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH		CHANNEL WIDTH		CURRENT VELOCITY		Recreation Potential Primary Contact Secondary Contact (circle one and comment on back)
<input checked="" type="checkbox"/> > 1m [6]	<input type="checkbox"/>	<input type="checkbox"/> POOL WIDTH > RIFFLE WIDTH [2]	<input type="checkbox"/>	<input type="checkbox"/> TORRENTIAL [-1]	<input type="checkbox"/> SLOW [1]	
<input type="checkbox"/> 0.7-1m [4]	<input type="checkbox"/>	<input type="checkbox"/> POOL WIDTH = RIFFLE WIDTH [1]	<input type="checkbox"/>	<input type="checkbox"/> VERY FAST [1]	<input type="checkbox"/> INTERSTITIAL [-1]	
<input type="checkbox"/> 0.4-<0.7m [2]	<input type="checkbox"/>	<input checked="" type="checkbox"/> POOL WIDTH < RIFFLE WIDTH [0]	<input type="checkbox"/>	<input type="checkbox"/> FAST [1]	<input type="checkbox"/> INTERMITTENT [-2]	
<input type="checkbox"/> 0.2-<0.4m [1]	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/> MODERATE [1]	<input type="checkbox"/> EDDIES [1]	
<input type="checkbox"/> < 0.2m [0]	<input type="checkbox"/>		<input type="checkbox"/>	Indicate for reach - pools and riffles.		

Comments No flow (Dry)

Pool /  
Current  
Maximum 12  
0

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

Check ONE (Or 2 &amp; average).

☒ NO RIFFLE [metric=0]

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS	Riffle / Run Maximum 8 0
<input type="checkbox"/> BEST AREAS > 10cm [2]	<input type="checkbox"/> MAXIMUM > 50cm [2]	<input type="checkbox"/> STABLE (e.g., Cobble, Boulder) [2]	<input type="checkbox"/> NONE [2]	
<input checked="" type="checkbox"/> BEST AREAS 5-10cm [1]	<input checked="" type="checkbox"/> MAXIMUM < 50cm [1]	<input type="checkbox"/> MOD. STABLE (e.g., Large Gravel) [1]	<input type="checkbox"/> LOW [1]	
<input type="checkbox"/> BEST AREAS < 5cm [metric=0]		<input type="checkbox"/> UNSTABLE (e.g., Fine Gravel, Sand) [0]	<input checked="" type="checkbox"/> MODERATE [0]	
			<input type="checkbox"/> EXTENSIVE [-1]	

Comments No flow (Dry)

6] GRADIENT ( 16.8 ft/mi) ☐ VERY LOW - LOW [2-4]  
DRAINAGE AREA ( 1.9 mi<sup>2</sup>) ☐ MODERATE [6-10]  
☒ HIGH - VERY HIGH [10-6]%POOL: 10 %GLIDE: 60  
%RUN: 10 %RIFFLE: 20Gradient  
Maximum 10  
4

AJ SAMPLED REACH

Check ALL that apply

METHOD N/A STAGE

- 1st --sample pass-- 2nd
- ☐ BOAT ☐ HIGH
- ☐ WADE ☐ UP
- ☐ L. LINE ☐ NORMAL
- ☐ OTHER ☐ LOW
- ☐ DRY

DISTANCE

- ☐ 0.5 Km
- ☐ 0.2 Km
- ☐ 0.15 Km
- ☐ 0.12 Km
- ☐ OTHER

122

meters

CANOPY

- ☐ > 85%- OPEN
- ☒ 55%-<85%
- ☐ 30%-<55%
- ☐ 10%-<30%
- ☐ <10%- CLOSED

CLARITY

- 1st --sample pass-- 2nd
- ☐ < 20 cm
- ☐ 20-<40 cm
- ☐ 40-70 cm
- ☐ > 70 cm/ CTB
- ☐ SECCHI DEPTH

1st N/A cm

2nd N/A cm

BJAESTHETICS N/A

- ☐ NUISANCE ALGAE
- ☐ INVASIVE MACROPHYTES
- ☐ EXCESS TURBIDITY
- ☐ DISCOLORATION
- ☐ FOAM / SCUM
- ☐ OIL SHEEN
- ☐ TRASH / LITTER
- ☐ NUISANCE ODOR
- ☐ SLUDGE DEPOSITS
- ☐ CSOs/SSOs/OUTFALLS

CJ RECREATION

N/A POOL: ☐ >100ft<sup>2</sup> ☐ >3ft

DJ MAINTENANCE N/A

- ☐ PUBLIC / PRIVATE / BOTH / NA
- ☐ ACTIVE / HISTORIC / BOTH / NA
- ☐ YOUNG-SUCCESSION-OLD
- ☐ SPRAY / SNAG / REMOVED
- ☐ MODIFIED / DIPPED OUT / NA
- ☐ LEVEED / ONE SIDED
- ☐ RELOCATED / CUTOFFS
- ☐ MOVING-BEDLOAD-STABLE
- ☐ ARMoured / SLUMPS
- ☐ ISLANDS / SCOURED
- ☐ IMPOUNDED / DESICCATED
- ☐ FLOOD CONTROL / DRAINAGE

EJ ISSUES

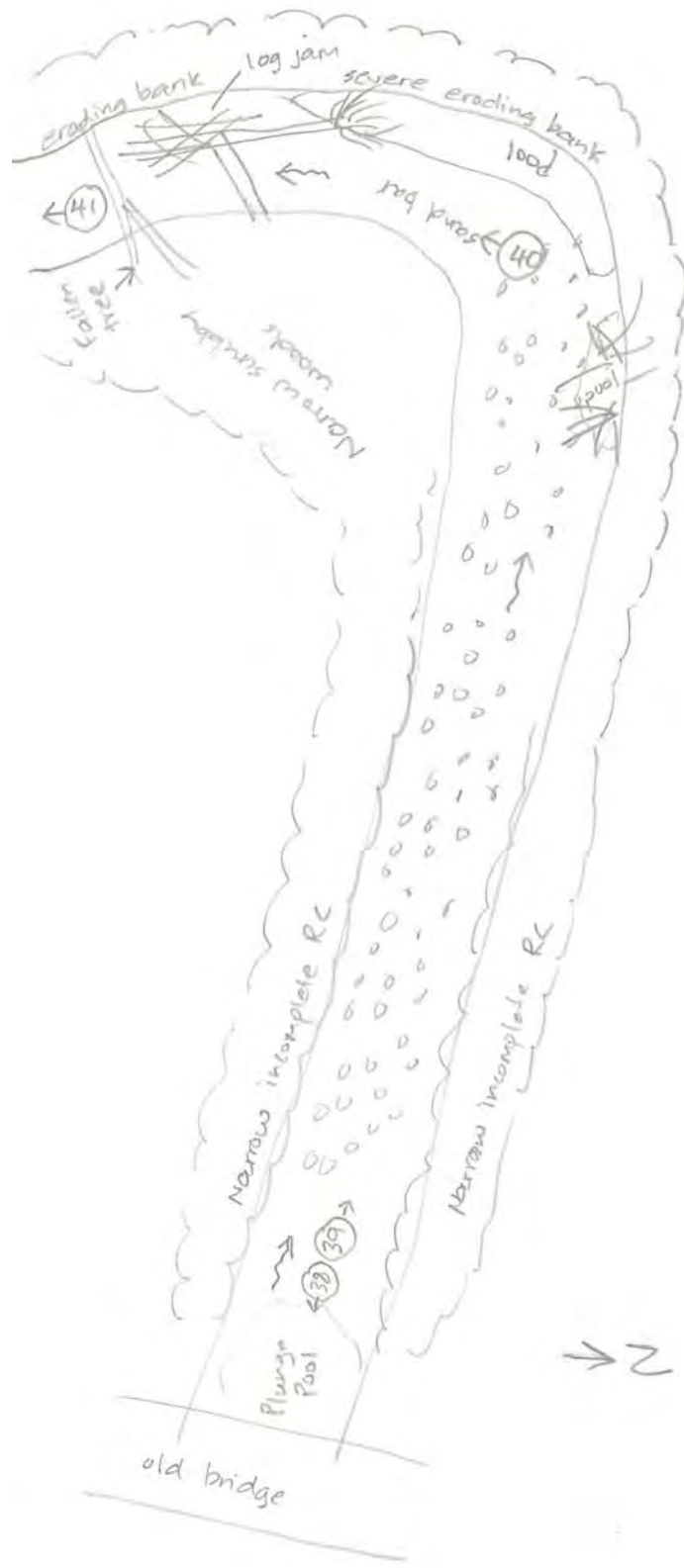
- WWTP / CSO / NPDES / INDUSTRY
- HARDENED / URBAN / DIRT&GRIME
- CONTAMINATED / LANDFILL
- BMPs-CONSTRUCTION-SEDIMENT
- LOGGING / IRRIGATION / COOLING
- (BANK / EROSION) / SURFACE
- FALSE BANK / MANURE / LAGOON
- WASH H<sub>2</sub>O / TILE / H<sub>2</sub>O TABLE
- ACID / MINE / QUARRY / FLOW
- NATURAL / WETLAND / STAGNANT
- PARK / GOLF / LAWN / HOME
- ATMOSPHERE / DATA PAUCITY

FJ MEASUREMENTS

- ☐ width
- ☐ depth
- ☐ max. depth
- ☐ bankfull width
- ☐ bankfull x depth
- ☐ W/D ratio
- ☐ bankfull max. depth
- ☐ floodprone x<sup>2</sup> width
- ☐ entrench. ratio

Legacy Tree:

Stream Drawing:





Stream &amp; Location: Duck Creek; S4

RM: 20 Date: 09/24/08

Scorers Full Name &amp; Affiliation: Michael de Villiers; ENTRAN

River Code: - - - STORET #: Lat./ Long.: 39.1350 / 84.4032 Office verified location ☐

1] SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

Check ONE (Or 2 &amp; average)

BEST TYPES		POOL RIFFLE		OTHER TYPES		POOL RIFFLE		ORIGIN		QUALITY		Substrate 13 Maximum 20
<input type="checkbox"/> BLDR / SLABS [10]	<input checked="" type="checkbox"/> X	<input checked="" type="checkbox"/> X	<input type="checkbox"/>	<input type="checkbox"/> HARDPAN [4]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> LIMESTONE [1]	<input type="checkbox"/>	<input type="checkbox"/> HEAVY [-2]		
<input type="checkbox"/> BOULDER [9]				<input type="checkbox"/> DETRITUS [3]				<input checked="" type="checkbox"/> TILLS [1]		<input checked="" type="checkbox"/> MODERATE [-1]		
<input type="checkbox"/> COBBLE [8]	<input checked="" type="checkbox"/> X	<input checked="" type="checkbox"/> X		<input type="checkbox"/> MUCK [2]				<input type="checkbox"/> WETLANDS [0]		<input type="checkbox"/> NORMAL [0]		
<input checked="" type="checkbox"/> GRAVEL [7]	<input checked="" type="checkbox"/> X	<input checked="" type="checkbox"/> X		<input type="checkbox"/> SILT [2]	<input checked="" type="checkbox"/> X	<input checked="" type="checkbox"/> X		<input type="checkbox"/> HARDPAN [0]		<input type="checkbox"/> FREE [1]		
<input checked="" type="checkbox"/> SAND [6]	<input checked="" type="checkbox"/> X	<input checked="" type="checkbox"/> X		<input type="checkbox"/> ARTIFICIAL [0]	<input checked="" type="checkbox"/> X	<input checked="" type="checkbox"/> X		<input type="checkbox"/> SANDSTONE [0]		<input checked="" type="checkbox"/> EXTENSIVE [-2]		
<input type="checkbox"/> BEDROCK [5]				(Score natural substrates; ignore sludge from point-sources)				<input type="checkbox"/> RIP/RAP [0]		<input type="checkbox"/> MODERATE [-1]		
								<input type="checkbox"/> LACUSTURINE [0]		<input type="checkbox"/> NORMAL [0]		
								<input type="checkbox"/> SHALE [-1]		<input type="checkbox"/> NONE [1]		
								<input type="checkbox"/> COAL FINES [-2]				

NUMBER OF BEST TYPES: ☒ 4 or more [2] ☐ 3 or less [0]

Comments

2] INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

AMOUNT

Check ONE (Or 2 &amp; average)

<input type="checkbox"/> UNDERCUT BANKS [1]	<input type="checkbox"/> POOLS > 70cm [2]	<input type="checkbox"/> OXBOWS, BACKWATERS [1]	<input type="checkbox"/> EXTENSIVE >75% [11]
<input type="checkbox"/> OVERHANGING VEGETATION [1]	<input type="checkbox"/> ROOTWADS [1]	<input type="checkbox"/> AQUATIC MACROPHYTES [1]	<input type="checkbox"/> MODERATE 25-75% [7]
<input type="checkbox"/> SHALLOWS (IN SLOW WATER) [1]	<input type="checkbox"/> BOULDERS [1]	<input type="checkbox"/> LOGS OR WOODY DEBRIS [1]	<input checked="" type="checkbox"/> SPARSE 5-<25% [3]
<input type="checkbox"/> ROOTMATS [1]			<input type="checkbox"/> NEARLY ABSENT <5% [1]

Comments

Cover Maximum 20 8

3] CHANNEL MORPHOLOGY Check ONE in each category (Or 2 &amp; average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
<input type="checkbox"/> HIGH [4]	<input type="checkbox"/> EXCELLENT [7]	<input type="checkbox"/> NONE [6]	<input type="checkbox"/> HIGH [3]
<input type="checkbox"/> MODERATE [3]	<input type="checkbox"/> GOOD [5]	<input checked="" type="checkbox"/> RECOVERED [4]	<input checked="" type="checkbox"/> MODERATE [2]
<input type="checkbox"/> LOW [2]	<input type="checkbox"/> FAIR [3]	<input type="checkbox"/> RECOVERING [3]	<input type="checkbox"/> LOW [1]
<input checked="" type="checkbox"/> NONE [1]	<input checked="" type="checkbox"/> POOR [1]	<input type="checkbox"/> RECENT OR NO RECOVERY [1]	

Comments

Channel Maximum 20 8

4] BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank &amp; average)

River right looking downstream		RIPARIAN WIDTH		FLOOD PLAIN QUALITY		CONSERVATION TILLAGE [1]	
<input checked="" type="checkbox"/> NONE / LITTLE [3]	<input type="checkbox"/> WIDE > 50m [4]	<input type="checkbox"/> FOREST, SWAMP [3]	<input type="checkbox"/> CONSERVATION TILLAGE [1]				
<input type="checkbox"/> MODERATE [2]	<input checked="" type="checkbox"/> MODERATE 10-50m [3]	<input type="checkbox"/> SHRUB OR OLD FIELD [2]	<input type="checkbox"/> URBAN OR INDUSTRIAL [0]				
<input type="checkbox"/> HEAVY / SEVERE [1]	<input type="checkbox"/> NARROW 5-10m [2]	<input type="checkbox"/> RESIDENTIAL, PARK, NEW FIELD [1]	<input type="checkbox"/> MINING / CONSTRUCTION [0]				
	<input checked="" type="checkbox"/> VERY NARROW < 5m [1]	<input type="checkbox"/> FENCED PASTURE [1]					
	<input type="checkbox"/> NONE [0]	<input type="checkbox"/> OPEN PASTURE, ROWCROP [0]					

Comments

Indicate predominant land use(s) past 100m riparian. Riparian Maximum 10 6

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH	CHANNEL WIDTH	CURRENT VELOCITY	Recreation Potential Primary Contact Secondary Contact (circle one and comment on back)
Check ONE (ONLY!)	Check ONE (Or 2 & average)	Check ALL that apply	
<input type="checkbox"/> > 1m [6]	<input type="checkbox"/> POOL WIDTH > RIFFLE WIDTH [2]	<input type="checkbox"/> TORRENTIAL [-1]	Pool / Current Maximum 12 1
<input type="checkbox"/> 0.7-1m [4]	<input checked="" type="checkbox"/> POOL WIDTH = RIFFLE WIDTH [1]	<input checked="" type="checkbox"/> SLOW [1]	
<input type="checkbox"/> 0.4-<0.7m [2]	<input type="checkbox"/> POOL WIDTH < RIFFLE WIDTH [0]	<input type="checkbox"/> VERY FAST [1]	
<input checked="" type="checkbox"/> 0.2-<0.4m [1]		<input type="checkbox"/> FAST [1]	
<input type="checkbox"/> < 0.2m [0]		<input type="checkbox"/> MODERATE [1]	
		<input type="checkbox"/> INTERSTITIAL [-1]	
		<input type="checkbox"/> EDDIES [1]	

Comments

Indicate for reach - pools and riffles.

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

Check ONE (Or 2 &amp; average).

☒ NO RIFFLE [metric=0]

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS	Riffle / Run Maximum 8 0
<input type="checkbox"/> BEST AREAS > 10cm [2]	<input type="checkbox"/> MAXIMUM > 50cm [2]	<input type="checkbox"/> STABLE (e.g., Cobble, Boulder) [2]	<input type="checkbox"/> NONE [2]	
<input type="checkbox"/> BEST AREAS 5-10cm [1]	<input checked="" type="checkbox"/> MAXIMUM < 50cm [1]	<input checked="" type="checkbox"/> MOD. STABLE (e.g., Large Gravel) [1]	<input type="checkbox"/> LOW [1]	
<input checked="" type="checkbox"/> BEST AREAS < 5cm [metric=0]		<input type="checkbox"/> UNSTABLE (e.g., Fine Gravel, Sand) [0]	<input type="checkbox"/> MODERATE [0]	
			<input checked="" type="checkbox"/> EXTENSIVE [-1]	

Comments

6] GRADIENT ( 34.0 ft/mi) ☐ VERY LOW - LOW [2-4]  
DRAINAGE AREA ( 8.76 mi<sup>2</sup>) ☐ MODERATE [6-10]  
☒ HIGH - VERY HIGH [10-6]

%POOL: 20

%GLIDE: 50

%RUN: 10

%RIFFLE: 20

Gradient Maximum 10 4

AJ SAMPLED REACH

Check ALL that apply

METHOD N/A STAGE

1st sample pass-- 2nd

BOAT ☐ HIGH ☐

WADE ☐ UP ☐

L. LINE ☐ NORMAL ☐

OTHER ☐ LOW ☐

DISTANCE ☐ DRY ☐

CLARITY

1st sample pass-- 2nd

☐ < 20 cm ☐

☐ 20-40 cm ☐

☐ 40-70 cm ☐

☐ > 70 cm/ CTB ☐

SECCHI DEPTH ☐

182 meters

CANOPY

☐ > 85%- OPEN

☐ 55%-<85%

☐ 30%-<55%

☐ 10%-<30%

☐ <10%- CLOSED

CJ RECREATION

N/A POOL: ☐ >100ft<sup>2</sup> ☐ >3ft

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

Typical - Yes

Recreation - N/A

BJAESTHETICS

☐ NUISANCE ALGAE

☐ INVASIVE MACROPHYTES

☐ EXCESS TURBIDITY

☐ DISCOLORATION

☐ FOAM / SCUM

☐ OIL SHEEN

☐ TRASH / LITTER

☐ NUISANCE ODOR

☐ SLUDGE DEPOSITS

☐ CSOs/SSOs/OUTFALLS

DJ MAINTENANCE

N/A

CIRCLE some & COMMENT

PUBLIC / PRIVATE / BOTH / NA

ACTIVE / HISTORIC / BOTH / NA

YOUNG-SUCCESSION-OLD

SPRAY / SNAG / REMOVED

MODIFIED / DIPPED OUT / NA

LEVEED / ONE SIDED

RELOCATED / CUTOFFS

MOVING-BEDLOAD-STABLE

(ARMORED) / SLUMPS

ISLANDS / SCAURED

IMPOUNDED / DESICCATED

FLOOD CONTROL / DRAINAGE

EJ ISSUES

WWTP / CSO / NPDES / (INDUSTRY)

HARDENED / URBAN / DIRT&GRIME

CONTAMINATED / LANDFILL

BMPs-CONSTRUCTION-SEDIMENT

LOGGING / IRRIGATION / COOLING

(BANK / EROSION) / SURFACE

FALSE BANK / MANURE / LAGOON

WASH H<sub>2</sub>O / TILE / H<sub>2</sub>O TABLE

ACID / MINE / QUARRY / FLOW

NATURAL / WETLAND / (STAGNANT)

PARK / GOLF / LAWN / HOME

ATMOSPHERE / DATA PAUCITY

FJ MEASUREMENTS

☐ width 45 ft

☐ depth 4 in

☐ max. depth 1.2 ft

☐ bankfull width N/A

☐ bankfull x depth N/A

☐ W/D ratio N/A

☐ bankfull max. depth N/A

☐ floodprone x<sup>2</sup> width N/A

☐ entrench. ratio N/A

Legacy Tree:

Stream Drawing:





# Primary Headwater Habitat Evaluation Form

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

24

SITE NAME/LOCATION Unnamed Tributary #4

SITE NUMBER S5

RIVER BASIN Little Miami River

DRAINAGE AREA (mi<sup>2</sup>) 0.02

LENGTH OF STREAM REACH (ft) 100

LAT. 39.1331

LONG. 84.4040

RIVER CODE

RIVER MILE 0.0

DATE 09/24/08

SCORER Michael de Villiers

COMMENTS

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

## STREAM CHANNEL MODIFICATIONS:

☒ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]		<input checked="" type="checkbox"/> SILT [3 pts]	60
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]		<input type="checkbox"/> CLAY or HARDPAN [0 pts]	
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	30	<input type="checkbox"/> MUCK [0 pts]	
<input type="checkbox"/> SAND (<2 mm) [6 pts]	10	<input type="checkbox"/> ARTIFICIAL [3 pts]	

Total of Percentages of  
Bldr Slabs, Boulder, Cobble, Bedrock 0 (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

6

TOTAL NUMBER OF SUBSTRATE TYPES:

3 (B)

## HHEI METRIC POINTS

Substrate  
Max = 40

9

A + B

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

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

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

4.5

Pool Depth  
Max = 30

0

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

<input type="checkbox"/> > 4.0 meters [30 pts]	<input checked="" type="checkbox"/> > 1.0 - 1.5 m [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m [25 pts]	<input type="checkbox"/> ≤ 1.0 m [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

3.7

Bankfull  
Width  
Max = 30

15

This information must also be completed

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

### RIPARIAN WIDTH

L	R	(Per Bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Wide > 10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow < 5m
<input type="checkbox"/>	<input type="checkbox"/>	None

COMMENTS

### FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture

L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry Channel, no water (Ephemeral)

COMMENTS

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

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input checked="" type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

### STREAM GRADIENT ESTIMATE

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



**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

**QHEI PERFORMED?** - ☐ Yes ☒ No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☒ WWH Name: Duck Creek Distance from Evaluated Stream 0.0 feet  
☐ CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☐ EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangel Name: Cincinnati East NRCS Soil Map Page: 47 NRCS Soil Map Stream Order 1

County: Hamilton Township / City Columbia

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 9-14-08 Quantity: 0.01 inch

Photograph Information: 46-upstream, 47-downstream

Elevated Turbidity? (Y/N): N/A Canopy (% open): 70

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) N/A Dissolved Oxygen (mg/l) N/A pH (S.U.) N/A Conductivity (µmhos/cm) N/A

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: N/A

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

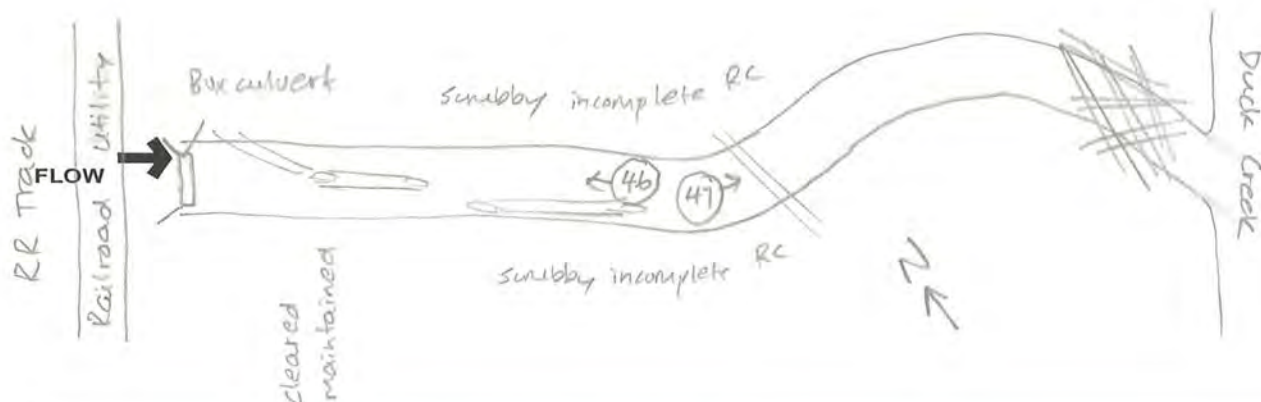
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: None observed

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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



Stream &amp; Location: Little Miami River; S6

RM: 46 Date: 09/24/08

Scorers Full Name &amp; Affiliation: Michael de Villiers; ENTRAN

River Code: - - - STORET #: Lat./Long.: 39.1246 / 84.3911 Office verified location ☐

1] SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

Check ONE (Or 2 &amp; average)

BEST TYPES		POOL RIFFLE		OTHER TYPES		POOL RIFFLE		ORIGIN		QUALITY		Substrate 15 Maximum 20												
<input type="checkbox"/> BLDR / SLABS [10]	<input type="checkbox"/> BOULDER [9]	<input checked="" type="checkbox"/> X	<input type="checkbox"/>	<input type="checkbox"/> HARDPAN [4]	<input type="checkbox"/> DETRITUS [3]	<input type="checkbox"/> MUCK [2]	<input type="checkbox"/> SILT [2]	<input checked="" type="checkbox"/> X	<input type="checkbox"/> LIMESTONE [1]	<input type="checkbox"/> TILLS [1]	<input type="checkbox"/> WETLANDS [0]		<input type="checkbox"/> SANDSTONE [0]	<input type="checkbox"/> RIP/RAP [0]	<input type="checkbox"/> LACUSTURINE [0]	<input type="checkbox"/> SHALE [-1]	<input type="checkbox"/> COAL FINES [-2]	<input type="checkbox"/> HEAVY [-2]	<input type="checkbox"/> MODERATE [-1]	<input type="checkbox"/> NORMAL [0]	<input type="checkbox"/> FREE [1]	<input type="checkbox"/> EXTENSIVE [-2]	<input type="checkbox"/> MODERATE [-1]	<input type="checkbox"/> NORMAL [0]

NUMBER OF BEST TYPES: ☒ 4 or more [2] ☐ 3 or less [0] (Score natural substrates; ignore sludge from point-sources)

Comments

2] INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

AMOUNT

Check ONE (Or 2 &amp; average)

UNDERCUT BANKS [1]		POOLS > 70cm [2]		0		OXBOWS, BACKWATERS [1]		AMOUNT			
<input checked="" type="checkbox"/> 1	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 0	<input type="checkbox"/> EXTENSIVE >75% [11]	<input type="checkbox"/> MODERATE 25-75% [7]	<input type="checkbox"/> SPARSE 5-<25% [3]	<input type="checkbox"/> NEARLY ABSENT <5% [1]

Comments

Cover  
Maximum 20  
11

3] CHANNEL MORPHOLOGY Check ONE in each category (Or 2 &amp; average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
<input type="checkbox"/> HIGH [4]	<input type="checkbox"/> EXCELLENT [7]	<input type="checkbox"/> NONE [6]	<input type="checkbox"/> HIGH [3]
<input type="checkbox"/> MODERATE [3]	<input type="checkbox"/> GOOD [5]	<input type="checkbox"/> RECOVERED [4]	<input type="checkbox"/> MODERATE [2]
<input checked="" type="checkbox"/> LOW [2]	<input type="checkbox"/> FAIR [3]	<input type="checkbox"/> RECOVERING [3]	<input type="checkbox"/> LOW [1]
<input type="checkbox"/> NONE [1]	<input type="checkbox"/> POOR [1]	<input type="checkbox"/> RECENT OR NO RECOVERY [1]	

Comments

Channel  
Maximum 20  
13

4] BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank &amp; average)

EROSION		RIPARIAN WIDTH		FLOOD PLAIN QUALITY		CONSERVATION TILLAGE [1]									
<input type="checkbox"/> L	<input type="checkbox"/> R	<input type="checkbox"/> L	<input type="checkbox"/> R	<input type="checkbox"/> L	<input type="checkbox"/> R	<input type="checkbox"/> L	<input type="checkbox"/> R								
<input type="checkbox"/> NONE / LITTLE [3]	<input type="checkbox"/> MODERATE [2]	<input type="checkbox"/> HEAVY / SEVERE [1]	<input type="checkbox"/> WIDE > 50m [4]	<input type="checkbox"/> MODERATE 10-50m [3]	<input type="checkbox"/> NARROW 5-10m [2]	<input type="checkbox"/> VERY NARROW < 5m [1]	<input type="checkbox"/> NONE [0]	<input type="checkbox"/> FOREST, SWAMP [3]	<input type="checkbox"/> SHRUB OR OLD FIELD [2]	<input type="checkbox"/> RESIDENTIAL, PARK, NEW FIELD [1]	<input type="checkbox"/> FENCED PASTURE [1]	<input type="checkbox"/> OPEN PASTURE, ROWCROP [0]	<input type="checkbox"/> CONSERVATION TILLAGE [1]	<input type="checkbox"/> URBAN OR INDUSTRIAL [0]	<input type="checkbox"/> MINING / CONSTRUCTION [0]

Comments

Riparian  
Maximum 10  
4.5

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH		CHANNEL WIDTH		CURRENT VELOCITY		Recreation Potential Primary Contact Secondary Contact (circle one and comment on back)									
<input type="checkbox"/> > 1m [6]	<input type="checkbox"/> 0.7-1m [4]	<input type="checkbox"/> 0.4-<0.7m [2]	<input type="checkbox"/> 0.2-<0.4m [1]	<input type="checkbox"/> < 0.2m [0]	<input type="checkbox"/> POOL WIDTH > RIFFLE WIDTH [2]		<input type="checkbox"/> POOL WIDTH = RIFFLE WIDTH [1]	<input type="checkbox"/> POOL WIDTH < RIFFLE WIDTH [0]	<input type="checkbox"/> TORRENTIAL [-1]	<input type="checkbox"/> VERY FAST [1]	<input type="checkbox"/> FAST [1]	<input checked="" type="checkbox"/> MODERATE [1]	<input type="checkbox"/> SLOW [1]	<input type="checkbox"/> INTERSTITIAL [-1]	<input type="checkbox"/> INTERMITTENT [-2]

Comments

Pool / Current  
Maximum 12  
7

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

Check ONE (Or 2 &amp; average).

☒ NO RIFFLE [metric=0]

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS
<input checked="" type="checkbox"/> BEST AREAS > 10cm [2]	<input type="checkbox"/> MAXIMUM > 50cm [2]	<input type="checkbox"/> STABLE (e.g., Cobble, Boulder) [2]	<input type="checkbox"/> NONE [2]
<input type="checkbox"/> BEST AREAS 5-10cm [1]	<input type="checkbox"/> MAXIMUM < 50cm [1]	<input checked="" type="checkbox"/> MOD. STABLE (e.g., Large Gravel) [1]	<input type="checkbox"/> LOW [1]
<input type="checkbox"/> BEST AREAS < 5cm [metric=0]		<input type="checkbox"/> UNSTABLE (e.g., Fine Gravel, Sand) [0]	<input checked="" type="checkbox"/> MODERATE [0]
			<input type="checkbox"/> EXTENSIVE [-1]

Comments

Riffle / Run  
Maximum 8  
5

6] GRADIENT ( 3.24 ft/mi) ☒ VERY LOW - LOW [2-4] ☐ MODERATE [6-10] ☐ HIGH - VERY HIGH [10-6]

%POOL: 20

%GLIDE: 70

%RUN: 10

%RIFFLE: 0

Gradient  
Maximum 10  
10

AJ SAMPLED REACH

Check ALL that apply

METHOD N/A STAGE

1st sample pass-- 2nd

BOAT ☐ HIGH ☐

WADE ☐ UP ☐

L. LINE ☐ NORMAL ☐

OTHER ☐ LOW ☐

DISTANCE ☐ DRY ☐

CLARITY

1st sample pass-- 2nd

☐ < 20 cm ☐

☐ 20-40 cm ☐

☐ 40-70 cm ☐

☐ > 70 cm/ CTB ☐

☐ SECCHI DEPTH ☐

1st N/A cm

2nd N/A cm

CANOPY

☐ > 85%- OPEN

☐ 55%-<85%

☐ 30%-<55%

☐ 10%-<30%

☐ <10%- CLOSED

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

Typical - Yes

Recreation - inferred primary contact; canoe, fishing, swimming

BJAESTHETICS

☐ NUISANCE ALGAE

☐ INVASIVE MACROPHYTES

☐ EXCESS TURBIDITY

☐ DISCOLORATION

☐ FOAM / SCUM

☐ OIL SHEEN

☐ TRASH / LITTER

☐ NUISANCE ODOR

☐ SLUDGE DEPOSITS

☐ CSOs/SSOs/OUTFALLS

DJ MAINTENANCE

☐ PUBLIC / PRIVATE / BOTH / NA

☐ ACTIVE / HISTORIC / BOTH / NA

☐ YOUNG-SUCCESSION-OLD

☐ SPRAY / SNAG / REMOVED

☐ MODIFIED / DIPPED OUT / NA

☐ LEVEED / ONE SIDED

☐ RELOCATED / CUTOFFS

☐ MOVING-BEDLOAD-STABLE

☐ (ARMORED) SLUMPS

☐ ISLANDS / SCAURED

☐ IMPOUNDED / DESICCATED

☐ FLOOD CONTROL / DRAINAGE

Circle some & COMMENT

EJ ISSUES

WWTP / CSO / NPDES / INDUSTRY

HARDENED / URBAN / DIRT & GRIME

CONTAMINATED / LANDFILL

BMPs-CONSTRUCTION-SEDIMENT

LOGGING / IRRIGATION / COOLING

BANK / EROSION / SURFACE

FALSE BANK / MANURE / LAGOON

WASH H<sub>2</sub>O / TILE / H<sub>2</sub>O TABLE

ACID / MINE / QUARRY / FLOW

NATURAL / WETLAND / STAGNANT

PARK / GOLF / LAWN / HOME

ATMOSPHERE / DATA PAUCITY

FJ MEASUREMENTS

☐ width 180 ft

☐ depth 3.5 ft

☐ max. depth 5.0 ft

☐ bankfull width N/A

☐ bankfull x depth N/A

☐ W/D ratio N/A

☐ bankfull max. depth N/A

☐ floodprone x<sup>2</sup> width N/A

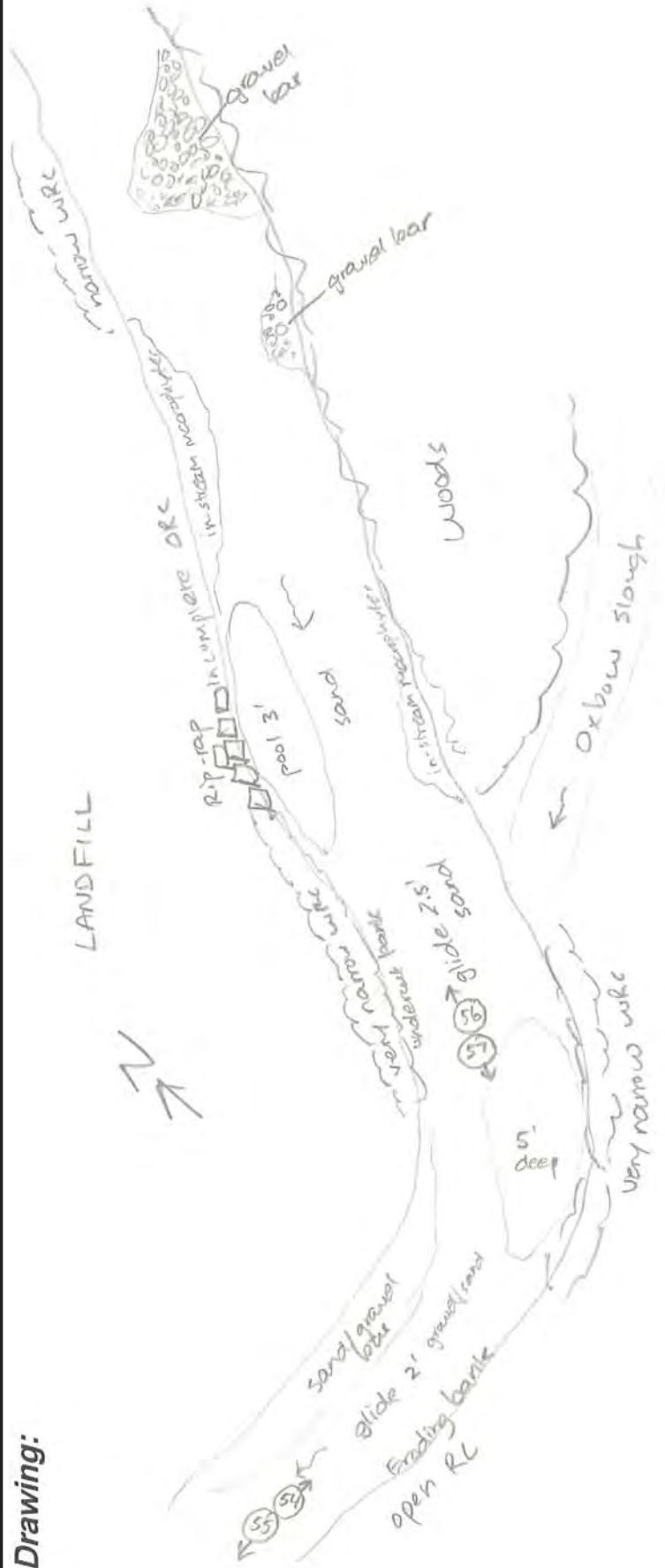
☐ entrench. ratio N/A

Legacy Tree:

CJ RECREATION

POOL: ☐ >100ft<sup>2</sup> ☐ >3ft

Stream Drawing:





Stream &amp; Location: Little Miami River; S7

RM: 5.6 Date: 09/25/08

Scorers Full Name &amp; Affiliation: Michael de Villiers; ENTRAN

River Code: - - - STORET #: Lat./Long.: 39.1347 / 84.3882 Office verified location ☐

1] SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

Check ONE (Or 2 &amp; average)

BEST TYPES		POOL RIFFLE		OTHER TYPES		POOL RIFFLE		ORIGIN		QUALITY		Substrate 15.5 Maximum 20
<input type="checkbox"/> BLDR / SLABS [10]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> HARDPAN [4]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> LIMESTONE [1]	<input type="checkbox"/>	<input type="checkbox"/> HEAVY [-2]	<input type="checkbox"/>	
<input type="checkbox"/> BOULDER [9]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> DETRITUS [3]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> TILLS [1]	<input type="checkbox"/>	<input type="checkbox"/> MODERATE [-1]	<input type="checkbox"/>	
<input checked="" type="checkbox"/> COBBLE [8]	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> MUCK [2]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> WETLANDS [0]	<input type="checkbox"/>	<input checked="" type="checkbox"/> NORMAL [0]	<input type="checkbox"/>	
<input checked="" type="checkbox"/> GRAVEL [7]	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> SILT [2]	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> HARDPAN [0]	<input type="checkbox"/>	<input type="checkbox"/> FREE [1]	<input type="checkbox"/>	
<input type="checkbox"/> SAND [6]	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> ARTIFICIAL [0]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> SANDSTONE [0]	<input type="checkbox"/>	<input type="checkbox"/> EXTENSIVE [-2]	<input type="checkbox"/>	
<input type="checkbox"/> BEDROCK [5]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(Score natural substrates; ignore sludge from point-sources)				<input type="checkbox"/> RIP/RAP [0]	<input type="checkbox"/>	<input checked="" type="checkbox"/> MODERATE [-1]	<input type="checkbox"/>	
								<input type="checkbox"/> LACUSTURINE [0]	<input type="checkbox"/>	<input checked="" type="checkbox"/> NORMAL [0]	<input type="checkbox"/>	
								<input type="checkbox"/> SHALE [-1]	<input type="checkbox"/>	<input type="checkbox"/> NONE [1]	<input type="checkbox"/>	
								<input type="checkbox"/> COAL FINES [-2]	<input type="checkbox"/>			

NUMBER OF BEST TYPES: ☐ 4 or more [2] ☒ 3 or less [0]

Comments

2] INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

AMOUNT

Check ONE (Or 2 &amp; average)

UNDERCUT BANKS [1]		POOLS > 70cm [2]		OXBOWS, BACKWATERS [1]		AMOUNT	
<input type="0"/> UNDERCUT BANKS [1]	<input type="1"/>	<input type="1"/> POOLS > 70cm [2]	<input type="1"/>	<input type="1"/> OXBOWS, BACKWATERS [1]	<input type="1"/>	<input type="checkbox"/> EXTENSIVE >75% [11]	<input type="checkbox"/>
<input type="1"/> OVERHANGING VEGETATION [1]	<input type="0"/>	<input type="0"/> ROOTWADS [1]	<input type="1"/>	<input type="1"/> AQUATIC MACROPHYTES [1]	<input type="1"/>	<input type="checkbox"/> MODERATE 25-75% [7]	<input type="checkbox"/>
<input type="1"/> SHALLOWS (IN SLOW WATER) [1]	<input type="1"/>	<input type="1"/> BOULDERS [1]	<input type="1"/>	<input type="1"/> LOGS OR WOODY DEBRIS [1]	<input type="1"/>	<input checked="" type="checkbox"/> SPARSE 5-<25% [3]	<input type="checkbox"/>
<input type="1"/> ROOTMATS [1]	<input type="1"/>					<input type="checkbox"/> NEARLY ABSENT <5% [1]	<input type="checkbox"/>

Comments

Cover Maximum 20 9

3] CHANNEL MORPHOLOGY Check ONE in each category (Or 2 &amp; average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY	Channel Maximum 20 14
<input type="checkbox"/> HIGH [4]	<input type="checkbox"/> EXCELLENT [7]	<input checked="" type="checkbox"/> NONE [6]	<input type="checkbox"/> HIGH [3]	
<input checked="" type="checkbox"/> MODERATE [3]	<input type="checkbox"/> GOOD [5]	<input type="checkbox"/> RECOVERED [4]	<input checked="" type="checkbox"/> MODERATE [2]	
<input type="checkbox"/> LOW [2]	<input checked="" type="checkbox"/> FAIR [3]	<input type="checkbox"/> RECOVERING [3]	<input type="checkbox"/> LOW [1]	
<input type="checkbox"/> NONE [1]	<input type="checkbox"/> POOR [1]	<input type="checkbox"/> RECENT OR NO RECOVERY [1]		

Comments

4] BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank &amp; average)

EROSION		RIPARIAN WIDTH		FLOOD PLAIN QUALITY		RIPARIAN ZONE		Riparian Maximum 10 7.5
<input type="checkbox"/> NONE / LITTLE [3]	<input type="checkbox"/>	<input type="checkbox"/> WIDE > 50m [4]	<input type="checkbox"/>	<input checked="" type="checkbox"/> FOREST, SWAMP [3]	<input type="checkbox"/>	<input type="checkbox"/> CONSERVATION TILLAGE [1]	<input type="checkbox"/>	
<input checked="" type="checkbox"/> MODERATE [2]	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> MODERATE 10-50m [3]	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> SHRUB OR OLD FIELD [2]	<input checked="" type="checkbox"/>	<input type="checkbox"/> URBAN OR INDUSTRIAL [0]	<input type="checkbox"/>	
<input type="checkbox"/> HEAVY / SEVERE [1]	<input type="checkbox"/>	<input checked="" type="checkbox"/> NARROW 5-10m [2]	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> RESIDENTIAL, PARK, NEW FIELD [1]	<input checked="" type="checkbox"/>	<input type="checkbox"/> MINING / CONSTRUCTION [0]	<input type="checkbox"/>	
		<input type="checkbox"/> VERY NARROW < 5m [1]	<input type="checkbox"/>	<input type="checkbox"/> FENCED PASTURE [1]	<input type="checkbox"/>	Indicate predominant land use(s) past 100m riparian.		
		<input type="checkbox"/> NONE [0]	<input type="checkbox"/>	<input type="checkbox"/> OPEN PASTURE, ROWCROP [0]	<input type="checkbox"/>			

Comments

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH		CHANNEL WIDTH		CURRENT VELOCITY		Recreation Potential Primary Contact Secondary Contact (circle one and comment on back)	Pool / Current Maximum 12 11
<input checked="" type="checkbox"/> > 1m [6]	<input type="checkbox"/>	<input type="checkbox"/> POOL WIDTH > RIFFLE WIDTH [2]	<input type="checkbox"/>	<input type="checkbox"/> TORRENTIAL [-1]	<input checked="" type="checkbox"/> SLOW [1]		
<input type="checkbox"/> 0.7-1m [4]	<input type="checkbox"/>	<input checked="" type="checkbox"/> POOL WIDTH = RIFFLE WIDTH [1]	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> VERY FAST [1]	<input type="checkbox"/> INTERSTITIAL [-1]		
<input type="checkbox"/> 0.4-<0.7m [2]	<input type="checkbox"/>	<input type="checkbox"/> POOL WIDTH < RIFFLE WIDTH [0]	<input type="checkbox"/>	<input checked="" type="checkbox"/> FAST [1]	<input type="checkbox"/> INTERMITTENT [-2]		
<input type="checkbox"/> 0.2-<0.4m [1]	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/> MODERATE [1]	<input checked="" type="checkbox"/> EDDIES [1]		
<input type="checkbox"/> < 0.2m [0]	<input type="checkbox"/>		<input type="checkbox"/>	Indicate for reach - pools and riffles.			

Comments

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

Check ONE (Or 2 &amp; average).

☐ NO RIFFLE [metric=0]

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS	Riffle / Run Maximum 8 6
<input checked="" type="checkbox"/> BEST AREAS > 10cm [2]	<input checked="" type="checkbox"/> MAXIMUM > 50cm [2]	<input checked="" type="checkbox"/> STABLE (e.g., Cobble, Boulder) [2]	<input type="checkbox"/> NONE [2]	
<input type="checkbox"/> BEST AREAS 5-10cm [1]	<input type="checkbox"/> MAXIMUM < 50cm [1]	<input type="checkbox"/> MOD. STABLE (e.g., Large Gravel) [1]	<input type="checkbox"/> LOW [1]	
<input type="checkbox"/> BEST AREAS < 5cm [metric=0]		<input type="checkbox"/> UNSTABLE (e.g., Fine Gravel, Sand) [0]	<input checked="" type="checkbox"/> MODERATE [0]	
			<input type="checkbox"/> EXTENSIVE [-1]	

Comments

6] GRADIENT ( 3.24 ft/mi) ☒ VERY LOW - LOW [2-4]  
DRAINAGE AREA ( 1,600 mi<sup>2</sup>) ☐ MODERATE [6-10]  
☐ HIGH - VERY HIGH [10-6]

%POOL: 10

%GLIDE: 40

%RUN: 20

%RIFFLE: 30

Gradient Maximum 10 10



Stream &amp; Location: Unnamed Tributary #5; S8

RM: 0.5 Date: 09/25/08

Scorers Full Name &amp; Affiliation: Michael de Villiers; ENTRAN

River Code: - - - STORET #: Lat./Long.: 39.1375 / 84.3870 Office verified location ☐

1) SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

Check ONE (Or 2 &amp; average)

BEST TYPES		POOL RIFFLE		OTHER TYPES		POOL RIFFLE		ORIGIN		QUALITY		Substrate Maximum 20
<input type="checkbox"/> BLDR / SLABS [10]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> HARDPAN [4]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> LIMESTONE [1]	<input type="checkbox"/>	<input type="checkbox"/> HEAVY [-2]	<input type="checkbox"/>	
<input type="checkbox"/> BOULDER [9]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> DETRITUS [3]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> TILLS [1]	<input type="checkbox"/>	<input type="checkbox"/> MODERATE [-1]	<input type="checkbox"/>	
<input type="checkbox"/> COBBLE [8]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> MUCK [2]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> WETLANDS [0]	<input type="checkbox"/>	<input type="checkbox"/> NORMAL [0]	<input type="checkbox"/>	
<input checked="" type="checkbox"/> GRAVEL [7]	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> SILT [2]	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> HARDPAN [0]	<input type="checkbox"/>	<input type="checkbox"/> FREE [1]	<input type="checkbox"/>	
<input checked="" type="checkbox"/> SAND [6]	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> ARTIFICIAL [0]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> SANDSTONE [0]	<input type="checkbox"/>	<input type="checkbox"/> EXTENSIVE [-2]	<input type="checkbox"/>	
<input type="checkbox"/> BEDROCK [5]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(Score natural substrates; ignore sludge from point-sources)				<input type="checkbox"/> RIP/RAP [0]	<input type="checkbox"/>	<input type="checkbox"/> MODERATE [-1]	<input type="checkbox"/>	
								<input type="checkbox"/> LACUSTURINE [0]	<input type="checkbox"/>	<input type="checkbox"/> NORMAL [0]	<input type="checkbox"/>	
								<input type="checkbox"/> SHALE [-1]	<input type="checkbox"/>	<input type="checkbox"/> NONE [1]	<input type="checkbox"/>	
								<input type="checkbox"/> COAL FINES [-2]	<input type="checkbox"/>			<input type="checkbox"/>

NUMBER OF BEST TYPES: ☐ 4 or more [2] ☒ 3 or less [0]

Comments

2) INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

AMOUNT

Check ONE (Or 2 &amp; average)

UNDERCUT BANKS [1]		POOLS > 70cm [2]		OXBOWS, BACKWATERS [1]		AMOUNT	
<input type="checkbox"/> 0	<input type="checkbox"/>	<input type="checkbox"/> 0	<input type="checkbox"/>	<input type="checkbox"/> 0	<input type="checkbox"/>	<input type="checkbox"/> EXTENSIVE >75% [11]	<input type="checkbox"/>
<input type="checkbox"/> 0	<input type="checkbox"/>	<input type="checkbox"/> 1	<input type="checkbox"/>	<input type="checkbox"/> 0	<input type="checkbox"/>	<input type="checkbox"/> MODERATE 25-75% [7]	<input type="checkbox"/>
<input type="checkbox"/> 1	<input type="checkbox"/>	<input type="checkbox"/> 0	<input type="checkbox"/>	<input type="checkbox"/> 1	<input type="checkbox"/>	<input type="checkbox"/> SPARSE 5-<25% [3]	<input type="checkbox"/>
<input type="checkbox"/> 1	<input type="checkbox"/>	<input type="checkbox"/> 0	<input type="checkbox"/>	<input type="checkbox"/> 1	<input type="checkbox"/>	<input type="checkbox"/> NEARLY ABSENT <5% [1]	<input type="checkbox"/>

Comments

Cover Maximum 20

3) CHANNEL MORPHOLOGY Check ONE in each category (Or 2 &amp; average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY	Channel Maximum 20
<input type="checkbox"/> HIGH [4]	<input type="checkbox"/> EXCELLENT [7]	<input type="checkbox"/> NONE [6]	<input type="checkbox"/> HIGH [3]	
<input checked="" type="checkbox"/> MODERATE [3]	<input type="checkbox"/> GOOD [5]	<input type="checkbox"/> RECOVERED [4]	<input checked="" type="checkbox"/> MODERATE [2]	12
<input type="checkbox"/> LOW [2]	<input checked="" type="checkbox"/> FAIR [3]	<input type="checkbox"/> RECOVERING [3]	<input type="checkbox"/> LOW [1]	
<input type="checkbox"/> NONE [1]	<input type="checkbox"/> POOR [1]	<input type="checkbox"/> RECENT OR NO RECOVERY [1]		

Comments

4) BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank &amp; average)

EROSION		RIPARIAN WIDTH		FLOOD PLAIN QUALITY		CONSERVATION TILLAGE [1]	
<input type="checkbox"/> L	<input type="checkbox"/> R	<input type="checkbox"/> L	<input type="checkbox"/> R	<input type="checkbox"/> L	<input type="checkbox"/> R	<input type="checkbox"/> L	<input type="checkbox"/> R
<input type="checkbox"/> NONE / LITTLE [3]	<input type="checkbox"/>	<input type="checkbox"/> WIDE > 50m [4]	<input type="checkbox"/>	<input type="checkbox"/> FOREST, SWAMP [3]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> MODERATE [2]	<input type="checkbox"/>	<input type="checkbox"/> MODERATE 10-50m [3]	<input type="checkbox"/>	<input checked="" type="checkbox"/> SHRUB OR OLD FIELD [2]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> HEAVY / SEVERE [1]	<input type="checkbox"/>	<input type="checkbox"/> NARROW 5-10m [2]	<input type="checkbox"/>	<input type="checkbox"/> RESIDENTIAL, PARK, NEW FIELD [1]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/> VERY NARROW < 5m [1]	<input type="checkbox"/>	<input type="checkbox"/> FENCED PASTURE [1]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/> NONE [0]	<input type="checkbox"/>	<input type="checkbox"/> OPEN PASTURE, ROWCROP [0]	<input type="checkbox"/>	Indicate predominant land use(s) past 100m riparian.	

Comments

Riparian Maximum 10

5) POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH		CHANNEL WIDTH		CURRENT VELOCITY		Recreation Potential Primary Contact Secondary Contact (circle one and comment on back)
Check ONE (ONLY!)		Check ONE (Or 2 & average)		Check ALL that apply		
<input type="checkbox"/> > 1m [6]	<input type="checkbox"/>	<input type="checkbox"/> POOL WIDTH > RIFFLE WIDTH [2]	<input type="checkbox"/>	<input type="checkbox"/> TORRENTIAL [-1]	<input checked="" type="checkbox"/> SLOW [1]	Pool / Current Maximum 12
<input type="checkbox"/> 0.7-1m [4]	<input type="checkbox"/>	<input type="checkbox"/> POOL WIDTH = RIFFLE WIDTH [1]	<input type="checkbox"/>	<input type="checkbox"/> VERY FAST [1]	<input type="checkbox"/> INTERSTITIAL [-1]	
<input checked="" type="checkbox"/> 0.4-<0.7m [2]	<input type="checkbox"/>	<input checked="" type="checkbox"/> POOL WIDTH < RIFFLE WIDTH [0]	<input type="checkbox"/>	<input type="checkbox"/> FAST [1]	<input type="checkbox"/> INTERMITTENT [-2]	
<input type="checkbox"/> 0.2-<0.4m [1]	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/> MODERATE [1]	<input type="checkbox"/> EDDIES [1]	
<input type="checkbox"/> < 0.2m [0]	<input type="checkbox"/>		<input type="checkbox"/>	Indicate for reach - pools and riffles.		

Comments

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

Check ONE (Or 2 &amp; average).

☐ NO RIFFLE [metric=0]

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS	Riffle / Run Maximum 8	
<input type="checkbox"/> BEST AREAS > 10cm [2]	<input type="checkbox"/> MAXIMUM > 50cm [2]	<input type="checkbox"/> STABLE (e.g., Cobble, Boulder) [2]	<input type="checkbox"/> NONE [2]		3
<input checked="" type="checkbox"/> BEST AREAS 5-10cm [1]	<input checked="" type="checkbox"/> MAXIMUM < 50cm [1]	<input checked="" type="checkbox"/> MOD. STABLE (e.g., Large Gravel) [1]	<input type="checkbox"/> LOW [1]		
<input type="checkbox"/> BEST AREAS < 5cm [metric=0]		<input type="checkbox"/> UNSTABLE (e.g., Fine Gravel, Sand) [0]	<input checked="" type="checkbox"/> MODERATE [0]		
				<input type="checkbox"/> EXTENSIVE [-1]	

Comments

6) GRADIENT ( 66.4 ft/mi) ☐ VERY LOW - LOW [2-4]  
DRAINAGE AREA ( 0.51 mi<sup>2</sup>) ☐ MODERATE [6-10]  
☒ HIGH - VERY HIGH [10-6]

%POOL: 20

%GLIDE: 40

%RUN: 20

%RIFFLE: 20

Gradient Maximum 10





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

SITE NAME/LOCATION Unnamed Tributary #6

SITE NUMBER S9 RIVER BASIN Little Miami River DRAINAGE AREA (mi<sup>2</sup>) 0.04

LENGTH OF STREAM REACH (ft) 150 LAT. 39.1406 LONG. 84.3880 RIVER CODE RIVER MILE 0.0

DATE 09/25/08 SCORER Michael de Villiers COMMENTS

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

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

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]		<input type="checkbox"/> SILT [3 pts]	5
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	5	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	10	<input type="checkbox"/> CLAY or HARDPAN [0 pts]	
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	20	<input type="checkbox"/> MUCK [0 pts]	
<input checked="" type="checkbox"/> SAND (<2 mm) [6 pts]	50	<input type="checkbox"/> ARTIFICIAL [3 pts]	10

Total of Percentages of  
Bldr Slabs, Boulder, Cobble, Bedrock 15 (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

15

TOTAL NUMBER OF SUBSTRATE TYPES:

6 (B)

HHEI  
METRIC  
POINTSSubstrate  
Max = 40

21

A + B

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

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

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

0

Pool Depth  
Max = 30

0

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

<input type="checkbox"/> > 4.0 meters [30 pts]	<input type="checkbox"/> > 1.0 - 1.5 m [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m [25 pts]	<input type="checkbox"/> ≤ 1.0 m [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

3.0

Bankfull  
Width  
Max = 30

20

This information must also be completed

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

## RIPARIAN WIDTH

L	R	(Per Bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Wide > 10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow < 5m
<input type="checkbox"/>	<input type="checkbox"/>	None

COMMENTS

## FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture

L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry Channel, no water (Ephemeral)

COMMENTS

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

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input checked="" type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

## STREAM GRADIENT ESTIMATE

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

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

**QHEI PERFORMED?** - ☐ Yes ☒ No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☐ WWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☐ CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☒ EWH Name: Little Miami River Distance from Evaluated Stream 3,726 feet

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

USGS Quadrangel Name: Cincinnati East NRCS Soil Map Page: 47 NRCS Soil Map Stream Order 2

County: Hamilton Township / City Columbia

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 9-14-08 Quantity: 0.01 inch

Photograph Information: 98-upstream, 99-downstream

Elevated Turbidity? (Y/N): N/A Canopy (% open): 20

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) N/A Dissolved Oxygen (mg/l) N/A pH (S.U.) N/A Conductivity (µmhos/cm) N/A

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: Lots of trash (rubber tires, metal tub, glass)

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

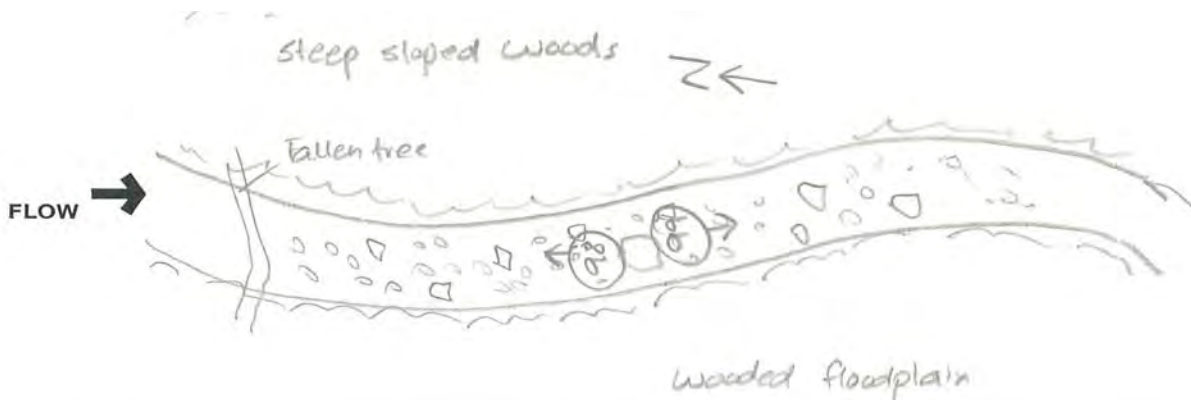
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: None observed

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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







# Primary Headwater Habitat Evaluation Form

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

34

SITE NAME/LOCATION Clear Creek

SITE NUMBER S10

RIVER BASIN Little Miami River

DRAINAGE AREA (mi<sup>2</sup>) 0.92

LENGTH OF STREAM REACH (ft) 200

LAT. 39.1273

LONG. 84.3889

RIVER CODE \_\_\_\_\_

RIVER MILE 0.28

DATE 09/26/08

SCORER Michael de Villiers

COMMENTS \_\_\_\_\_

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

## STREAM CHANNEL MODIFICATIONS:

☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	_____	<input checked="" type="checkbox"/> SILT [3 pts]	60
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	_____	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	_____
<input type="checkbox"/> BEDROCK [16 pts]	_____	<input type="checkbox"/> FINE DETRITUS [3 pts]	_____
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	_____	<input type="checkbox"/> CLAY or HARDPAN [0 pts]	_____
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	10	<input type="checkbox"/> MUCK [0 pts]	_____
<input type="checkbox"/> SAND (<2 mm) [6 pts]	30	<input type="checkbox"/> ARTIFICIAL [3 pts]	_____

Total of Percentages of  
Bldr Slabs, Boulder, Cobble, Bedrock 0 (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6

TOTAL NUMBER OF SUBSTRATE TYPES: 3 (B)

## HHEI METRIC POINTS

Substrate  
Max = 40

9

A + B

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

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

COMMENTS \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): 0

Pool Depth  
Max = 30

0

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

<input type="checkbox"/> > 4.0 meters [30 pts]	<input type="checkbox"/> > 1.0 - 1.5 m [15 pts]
<input checked="" type="checkbox"/> > 3.0 m - 4.0 m [25 pts]	<input type="checkbox"/> ≤ 1.0 m [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m [20 pts]	

COMMENTS \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): 3.1

Bankfull  
Width  
Max = 30

25

This information must also be completed

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

### RIPARIAN WIDTH

L	R	(Per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Wide > 10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Narrow < 5m
<input type="checkbox"/>	<input type="checkbox"/>	None

COMMENTS \_\_\_\_\_

### FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland
<input type="checkbox"/>	<input type="checkbox"/>	Immature Forest, Shrub or Old Field
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture

L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry Channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

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

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input checked="" type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

## STREAM GRADIENT ESTIMATE

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

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

**QHEI PERFORMED?** - ☐ Yes ☒ No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☐ WWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☐ CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☒ EWH Name: Little Miami River Distance from Evaluated Stream 1,486 feet

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

USGS Quadrangel Name: Cincinnati East NRCS Soil Map Page: 47 NRCS Soil Map Stream Order 2

County: Hamilton Township / City Anderson

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 9-14-08 Quantity: 0.01 inch

Photograph Information: 110-upstream, 111-downstream

Elevated Turbidity? (Y/N): N/A Canopy (% open): 50

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) N/A Dissolved Oxygen (mg/l) N/A pH (S.U.) N/A Conductivity (µmhos/cm) N/A

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: Upstream is wetland; lots of flood debris, junk (tires, wooded crates, plastic)

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

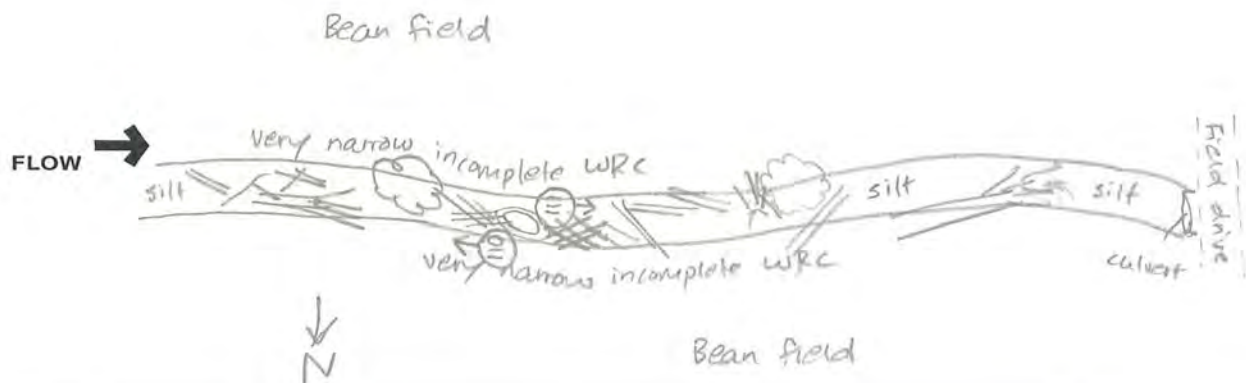
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: None observed

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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



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

SITE NAME/LOCATION Unnamed Tributary #7

SITE NUMBER S11 RIVER BASIN Little Miami River DRAINAGE AREA (mi<sup>2</sup>) 0.02

LENGTH OF STREAM REACH (ft) 150 LAT. 39.1297 LONG. 84.3720 RIVER CODE RIVER MILE 0.0

DATE 09/29/08 SCORER Chris Young COMMENTS

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

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

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> SILT [3 pts]	90
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]		<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pts]	
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]		<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	10	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	

Total of Percentages of  
Bldr Slabs, Boulder, Cobble, Bedrock 0 (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

6

TOTAL NUMBER OF SUBSTRATE TYPES:

2

HHEI  
METRIC  
POINTSSubstrate  
Max = 40

8

A + B

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

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

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

0

Pool Depth  
Max = 30

0

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

<input type="checkbox"/> > 4.0 meters [30 pts]	<input type="checkbox"/> > 1.0 - 1.5 m [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m [25 pts]	<input checked="" type="checkbox"/> ≤ 1.0 m [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

0.6

Bankfull  
Width  
Max = 30

5

This information must also be completed

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

## RIPARIAN WIDTH

L	R	(Per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Wide > 10m
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow < 5m
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	None

COMMENTS

## FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Residential, Park, New Field
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture

L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry Channel, no water (Ephemeral)

COMMENTS

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

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input checked="" type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

## STREAM GRADIENT ESTIMATE

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



**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

**QHEI PERFORMED?** - ☐ Yes ☒ No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☐ WWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☐ CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☒ EWH Name: Little Miami River Distance from Evaluated Stream 1.4 miles

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

USGS Quadrangel Name: Madeira NRCS Soil Map Page: 47 NRCS Soil Map Stream Order 1

County: Hamilton Township / City Anderson

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 9-14-08 Quantity: 0.01 inch

Photograph Information: 129-upstream, 130-downstream

Elevated Turbidity? (Y/N): N/A Canopy (% open): 50

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) N/A Dissolved Oxygen (mg/l) N/A pH (S.U.) N/A Conductivity (µmhos/cm) N/A

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: N/A

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

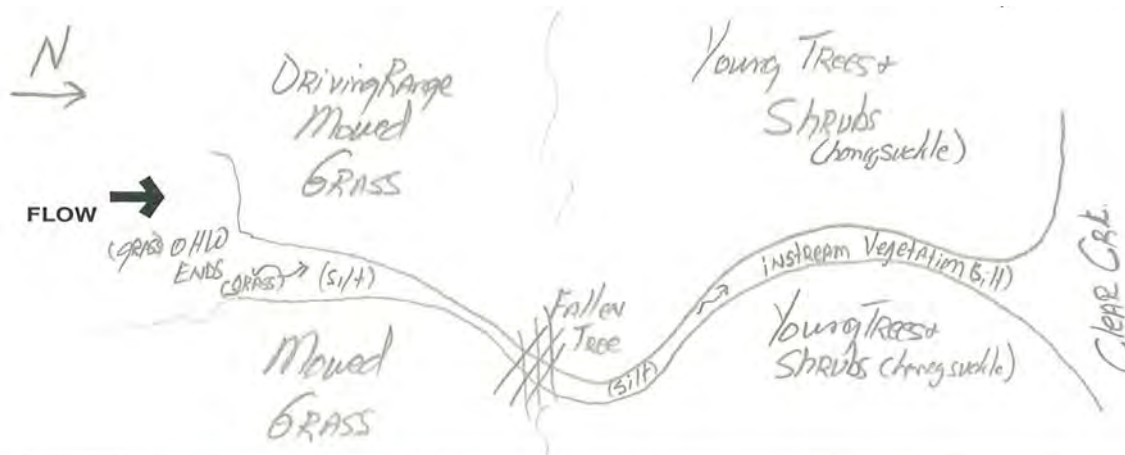
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: None observed

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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





# Primary Headwater Habitat Evaluation Form

32

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

SITE NAME/LOCATION Unnamed Tributary #8

SITE NUMBER S12

RIVER BASIN Little Miami River

DRAINAGE AREA (mi<sup>2</sup>) 0.04

LENGTH OF STREAM REACH (ft) 200

LAT. 39.1311

LONG. 84.3638

RIVER CODE

RIVER MILE 0.0

DATE 10/1/08

SCORER Michael de Villiers

COMMENTS

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

## STREAM CHANNEL MODIFICATIONS:

☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]		<input checked="" type="checkbox"/> SILT [3 pts]	30
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]		<input type="checkbox"/> CLAY or HARDPAN [0 pts]	
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	10	<input type="checkbox"/> MUCK [0 pts]	
<input checked="" type="checkbox"/> SAND (<2 mm) [6 pts]	60	<input type="checkbox"/> ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0 (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

9

TOTAL NUMBER OF SUBSTRATE TYPES:

3

## HHEI METRIC POINTS

Substrate Max = 40

12

A + B

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

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

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

0

Pool Depth Max = 30

0

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

<input type="checkbox"/> > 4.0 meters [30 pts]	<input type="checkbox"/> > 1.0 - 1.5 m [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m [25 pts]	<input type="checkbox"/> ≤ 1.0 m [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

2.1

Bankfull Width Max = 30

20

This information must also be completed

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

### RIPARIAN WIDTH

L	R	(Per Bank)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Wide > 10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Narrow < 5m
<input type="checkbox"/>	<input type="checkbox"/>	None

COMMENTS

### FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)	L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland	<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field	<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field	<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture	<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry Channel, no water (Ephemeral)

COMMENTS

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

<input checked="" type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

### STREAM GRADIENT ESTIMATE

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

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

**QHEI PERFORMED?** - ☐ Yes ☒ No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☐ WWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☐ CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☒ EWH Name: Little Miami River Distance from Evaluated Stream 2.2 miles

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

USGS Quadrangel Name: Madeira NRCS Soil Map Page: 47 NRCS Soil Map Stream Order 1

County: Hamilton Township / City Anderson

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 9-30-08 Quantity: 0.14 inch

Photograph Information: 139-upstream, 140-downstream

Elevated Turbidity? (Y/N): N/A Canopy (% open): 30

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) N/A Dissolved Oxygen (mg/l) N/A pH (S.U.) N/A Conductivity (µmhos/cm) N/A

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: Some trash (plastic bin, paper, tire)

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

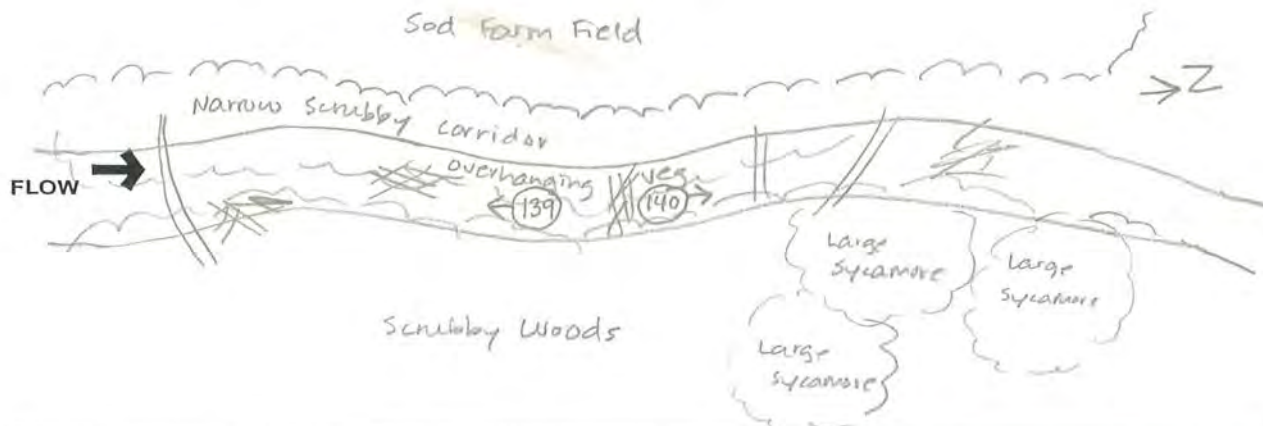
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: None observed

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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





Stream &amp; Location: McCullough Run; S13

RM: 2.7 Date: 10/01/08

Scorers Full Name &amp; Affiliation: Chris Young; ENTRAN

River Code: - STORET #: Lat./ Long.: 39.1244 / 84.3536

Office verified location ☐

1] SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

Check ONE (Or 2 &amp; average)

BEST TYPES		POOL RIFFLE		OTHER TYPES		POOL RIFFLE	
<input type="checkbox"/> BLDR / SLABS [10]	<input checked="" type="checkbox"/> X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> HARDPAN [4]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> BOULDER [9]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> DETRITUS [3]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> COBBLE [8]	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> X	<input type="checkbox"/> MUCK [2]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> GRAVEL [7]	<input checked="" type="checkbox"/> X	<input checked="" type="checkbox"/> X	<input type="checkbox"/>	<input type="checkbox"/> SILT [2]	<input type="checkbox"/>	<input checked="" type="checkbox"/> X	<input checked="" type="checkbox"/> X
<input checked="" type="checkbox"/> SAND [6]	<input checked="" type="checkbox"/> X	<input checked="" type="checkbox"/> X	<input type="checkbox"/>	<input type="checkbox"/> ARTIFICIAL [0]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> BEDROCK [5]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(Score natural substrates; ignore sludge from point-sources)			

ORIGIN	
<input type="checkbox"/> LIMESTONE [1]	<input type="checkbox"/>
<input checked="" type="checkbox"/> TILLS [1]	<input type="checkbox"/>
<input type="checkbox"/> WETLANDS [0]	<input type="checkbox"/>
<input type="checkbox"/> HARDPAN [0]	<input type="checkbox"/>
<input type="checkbox"/> SANDSTONE [0]	<input type="checkbox"/>
<input type="checkbox"/> RIP/RAP [0]	<input type="checkbox"/>
<input type="checkbox"/> LACUSTURINE [0]	<input type="checkbox"/>
<input type="checkbox"/> SHALE [-1]	<input type="checkbox"/>
<input type="checkbox"/> COAL FINES [-2]	<input type="checkbox"/>

QUALITY	
<input type="checkbox"/> HEAVY [-2]	<input type="checkbox"/>
<input type="checkbox"/> MODERATE [-1]	<input type="checkbox"/>
<input checked="" type="checkbox"/> NORMAL [0]	<input type="checkbox"/>
<input type="checkbox"/> FREE [1]	<input type="checkbox"/>
<input type="checkbox"/> EXTENSIVE [-2]	<input type="checkbox"/>
<input checked="" type="checkbox"/> MODERATE [-1]	<input type="checkbox"/>
<input type="checkbox"/> NORMAL [0]	<input type="checkbox"/>
<input type="checkbox"/> NONE [1]	<input type="checkbox"/>

SILT

EMBEDDEDNESS

Substrate  
15  
Maximum 20NUMBER OF BEST TYPES: ☒ 4 or more [2] ☐ 3 or less [0]

Comments

2] INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

AMOUNT

Check ONE (Or 2 &amp; average)

<input type="checkbox"/> UNDERCUT BANKS [1]	<input type="checkbox"/> POOLS > 70cm [2]	<input type="checkbox"/> OXBOWS, BACKWATERS [1]
<input type="checkbox"/> OVERHANGING VEGETATION [1]	<input type="checkbox"/> ROOTWADS [1]	<input type="checkbox"/> AQUATIC MACROPHYTES [1]
<input type="checkbox"/> SHALLOWS (IN SLOW WATER) [1]	<input type="checkbox"/> BOULDERS [1]	<input type="checkbox"/> LOGS OR WOODY DEBRIS [1]
<input type="checkbox"/> ROOTMATS [1]	<input type="checkbox"/>	<input type="checkbox"/>

<input type="checkbox"/> EXTENSIVE >75% [11]
<input type="checkbox"/> MODERATE 25-75% [7]
<input type="checkbox"/> SPARSE 5-<25% [3]
<input checked="" type="checkbox"/> NEARLY ABSENT <5% [1]

Cover  
Maximum 20  
3

Comments

3] CHANNEL MORPHOLOGY Check ONE in each category (Or 2 &amp; average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
<input type="checkbox"/> HIGH [4]	<input type="checkbox"/> EXCELLENT [7]	<input type="checkbox"/> NONE [6]	<input type="checkbox"/> HIGH [3]
<input type="checkbox"/> MODERATE [3]	<input type="checkbox"/> GOOD [5]	<input type="checkbox"/> RECOVERED [4]	<input checked="" type="checkbox"/> MODERATE [2]
<input type="checkbox"/> LOW [2]	<input type="checkbox"/> FAIR [3]	<input type="checkbox"/> RECOVERING [3]	<input type="checkbox"/> LOW [1]
<input checked="" type="checkbox"/> NONE [1]	<input checked="" type="checkbox"/> POOR [1]	<input checked="" type="checkbox"/> RECENT OR NO RECOVERY [1]	

Channel  
Maximum 20  
5

Comments

4] BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank &amp; average)

River right looking downstream

EROSION		RIPARIAN WIDTH		FLOOD PLAIN QUALITY		CONSERVATION TILLAGE	
<input checked="" type="checkbox"/> NONE / LITTLE [3]	<input type="checkbox"/>	<input type="checkbox"/> WIDE > 50m [4]	<input type="checkbox"/>	<input type="checkbox"/> FOREST, SWAMP [3]	<input type="checkbox"/>	<input type="checkbox"/> CONSERVATION TILLAGE [1]	
<input type="checkbox"/> MODERATE [2]	<input type="checkbox"/>	<input type="checkbox"/> MODERATE 10-50m [3]	<input type="checkbox"/>	<input type="checkbox"/> SHRUB OR OLD FIELD [2]	<input type="checkbox"/>	<input type="checkbox"/> URBAN OR INDUSTRIAL [0]	
<input type="checkbox"/> HEAVY / SEVERE [1]	<input type="checkbox"/>	<input type="checkbox"/> NARROW 5-10m [2]	<input type="checkbox"/>	<input checked="" type="checkbox"/> RESIDENTIAL, PARK, NEW FIELD [1]	<input type="checkbox"/>	<input type="checkbox"/> MINING / CONSTRUCTION [0]	
	<input type="checkbox"/>	<input type="checkbox"/> VERY NARROW < 5m [1]	<input type="checkbox"/>	<input type="checkbox"/> FENCED PASTURE [1]			
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> NONE [0]	<input type="checkbox"/>	<input type="checkbox"/> OPEN PASTURE, ROWCROP [0]			

Indicate predominant land use(s) past 100m riparian.

Riparian  
Maximum 10  
3.5

Comments

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH

CHANNEL WIDTH

CURRENT VELOCITY

Recreation Potential  
Primary Contact  
Secondary Contact  
(circle one and comment on back)

Check ONE (ONLY!)

Check ONE (Or 2 &amp; average)

Check ALL that apply

<input type="checkbox"/> > 1m [6]
<input type="checkbox"/> 0.7-1m [4]
<input checked="" type="checkbox"/> 0.4-<0.7m [2]
<input type="checkbox"/> 0.2-<0.4m [1]
<input type="checkbox"/> < 0.2m [0]

<input type="checkbox"/> POOL WIDTH > RIFFLE WIDTH [2]
<input type="checkbox"/> POOL WIDTH = RIFFLE WIDTH [1]
<input checked="" type="checkbox"/> POOL WIDTH < RIFFLE WIDTH [0]

<input type="checkbox"/> TORRENTIAL [-1]	<input type="checkbox"/> SLOW [1]
<input type="checkbox"/> VERY FAST [1]	<input type="checkbox"/> INTERSTITIAL [-1]
<input type="checkbox"/> FAST [1]	<input type="checkbox"/> INTERMITTENT [-2]
<input type="checkbox"/> MODERATE [1]	<input type="checkbox"/> EDDIES [1]

Indicate for reach - pools and riffles.

Pool / Current  
Maximum 12  
0

Comments Dry Channel

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

Check ONE (Or 2 &amp; average).

☒ NO RIFFLE [metric=0]

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS
<input type="checkbox"/> BEST AREAS > 10cm [2]	<input type="checkbox"/> MAXIMUM > 50cm [2]	<input type="checkbox"/> STABLE (e.g., Cobble, Boulder) [2]	<input type="checkbox"/> NONE [2]
<input type="checkbox"/> BEST AREAS 5-10cm [1]	<input checked="" type="checkbox"/> MAXIMUM < 50cm [1]	<input type="checkbox"/> MOD. STABLE (e.g., Large Gravel) [1]	<input type="checkbox"/> LOW [1]
<input checked="" type="checkbox"/> BEST AREAS < 5cm [metric=0]		<input checked="" type="checkbox"/> UNSTABLE (e.g., Fine Gravel, Sand) [0]	<input checked="" type="checkbox"/> MODERATE [0]
			<input type="checkbox"/> EXTENSIVE [-1]

Riffle / Run  
Maximum 8  
0

Comments Dry Channel

6] GRADIENT ( 18.1 ft/mi) ☐ VERY LOW - LOW [2-4] ☒ MODERATE [6-10] ☐ HIGH - VERY HIGH [10-6]  
DRAINAGE AREA ( 1.23 mi<sup>2</sup>)

%POOL: 10

%GLIDE: 5

%RUN: 80

%RIFFLE: 5

Gradient  
Maximum 10  
6

AJ SAMPLED REACH

Check ALL that apply

METHOD N/A STAGE

- 1st sample pass-- 2nd
- ☐ BOAT ☐ HIGH ☐ UP ☐ L. LINE ☐ NORMAL ☐ OTHER ☐ LOW ☐ DRY

DISTANCE

- ☐ 0.5 Km ☐ 0.2 Km ☐ 0.15 Km ☐ 0.12 Km ☐ OTHER

150 meters

- ☐ CANOPY ☐ OPEN ☐ 85% ☐ 55% ☐ 30% ☐ 10% ☐ <10% ☐ CLOSED

CJ RECREATION

N/A POOL: ☐ >100ft<sup>2</sup> ☐ >3ft

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

Typical - Yes

Recreation - N/A

Riparian removal, trash in stream

BJAESTHETICS

- ☐ NUISANCE ALGAE ☐ INVASIVE MACROPHYTES ☐ EXCESS TURBIDITY ☐ DISCOLORATION ☐ FOAM / SCUM ☐ OIL SHEEN ☐ TRASH / LITTER ☐ NUISANCE ODOR ☐ SLUDGE DEPOSITS ☐ CSOs/SSOs/OUTFALLS

DJ MAINTENANCE

- ☐ PUBLIC / PRIVATE / BOTH / NA ☐ ACTIVE / HISTORIC / BOTH / NA ☐ YOUNG-SUCCESSION-OLD ☐ SPRAY / SNAG (REMOVED) ☐ MODIFIED / DIPPED OUT / NA ☐ LEVEED / ONE SIDED ☐ RELOCATED / CUTOFFS ☐ MOVING-BEDLOAD-STABLE ☐ ARMoured / SLUMPS ☐ ISLANDS / SCAURED ☐ IMPOUNDED / DESICCATED ☐ FLOOD CONTROL / DRAINAGE

Circle some & COMMENT

EJ ISSUES

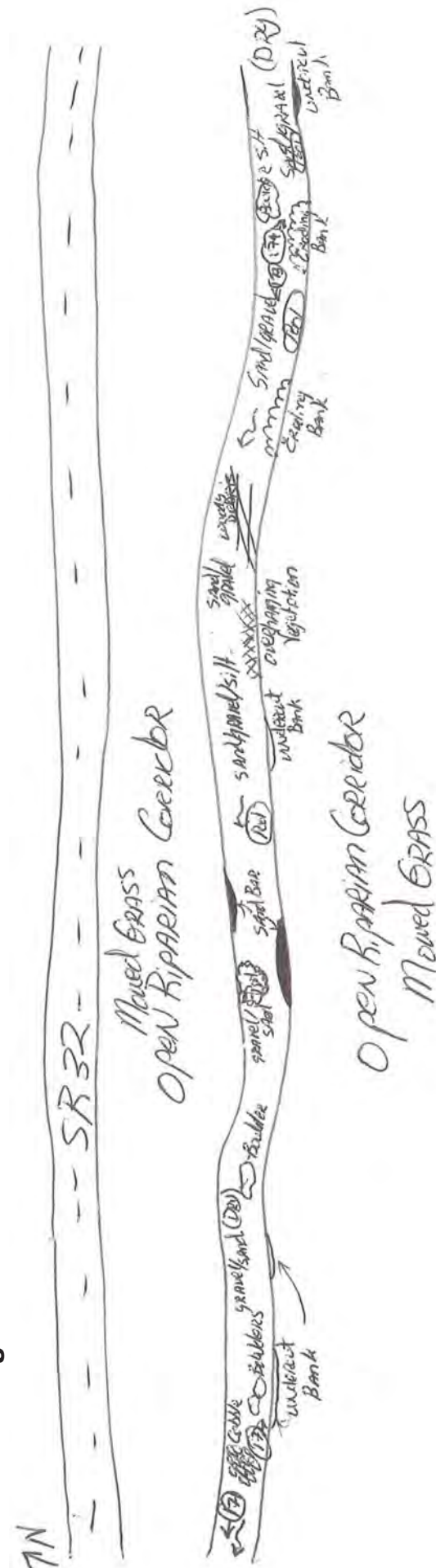
- WWTP / CSO / NPDES / INDUSTRY ☐ HARDENED / URBAN / DIRT&GRIME ☐ CONTAMINATED / LANDFILL ☐ BMPs-CONSTRUCTION-SEDIMENT ☐ LOGGING / IRRIGATION / COOLING ☐ BANK / EROSION / SURFACE ☐ FALSE BANK / MANURE / LAGOON ☐ WASH H<sub>2</sub>O / TILE / H<sub>2</sub>O TABLE ☐ ACID / MINE / QUARRY / FLOW ☐ NATURAL / WETLAND / STAGNANT ☐ PARK (GOLF) / LAWN / HOME ☐ ATMOSPHERE / DATA PAUCITY

FJ MEASUREMENTS

- ☐ width ☐ depth ☐ max. depth ☐ bankfull width ☐ bankfull x depth ☐ W/D ratio ☐ bankfull max. depth ☐ floodprone x<sup>2</sup> width ☐ entrench. ratio

Legacy Tree:

Stream Drawing:



Stream &amp; Location: Dry Run; S14

RM: 1.5 Date: 10/01/08

Scorers Full Name &amp; Affiliation: Michael de Villiers; ENTRAN

River Code: - STORET #: Lat./ Long.: 39.1258 / 84.3298 Office verified location ☐

1) SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

Check ONE (Or 2 &amp; average)

BEST TYPES		POOL RIFFLE		OTHER TYPES		POOL RIFFLE		ORIGIN		QUALITY		Substrate 17 Maximum 20													
<input type="checkbox"/> BLDR / SLABS [10]	<input type="checkbox"/> BOULDER [9]	<input checked="" type="checkbox"/> X	<input type="checkbox"/>	<input type="checkbox"/> HARDPAN [4]	<input type="checkbox"/> DETRITUS [3]	<input type="checkbox"/> MUCK [2]	<input type="checkbox"/> SILT [2]	<input type="checkbox"/> ARTIFICIAL [0]	<input type="checkbox"/> LIMESTONE [1]	<input type="checkbox"/> TILLS [1]	<input type="checkbox"/> WETLANDS [0]		<input type="checkbox"/> HARDPAN [0]	<input type="checkbox"/> SANDSTONE [0]	<input type="checkbox"/> RIP/RAP [0]	<input type="checkbox"/> LACUSTURINE [0]	<input type="checkbox"/> SHALE [-1]	<input type="checkbox"/> COAL FINES [-2]	<input type="checkbox"/> HEAVY [-2]	<input type="checkbox"/> MODERATE [-1]	<input checked="" type="checkbox"/> NORMAL [0]	<input type="checkbox"/> FREE [1]	<input type="checkbox"/> EXTENSIVE [-2]	<input checked="" type="checkbox"/> MODERATE [-1]	<input type="checkbox"/> NORMAL [0]

NUMBER OF BEST TYPES: ☒ 4 or more [2] ☐ 3 or less [0] (Score natural substrates; ignore sludge from point-sources)

Comments

2) INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

AMOUNT

Check ONE (Or 2 &amp; average)

UNDERCUT BANKS [1]		POOLS > 70cm [2]		OXBOWS, BACKWATERS [1]		AQUATIC MACROPHYTES [1]		LOGS OR WOODY DEBRIS [1]		AMOUNT		Cover Maximum 20 14	
<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> EXTENSIVE >75% [11]	<input checked="" type="checkbox"/> MODERATE 25-75% [7]		<input type="checkbox"/> SPARSE 5-<25% [3]

Comments

3) CHANNEL MORPHOLOGY Check ONE in each category (Or 2 &amp; average)

SINUOSITY		DEVELOPMENT		CHANNELIZATION		STABILITY		Channel Maximum 20 13		
<input type="checkbox"/> HIGH [4]	<input checked="" type="checkbox"/> MODERATE [3]	<input type="checkbox"/> EXCELLENT [7]	<input type="checkbox"/> GOOD [5]	<input checked="" type="checkbox"/> NONE [6]	<input type="checkbox"/> RECOVERED [4]	<input type="checkbox"/> RECOVERING [3]	<input type="checkbox"/> RECENT OR NO RECOVERY [1]		<input type="checkbox"/> HIGH [3]	<input checked="" type="checkbox"/> MODERATE [2]

Comments

4) BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank &amp; average)

EROSION		RIPARIAN WIDTH		FLOOD PLAIN QUALITY		CONSERVATION TILLAGE [1]		URBAN OR INDUSTRIAL [0]		MINING / CONSTRUCTION [0]		Riparian Maximum 10 6.5			
<input type="checkbox"/> L	<input type="checkbox"/> R	<input type="checkbox"/> L	<input type="checkbox"/> R	<input type="checkbox"/> L	<input type="checkbox"/> R	<input type="checkbox"/> L	<input type="checkbox"/> R	<input type="checkbox"/> L	<input type="checkbox"/> R	<input type="checkbox"/> L	<input type="checkbox"/> R				
<input type="checkbox"/> NONE / LITTLE [3]	<input checked="" type="checkbox"/> MODERATE [2]	<input type="checkbox"/> HEAVY / SEVERE [1]	<input type="checkbox"/> WIDE > 50m [4]	<input type="checkbox"/> MODERATE 10-50m [3]	<input type="checkbox"/> NARROW 5-10m [2]	<input type="checkbox"/> VERY NARROW < 5m [1]	<input type="checkbox"/> NONE [0]	<input type="checkbox"/> FOREST, SWAMP [3]	<input type="checkbox"/> SHRUB OR OLD FIELD [2]	<input type="checkbox"/> RESIDENTIAL, PARK, NEW FIELD [1]	<input type="checkbox"/> FENCED PASTURE [1]	<input type="checkbox"/> OPEN PASTURE, ROWCROP [0]	<input type="checkbox"/> CONSERVATION TILLAGE [1]	<input type="checkbox"/> URBAN OR INDUSTRIAL [0]	<input type="checkbox"/> MINING / CONSTRUCTION [0]

Comments

5) POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH		CHANNEL WIDTH		CURRENT VELOCITY		Recreation Potential		Pool / Current Maximum 12 8							
<input type="checkbox"/> > 1m [6]	<input type="checkbox"/> 0.7-1m [4]	<input type="checkbox"/> 0.4-<0.7m [2]	<input type="checkbox"/> 0.2-<0.4m [1]	<input type="checkbox"/> < 0.2m [0]	<input checked="" type="checkbox"/> POOL WIDTH > RIFFLE WIDTH [2]	<input type="checkbox"/> POOL WIDTH = RIFFLE WIDTH [1]	<input type="checkbox"/> POOL WIDTH < RIFFLE WIDTH [0]		<input type="checkbox"/> TORRENTIAL [-1]	<input type="checkbox"/> VERY FAST [1]	<input type="checkbox"/> FAST [1]	<input type="checkbox"/> MODERATE [1]	<input type="checkbox"/> SLOW [1]	<input checked="" type="checkbox"/> INTERSTITIAL [-1]	<input type="checkbox"/> INTERMITTENT [-2]

Comments Dry Channel

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

Check ONE (Or 2 &amp; average).

☐ NO RIFFLE [metric=0]

RIFFLE DEPTH		RUN DEPTH		RIFFLE / RUN SUBSTRATE		RIFFLE / RUN EMBEDDEDNESS		Riffle / Run Maximum 8 0			
<input type="checkbox"/> BEST AREAS > 10cm [2]	<input type="checkbox"/> BEST AREAS 5-10cm [1]	<input checked="" type="checkbox"/> BEST AREAS < 5cm [metric=0]	<input type="checkbox"/> MAXIMUM > 50cm [2]	<input checked="" type="checkbox"/> MAXIMUM < 50cm [1]	<input type="checkbox"/> STABLE (e.g., Cobble, Boulder) [2]	<input checked="" type="checkbox"/> MOD. STABLE (e.g., Large Gravel) [1]	<input type="checkbox"/> UNSTABLE (e.g., Fine Gravel, Sand) [0]		<input type="checkbox"/> NONE [2]	<input type="checkbox"/> LOW [1]	<input checked="" type="checkbox"/> MODERATE [0]

Comments Dry Channel

6) GRADIENT (38.0 ft/mi) ☐ VERY LOW - LOW [2-4] ☐ MODERATE [6-10] ☒ HIGH - VERY HIGH [10-6]

%POOL: 20

%GLIDE: 40

%RUN: 15

%RIFFLE: 25

Gradient  
Maximum 10  
8



AJ SAMPLED REACH

Check ALL that apply

METHOD N/A STAGE

- BOAT
- WADE
- L. LINE
- OTHER
- DISTANCE
- 0.5 Km
- 0.2 Km
- 0.15 Km
- 0.12 Km
- OTHER
- 150 meters
- CANOPY
- > 85%- OPEN
- 55%-<85%
- 30%-<55%
- 10%-<30%
- <10%- CLOSED

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

Typical - Yes

Recreation - inferred primary contact

Other- Severe erosion left descending bank just upstream of reach

CLARITY

- 1st --sample pass-- 2nd
- < 20 cm
- 20-<40 cm
- 40-70 cm
- > 70 cm/ CTB
- SECCHI DEPTH
- 1st N/A cm
- 2nd N/A cm

BJAESTHETICS

- NUISANCE ALGAE
- INVASIVE MACROPHYTES
- EXCESS TURBIDITY
- DISCOLORATION
- FOAM / SCUM
- OIL SHEEN
- TRASH / LITTER
- NUISANCE ODOR
- SLUDGE DEPOSITS
- CSOs/SSOs/OUTFALLS

DJ MAINTENANCE N/A

- PUBLIC / PRIVATE / BOTH / NA
- ACTIVE / HISTORIC / BOTH / NA
- YOUNG-SUCCESSION-OLD
- SPRAY / SNAG / REMOVED
- MODIFIED / DIPPED OUT / NA
- LEVEED / ONE SIDED
- RELOCATED / CUTOFFS
- MOVING-BEDLOAD-STABLE
- ARMoured / SLUMPS
- ISLANDS / SCoured
- IMPOUNDED / DESICCATED
- FLOOD CONTROL / DRAINAGE

EJ ISSUES

- WWTP / CSO / NPDES /INDUSTRY
- HARDENED / URBAN / DIRT&GRIME
- CONTAMINATED / LANDFILL
- BMPs-CONSTRUCTION-SEDIMENT
- LOGGING / IRRIGATION / COOLING
- BANK / EROSION / SURFACE
- FALSE BANK / MANURE / LAGOON
- WASH H<sub>2</sub>O / TILE / H<sub>2</sub>O TABLE
- ACID / MINE /QUARRY/ FLOW
- NATURAL / WETLAND / STAGNANT
- PARK / GOLF / LAWN / HOME
- ATMOSPHERE / DATA PAUCITY

FJ MEASUREMENTS

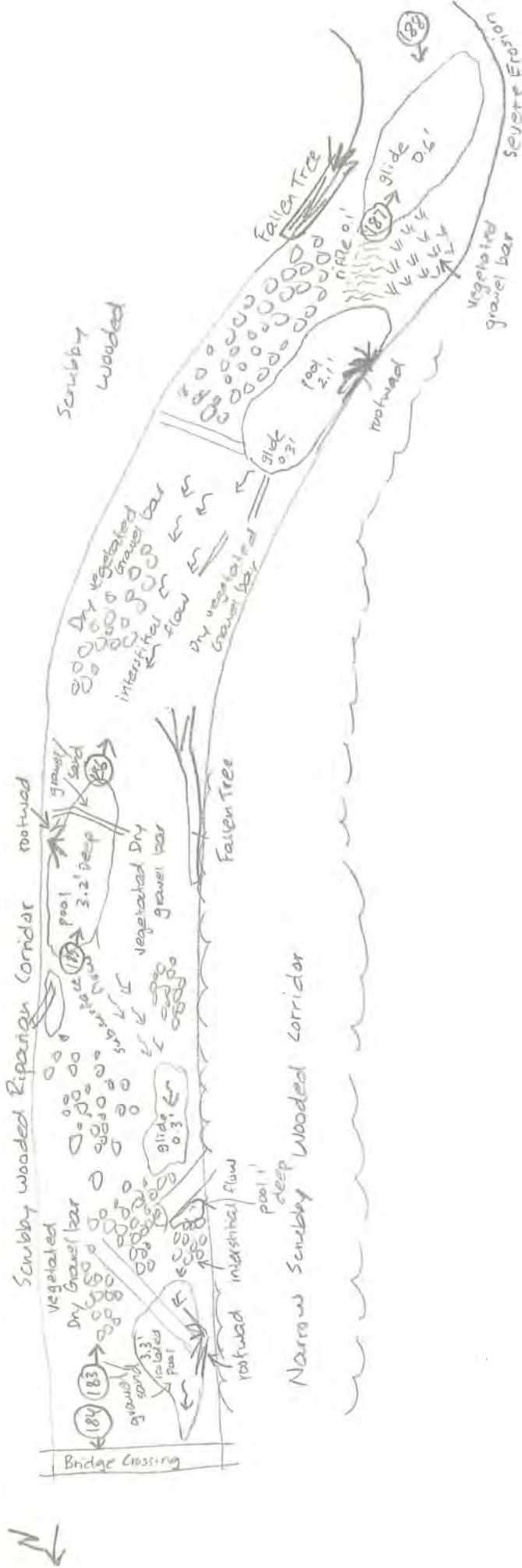
- 50 ft
- 12 in
- 3.3 ft
- N/A
- N/A
- N/A
- N/A
- N/A
- N/A
- N/A
- N/A

Legacy Tree:

CJ RECREATION

N/A POOL: >100ft? >3ft

Stream Drawing:





# Primary Headwater Habitat Evaluation Form

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

35

SITE NAME/LOCATION Unnamed Tributary #9

SITE NUMBER S15

RIVER BASIN Little Miami River

DRAINAGE AREA (mi<sup>2</sup>) 0.05

LENGTH OF STREAM REACH (ft) 150

LAT. 39.1249

LONG. 84.3296

RIVER CODE

RIVER MILE 0.0

DATE 10/2/08

SCORER Michael de Villiers

COMMENTS

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

## STREAM CHANNEL MODIFICATIONS:

☐ NONE / NATURAL CHANNEL ☒ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]		<input type="checkbox"/> SILT [3 pts]	5
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	5
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	10	<input type="checkbox"/> CLAY or HARDPAN [0 pts]	
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	50	<input type="checkbox"/> MUCK [0 pts]	
<input checked="" type="checkbox"/> SAND (<2 mm) [6 pts]	30	<input type="checkbox"/> ARTIFICIAL [3 pts]	

Total of Percentages of  
Bldr Slabs, Boulder, Cobble, Bedrock 10

(A)

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

15

TOTAL NUMBER OF SUBSTRATE TYPES:

5

## HHEI METRIC POINTS

Substrate  
Max = 40

20

A + B

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

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

Pool Depth  
Max = 30

0

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

0

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

<input type="checkbox"/> > 4.0 meters [30 pts]	<input checked="" type="checkbox"/> > 1.0 - 1.5 m [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m [25 pts]	<input type="checkbox"/> ≤ 1.0 m [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m [20 pts]	

Bankfull  
Width  
Max = 30

15

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

1.2

This information must also be completed

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

### RIPARIAN WIDTH

L	R	(Per Bank)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Wide > 10m
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow < 5m
<input type="checkbox"/>	<input type="checkbox"/>	None

### FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture

L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

COMMENTS

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry Channel, no water (Ephemeral)

COMMENTS

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

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

## STREAM GRADIENT ESTIMATE

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

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

**QHEI PERFORMED?** - ☐ Yes ☒ No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☒ WWH Name: Dry Run Distance from Evaluated Stream 0.0 feet  
☐ CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☐ EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangel Name: Madeira NRCS Soil Map Page: 48 NRCS Soil Map Stream Order 1

County: Hamilton Township / City Anderson

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 9-30-08 Quantity: 0.14 inch

Photograph Information: 211-upstream, 212-downstream

Elevated Turbidity? (Y/N): N/A Canopy (% open): 50

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) N/A Dissolved Oxygen (mg/l) N/A pH (S.U.) N/A Conductivity (µmhos/cm) N/A

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: N/A

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

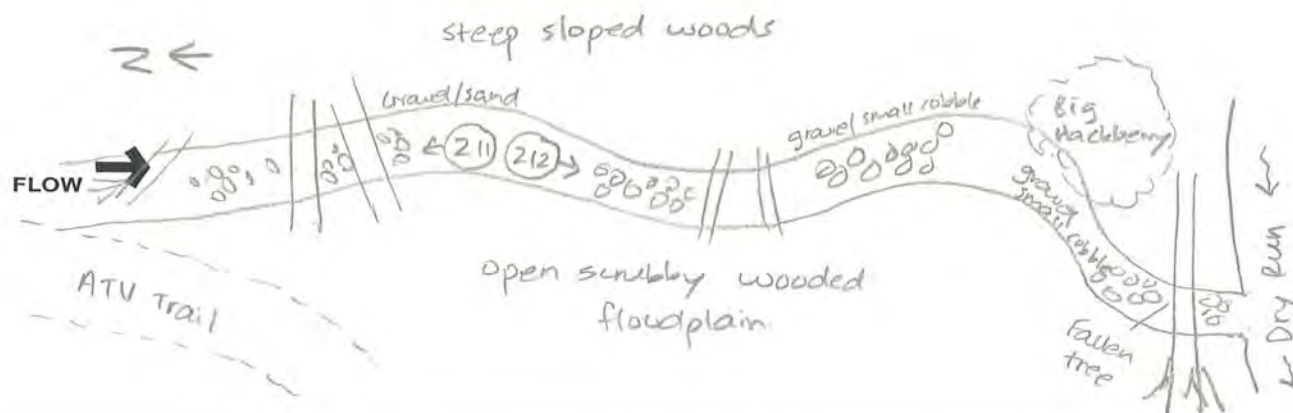
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: None observed

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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







# Primary Headwater Habitat Evaluation Form

36

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

SITE NAME/LOCATION Unnamed Tributary #10

SITE NUMBER S16

RIVER BASIN Little Miami River

DRAINAGE AREA (mi<sup>2</sup>) 0.08

LENGTH OF STREAM REACH (ft) 100

LAT. 39.1217

LONG. 84.3234

RIVER CODE

RIVER MILE 0.0

DATE 10/2/08

SCORER Michael de Villiers

COMMENTS

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

## STREAM CHANNEL MODIFICATIONS:

☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]		<input type="checkbox"/> SILT [3 pts]	
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	10	<input type="checkbox"/> CLAY or HARDPAN [0 pts]	
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	40	<input type="checkbox"/> MUCK [0 pts]	
<input type="checkbox"/> SAND (<2 mm) [6 pts]	10	<input checked="" type="checkbox"/> ARTIFICIAL [3 pts]	40

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 10 (A)

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

12

TOTAL NUMBER OF SUBSTRATE TYPES:

4

## HHEI METRIC POINTS

Substrate Max = 40

16

A + B

Pool Depth Max = 30

0

Bankfull Width Max = 30

20

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

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

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

0

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

<input type="checkbox"/> > 4.0 meters [30 pts]	<input type="checkbox"/> > 1.0 - 1.5 m [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m [25 pts]	<input type="checkbox"/> ≤ 1.0 m [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

2.0

This information must also be completed

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

### RIPARIAN WIDTH

L	R	(Per Bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Wide > 10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow < 5m
<input type="checkbox"/>	<input type="checkbox"/>	None

COMMENTS

### FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)	L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland	<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field	<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field	<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture	<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry Channel, no water (Ephemeral)

COMMENTS

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

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input checked="" type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

### STREAM GRADIENT ESTIMATE

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

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

**QHEI PERFORMED?** - ☐ Yes ☒ No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☒ WWH Name: Dry Run Distance from Evaluated Stream 0.0 feet  
☐ CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☐ EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangel Name: Withamsville/Madeira NRCS Soil Map Page: 48 NRCS Soil Map Stream Order 1

County: Hamilton Township / City Anderson

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 9-30-08 Quantity: 0.14 inch

Photograph Information: 216-upstream, 217-downstream, and 218 on north side of SR 32

Elevated Turbidity? (Y/N): N/A Canopy (% open): 30

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) N/A Dissolved Oxygen (mg/l) N/A pH (S.U.) N/A Conductivity (µmhos/cm) N/A

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: Some roadway trash

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

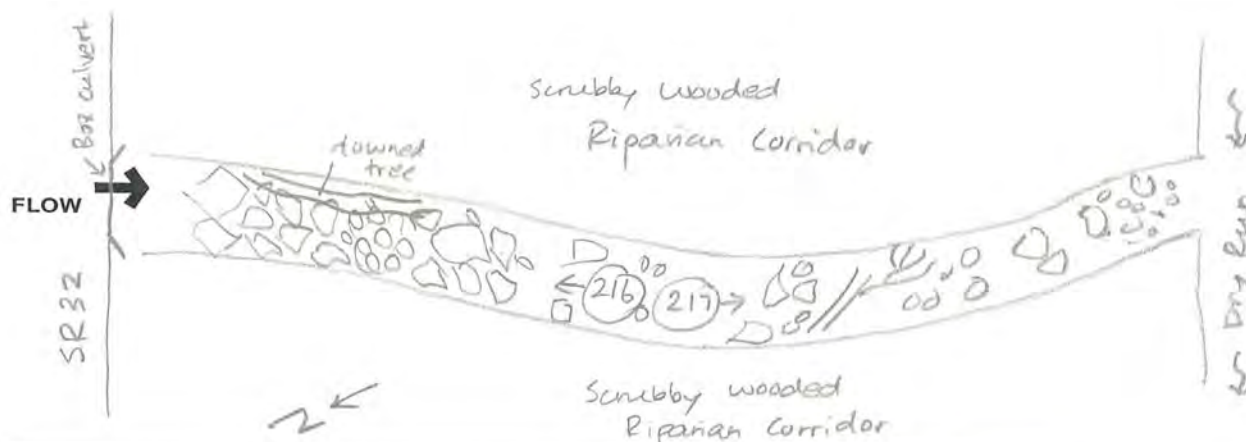
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: None observed

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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





# Primary Headwater Habitat Evaluation Form

44

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

SITE NAME/LOCATION Unnamed Tributary #11

SITE NUMBER S17

RIVER BASIN Little Miami River

DRAINAGE AREA (mi<sup>2</sup>) 0.007

LENGTH OF STREAM REACH (ft) 200

LAT. 39.1256

LONG. 84.3202

RIVER CODE

RIVER MILE 0.0

DATE 10/3/08

SCORER Michael de Villiers

COMMENTS

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

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

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input checked="" type="checkbox"/> BLDR SLABS [16 pts]	20	<input checked="" type="checkbox"/> SILT [3 pts]	50
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	5
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]		<input type="checkbox"/> CLAY or HARDPAN [0 pts]	
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	20	<input type="checkbox"/> MUCK [0 pts]	
<input type="checkbox"/> SAND (<2 mm) [6 pts]	5	<input type="checkbox"/> ARTIFICIAL [3 pts]	

Total of Percentages of  
Bldr Slabs, Boulder, Cobble, Bedrock 20

(A)

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

19

TOTAL NUMBER OF SUBSTRATE TYPES:

5

HHEI  
METRIC  
POINTSSubstrate  
Max = 40

24

A + B

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

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

Pool Depth  
Max = 30

0

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

0

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

<input type="checkbox"/> > 4.0 meters [30 pts]	<input type="checkbox"/> > 1.0 - 1.5 m [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m [25 pts]	<input type="checkbox"/> ≤ 1.0 m [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m [20 pts]	

Bankfull  
Width  
Max = 30

20

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

1.8

This information must also be completed

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

## RIPARIAN WIDTH

L	R	(Per Bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Wide > 10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow < 5m
<input type="checkbox"/>	<input type="checkbox"/>	None

COMMENTS

## FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)	L	R	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Mature Forest, Wetland	<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field	<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field	<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture	<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry Channel, no water (Ephemeral)

COMMENTS

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

<input checked="" type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

## STREAM GRADIENT ESTIMATE

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



**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

**QHEI PERFORMED?** - ☐ Yes ☒ No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☒ WWH Name: Dry Run Distance from Evaluated Stream 1,639 feet  
☐ CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☐ EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangel Name: Madeira NRCS Soil Map Page: 48 NRCS Soil Map Stream Order 1

County: Hamilton Township / City Anderson

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 9-30-08 Quantity: 0.14 inch

Photograph Information: 219-upstream, 220-downstream

Elevated Turbidity? (Y/N): N/A Canopy (% open): 30

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) N/A Dissolved Oxygen (mg/l) N/A pH (S.U.) N/A Conductivity (µmhos/cm) N/A

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: Lots of fallen trees and woody debris

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

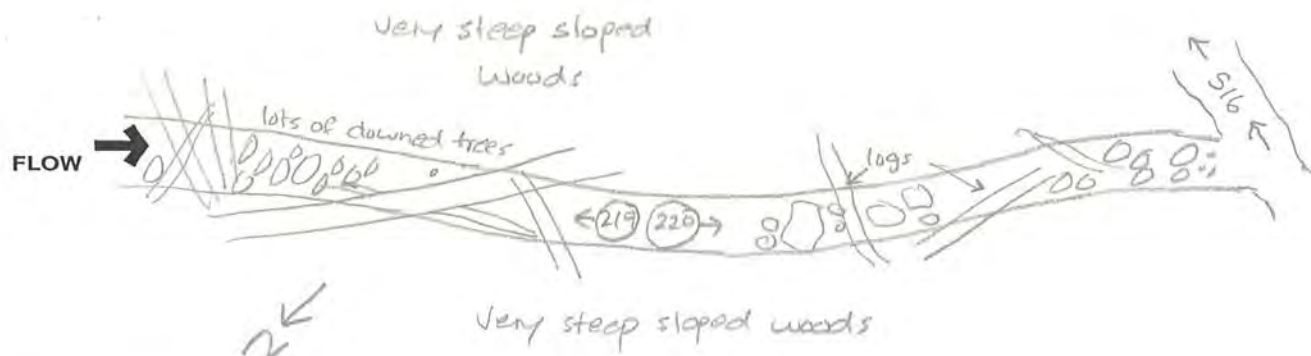
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: None observed

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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





# Primary Headwater Habitat Evaluation Form

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

44

SITE NAME/LOCATION Unnamed Tributary #12

SITE NUMBER S18

RIVER BASIN Little Miami River

DRAINAGE AREA (mi<sup>2</sup>) 0.007

LENGTH OF STREAM REACH (ft) 200

LAT. 39.1253

LONG. 84.3200

RIVER CODE

RIVER MILE 0.0

DATE 10/3/08

SCORER Michael de Villiers

COMMENTS

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

## STREAM CHANNEL MODIFICATIONS:

☒ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input checked="" type="checkbox"/> BLDR SLABS [16 pts]	20	<input checked="" type="checkbox"/> SILT [3 pts]	50
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	10
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]		<input type="checkbox"/> CLAY or HARDPAN [0 pts]	
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	10	<input type="checkbox"/> MUCK [0 pts]	
<input type="checkbox"/> SAND (<2 mm) [6 pts]	10	<input type="checkbox"/> ARTIFICIAL [3 pts]	

Total of Percentages of  
Bldr Slabs, Boulder, Cobble, Bedrock 20

(A)

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

19

TOTAL NUMBER OF SUBSTRATE TYPES:

5

## HHEI METRIC POINTS

Substrate  
Max = 40

24

A + B

Pool Depth  
Max = 30

0

Bankfull  
Width  
Max = 30

20

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

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

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

0

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

<input type="checkbox"/> > 4.0 meters [30 pts]	<input type="checkbox"/> > 1.0 - 1.5 m [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m [25 pts]	<input type="checkbox"/> ≤ 1.0 m [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

1.6

This information must also be completed

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

### RIPARIAN WIDTH

L	R	(Per Bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Wide > 10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow < 5m
<input type="checkbox"/>	<input type="checkbox"/>	None

COMMENTS

### FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)	L	R	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Mature Forest, Wetland	<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field	<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field	<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture	<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry Channel, no water (Ephemeral)

COMMENTS

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

<input checked="" type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

### STREAM GRADIENT ESTIMATE

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

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

**QHEI PERFORMED?** - ☐ Yes ☒ No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☒ WWH Name: Dry Run Distance from Evaluated Stream 1,530 feet  
☐ CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☐ EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangel Name: Madeira NRCS Soil Map Page: 48 NRCS Soil Map Stream Order 1

County: Hamilton Township / City Anderson

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 9-30-08 Quantity: 0.14 inch

Photograph Information: 221-upstream, 222-downstream

Elevated Turbidity? (Y/N): N/A Canopy (% open): 20

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) N/A Dissolved Oxygen (mg/l) N/A pH (S.U.) N/A Conductivity (µmhos/cm) N/A

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: Lots of fallen trees and woody debris

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

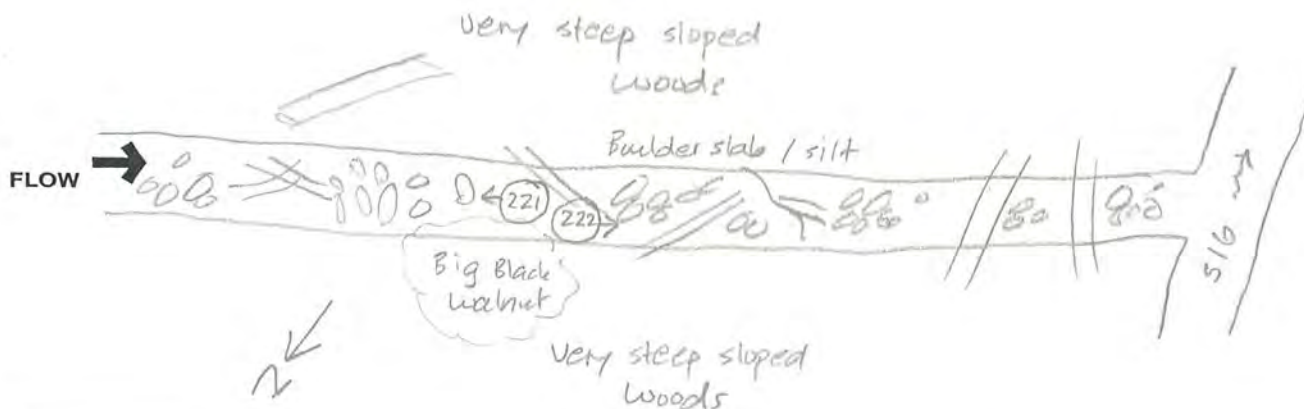
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: None observed

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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







# Primary Headwater Habitat Evaluation Form

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

42

SITE NAME/LOCATION Unnamed Tributary #13

SITE NUMBER S19

RIVER BASIN Little Miami River

DRAINAGE AREA (mi<sup>2</sup>) 0.01

LENGTH OF STREAM REACH (ft) 200

LAT. 39.1235

LONG. 84.3215

RIVER CODE

RIVER MILE 0.0

DATE 10/3/08

SCORER Michael de Villiers

COMMENTS

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

## STREAM CHANNEL MODIFICATIONS:

☒ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input checked="" type="checkbox"/> BLDR SLABS [16 pts]	60	<input checked="" type="checkbox"/> SILT [3 pts]	30
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]		<input type="checkbox"/> CLAY or HARDPAN [0 pts]	
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]		<input type="checkbox"/> MUCK [0 pts]	
<input type="checkbox"/> SAND (<2 mm) [6 pts]	10	<input type="checkbox"/> ARTIFICIAL [3 pts]	

Total of Percentages of  
Bldr Slabs, Boulder, Cobble, Bedrock 60

(A)

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

19

TOTAL NUMBER OF SUBSTRATE TYPES:

3

## HHEI METRIC POINTS

Substrate  
Max = 40

22

A + B

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

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

Pool Depth  
Max = 30

0

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

0

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

<input type="checkbox"/> > 4.0 meters [30 pts]	<input type="checkbox"/> > 1.0 - 1.5 m [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m [25 pts]	<input type="checkbox"/> ≤ 1.0 m [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m [20 pts]	

Bankfull  
Width  
Max = 30

20

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

2.3

This information must also be completed

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

### RIPARIAN WIDTH

L	R	(Per Bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Wide > 10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow < 5m
<input type="checkbox"/>	<input type="checkbox"/>	None

COMMENTS

### FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)	L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland	<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field	<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field	<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture	<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry Channel, no water (Ephemeral)

COMMENTS

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

<input checked="" type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

## STREAM GRADIENT ESTIMATE

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

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

**QHEI PERFORMED?** - ☐ Yes ☒ No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☒ WWH Name: Dry Run Distance from Evaluated Stream 906 feet  
☐ CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☐ EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangel Name: Withamsville NRCS Soil Map Page: 48 NRCS Soil Map Stream Order 1

County: Hamilton Township / City Anderson

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 9-30-08 Quantity: 0.14 inch

Photograph Information: 226-upstream, 227-downstream

Elevated Turbidity? (Y/N): N/A Canopy (% open): 20

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) N/A Dissolved Oxygen (mg/l) N/A pH (S.U.) N/A Conductivity (µmhos/cm) N/A

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: Very steep gradient / cascade

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

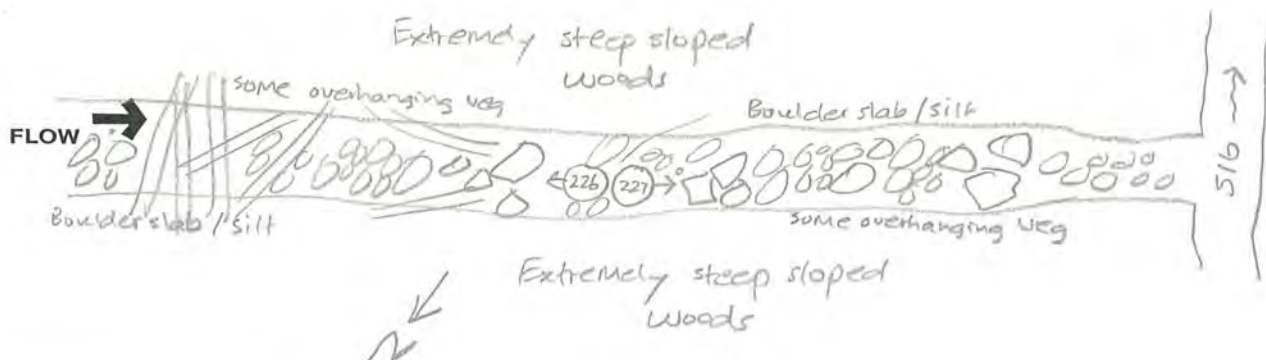
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: None observed

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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



Stream &amp; Location: Dry Run; S20

RM: 2.2 Date: 10/03/08

Scorers Full Name &amp; Affiliation: Michael de Villiers; ENTRAN

River Code: - - - STORET #: Lat./ Long.: 39.1214 / 84.3233 Office verified location ☐

1) SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

Check ONE (Or 2 &amp; average)

BEST TYPES		POOL RIFFLE		OTHER TYPES		POOL RIFFLE		ORIGIN		QUALITY		Substrate 17 Maximum 20													
<input type="checkbox"/> BLDR / SLABS [10]	<input type="checkbox"/> BOULDER [9]	<input checked="" type="checkbox"/> X	<input checked="" type="checkbox"/> X	<input type="checkbox"/> HARDPAN [4]	<input type="checkbox"/> DETRITUS [3]	<input type="checkbox"/> MUCK [2]	<input type="checkbox"/> SILT [2]	<input type="checkbox"/> ARTIFICIAL [0]	<input type="checkbox"/> LIMESTONE [1]	<input type="checkbox"/> TILLS [1]	<input type="checkbox"/> WETLANDS [0]		<input type="checkbox"/> HARDPAN [0]	<input type="checkbox"/> SANDSTONE [0]	<input type="checkbox"/> RIP/RAP [0]	<input type="checkbox"/> LACUSTURINE [0]	<input type="checkbox"/> SHALE [-1]	<input type="checkbox"/> COAL FINES [-2]	<input type="checkbox"/> HEAVY [-2]	<input type="checkbox"/> MODERATE [-1]	<input checked="" type="checkbox"/> NORMAL [0]	<input type="checkbox"/> FREE [1]	<input type="checkbox"/> EXTENSIVE [-2]	<input checked="" type="checkbox"/> MODERATE [-1]	<input type="checkbox"/> NORMAL [0]

NUMBER OF BEST TYPES: ☒ 4 or more [2] ☐ 3 or less [0] (Score natural substrates; ignore sludge from point-sources)

Comments

2) INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

AMOUNT

Check ONE (Or 2 &amp; average)

UNDERCUT BANKS [1]		POOLS > 70cm [2]		OXBOWS, BACKWATERS [1]		AQUATIC MACROPHYTES [1]		LOGS OR WOODY DEBRIS [1]		AMOUNT		Cover Maximum 20 9	
<input checked="" type="checkbox"/> 1	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 0	<input type="checkbox"/> EXTENSIVE >75% [11]	<input type="checkbox"/> MODERATE 25-75% [7]		<input checked="" type="checkbox"/> SPARSE 5-<25% [3]

Comments

3) CHANNEL MORPHOLOGY Check ONE in each category (Or 2 &amp; average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY	Channel Maximum 20 10
<input type="checkbox"/> HIGH [4] <input type="checkbox"/> MODERATE [3] <input checked="" type="checkbox"/> LOW [2] <input type="checkbox"/> NONE [1]	<input type="checkbox"/> EXCELLENT [7] <input type="checkbox"/> GOOD [5] <input checked="" type="checkbox"/> FAIR [3] <input type="checkbox"/> POOR [1]	<input type="checkbox"/> NONE [6] <input checked="" type="checkbox"/> RECOVERED [4] <input type="checkbox"/> RECOVERING [3] <input type="checkbox"/> RECENT OR NO RECOVERY [1]	<input type="checkbox"/> HIGH [3] <input checked="" type="checkbox"/> MODERATE [2] <input type="checkbox"/> LOW [1]	

Comments

4) BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank &amp; average)

EROSION		RIPARIAN WIDTH		FLOOD PLAIN QUALITY		CONSERVATION TILLAGE [1]		URBAN OR INDUSTRIAL [0]		MINING / CONSTRUCTION [0]		Riparian Maximum 10 6
<input checked="" type="checkbox"/> NONE / LITTLE [3] <input type="checkbox"/> MODERATE [2] <input type="checkbox"/> HEAVY / SEVERE [1]	<input type="checkbox"/> WIDE > 50m [4] <input type="checkbox"/> MODERATE 10-50m [3] <input checked="" type="checkbox"/> NARROW 5-10m [2] <input type="checkbox"/> VERY NARROW < 5m [1] <input type="checkbox"/> NONE [0]	<input type="checkbox"/> FOREST, SWAMP [3] <input checked="" type="checkbox"/> SHRUB OR OLD FIELD [2] <input checked="" type="checkbox"/> RESIDENTIAL, PARK, NEW FIELD [1] <input type="checkbox"/> FENCED PASTURE [1] <input type="checkbox"/> OPEN PASTURE, ROWCROP [0]	<input type="checkbox"/> CONSERVATION TILLAGE [1] <input type="checkbox"/> URBAN OR INDUSTRIAL [0] <input type="checkbox"/> MINING / CONSTRUCTION [0]									

Comments

5) POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH		CHANNEL WIDTH		CURRENT VELOCITY		Recreation Potential		Pool / Current Maximum 12 6
<input type="checkbox"/> > 1m [6] <input checked="" type="checkbox"/> 0.7-1m [4] <input type="checkbox"/> 0.4-<0.7m [2] <input type="checkbox"/> 0.2-<0.4m [1] <input type="checkbox"/> < 0.2m [0]	<input type="checkbox"/> POOL WIDTH > RIFFLE WIDTH [2] <input checked="" type="checkbox"/> POOL WIDTH = RIFFLE WIDTH [1] <input type="checkbox"/> POOL WIDTH < RIFFLE WIDTH [0]	<input type="checkbox"/> TORRENTIAL [-1] <input type="checkbox"/> VERY FAST [1] <input type="checkbox"/> FAST [1] <input checked="" type="checkbox"/> MODERATE [1]	<input checked="" type="checkbox"/> SLOW [1] <input type="checkbox"/> INTERSTITIAL [-1] <input type="checkbox"/> INTERMITTENT [-2] <input type="checkbox"/> EDDIES [1]	<input type="checkbox"/> NO RIFFLE [metric=0]				

Comments

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

Check ONE (Or 2 &amp; average).

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS	Riffle / Run Maximum 8 3
<input type="checkbox"/> BEST AREAS > 10cm [2] <input checked="" type="checkbox"/> BEST AREAS 5-10cm [1] <input type="checkbox"/> BEST AREAS < 5cm [metric=0]	<input type="checkbox"/> MAXIMUM > 50cm [2] <input checked="" type="checkbox"/> MAXIMUM < 50cm [1]	<input type="checkbox"/> STABLE (e.g., Cobble, Boulder) [2] <input checked="" type="checkbox"/> MOD. STABLE (e.g., Large Gravel) [1] <input type="checkbox"/> UNSTABLE (e.g., Fine Gravel, Sand) [0]	<input type="checkbox"/> NONE [2] <input type="checkbox"/> LOW [1] <input checked="" type="checkbox"/> MODERATE [0] <input type="checkbox"/> EXTENSIVE [-1]	

Comments

6) GRADIENT ( 38.0 ft/mi) ☐ VERY LOW - LOW [2-4]  
DRAINAGE AREA ( 4.13 mi<sup>2</sup>) ☐ MODERATE [6-10]  
☒ HIGH - VERY HIGH [10-6]

%POOL: 15

%GLIDE: 40

%RUN: 5

%RIFFLE: 40

Gradient  
Maximum 10  
8



AJ SAMPLED REACH

Check ALL that apply

METHOD	N/A	STAGE
BOAT	<input type="checkbox"/>	1st --sample pass-- 2nd
WADE	<input type="checkbox"/>	<input type="checkbox"/> HIGH
L. LINE	<input type="checkbox"/>	<input type="checkbox"/> UP
OTHER	<input type="checkbox"/>	<input type="checkbox"/> NORMAL
	<input type="checkbox"/>	<input type="checkbox"/> LOW
	<input type="checkbox"/>	<input type="checkbox"/> DRY

DISTANCE

<input type="checkbox"/> 0.5 Km	<input type="checkbox"/>
<input type="checkbox"/> 0.2 Km	<input type="checkbox"/>
<input checked="" type="checkbox"/> 0.15 Km	<input type="checkbox"/>
<input type="checkbox"/> 0.12 Km	<input type="checkbox"/>
<input type="checkbox"/> OTHER	<input type="checkbox"/>

150 meters

CANOPY

<input type="checkbox"/> > 85%- OPEN	<input type="checkbox"/>
<input type="checkbox"/> 55%-<85%	<input type="checkbox"/>
<input checked="" type="checkbox"/> 30%-<55%	<input type="checkbox"/>
<input type="checkbox"/> 10%-<30%	<input type="checkbox"/>
<input type="checkbox"/> <10%- CLOSED	<input type="checkbox"/>

CJ RECREATION

N/A POOL: ☐ >100ft<sup>2</sup> ☐ >3ft

CLARITY

1st --sample pass-- 2nd	<input type="checkbox"/>
<input type="checkbox"/> < 20 cm	<input type="checkbox"/>
<input type="checkbox"/> 20-<40 cm	<input type="checkbox"/>
<input type="checkbox"/> 40-70 cm	<input type="checkbox"/>
<input type="checkbox"/> > 70 cm/ CTB	<input type="checkbox"/>
<input type="checkbox"/> SECCHI DEPTH	<input type="checkbox"/>

1st

N/A

cm

2nd

N/A

cm

BJAESTHETICS

N/A

<input type="checkbox"/> NUISANCE ALGAE	<input type="checkbox"/>
<input type="checkbox"/> INVASIVE MACROPHYTES	<input type="checkbox"/>
<input type="checkbox"/> EXCESS TURBIDITY	<input type="checkbox"/>
<input type="checkbox"/> DISCOLORATION	<input type="checkbox"/>
<input type="checkbox"/> FOAM / SCUM	<input type="checkbox"/>
<input type="checkbox"/> OIL SHEEN	<input type="checkbox"/>
<input type="checkbox"/> TRASH / LITTER	<input type="checkbox"/>
<input type="checkbox"/> NUISANCE ODOR	<input type="checkbox"/>
<input type="checkbox"/> SLUDGE DEPOSITS	<input type="checkbox"/>
<input type="checkbox"/> CSOs/SSOs/OUTFALLS	<input type="checkbox"/>

DJ MAINTENANCE

PUBLIC / PRIVATE / BOTH / NA

<input type="checkbox"/> ACTIVE / HISTORIC / BOTH / NA	<input type="checkbox"/>
<input type="checkbox"/> YOUNG-SUCCESSION-OLD	<input type="checkbox"/>
<input type="checkbox"/> SPRAY / SNAG / REMOVED	<input type="checkbox"/>
<input type="checkbox"/> MODIFIED / DIPPED OUT / NA	<input type="checkbox"/>
<input type="checkbox"/> LEVEED / ONE SIDED	<input type="checkbox"/>
<input type="checkbox"/> RELOCATED / CUTOFFS	<input type="checkbox"/>
<input type="checkbox"/> MOVING-BEDLOAD-STABLE	<input type="checkbox"/>
<input type="checkbox"/> (ARMORED)/ SLUMPS	<input type="checkbox"/>
<input type="checkbox"/> ISLANDS / SCHOURED	<input type="checkbox"/>
<input type="checkbox"/> IMPOUNDED / DESICCATED	<input type="checkbox"/>
<input type="checkbox"/> FLOOD CONTROL / DRAINAGE	<input type="checkbox"/>

EJ ISSUES

Circle some & COMMENT

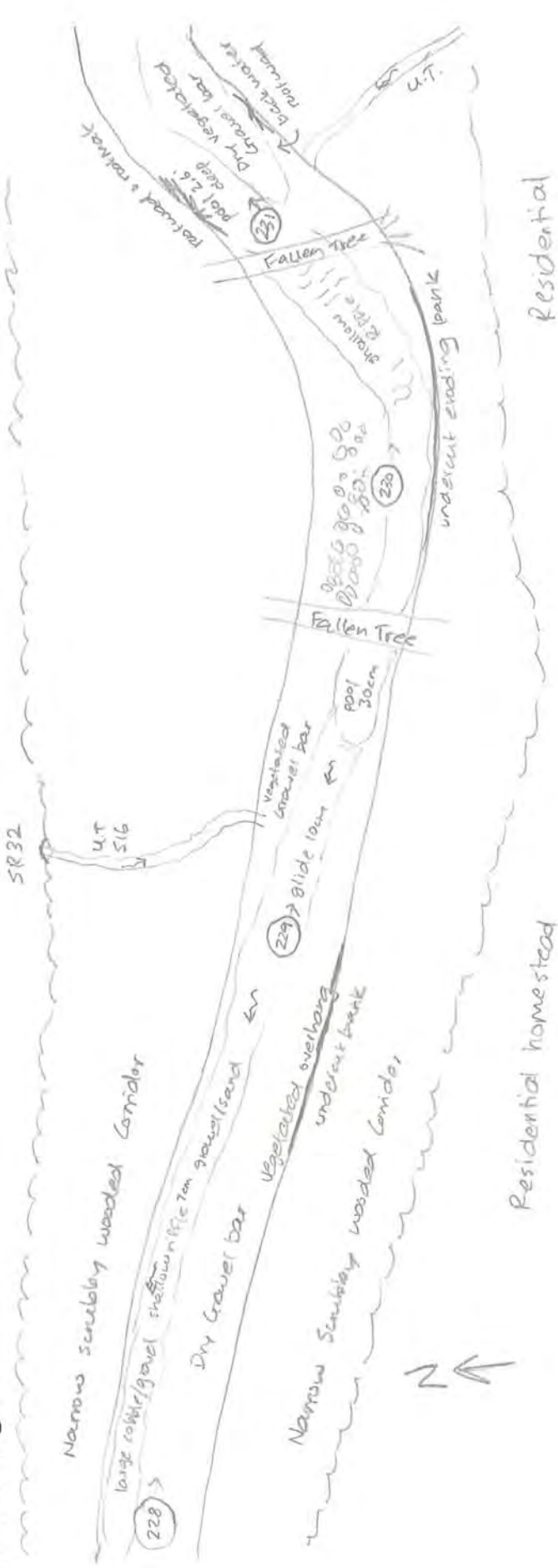
WWTP / CSO / NPDES / INDUSTRY	<input type="checkbox"/>
HARDENED / URBAN / DIRT&GRIME	<input type="checkbox"/>
CONTAMINATED / LANDFILL	<input type="checkbox"/>
BMPs-CONSTRUCTION-SEDIMENT	<input type="checkbox"/>
LOGGING / IRRIGATION / COOLING	<input type="checkbox"/>
(BANK / EROSION)/ SURFACE	<input type="checkbox"/>
FALSE BANK / MANURE / LAGOON	<input type="checkbox"/>
WASH H <sub>2</sub> O / TILE / H <sub>2</sub> O TABLE	<input type="checkbox"/>
ACID / MINE / QUARRY / FLOW	<input type="checkbox"/>
NATURAL / WETLAND / STAGNANT	<input type="checkbox"/>
PARK / GOLF / LAWN / HOME	<input type="checkbox"/>
ATMOSPHERE / DATA PAUCITY	<input type="checkbox"/>

FJ MEASUREMENTS

<input type="checkbox"/> width	35 ft
<input type="checkbox"/> depth	2.7 in
<input type="checkbox"/> max. depth	2.6 ft
<input type="checkbox"/> bankfull width	N/A
<input type="checkbox"/> bankfull x depth	N/A
<input type="checkbox"/> W/D ratio	N/A
<input type="checkbox"/> bankfull max. depth	N/A
<input type="checkbox"/> floodprone x <sup>2</sup> width	N/A
<input type="checkbox"/> entrench. ratio	N/A

Legacy Tree:

Stream Drawing:





# Primary Headwater Habitat Evaluation Form

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

45

SITE NAME/LOCATION Unnamed Tributary #14

SITE NUMBER S21

RIVER BASIN Little Miami River

DRAINAGE AREA (mi<sup>2</sup>) 0.06

LENGTH OF STREAM REACH (ft) 200

LAT. 39.1201

LONG. 84.3234

RIVER CODE

RIVER MILE 0.0

DATE 10/6/08

SCORER Chris Young

COMMENTS

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

## STREAM CHANNEL MODIFICATIONS:

☐ NONE / NATURAL CHANNEL ☒ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]		<input type="checkbox"/> SILT [3 pts]	
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	10	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input checked="" type="checkbox"/> COBBLE (65-256 mm) [12 pts]	20	<input type="checkbox"/> CLAY or HARDPAN [0 pts]	
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	40	<input type="checkbox"/> MUCK [0 pts]	
<input type="checkbox"/> SAND (<2 mm) [6 pts]	30	<input type="checkbox"/> ARTIFICIAL [3 pts]	

Total of Percentages of  
Bldr Slabs, Boulder, Cobble, Bedrock 30

(A)

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

21

TOTAL NUMBER OF SUBSTRATE TYPES:

4

## HHEI METRIC POINTS

Substrate  
Max = 40

25

A + B

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

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

Pool Depth  
Max = 30

0

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

0

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

<input type="checkbox"/> > 4.0 meters [30 pts]	<input type="checkbox"/> > 1.0 - 1.5 m [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m [25 pts]	<input type="checkbox"/> ≤ 1.0 m [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m [20 pts]	

Bankfull  
Width  
Max = 30

20

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

1.5

This information must also be completed

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

### RIPARIAN WIDTH

L	R	(Per Bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Wide > 10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow < 5m
<input type="checkbox"/>	<input type="checkbox"/>	None

COMMENTS

### FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Residential, Park, New Field
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture

L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

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

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry Channel, no water (Ephemeral)

COMMENTS

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

<input checked="" type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

## STREAM GRADIENT ESTIMATE

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

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

**QHEI PERFORMED?** - ☐ Yes ☒ No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☒ WWH Name: Dry Run Distance from Evaluated Stream 0.0 feet  
☐ CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☐ EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangle Name: Withamsville NRCS Soil Map Page: 48 NRCS Soil Map Stream Order 2

County: Hamilton Township / City Anderson

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 9-30-08 Quantity: 0.14 inch

Photograph Information: 244-upstream, 245-downstream

Elevated Turbidity? (Y/N): N/A Canopy (% open): 20

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) N/A Dissolved Oxygen (mg/l) N/A pH (S.U.) N/A Conductivity (µmhos/cm) N/A

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: Very steep gradient, severe slopes

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

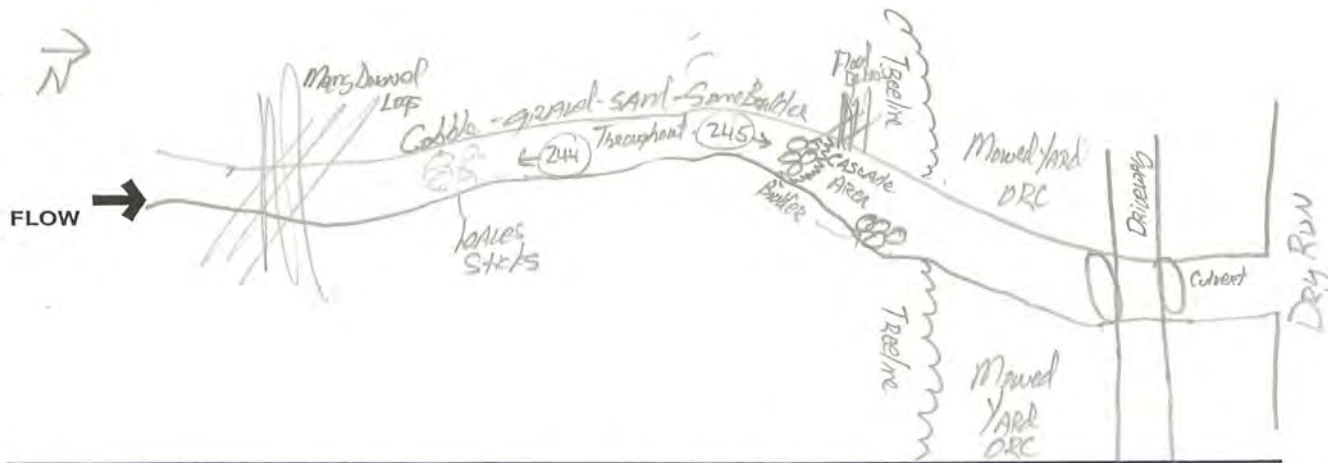
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: None observed

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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







# Primary Headwater Habitat Evaluation Form

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

20

SITE NAME/LOCATION Unnamed Tributary #15

SITE NUMBER S22

RIVER BASIN Little Miami River

DRAINAGE AREA (mi<sup>2</sup>) 0.02

LENGTH OF STREAM REACH (ft) 200

LAT. 39.1207

LONG. 84.3268

RIVER CODE

RIVER MILE 0.0

DATE 10/6/08

SCORER Chris Young

COMMENTS

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

## STREAM CHANNEL MODIFICATIONS:

☒ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]		<input checked="" type="checkbox"/> SILT [3 pts]	40
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	20	<input type="checkbox"/> CLAY or HARDPAN [0 pts]	
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	40	<input type="checkbox"/> MUCK [0 pts]	
<input type="checkbox"/> SAND (<2 mm) [6 pts]		<input type="checkbox"/> ARTIFICIAL [3 pts]	

Total of Percentages of  
Bldr Slabs, Boulder, Cobble, Bedrock 20 (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

12

TOTAL NUMBER OF SUBSTRATE TYPES:

3 (B)

## HHEI METRIC POINTS

Substrate  
Max = 40

15

A + B

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

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

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

0

Pool Depth  
Max = 30

0

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

<input type="checkbox"/> > 4.0 meters [30 pts]	<input type="checkbox"/> > 1.0 - 1.5 m [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m [25 pts]	<input checked="" type="checkbox"/> ≤ 1.0 m [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

0.8

Bankfull  
Width  
Max = 30

5

This information must also be completed

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

### RIPARIAN WIDTH

L	R	(Per Bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Wide > 10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow < 5m
<input type="checkbox"/>	<input type="checkbox"/>	None

COMMENTS

### FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)	L	R	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Mature Forest, Wetland	<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Immature Forest, Shrub or Old Field	<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field	<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture	<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry Channel, no water (Ephemeral)

COMMENTS

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

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

### STREAM GRADIENT ESTIMATE

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

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

**QHEI PERFORMED?** - ☐ Yes ☒ No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☒ WWH Name: Dry Run Distance from Evaluated Stream 0.0 feet  
☐ CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☐ EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangel Name: Withamsville NRCS Soil Map Page: 48 NRCS Soil Map Stream Order 1

County: Hamilton Township / City Anderson

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 9-30-08 Quantity: 0.14 inch

Photograph Information: 236-upstream, 237-downstream

Elevated Turbidity? (Y/N): N/A Canopy (% open): 15

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) N/A Dissolved Oxygen (mg/l) N/A pH (S.U.) N/A Conductivity (µmhos/cm) N/A

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: Very steep gradient, severe slopes

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

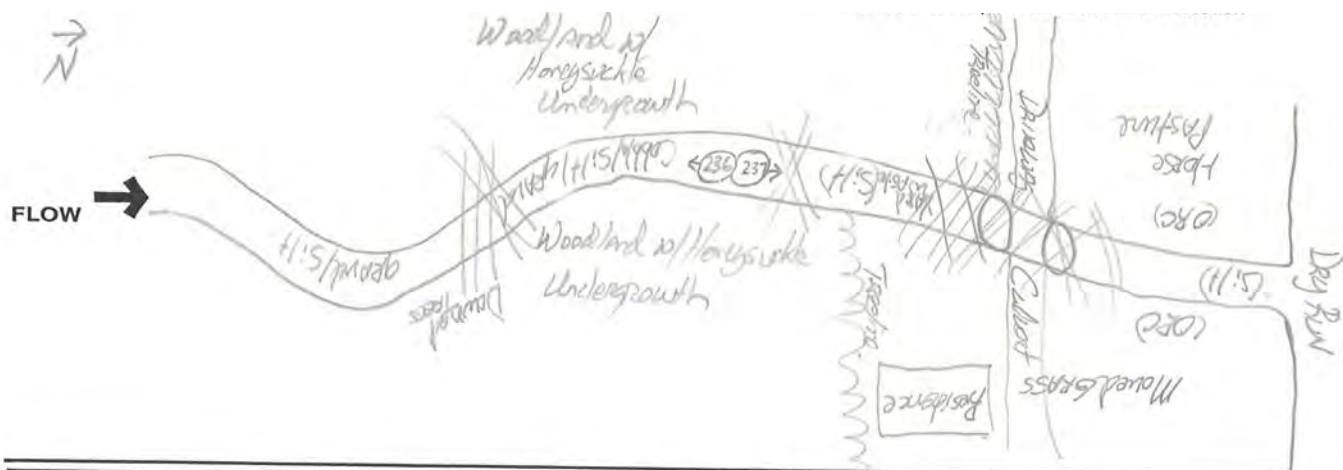
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: None observed

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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





# Primary Headwater Habitat Evaluation Form

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

24

SITE NAME/LOCATION Unnamed Tributary #16

SITE NUMBER S23

RIVER BASIN Little Miami River

DRAINAGE AREA (mi<sup>2</sup>) 0.006

LENGTH OF STREAM REACH (ft) 200

LAT. 39.1194

LONG. 84.3274

RIVER CODE

RIVER MILE 0.0

DATE 10/6/08

SCORER Chris Young

COMMENTS

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

## STREAM CHANNEL MODIFICATIONS:

☒ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]		<input checked="" type="checkbox"/> SILT [3 pts]	60
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input checked="" type="checkbox"/> COBBLE (65-256 mm) [12 pts]	30	<input type="checkbox"/> CLAY or HARDPAN [0 pts]	
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	5	<input type="checkbox"/> MUCK [0 pts]	
<input type="checkbox"/> SAND (<2 mm) [6 pts]	5	<input type="checkbox"/> ARTIFICIAL [3 pts]	

Total of Percentages of  
Bldr Slabs, Boulder, Cobble, Bedrock 30

(A)

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

15

TOTAL NUMBER OF SUBSTRATE TYPES:

4

## HHEI METRIC POINTS

Substrate  
Max = 40

19

A + B

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

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

Pool Depth  
Max = 30

0

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

0

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

<input type="checkbox"/> > 4.0 meters [30 pts]	<input type="checkbox"/> > 1.0 - 1.5 m [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m [25 pts]	<input checked="" type="checkbox"/> ≤ 1.0 m [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m [20 pts]	

Bankfull  
Width  
Max = 30

5

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

0.9

This information must also be completed

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

### RIPARIAN WIDTH

L	R	(Per Bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Wide > 10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow < 5m
<input type="checkbox"/>	<input type="checkbox"/>	None

### FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Mature Forest, Wetland
<input type="checkbox"/>	<input type="checkbox"/>	Immature Forest, Shrub or Old Field
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture

L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

COMMENTS

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry Channel, no water (Ephemeral)

COMMENTS

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

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input checked="" type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

## STREAM GRADIENT ESTIMATE

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



**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

**QHEI PERFORMED?** - ☐ Yes ☒ No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☒ WWH Name: Dry Run Distance from Evaluated Stream 856 feet  
☐ CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☐ EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangle Name: Withamsville NRCS Soil Map Page: 48 NRCS Soil Map Stream Order 1

County: Hamilton Township / City Anderson

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 9-30-08 Quantity: 0.14 inch

Photograph Information: 234-upstream, 235-downstream

Elevated Turbidity? (Y/N): N/A Canopy (% open): 20

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) N/A Dissolved Oxygen (mg/l) N/A pH (S.U.) N/A Conductivity (µmhos/cm) N/A

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: Very steep gradient, numerous cascades

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

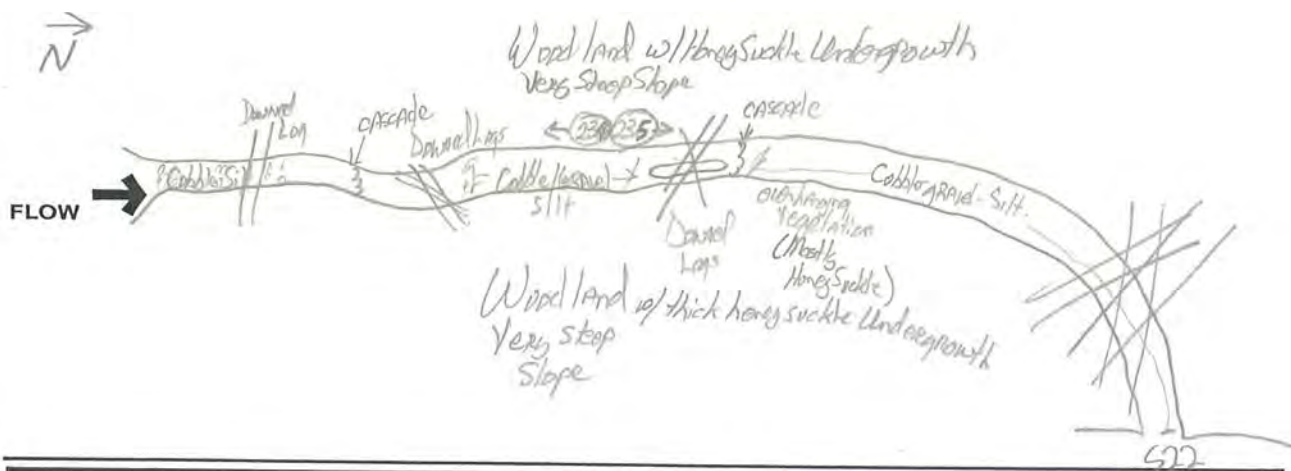
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: None observed

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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



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

SITE NAME/LOCATION Unnamed Tributary #17

SITE NUMBER S24 RIVER BASIN Little Miami River DRAINAGE AREA (mi<sup>2</sup>) 0.006

LENGTH OF STREAM REACH (ft) 200 LAT. 39.1176 LONG. 84.3224 RIVER CODE RIVER MILE 0.0

DATE 10/6/08 SCORER Chris Young COMMENTS

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

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

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

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

Total of Percentages of  
Bldr Slabs, Boulder, Cobble, Bedrock 35 (A)

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

21

TOTAL NUMBER OF SUBSTRATE TYPES:

5

HHEI  
METRIC  
POINTSSubstrate  
Max = 40

26

A + B

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

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

Pool Depth  
Max = 30

0

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

0

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

<input type="checkbox"/> > 4.0 meters [30 pts]	<input type="checkbox"/> > 1.0 - 1.5 m [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m [25 pts]	<input type="checkbox"/> ≤ 1.0 m [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m [20 pts]	

Bankfull  
Width  
Max = 30

20

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

1.5

This information must also be completed

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

## RIPARIAN WIDTH

L	R	(Per Bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Wide > 10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow < 5m
<input type="checkbox"/>	<input type="checkbox"/>	None

## FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture

L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

COMMENTS

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

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry Channel, no water (Ephemeral)

COMMENTS

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

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input checked="" type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

## STREAM GRADIENT ESTIMATE

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

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

**QHEI PERFORMED?** - ☐ Yes ☒ No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☒ WWH Name: Dry Run Distance from Evaluated Stream 1,279 feet  
☐ CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☐ EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangel Name: Withamsville NRCS Soil Map Page: 48 NRCS Soil Map Stream Order 1

County: Hamilton Township / City Anderson

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 9-30-08 Quantity: 0.14 inch

Photograph Information: 242-upstream, 243-downstream

Elevated Turbidity? (Y/N): N/A Canopy (% open): 15

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) N/A Dissolved Oxygen (mg/l) N/A pH (S.U.) N/A Conductivity (µmhos/cm) N/A

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: Very steep gradient

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: None observed

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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





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

SITE NAME/LOCATION Unnamed Tributary #18

SITE NUMBER S25 RIVER BASIN Little Miami River DRAINAGE AREA (mi<sup>2</sup>) 0.009

LENGTH OF STREAM REACH (ft) 200 LAT. 39.1179 LONG. 84.3230 RIVER CODE RIVER MILE 0.0

DATE 10/6/08 SCORER Chris Young COMMENTS

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

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

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]		<input checked="" type="checkbox"/> SILT [3 pts]	60
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	10	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	20
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	5	<input type="checkbox"/> CLAY or HARDPAN [0 pts]	
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	5	<input type="checkbox"/> MUCK [0 pts]	
<input type="checkbox"/> SAND (<2 mm) [6 pts]		<input type="checkbox"/> ARTIFICIAL [3 pts]	

Total of Percentages of  
Bldr Slabs, Boulder, Cobble, Bedrock 15 (A)

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

6

TOTAL NUMBER OF SUBSTRATE TYPES:

5

HHEI  
METRIC  
POINTSSubstrate  
Max = 40

11

A + B

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

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

Pool Depth  
Max = 30

0

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

0

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

<input type="checkbox"/> > 4.0 meters [30 pts]	<input type="checkbox"/> > 1.0 - 1.5 m [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m [25 pts]	<input checked="" type="checkbox"/> ≤ 1.0 m [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m [20 pts]	

Bankfull  
Width  
Max = 30

5

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

0.9

This information must also be completed

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

## RIPARIAN WIDTH

L	R	(Per Bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Wide > 10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow < 5m
<input type="checkbox"/>	<input type="checkbox"/>	None

## FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Mature Forest, Wetland
<input type="checkbox"/>	<input type="checkbox"/>	Immature Forest, Shrub or Old Field
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture

L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

COMMENTS

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry Channel, no water (Ephemeral)

COMMENTS

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

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input checked="" type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

## STREAM GRADIENT ESTIMATE

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

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

**QHEI PERFORMED?** - ☐ Yes ☒ No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☒ WWH Name: Dry Run Distance from Evaluated Stream 1,119 feet  
☐ CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☐ EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangel Name: Withamsville NRCS Soil Map Page: 48 NRCS Soil Map Stream Order 1

County: Hamilton Township / City Anderson

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 9-30-08 Quantity: 0.14 inch

Photograph Information: 238-upstream, 239-downstream

Elevated Turbidity? (Y/N): N/A Canopy (% open): 15

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) N/A Dissolved Oxygen (mg/l) N/A pH (S.U.) N/A Conductivity (µmhos/cm) N/A

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: Very steep gradient / cascades

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

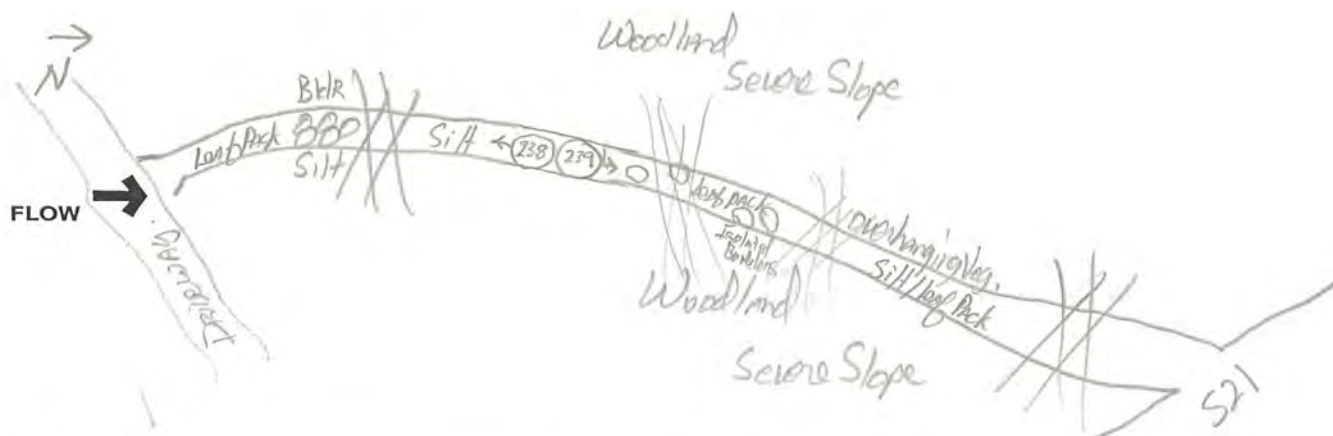
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: None observed

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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



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

SITE NAME/LOCATION Unnamed Tributary #19

SITE NUMBER S26

RIVER BASIN Little Miami River

DRAINAGE AREA (mi<sup>2</sup>) 0.02

LENGTH OF STREAM REACH (ft) 200

LAT. 39.1186

LONG. 84.3237

RIVER CODE

RIVER MILE 0.0

DATE 10/6/08

SCORER Chris Young

COMMENTS

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

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

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]		<input checked="" type="checkbox"/> <input type="checkbox"/> SILT [3 pts]	70
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	5	<input checked="" type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	15
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	10	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pts]	
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]		<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]		<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	

Total of Percentages of  
Bldr Slabs, Boulder, Cobble, Bedrock 15 (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

6

TOTAL NUMBER OF SUBSTRATE TYPES:

4 (B)

HHEI  
METRIC  
POINTSSubstrate  
Max = 40

10

A + B

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

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

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

0

Pool Depth  
Max = 30

0

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

<input type="checkbox"/> > 4.0 meters [30 pts]	<input type="checkbox"/> > 1.0 - 1.5 m [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m [25 pts]	<input checked="" type="checkbox"/> ≤ 1.0 m [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

0.8

Bankfull  
Width  
Max = 30

5

This information must also be completed

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

## RIPARIAN WIDTH

L	R	(Per Bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Wide > 10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow < 5m
<input type="checkbox"/>	<input type="checkbox"/>	None

COMMENTS

## FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Mature Forest, Wetland
<input type="checkbox"/>	<input type="checkbox"/>	Immature Forest, Shrub or Old Field
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture

L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry Channel, no water (Ephemeral)

COMMENTS

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

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input checked="" type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

## STREAM GRADIENT ESTIMATE

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



**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

**QHEI PERFORMED?** - ☐ Yes ☒ No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☒ WWH Name: Dry Run Distance from Evaluated Stream 771 feet  
☐ CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☐ EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangle Name: Withamsville NRCS Soil Map Page: 48 NRCS Soil Map Stream Order 1

County: Hamilton Township / City Anderson

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 9-30-08 Quantity: 0.14 inch

Photograph Information: 240-upstream, 241-downstream

Elevated Turbidity? (Y/N): N/A Canopy (% open): 15

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) N/A Dissolved Oxygen (mg/l) N/A pH (S.U.) N/A Conductivity (µmhos/cm) N/A

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: Very steep gradient

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

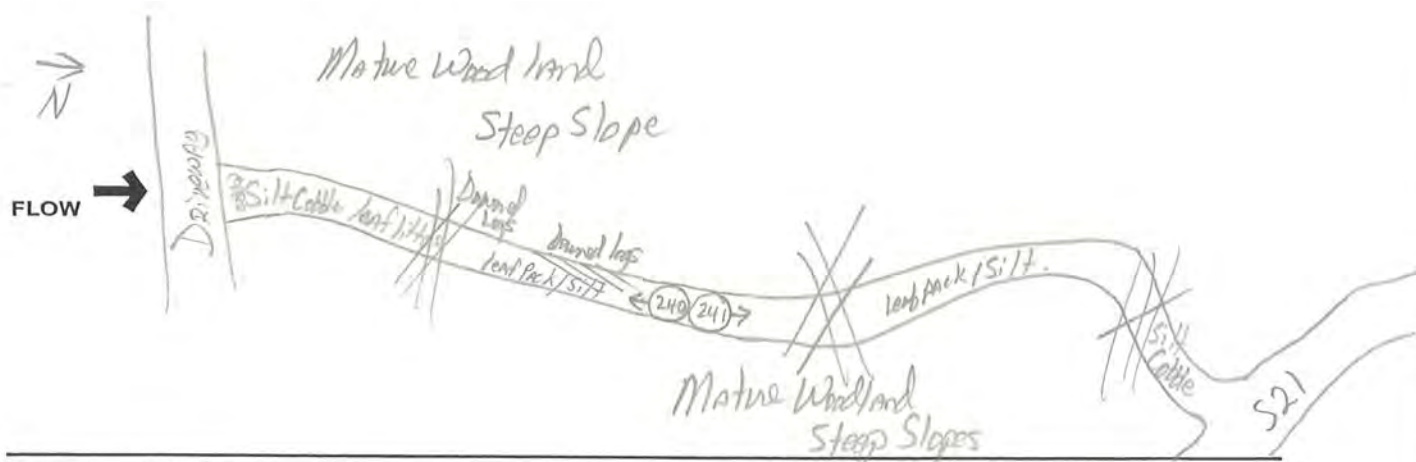
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: None observed

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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





# Primary Headwater Habitat Evaluation Form

45

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

SITE NAME/LOCATION Unnamed Tributary #20

SITE NUMBER S27

RIVER BASIN Little Miami River

DRAINAGE AREA (mi<sup>2</sup>) 0.04

LENGTH OF STREAM REACH (ft) 200

LAT. 39.1187

LONG. 84.3166

RIVER CODE

RIVER MILE 0.07

DATE 10/6/08

SCORER Chris Young

COMMENTS

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

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

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

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

Total of Percentages of  
Bldr Slabs, Boulder, Cobble, Bedrock 30

(A)

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

21

TOTAL NUMBER OF SUBSTRATE TYPES:

4

HHEI  
METRIC  
POINTSSubstrate  
Max = 40

25

A + B

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

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

Pool Depth  
Max = 30

0

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

0

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

<input type="checkbox"/> > 4.0 meters [30 pts]	<input type="checkbox"/> > 1.0 - 1.5 m [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m [25 pts]	<input type="checkbox"/> ≤ 1.0 m [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m [20 pts]	

Bankfull  
Width  
Max = 30

20

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

2.0

This information must also be completed

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

## RIPARIAN WIDTH

L	R	(Per Bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Wide > 10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow < 5m
<input type="checkbox"/>	<input type="checkbox"/>	None

## FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Mature Forest, Wetland
<input type="checkbox"/>	<input type="checkbox"/>	Immature Forest, Shrub or Old Field
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture

L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

COMMENTS

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry Channel, no water (Ephemeral)

COMMENTS

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

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input checked="" type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

## STREAM GRADIENT ESTIMATE

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

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

**QHEI PERFORMED?** - ☐ Yes ☒ No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☒ WWH Name: Dry Run Distance from Evaluated Stream 348 feet  
☐ CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☐ EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangel Name: Withamsville NRCS Soil Map Page: 48 NRCS Soil Map Stream Order 1

County: Hamilton Township / City Anderson

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 9-30-08 Quantity: 0.14 inch

Photograph Information: 246-upstream, 247-downstream

Elevated Turbidity? (Y/N): N/A Canopy (% open): 10

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) N/A Dissolved Oxygen (mg/l) N/A pH (S.U.) N/A Conductivity (µmhos/cm) N/A

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: Very steep gradient, steep slopes

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

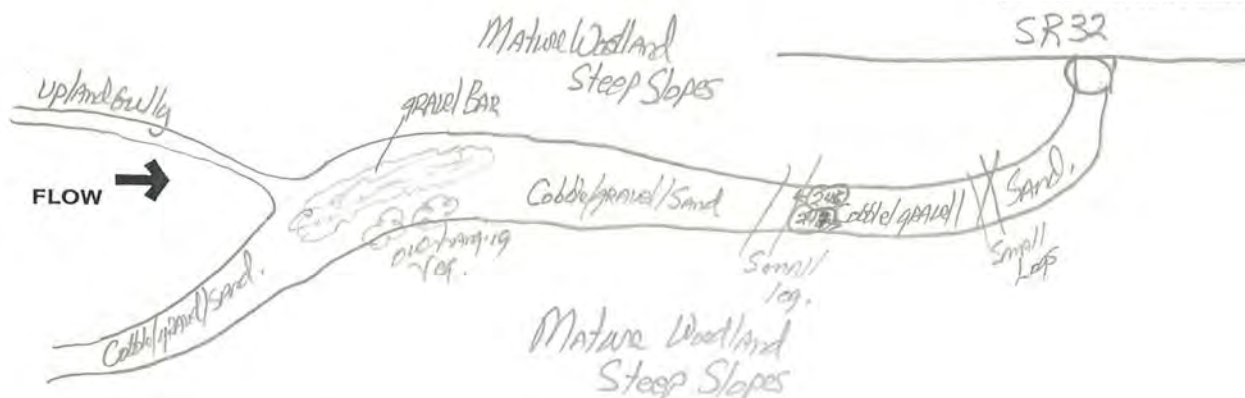
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: None observed

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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







# Primary Headwater Habitat Evaluation Form

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

40

SITE NAME/LOCATION Unnamed Tributary #21

SITE NUMBER S28

RIVER BASIN Little Miami River

DRAINAGE AREA (mi<sup>2</sup>) 0.01

LENGTH OF STREAM REACH (ft) 200

LAT. 39.1200

LONG. 84.3212

RIVER CODE

RIVER MILE 0.0

DATE 10/7/08

SCORER Chris Young

COMMENTS

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

## STREAM CHANNEL MODIFICATIONS:

☒ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]		<input type="checkbox"/> SILT [3 pts]	10
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input checked="" type="checkbox"/> COBBLE (65-256 mm) [12 pts]	40	<input type="checkbox"/> CLAY or HARDPAN [0 pts]	
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	40	<input type="checkbox"/> MUCK [0 pts]	
<input type="checkbox"/> SAND (<2 mm) [6 pts]	10	<input type="checkbox"/> ARTIFICIAL [3 pts]	

Total of Percentages of  
Bldr Slabs, Boulder, Cobble, Bedrock 40 (A)

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

21

TOTAL NUMBER OF SUBSTRATE TYPES:

4

## HHEI METRIC POINTS

Substrate  
Max = 40

25

A + B

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

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

Pool Depth  
Max = 30

0

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

0

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

<input type="checkbox"/> > 4.0 meters [30 pts]	<input checked="" type="checkbox"/> > 1.0 - 1.5 m [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m [25 pts]	<input type="checkbox"/> ≤ 1.0 m [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m [20 pts]	

Bankfull  
Width  
Max = 30

15

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

1.0

This information must also be completed

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

### RIPARIAN WIDTH

L	R	(Per Bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Wide > 10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow < 5m
<input type="checkbox"/>	<input type="checkbox"/>	None

### FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Mature Forest, Wetland
<input type="checkbox"/>	<input type="checkbox"/>	Immature Forest, Shrub or Old Field
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture

L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

COMMENTS

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry Channel, no water (Ephemeral)

COMMENTS

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

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input checked="" type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

## STREAM GRADIENT ESTIMATE

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

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

**QHEI PERFORMED?** - ☐ Yes ☒ No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☒ WWH Name: Dry Run Distance from Evaluated Stream 0.0 feet  
☐ CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☐ EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangel Name: Withamsville NRCS Soil Map Page: 48 NRCS Soil Map Stream Order 1

County: Hamilton Township / City Anderson

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 9-30-08 Quantity: 0.14 inch

Photograph Information: 248-upstream, 249-downstream

Elevated Turbidity? (Y/N): N/A Canopy (% open): 20

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) N/A Dissolved Oxygen (mg/l) N/A pH (S.U.) N/A Conductivity (µmhos/cm) N/A

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: Very steep gradient, steep slopes

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

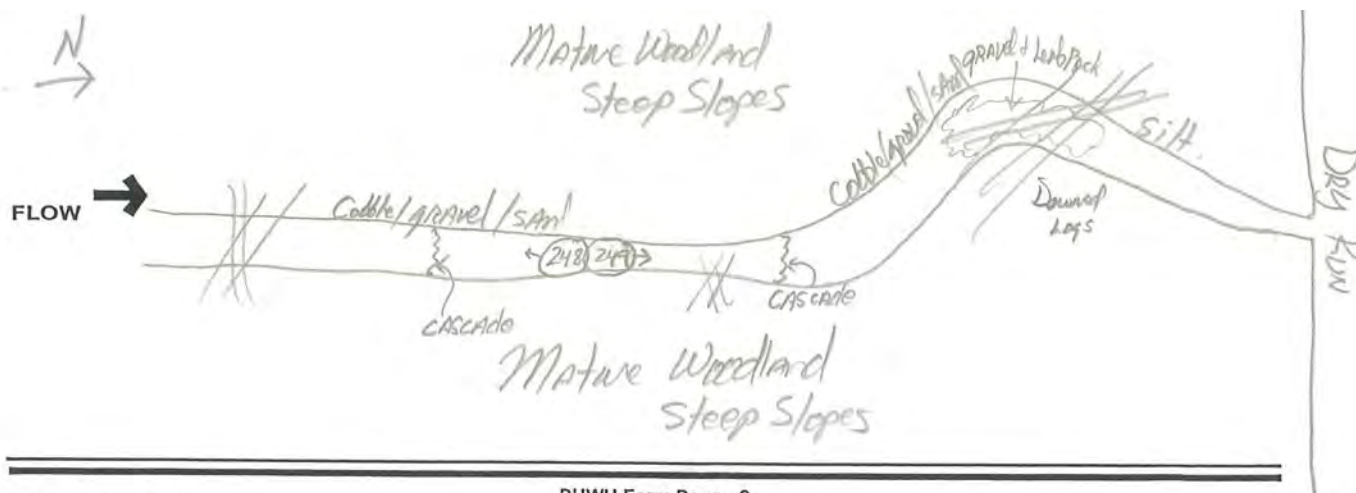
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: None observed

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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





# Primary Headwater Habitat Evaluation Form

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

41

SITE NAME/LOCATION Unnamed Tributary #22

SITE NUMBER S29

RIVER BASIN Little Miami River

DRAINAGE AREA (mi<sup>2</sup>) 0.01

LENGTH OF STREAM REACH (ft) 200

LAT. 39.1172

LONG. 84.3186

RIVER CODE

RIVER MILE 0.0

DATE 10/7/08

SCORER Chris Young

COMMENTS

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

## STREAM CHANNEL MODIFICATIONS:

☒ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

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

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 40 (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

16

TOTAL NUMBER OF SUBSTRATE TYPES:

5 (B)

## HHEI METRIC POINTS

Substrate Max = 40

21

A + B

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

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

Pool Depth Max = 30

0

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

0

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

<input type="checkbox"/> > 4.0 meters [30 pts]	<input type="checkbox"/> > 1.0 - 1.5 m [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m [25 pts]	<input type="checkbox"/> ≤ 1.0 m [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m [20 pts]	

Bankfull Width Max = 30

20

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

2.0

This information must also be completed

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

### RIPARIAN WIDTH

L	R	(Per Bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Wide > 10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow < 5m
<input type="checkbox"/>	<input type="checkbox"/>	None

COMMENTS

### FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)	L	R	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Mature Forest, Wetland	<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Immature Forest, Shrub or Old Field	<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field	<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture	<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry Channel, no water (Ephemeral)

COMMENTS

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

<input checked="" type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

### STREAM GRADIENT ESTIMATE

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



**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

**QHEI PERFORMED?** - ☐ Yes ☒ No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☒ WWH Name: Dry Run Distance from Evaluated Stream 0.0 feet  
☐ CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☐ EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangle Name: Withamsville NRCS Soil Map Page: 48 NRCS Soil Map Stream Order 1

County: Hamilton Township / City Anderson

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 9-30-08 Quantity: 0.14 inch

Photograph Information: 250-upstream, 251-downstream

Elevated Turbidity? (Y/N): N/A Canopy (% open): 20

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) N/A Dissolved Oxygen (mg/l) N/A pH (S.U.) N/A Conductivity (µmhos/cm) N/A

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: Very steep gradient, steep slopes, many cascades

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: None observed

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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



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

SITE NAME/LOCATION Unnamed Tributary #23

SITE NUMBER S30 RIVER BASIN Little Miami River DRAINAGE AREA (mi<sup>2</sup>) 0.1

LENGTH OF STREAM REACH (ft) 200 LAT. 39.1154 LONG. 84.3179 RIVER CODE RIVER MILE 0.0

DATE 10/7/08 SCORER Chris Young COMMENTS

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

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

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]		<input checked="" type="checkbox"/> SILT [3 pts]	30
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	5	<input type="checkbox"/> CLAY or HARDPAN [0 pts]	
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	15	<input type="checkbox"/> MUCK [0 pts]	
<input type="checkbox"/> SAND (<2 mm) [6 pts]	20	<input checked="" type="checkbox"/> ARTIFICIAL [3 pts]	30

Total of Percentages of  
Bldr Slabs, Boulder, Cobble, Bedrock 5 (A)

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

6

TOTAL NUMBER OF SUBSTRATE TYPES:

5

HHEI  
METRIC  
POINTSSubstrate  
Max = 40

11

A + B

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

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

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

1.5

Pool Depth  
Max = 30

5

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

<input type="checkbox"/> > 4.0 meters [30 pts]	<input checked="" type="checkbox"/> > 1.0 - 1.5 m [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m [25 pts]	<input type="checkbox"/> ≤ 1.0 m [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

1.2

Bankfull  
Width  
Max = 30

15

This information must also be completed

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

## RIPARIAN WIDTH

- |                                     |                                     |                |
|-------------------------------------|-------------------------------------|----------------|
| L                                   | R                                   | (Per Bank)     |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Wide > 10m     |
| <input type="checkbox"/>            | <input type="checkbox"/>            | Moderate 5-10m |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Narrow < 5m    |
| <input type="checkbox"/>            | <input type="checkbox"/>            | None           |

COMMENTS

## FLOODPLAIN QUALITY

- |                                     |                                     |                                     |
|-------------------------------------|-------------------------------------|-------------------------------------|
| L                                   | R                                   | (Most Predominant per Bank)         |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Mature Forest, Wetland              |
| <input type="checkbox"/>            | <input type="checkbox"/>            | Immature Forest, Shrub or Old Field |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Residential, Park, New Field        |
| <input type="checkbox"/>            | <input type="checkbox"/>            | Fenced Pasture                      |

- |                          |                          |                        |
|--------------------------|--------------------------|------------------------|
| L                        | R                        |                        |
| <input type="checkbox"/> | <input type="checkbox"/> | Conservation Tillage   |
| <input type="checkbox"/> | <input type="checkbox"/> | Urban or Industrial    |
| <input type="checkbox"/> | <input type="checkbox"/> | Open Pasture, Row Crop |
| <input type="checkbox"/> | <input type="checkbox"/> | Mining or Construction |

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

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> Stream Flowing                          | <input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent) |
| <input type="checkbox"/> Subsurface flow with isolated pools (Interstitial) | <input type="checkbox"/> Dry Channel, no water (Ephemeral)                     |

COMMENTS

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

- |  |                              |                              |                              |
|--|------------------------------|------------------------------|------------------------------|
| <input checked="" type="checkbox"/> None | <input type="checkbox"/> 1.0 | <input type="checkbox"/> 2.0 | <input type="checkbox"/> 3.0 |
| <input type="checkbox"/> 0.5             | <input type="checkbox"/> 1.5 | <input type="checkbox"/> 2.5 | <input type="checkbox"/> >3  |

## STREAM GRADIENT ESTIMATE

- |   |   |   |  |  |
|---|---|---|--|--|
| <input type="checkbox"/> Flat (0.5 ft/100 ft) | <input type="checkbox"/> Flat to Moderate | <input type="checkbox"/> Moderate (2 ft/100 ft) | <input checked="" type="checkbox"/> Moderate to Severe | <input type="checkbox"/> Severe (10 ft/100 ft) |
|---|---|---|--|--|

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

**QHEI PERFORMED?** - ☐ Yes ☒ No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☒ WWH Name: Dry Run Distance from Evaluated Stream 0.0 feet  
☐ CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☐ EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangel Name: Withamsville NRCS Soil Map Page: 48 NRCS Soil Map Stream Order 2

County: Hamilton Township / City Anderson

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 9-30-08 Quantity: 0.14 inch

Photograph Information: 252-upstream, 253-downstream

Elevated Turbidity? (Y/N): N Canopy (% open): 60

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) 15.4 Dissolved Oxygen (mg/l) 11.4 pH (S.U.) 8.02 Conductivity (µmhos/cm) 2,262

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: instream disposal of C&D waste, wood and concrete

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

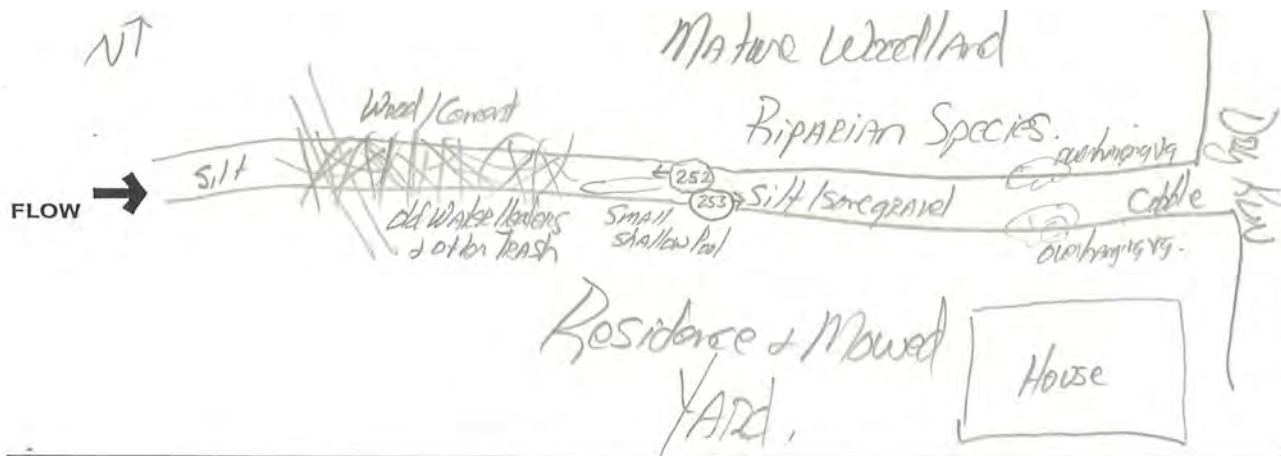
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) Y Voucher? (Y/N) N

Comments Regarding Biology: water striders and aquatic sow bugs

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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





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

SITE NAME/LOCATION Unnamed Tributary #24

SITE NUMBER S31 RIVER BASIN Little Miami River DRAINAGE AREA (mi<sup>2</sup>) 0.10

LENGTH OF STREAM REACH (ft) 200 LAT. 39.1156 LONG. 84.3169 RIVER CODE RIVER MILE 0.0

DATE 10/7/08 SCORER Chris Young COMMENTS

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

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

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]		<input checked="" type="checkbox"/> SILT [3 pts]	40
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input checked="" type="checkbox"/> COBBLE (65-256 mm) [12 pts]	30	<input type="checkbox"/> CLAY or HARDPAN [0 pts]	10
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	5	<input type="checkbox"/> MUCK [0 pts]	
<input type="checkbox"/> SAND (<2 mm) [6 pts]	5	<input type="checkbox"/> ARTIFICIAL [3 pts]	10

Total of Percentages of  
Bldr Slabs, Boulder, Cobble, Bedrock 30 (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

15

TOTAL NUMBER OF SUBSTRATE TYPES:

6 (B)

HHEI  
METRIC  
POINTSSubstrate  
Max = 40

21

A + B

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

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

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

2.0

Pool Depth  
Max = 30

5

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

<input type="checkbox"/> > 4.0 meters [30 pts]	<input type="checkbox"/> > 1.0 - 1.5 m [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m [25 pts]	<input type="checkbox"/> ≤ 1.0 m [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

1.8

Bankfull  
Width  
Max = 30

20

This information must also be completed

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

## RIPARIAN WIDTH

L	R	(Per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Wide > 10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Narrow < 5m
<input type="checkbox"/>	<input type="checkbox"/>	None

COMMENTS

## FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland
<input type="checkbox"/>	<input type="checkbox"/>	Immature Forest, Shrub or Old Field
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Residential, Park, New Field
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture

L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

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

<input checked="" type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry Channel, no water (Ephemeral)

COMMENTS

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

<input checked="" type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

## STREAM GRADIENT ESTIMATE

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

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

**QHEI PERFORMED?** - ☐ Yes ☒ No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☒ WWH Name: Dry Run Distance from Evaluated Stream 0.0 feet  
☐ CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☐ EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangel Name: Withamsville NRCS Soil Map Page: 48 NRCS Soil Map Stream Order 2

County: Hamilton Township / City Anderson

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 9-30-08 Quantity: 0.14 inch

Photograph Information: 254-upstream, 255-downstream

Elevated Turbidity? (Y/N): N Canopy (% open): 15

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) 14.7 Dissolved Oxygen (mg/l) 9.04 pH (S.U.) 7.94 Conductivity (µmhos/cm) 1,413

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: Left descending bank mostly artificial concrete and waste materials stabilizing bank

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

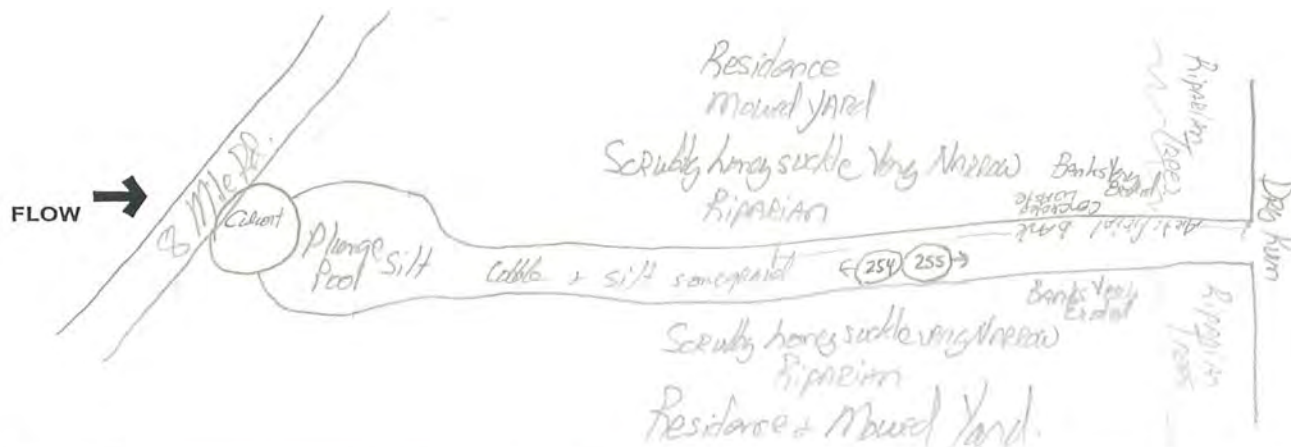
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: None observed

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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





# Primary Headwater Habitat Evaluation Form

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

24

SITE NAME/LOCATION Unnamed Tributary #25

SITE NUMBER S32

RIVER BASIN Little Miami River

DRAINAGE AREA (mi<sup>2</sup>) 0.09

LENGTH OF STREAM REACH (ft) 200

LAT. 39.1171

LONG. 84.3175

RIVER CODE

RIVER MILE 0.0

DATE 10/7/08

SCORER Chris Young

COMMENTS

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

## STREAM CHANNEL MODIFICATIONS:

☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]		<input checked="" type="checkbox"/> SILT [3 pts]	40
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input checked="" type="checkbox"/> COBBLE (65-256 mm) [12 pts]	40	<input type="checkbox"/> CLAY or HARDPAN [0 pts]	
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	10	<input type="checkbox"/> MUCK [0 pts]	
<input type="checkbox"/> SAND (<2 mm) [6 pts]	10	<input type="checkbox"/> ARTIFICIAL [3 pts]	

Total of Percentages of  
Bldr Slabs, Boulder, Cobble, Bedrock 40 (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

15

TOTAL NUMBER OF SUBSTRATE TYPES:

4 (B)

## HHEI METRIC POINTS

Substrate  
Max = 40

19

A + B

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

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

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

0

Pool Depth  
Max = 30

0

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

<input type="checkbox"/> > 4.0 meters [30 pts]	<input type="checkbox"/> > 1.0 - 1.5 m [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m [25 pts]	<input checked="" type="checkbox"/> ≤ 1.0 m [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

1.0

Bankfull  
Width  
Max = 30

5

This information must also be completed

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

### RIPARIAN WIDTH

L	R	(Per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Wide > 10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow < 5m
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	None

COMMENTS

### FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)	L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland	<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Immature Forest, Shrub or Old Field	<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field	<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Fenced Pasture	<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry Channel, no water (Ephemeral)

COMMENTS

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

<input checked="" type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

## STREAM GRADIENT ESTIMATE

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



**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

**QHEI PERFORMED?** - ☐ Yes ☒ No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☒ WWH Name: Dry Run Distance from Evaluated Stream 0.0 feet  
☐ CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☐ EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangel Name: Withamsville NRCS Soil Map Page: 48 NRCS Soil Map Stream Order 2

County: Hamilton Township / City Anderson

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 9-30-08 Quantity: 0.14 inch

Photograph Information: 256-upstream, 257-downstream

Elevated Turbidity? (Y/N): N/A Canopy (% open): 100

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) N/A Dissolved Oxygen (mg/l) N/A pH (S.U.) N/A Conductivity (µmhos/cm) N/A

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: Horse pasture

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

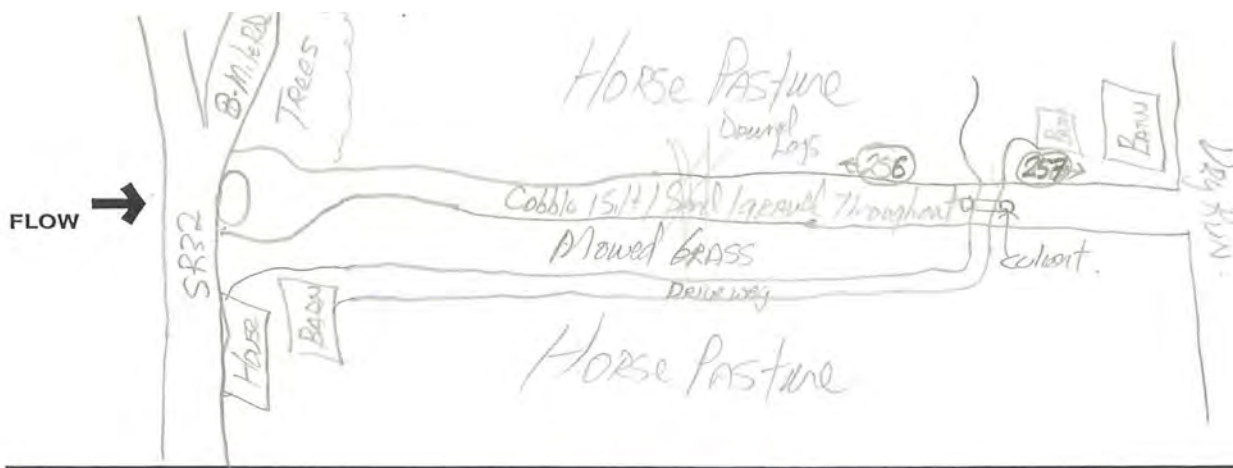
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: None observed

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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





# Primary Headwater Habitat Evaluation Form

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

39

SITE NAME/LOCATION Unnamed Tributary #26

SITE NUMBER S33

RIVER BASIN Little Miami River

DRAINAGE AREA (mi<sup>2</sup>) 0.07

LENGTH OF STREAM REACH (ft) 200

LAT. 39.1137

LONG. 84.3175

RIVER CODE

RIVER MILE 0.02

DATE 10/7/08

SCORER Chris Young

COMMENTS

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

## STREAM CHANNEL MODIFICATIONS:

☐ NONE / NATURAL CHANNEL ☒ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]		<input checked="" type="checkbox"/> SILT [3 pts]	40
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input checked="" type="checkbox"/> COBBLE (65-256 mm) [12 pts]	40	<input type="checkbox"/> CLAY or HARDPAN [0 pts]	
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	15	<input type="checkbox"/> MUCK [0 pts]	
<input type="checkbox"/> SAND (<2 mm) [6 pts]	5	<input type="checkbox"/> ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 40 (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

15

TOTAL NUMBER OF SUBSTRATE TYPES:

4 (B)

## HHEI METRIC POINTS

Substrate Max = 40

19

A + B

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

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

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

0

Pool Depth Max = 30

0

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

<input type="checkbox"/> > 4.0 meters [30 pts]	<input type="checkbox"/> > 1.0 - 1.5 m [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m [25 pts]	<input type="checkbox"/> ≤ 1.0 m [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

2.0

Bankfull Width Max = 30

20

This information must also be completed

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

### RIPARIAN WIDTH

L	R	(Per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Wide > 10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow < 5m
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	None

COMMENTS

### FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)	L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland	<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Immature Forest, Shrub or Old Field	<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Residential, Park, New Field	<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture	<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry Channel, no water (Ephemeral)

COMMENTS

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

<input checked="" type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

## STREAM GRADIENT ESTIMATE

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

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

**QHEI PERFORMED?** - ☐ Yes ☒ No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☒ WWH Name: Dry Run Distance from Evaluated Stream 80.0 feet  
☐ CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☐ EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangel Name: Withamsville NRCS Soil Map Page: 48 NRCS Soil Map Stream Order 2

County: Hamilton Township / City Anderson

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 9-30-08 Quantity: 0.14 inch

Photograph Information: 258-upstream, 259-downstream

Elevated Turbidity? (Y/N): N/A Canopy (% open): 90

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) N/A Dissolved Oxygen (mg/l) N/A pH (S.U.) N/A Conductivity (µmhos/cm) N/A

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: N/A

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

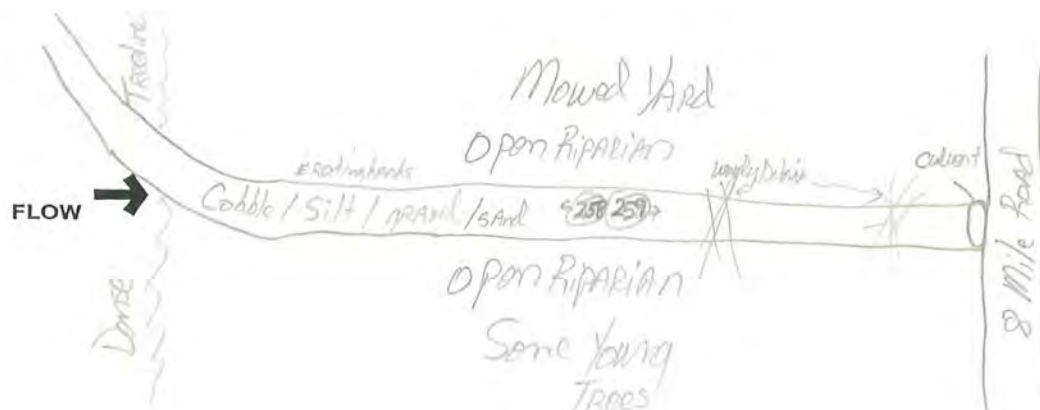
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: None observed

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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







# Primary Headwater Habitat Evaluation Form

34

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

SITE NAME/LOCATION Unnamed Tributary #27

SITE NUMBER S34

RIVER BASIN Little Miami River

DRAINAGE AREA (mi<sup>2</sup>) 0.01

LENGTH OF STREAM REACH (ft) 200

LAT. 39.1130

LONG. 84.3087

RIVER CODE

RIVER MILE 0.0

DATE 10/8/08

SCORER Chris Young

COMMENTS

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

## STREAM CHANNEL MODIFICATIONS:

☒ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]		<input checked="" type="checkbox"/> SILT [3 pts]	60
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	5	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input checked="" type="checkbox"/> COBBLE (65-256 mm) [12 pts]	30	<input type="checkbox"/> CLAY or HARDPAN [0 pts]	
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	5	<input type="checkbox"/> MUCK [0 pts]	
<input type="checkbox"/> SAND (<2 mm) [6 pts]		<input type="checkbox"/> ARTIFICIAL [3 pts]	

Total of Percentages of  
Bldr Slabs, Boulder, Cobble, Bedrock 35 (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

15

TOTAL NUMBER OF SUBSTRATE TYPES:

4 (B)

## HHEI METRIC POINTS

Substrate  
Max = 40

19

A + B

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

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

Pool Depth  
Max = 30

0

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

0

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

<input type="checkbox"/> > 4.0 meters [30 pts]	<input checked="" type="checkbox"/> > 1.0 - 1.5 m [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m [25 pts]	<input type="checkbox"/> ≤ 1.0 m [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m [20 pts]	

Bankfull  
Width  
Max = 30

15

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

1.3

This information must also be completed

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

### RIPARIAN WIDTH

L	R	(Per Bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Wide > 10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow < 5m
<input type="checkbox"/>	<input type="checkbox"/>	None

COMMENTS

### FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)	L	R	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Mature Forest, Wetland	<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Immature Forest, Shrub or Old Field	<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field	<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture	<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry Channel, no water (Ephemeral)

COMMENTS

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

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input checked="" type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

### STREAM GRADIENT ESTIMATE

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

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

**QHEI PERFORMED?** - ☐ Yes ☒ No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☒ WWH Name: Dry Run Distance from Evaluated Stream 1,537 feet  
☐ CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☐ EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangel Name: Withamsville NRCS Soil Map Page: 48 NRCS Soil Map Stream Order 1

County: Hamilton Township / City Anderson

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10-07-08 Quantity: 0.07 inch

Photograph Information: 260-upstream, 261-downstream

Elevated Turbidity? (Y/N): N/A Canopy (% open): 10

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) N/A Dissolved Oxygen (mg/l) N/A pH (S.U.) N/A Conductivity (µmhos/cm) N/A

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: Steep slopes and steep gradient

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

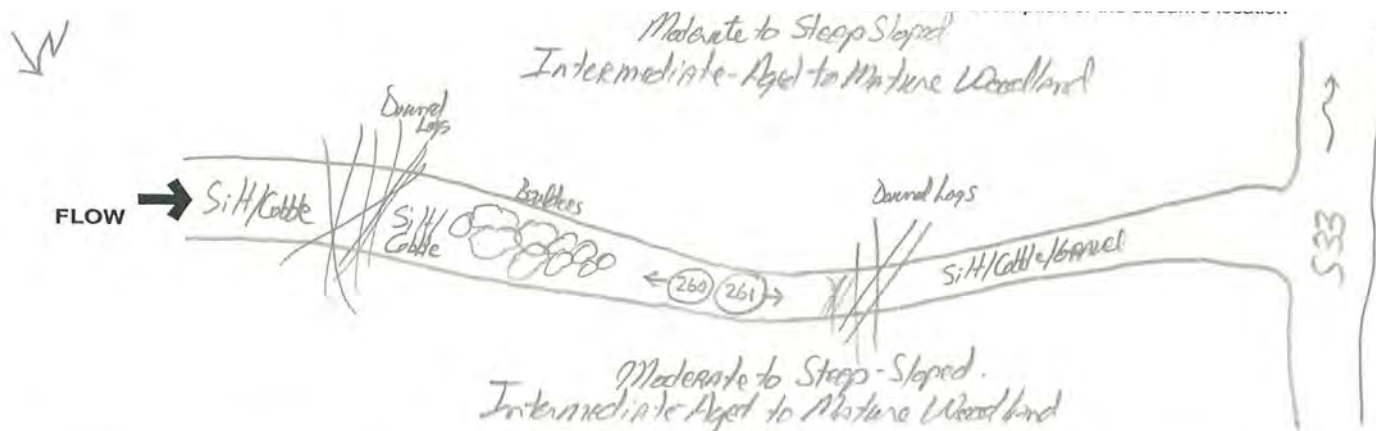
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: None observed

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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





# Primary Headwater Habitat Evaluation Form

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

25

SITE NAME/LOCATION Unnamed Tributary #28

SITE NUMBER S35

RIVER BASIN Little Miami River

DRAINAGE AREA (mi<sup>2</sup>) 0.01

LENGTH OF STREAM REACH (ft) 200

LAT. 39.1131

LONG. 84.3109

RIVER CODE

RIVER MILE 0.0

DATE 10/8/08

SCORER Chris Young

COMMENTS

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

## STREAM CHANNEL MODIFICATIONS:

☒ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]		<input checked="" type="checkbox"/> SILT [3 pts]	80
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	10
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]		<input type="checkbox"/> CLAY or HARDPAN [0 pts]	
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	5	<input type="checkbox"/> MUCK [0 pts]	
<input type="checkbox"/> SAND (<2 mm) [6 pts]	5	<input type="checkbox"/> ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0 (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

6

TOTAL NUMBER OF SUBSTRATE TYPES:

4

## HHEI METRIC POINTS

Substrate Max = 40

10

A + B

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

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

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

0

Pool Depth Max = 30

0

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

<input type="checkbox"/> > 4.0 meters [30 pts]	<input checked="" type="checkbox"/> > 1.0 - 1.5 m [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m [25 pts]	<input type="checkbox"/> ≤ 1.0 m [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

1.1

Bankfull Width Max = 30

15

This information must also be completed

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

### RIPARIAN WIDTH

L	R	(Per Bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Wide > 10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow < 5m
<input type="checkbox"/>	<input type="checkbox"/>	None

COMMENTS

### FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)	L	R	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Mature Forest, Wetland	<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Immature Forest, Shrub or Old Field	<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field	<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture	<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry Channel, no water (Ephemeral)

COMMENTS

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

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input checked="" type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

### STREAM GRADIENT ESTIMATE

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



**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

**QHEI PERFORMED?** - ☐ Yes ☒ No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☒ WWH Name: Dry Run Distance from Evaluated Stream 2,104 feet  
☐ CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☐ EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangle Name: Withamsville NRCS Soil Map Page: 48 NRCS Soil Map Stream Order 1

County: Hamilton Township / City Anderson

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10-07-08 Quantity: 0.07 inch

Photograph Information: 266-upstream, 267-downstream

Elevated Turbidity? (Y/N): N/A Canopy (% open): 10

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) N/A Dissolved Oxygen (mg/l) N/A pH (S.U.) N/A Conductivity (µmhos/cm) N/A

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: Steep slopes and steep gradient

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

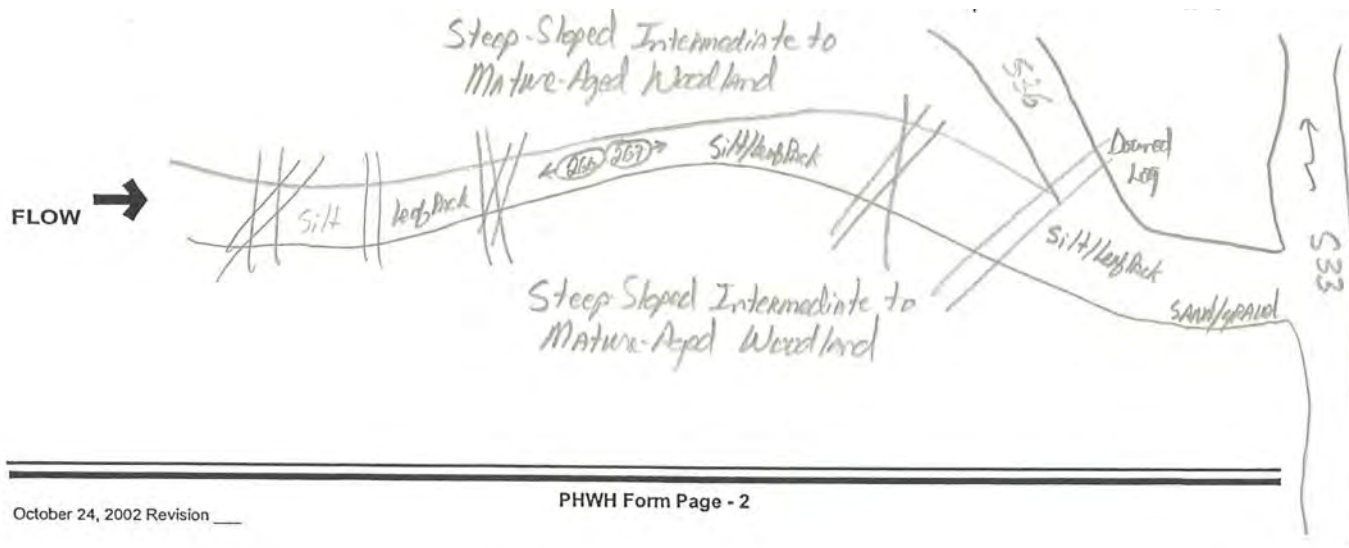
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: None observed

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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





# Primary Headwater Habitat Evaluation Form

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

25

SITE NAME/LOCATION Unnamed Tributary #29

SITE NUMBER S36

RIVER BASIN Little Miami River

DRAINAGE AREA (mi<sup>2</sup>) 0.01

LENGTH OF STREAM REACH (ft) 200

LAT. 39.1129

LONG. 84.3105

RIVER CODE

RIVER MILE 0.0

DATE 10/8/08

SCORER Chris Young

COMMENTS

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

## STREAM CHANNEL MODIFICATIONS:

☒ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]		<input checked="" type="checkbox"/> SILT [3 pts]	80
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	10
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]		<input type="checkbox"/> CLAY or HARDPAN [0 pts]	
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	5	<input type="checkbox"/> MUCK [0 pts]	
<input type="checkbox"/> SAND (<2 mm) [6 pts]	5	<input type="checkbox"/> ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0 (A)

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

6

TOTAL NUMBER OF SUBSTRATE TYPES:

4

## HHEI METRIC POINTS

Substrate Max = 40

10

A + B

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

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

Pool Depth Max = 30

0

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

0

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

<input type="checkbox"/> > 4.0 meters [30 pts]	<input checked="" type="checkbox"/> > 1.0 - 1.5 m [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m [25 pts]	<input type="checkbox"/> ≤ 1.0 m [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m [20 pts]	

Bankfull Width Max = 30

15

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

1.1

This information must also be completed

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

### RIPARIAN WIDTH

L	R	(Per Bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Wide > 10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow < 5m
<input type="checkbox"/>	<input type="checkbox"/>	None

### FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Mature Forest, Wetland
<input type="checkbox"/>	<input type="checkbox"/>	Immature Forest, Shrub or Old Field
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture

L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

COMMENTS

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry Channel, no water (Ephemeral)

COMMENTS

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

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

## STREAM GRADIENT ESTIMATE

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

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

**QHEI PERFORMED?** - ☐ Yes ☒ No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☒ WWH Name: Dry Run Distance from Evaluated Stream 1,957 feet  
☐ CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☐ EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangel Name: Withamsville NRCS Soil Map Page: 48 NRCS Soil Map Stream Order 1

County: Hamilton Township / City Anderson

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10-07-08 Quantity: 0.07 inch

Photograph Information: 264-upstream, 265-downstream

Elevated Turbidity? (Y/N): N/A Canopy (% open): 10

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) N/A Dissolved Oxygen (mg/l) N/A pH (S.U.) N/A Conductivity (µmhos/cm) N/A

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: Steep slopes and steep gradient

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

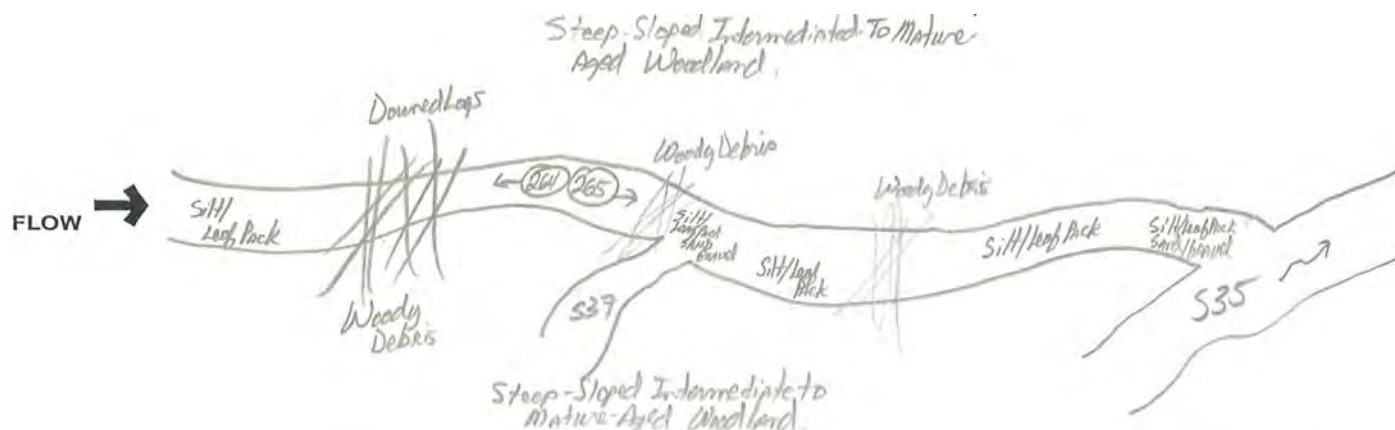
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: None observed

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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







# Primary Headwater Habitat Evaluation Form

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

14

SITE NAME/LOCATION Unnamed Tributary #30

SITE NUMBER S37

RIVER BASIN Little Miami River

DRAINAGE AREA (mi<sup>2</sup>) 0.006

LENGTH OF STREAM REACH (ft) 200

LAT. 39.1129

LONG. 84.3105

RIVER CODE

RIVER MILE 0.0

DATE 10/8/08

SCORER Chris Young

COMMENTS

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

## STREAM CHANNEL MODIFICATIONS:

☒ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]		<input checked="" type="checkbox"/> SILT [3 pts]	85
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	10
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]		<input type="checkbox"/> CLAY or HARDPAN [0 pts]	
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]		<input type="checkbox"/> MUCK [0 pts]	
<input type="checkbox"/> SAND (<2 mm) [6 pts]	5	<input type="checkbox"/> ARTIFICIAL [3 pts]	

Total of Percentages of  
Bldr Slabs, Boulder, Cobble, Bedrock 0 (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

6

TOTAL NUMBER OF SUBSTRATE TYPES:

3 (B)

## HHEI METRIC POINTS

Substrate  
Max = 40

9

A + B

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

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

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

0

Pool Depth  
Max = 30

0

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

<input type="checkbox"/> > 4.0 meters [30 pts]	<input type="checkbox"/> > 1.0 - 1.5 m [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m [25 pts]	<input checked="" type="checkbox"/> ≤ 1.0 m [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

0.7

Bankfull  
Width  
Max = 30

5

This information must also be completed

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

### RIPARIAN WIDTH

L	R	(Per Bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Wide > 10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow < 5m
<input type="checkbox"/>	<input type="checkbox"/>	None

COMMENTS

### FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)	L	R	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Mature Forest, Wetland	<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Immature Forest, Shrub or Old Field	<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field	<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture	<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry Channel, no water (Ephemeral)

COMMENTS

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

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input checked="" type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

## STREAM GRADIENT ESTIMATE

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

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

**QHEI PERFORMED?** - ☐ Yes ☒ No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☒ WWH Name: Dry Run Distance from Evaluated Stream 2,177 feet  
☐ CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☐ EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangel Name: Withamsville NRCS Soil Map Page: 48 NRCS Soil Map Stream Order 1

County: Hamilton Township / City Anderson

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10-07-08 Quantity: 0.07 inch

Photograph Information: 262-upstream, 263-downstream

Elevated Turbidity? (Y/N): N/A Canopy (% open): 10

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) N/A Dissolved Oxygen (mg/l) N/A pH (S.U.) N/A Conductivity (µmhos/cm) N/A

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: Steep slopes and steep gradient

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

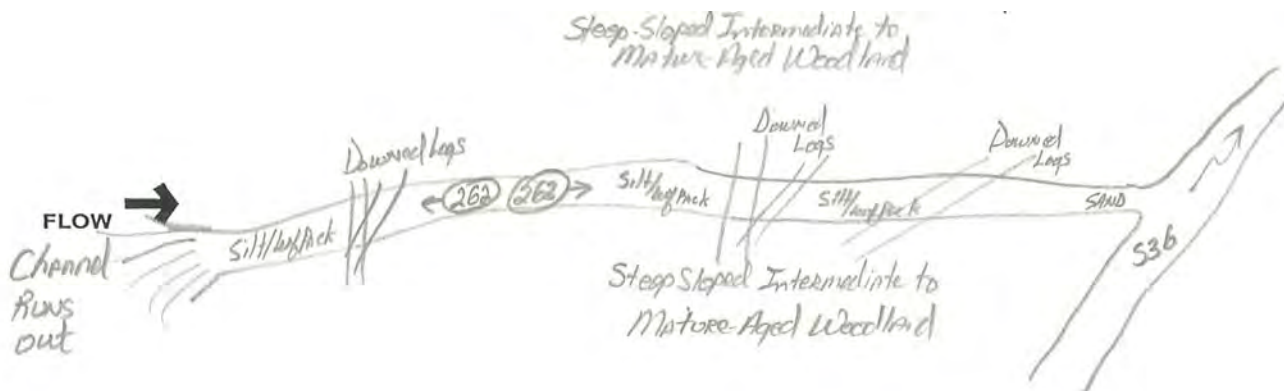
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: None observed

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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





# Primary Headwater Habitat Evaluation Form

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

40

SITE NAME/LOCATION Unnamed Tributary #31

SITE NUMBER S38

RIVER BASIN Little Miami River

DRAINAGE AREA (mi<sup>2</sup>) 0.01

LENGTH OF STREAM REACH (ft) 200

LAT. 39.1104

LONG. 84.3139

RIVER CODE

RIVER MILE 0.08

DATE 10/9/08

SCORER Chris Young

COMMENTS

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

## STREAM CHANNEL MODIFICATIONS:

☒ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]		<input checked="" type="checkbox"/> SILT [3 pts]	30
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	10	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input checked="" type="checkbox"/> COBBLE (65-256 mm) [12 pts]	40	<input type="checkbox"/> CLAY or HARDPAN [0 pts]	
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	10	<input type="checkbox"/> MUCK [0 pts]	
<input type="checkbox"/> SAND (<2 mm) [6 pts]	10	<input type="checkbox"/> ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 50 (A)

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

15

TOTAL NUMBER OF SUBSTRATE TYPES:

5

## HHEI METRIC POINTS

Substrate Max = 40

20

A + B

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

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

Pool Depth Max = 30

0

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

0

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

<input type="checkbox"/> > 4.0 meters [30 pts]	<input type="checkbox"/> > 1.0 - 1.5 m [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m [25 pts]	<input type="checkbox"/> ≤ 1.0 m [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m [20 pts]	

Bankfull Width Max = 30

20

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

1.7

This information must also be completed

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

### RIPARIAN WIDTH

L	R	(Per Bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Wide > 10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow < 5m
<input type="checkbox"/>	<input type="checkbox"/>	None

COMMENTS

### FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)	L	R	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Mature Forest, Wetland	<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Immature Forest, Shrub or Old Field	<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field	<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture	<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry Channel, no water (Ephemeral)

COMMENTS

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

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input checked="" type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

### STREAM GRADIENT ESTIMATE

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



**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

**QHEI PERFORMED?** - ☐ Yes ☒ No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☒ WWH Name: Dry Run Distance from Evaluated Stream 1,646 feet  
☐ CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☐ EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangel Name: Withamsville NRCS Soil Map Page: 48 NRCS Soil Map Stream Order 1

County: Hamilton Township / City Anderson

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10-08-08 Quantity: 0.77 inch

Photograph Information: 270-upstream, 271-downstream

Elevated Turbidity? (Y/N): N/A Canopy (% open): 15

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) N/A Dissolved Oxygen (mg/l) N/A pH (S.U.) N/A Conductivity (µmhos/cm) N/A

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: Steep slopes, steep gradient and several cascades

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

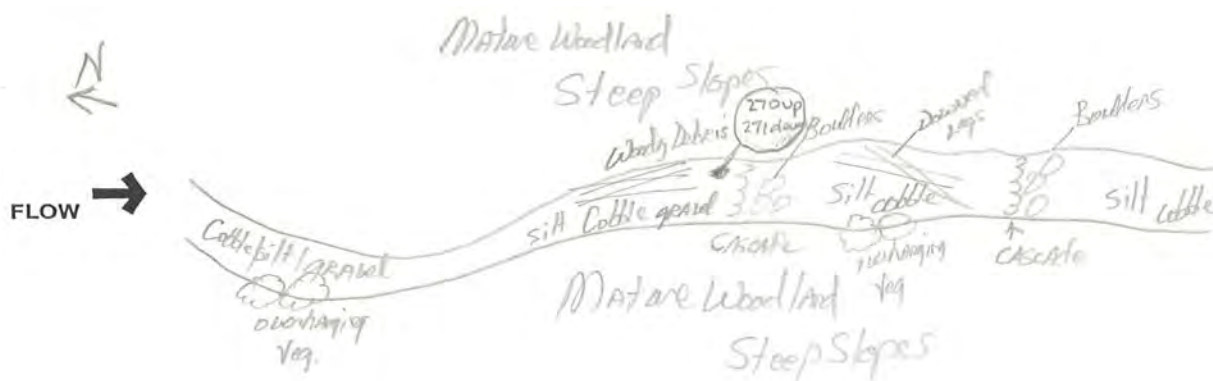
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: None observed

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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





# Primary Headwater Habitat Evaluation Form

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

25

SITE NAME/LOCATION Unnamed Tributary #32

SITE NUMBER S39

RIVER BASIN Little Miami River

DRAINAGE AREA (mi<sup>2</sup>) 0.03

LENGTH OF STREAM REACH (ft) 200

LAT. 39.1100

LONG. 84.3098

RIVER CODE

RIVER MILE 0.48

DATE 10/9/08

SCORER Chris Young

COMMENTS

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

## STREAM CHANNEL MODIFICATIONS:

☒ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]		<input checked="" type="checkbox"/> SILT [3 pts]	60
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	20
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	10	<input type="checkbox"/> CLAY or HARDPAN [0 pts]	
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	10	<input type="checkbox"/> MUCK [0 pts]	
<input type="checkbox"/> SAND (<2 mm) [6 pts]		<input type="checkbox"/> ARTIFICIAL [3 pts]	

Total of Percentages of  
Bldr Slabs, Boulder, Cobble, Bedrock 10 (A)

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

6

TOTAL NUMBER OF SUBSTRATE TYPES:

4

## HHEI METRIC POINTS

Substrate  
Max = 40

10

A + B

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

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

Pool Depth  
Max = 30

0

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

0

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

<input type="checkbox"/> > 4.0 meters [30 pts]	<input checked="" type="checkbox"/> > 1.0 - 1.5 m [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m [25 pts]	<input type="checkbox"/> ≤ 1.0 m [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m [20 pts]	

Bankfull  
Width  
Max = 30

15

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

1.2

This information must also be completed

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

### RIPARIAN WIDTH

L	R	(Per Bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Wide > 10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow < 5m
<input type="checkbox"/>	<input type="checkbox"/>	None

### FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture

L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

COMMENTS

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry Channel, no water (Ephemeral)

COMMENTS

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

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input checked="" type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

## STREAM GRADIENT ESTIMATE

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





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

SITE NAME/LOCATION Unnamed Tributary #33

SITE NUMBER S40

RIVER BASIN Little Miami River

DRAINAGE AREA (mi<sup>2</sup>) 0.02

LENGTH OF STREAM REACH (ft) 200

LAT. 39.1081

LONG. 84.3075

RIVER CODE

RIVER MILE 0.70

DATE 10/9/08

SCORER Chris Young

COMMENTS

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

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

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]		<input type="checkbox"/> SILT [3 pts]	5
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	5	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input checked="" type="checkbox"/> COBBLE (65-256 mm) [12 pts]	40	<input type="checkbox"/> CLAY or HARDPAN [0 pts]	
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	10	<input type="checkbox"/> MUCK [0 pts]	
<input checked="" type="checkbox"/> SAND (<2 mm) [6 pts]	40	<input type="checkbox"/> ARTIFICIAL [3 pts]	

Total of Percentages of  
Bldr Slabs, Boulder, Cobble, Bedrock 45 (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

18

TOTAL NUMBER OF SUBSTRATE TYPES:

5 (B)

HHEI  
METRIC  
POINTSSubstrate  
Max = 40

23

A + B

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

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

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

0

Pool Depth  
Max = 30

0

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

<input type="checkbox"/> > 4.0 meters [30 pts]	<input type="checkbox"/> > 1.0 - 1.5 m [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m [25 pts]	<input type="checkbox"/> ≤ 1.0 m [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

2.0

Bankfull  
Width  
Max = 30

20

This information must also be completed

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

## RIPARIAN WIDTH

L	R	(Per Bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Wide > 10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow < 5m
<input type="checkbox"/>	<input type="checkbox"/>	None

COMMENTS

## FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture

L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry Channel, no water (Ephemeral)

COMMENTS

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

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input checked="" type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

## STREAM GRADIENT ESTIMATE

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

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

**QHEI PERFORMED?** - ☐ Yes ☒ No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☒ WWH Name: Dry Run Distance from Evaluated Stream 3,470 feet  
☐ CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☐ EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangel Name: Withamsville NRCS Soil Map Page: 48 NRCS Soil Map Stream Order 1

County: Hamilton and Clermont Township / City Anderson and Union

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10-08-08 Quantity: 0.77 inch

Photograph Information: 274-upstream, 275-downstream

Elevated Turbidity? (Y/N): N/A Canopy (% open): 10

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) N/A Dissolved Oxygen (mg/l) N/A pH (S.U.) N/A Conductivity (µmhos/cm) N/A

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: Fence running down middle of channel for most of sample reach and beyond

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

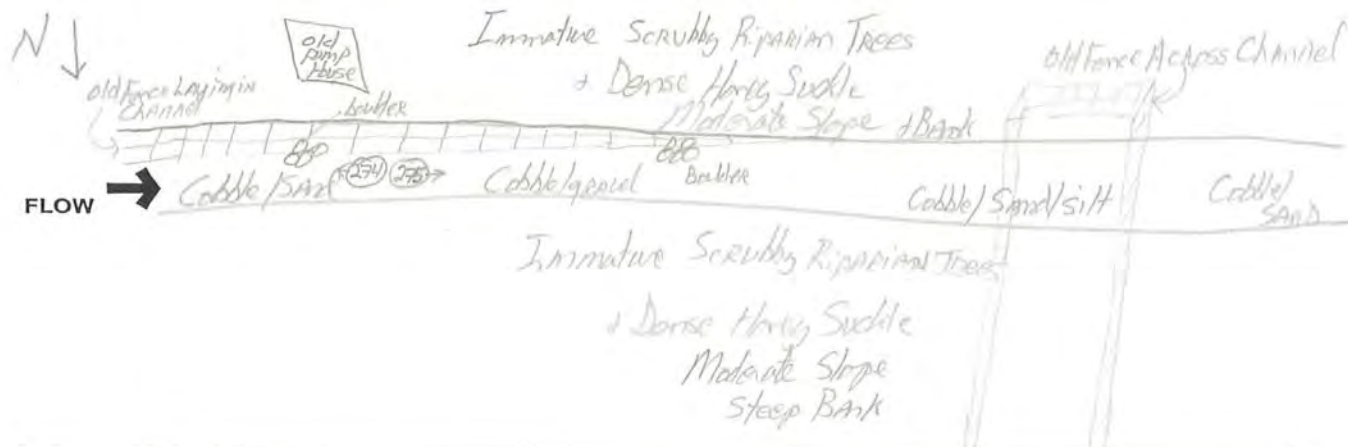
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: None observed

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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





# Primary Headwater Habitat Evaluation Form

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

34

SITE NAME/LOCATION Unnamed Tributary #34

SITE NUMBER S41

RIVER BASIN Little Miami River

DRAINAGE AREA (mi<sup>2</sup>) 0.006

LENGTH OF STREAM REACH (ft) 200

LAT. 39.1078

LONG. 84.3063

RIVER CODE

RIVER MILE 0.75

DATE 10/9/08

SCORER Chris Young

COMMENTS

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

## STREAM CHANNEL MODIFICATIONS:

☒ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]		<input checked="" type="checkbox"/> SILT [3 pts]	40
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	5	<input type="checkbox"/> CLAY or HARDPAN [0 pts]	
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	15	<input type="checkbox"/> MUCK [0 pts]	
<input checked="" type="checkbox"/> SAND (<2 mm) [6 pts]	40	<input type="checkbox"/> ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 5 (A)

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

9

TOTAL NUMBER OF SUBSTRATE TYPES:

4

## HHEI METRIC POINTS

Substrate Max = 40

14

A + B

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

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

Pool Depth Max = 30

0

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

0

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

<input type="checkbox"/> > 4.0 meters [30 pts]	<input type="checkbox"/> > 1.0 - 1.5 m [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m [25 pts]	<input type="checkbox"/> ≤ 1.0 m [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m [20 pts]	

Bankfull Width Max = 30

20

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

2.1

This information must also be completed

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

### RIPARIAN WIDTH

L	R	(Per Bank)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Wide > 10m
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow < 5m
<input type="checkbox"/>	<input type="checkbox"/>	None

### FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture

L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

COMMENTS

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry Channel, no water (Ephemeral)

COMMENTS

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

<input checked="" type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

## STREAM GRADIENT ESTIMATE

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



**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

**QHEI PERFORMED?** - ☐ Yes ☒ No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☒ WWH Name: Dry Run Distance from Evaluated Stream 3,958 feet  
☐ CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☐ EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangle Name: Withamsville NRCS Soil Map Page: 14 NRCS Soil Map Stream Order 1

County: Clermont Township / City Union

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10-08-08 Quantity: 0.77 inch

Photograph Information: 276-upstream, 277-downstream

Elevated Turbidity? (Y/N): N/A Canopy (% open): 15

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) N/A Dissolved Oxygen (mg/l) N/A pH (S.U.) N/A Conductivity (µmhos/cm) N/A

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: Large amounts of trash (buried in silt, car parts, tires, appliances)

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

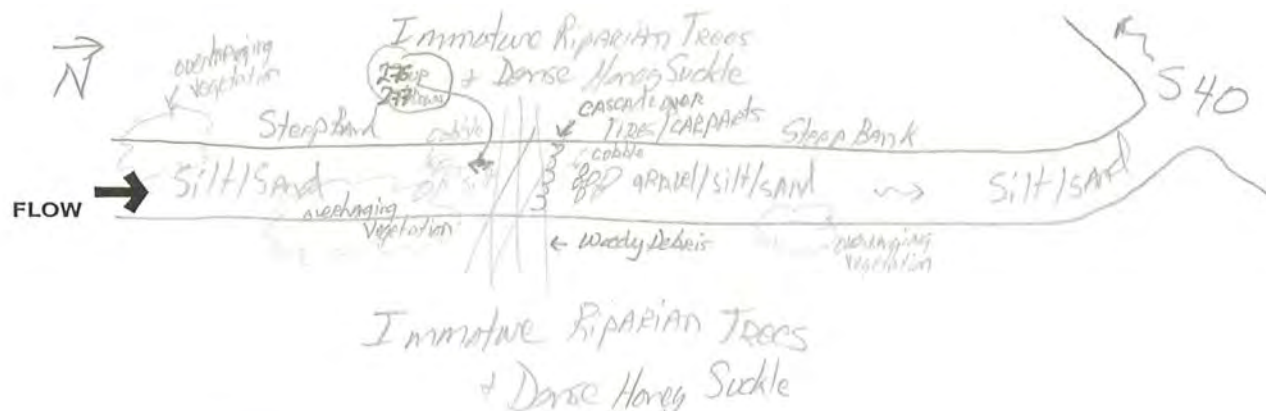
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: None observed

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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





# Primary Headwater Habitat Evaluation Form

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

46

SITE NAME/LOCATION Unnamed Tributary #35

SITE NUMBER S42

RIVER BASIN Little Miami River

DRAINAGE AREA (mi<sup>2</sup>) 0.01

LENGTH OF STREAM REACH (ft) 200

LAT. 39.1090

LONG. 84.3000

RIVER CODE

RIVER MILE 0.49

DATE 10/9/08

SCORER Chris Young

COMMENTS

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

## STREAM CHANNEL MODIFICATIONS:

☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

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

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 40 (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

15

TOTAL NUMBER OF SUBSTRATE TYPES:

6 (B)

## HHEI METRIC POINTS

Substrate Max = 40

21

A + B

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

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

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

4.5

Pool Depth Max = 30

5

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

<input type="checkbox"/> > 4.0 meters [30 pts]	<input type="checkbox"/> > 1.0 - 1.5 m [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m [25 pts]	<input type="checkbox"/> ≤ 1.0 m [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

2.0

Bankfull Width Max = 30

20

This information must also be completed

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

### RIPARIAN WIDTH

L	R	(Per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Wide > 10m
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow < 5m
<input type="checkbox"/>	<input type="checkbox"/>	None

COMMENTS

### FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)	L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland	<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field	<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field	<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture	<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

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

<input checked="" type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry Channel, no water (Ephemeral)

COMMENTS

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

<input checked="" type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

## STREAM GRADIENT ESTIMATE

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

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

**QHEI PERFORMED?** - ☐ Yes ☒ No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☒ WWH Name: Hall Run Distance from Evaluated Stream 2,618 feet  
☐ CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☐ EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangel Name: Withamsville NRCS Soil Map Page: 14 NRCS Soil Map Stream Order 1

County: Clermont Township / City Union

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10-08-08 Quantity: 0.77 inch

Photograph Information: 282-upstream, 283-downstream

Elevated Turbidity? (Y/N): Y Canopy (% open): 5

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) 16.6 Dissolved Oxygen (mg/l) 11.2 pH (S.U.) 8.53 Conductivity (µmhos/cm) 761

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: Some trash in channel

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

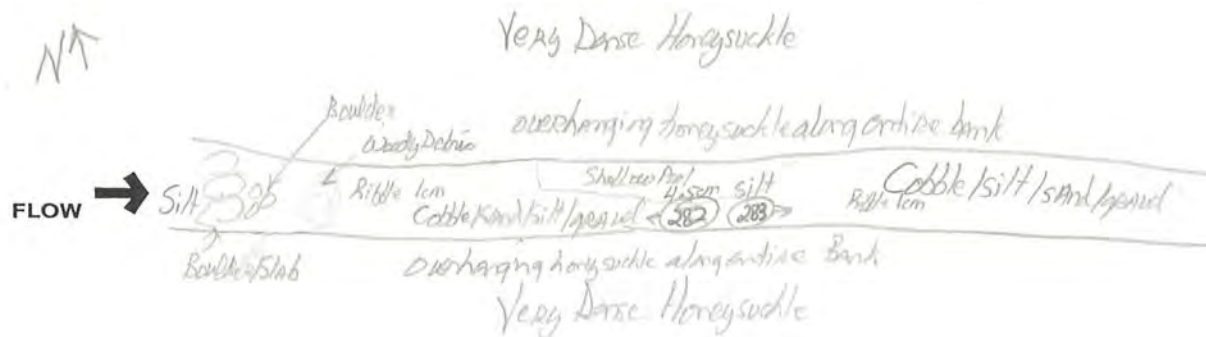
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: None observed

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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







# Primary Headwater Habitat Evaluation Form

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

47

SITE NAME/LOCATION Unnamed Tributary #36

SITE NUMBER S43

RIVER BASIN Little Miami River

DRAINAGE AREA (mi<sup>2</sup>) 0.007

LENGTH OF STREAM REACH (ft) 200

LAT. 39.1152

LONG. 84.3139

RIVER CODE

RIVER MILE 0.0

DATE 10/10/08

SCORER Michael de Villiers

COMMENTS

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

## STREAM CHANNEL MODIFICATIONS:

☐ NONE / NATURAL CHANNEL ☒ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input checked="" type="checkbox"/> BLDR SLABS [16 pts]	50	<input type="checkbox"/> SILT [3 pts]	
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	5
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	5	<input type="checkbox"/> CLAY or HARDPAN [0 pts]	
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	10	<input type="checkbox"/> MUCK [0 pts]	
<input checked="" type="checkbox"/> SAND (<2 mm) [6 pts]	30	<input type="checkbox"/> ARTIFICIAL [3 pts]	

Total of Percentages of  
Bldr Slabs, Boulder, Cobble, Bedrock 55 (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

22

TOTAL NUMBER OF SUBSTRATE TYPES:

5 (B)

## HHEI METRIC POINTS

Substrate  
Max = 40

27

A + B

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

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

Pool Depth  
Max = 30

0

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

0

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

<input type="checkbox"/> > 4.0 meters [30 pts]	<input type="checkbox"/> > 1.0 - 1.5 m [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m [25 pts]	<input type="checkbox"/> ≤ 1.0 m [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m [20 pts]	

Bankfull  
Width  
Max = 30

20

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

2.2

This information must also be completed

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

### RIPARIAN WIDTH

L	R	(Per Bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Wide > 10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow < 5m
<input type="checkbox"/>	<input type="checkbox"/>	None

COMMENTS

### FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)	L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland	<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field	<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field	<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture	<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry Channel, no water (Ephemeral)

COMMENTS

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

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

## STREAM GRADIENT ESTIMATE

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

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

**QHEI PERFORMED?** - ☐ Yes ☒ No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☒ WWH Name: Dry Run Distance from Evaluated Stream 1,080 feet  
☐ CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☐ EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangel Name: Withamsville NRCS Soil Map Page: 48 NRCS Soil Map Stream Order 1

County: Hamilton Township / City Anderson

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10-08-08 Quantity: 0.77 inch

Photograph Information: 284-upstream, 285-downstream

Elevated Turbidity? (Y/N): N/A Canopy (% open): 40

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) N/A Dissolved Oxygen (mg/l) N/A pH (S.U.) N/A Conductivity (µmhos/cm) N/A

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: Lots of trash in channel (tires, cans, plastics, paper)

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

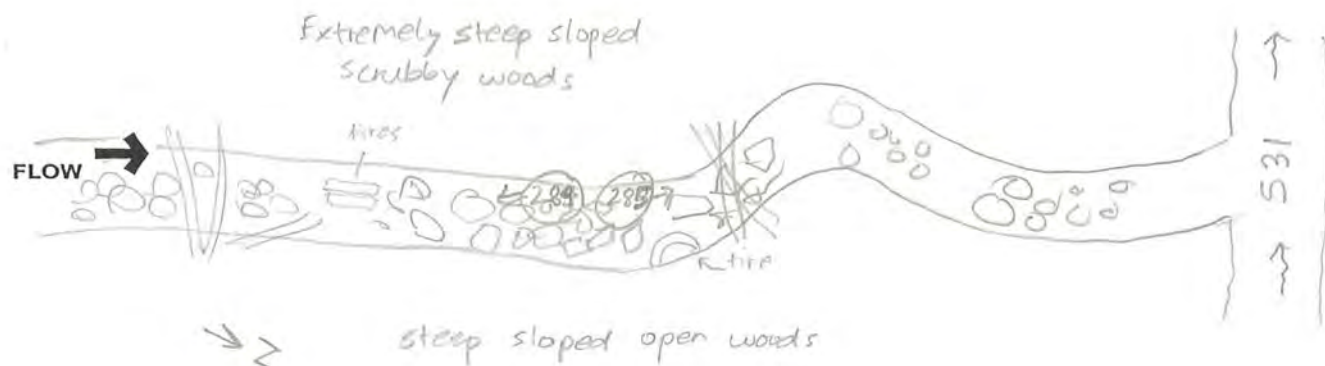
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: None observed

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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



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

SITE NAME/LOCATION Unnamed Tributary #37

SITE NUMBER S44

RIVER BASIN Little Miami River

DRAINAGE AREA (mi<sup>2</sup>) 0.02

LENGTH OF STREAM REACH (ft) 200

LAT. 39.1155

LONG. 84.3121

RIVER CODE

RIVER MILE 0.29

DATE 10/10/08

SCORER Michael de Villiers

COMMENTS

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

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

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input checked="" type="checkbox"/> BLDR SLABS [16 pts]	50	<input checked="" type="checkbox"/> SILT [3 pts]	20
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	
<input type="checkbox"/> BEDROCK [16 pts]	10	<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	10	<input type="checkbox"/> CLAY or HARDPAN [0 pts]	
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]		<input type="checkbox"/> MUCK [0 pts]	
<input type="checkbox"/> SAND (<2 mm) [6 pts]	10	<input type="checkbox"/> ARTIFICIAL [3 pts]	

Total of Percentages of  
Bldr Slabs, Boulder, Cobble, Bedrock 70 (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

19

TOTAL NUMBER OF SUBSTRATE TYPES:

5 (B)

HHEI  
METRIC  
POINTSSubstrate  
Max = 40

24

A + B

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

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

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

4.9

Pool Depth  
Max = 30

5

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

<input type="checkbox"/> > 4.0 meters [30 pts]	<input type="checkbox"/> > 1.0 - 1.5 m [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m [25 pts]	<input type="checkbox"/> ≤ 1.0 m [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

2.9

Bankfull  
Width  
Max = 30

20

This information must also be completed

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

## RIPARIAN WIDTH

L	R	(Per Bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Wide > 10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow < 5m
<input type="checkbox"/>	<input type="checkbox"/>	None

COMMENTS

## FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture

L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

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

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry Channel, no water (Ephemeral)

COMMENTS

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

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input checked="" type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

## STREAM GRADIENT ESTIMATE

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



**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

**QHEI PERFORMED?** - ☐ Yes ☒ No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☒ WWH Name: Dry Run Distance from Evaluated Stream 1,536 feet  
☐ CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☐ EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangel Name: Withamsville NRCS Soil Map Page: 48 NRCS Soil Map Stream Order 2

County: Hamilton Township / City Anderson

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10-08-08 Quantity: 0.77 inch

Photograph Information: 286-upstream, 287-downstream

Elevated Turbidity? (Y/N): Y Canopy (% open): 20

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) 15.2 Dissolved Oxygen (mg/l) 9.1 pH (S.U.) 8.0 Conductivity (µmhos/cm) 2,042

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: N/A

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

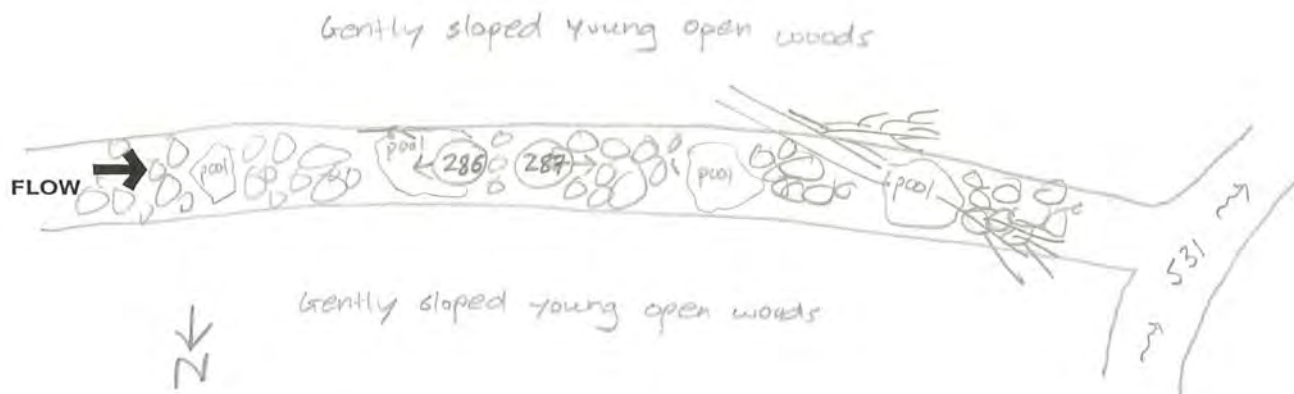
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) Y Voucher? (Y/N) N

Comments Regarding Biology: Observed water striders and aquatic sow bugs

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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



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

SITE NAME/LOCATION Unnamed Tributary #38

SITE NUMBER S45 RIVER BASIN Little Miami River DRAINAGE AREA (mi<sup>2</sup>) 0.005

LENGTH OF STREAM REACH (ft) 200 LAT. 39.1155 LONG. 84.3102 RIVER CODE RIVER MILE 0.0

DATE 10/10/08 SCORER Michael de Villiers COMMENTS

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

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

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input checked="" type="checkbox"/> BLDR SLABS [16 pts]	50	<input checked="" type="checkbox"/> SILT [3 pts]	20
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	5
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	10	<input type="checkbox"/> CLAY or HARDPAN [0 pts]	
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]		<input type="checkbox"/> MUCK [0 pts]	
<input type="checkbox"/> SAND (<2 mm) [6 pts]	15	<input type="checkbox"/> ARTIFICIAL [3 pts]	

Total of Percentages of  
Bldr Slabs, Boulder, Cobble, Bedrock 60 (A)

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

19

TOTAL NUMBER OF SUBSTRATE TYPES:

5

HHEI  
METRIC  
POINTSSubstrate  
Max = 40

24

A + B

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

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

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

4.9

Pool Depth  
Max = 30

5

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

<input type="checkbox"/> > 4.0 meters [30 pts]	<input type="checkbox"/> > 1.0 - 1.5 m [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m [25 pts]	<input type="checkbox"/> ≤ 1.0 m [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

1.7

Bankfull  
Width  
Max = 30

20

This information must also be completed

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

## RIPARIAN WIDTH

L	R	(Per Bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Wide > 10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow < 5m
<input type="checkbox"/>	<input type="checkbox"/>	None

COMMENTS

## FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture

L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

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

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry Channel, no water (Ephemeral)

COMMENTS

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

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

## STREAM GRADIENT ESTIMATE

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

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

**QHEI PERFORMED?** - ☐ Yes ☒ No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☒ WWH Name: Dry Run Distance from Evaluated Stream 2,255 feet  
☐ CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☐ EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangel Name: Withamsville NRCS Soil Map Page: 48 NRCS Soil Map Stream Order 1

County: Hamilton Township / City Anderson

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10-08-08 Quantity: 0.77 inch

Photograph Information: 288-upstream, 289-downstream

Elevated Turbidity? (Y/N): Y Canopy (% open): 10

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) 14.7 Dissolved Oxygen (mg/l) 12.5 pH (S.U.) 8.3 Conductivity (µmhos/cm) 1,629

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: Construction and grading occurring at headwater of channel

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

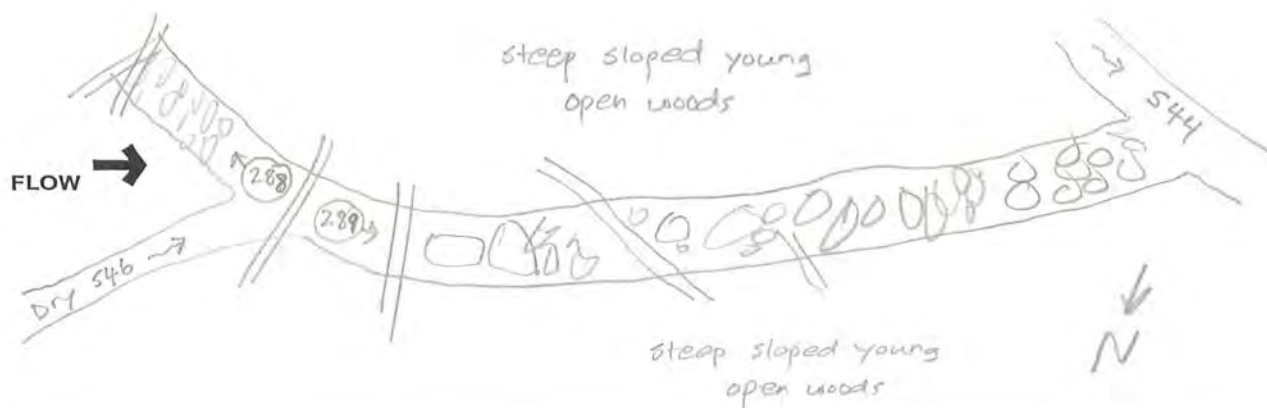
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: None observed

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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





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

SITE NAME/LOCATION Unnamed Tributary #39

SITE NUMBER S46

RIVER BASIN Little Miami River

DRAINAGE AREA (mi<sup>2</sup>) 0.003

LENGTH OF STREAM REACH (ft) 200

LAT. 39.1160

LONG. 84.3092

RIVER CODE

RIVER MILE 0.02

DATE 10/10/08

SCORER Michael de Villiers

COMMENTS

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

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

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]		<input checked="" type="checkbox"/> SILT [3 pts]	30
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	10
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]		<input type="checkbox"/> CLAY or HARDPAN [0 pts]	
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	10	<input type="checkbox"/> MUCK [0 pts]	
<input checked="" type="checkbox"/> SAND (<2 mm) [6 pts]	50	<input type="checkbox"/> ARTIFICIAL [3 pts]	

Total of Percentages of  
Bldr Slabs, Boulder, Cobble, Bedrock 0 (A)

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

9

TOTAL NUMBER OF SUBSTRATE TYPES:

4

HHEI  
METRIC  
POINTSSubstrate  
Max = 40

13

A + B

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

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

Pool Depth  
Max = 30

0

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

0

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

<input type="checkbox"/> > 4.0 meters [30 pts]	<input type="checkbox"/> > 1.0 - 1.5 m [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m [25 pts]	<input checked="" type="checkbox"/> ≤ 1.0 m [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m [20 pts]	

Bankfull  
Width  
Max = 30

5

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

0.9

This information must also be completed

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

## RIPARIAN WIDTH

L	R	(Per Bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Wide > 10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow < 5m
<input type="checkbox"/>	<input type="checkbox"/>	None

## FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture

L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

COMMENTS

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry Channel, no water (Ephemeral)

COMMENTS

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

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input checked="" type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

## STREAM GRADIENT ESTIMATE

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

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

**QHEI PERFORMED?** - ☐ Yes ☒ No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☒ WWH Name: Dry Run Distance from Evaluated Stream 2,171 feet  
☐ CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☐ EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangel Name: Withamsville NRCS Soil Map Page: 48 NRCS Soil Map Stream Order 1

County: Hamilton Township / City Anderson

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10-08-08 Quantity: 0.77 inch

Photograph Information: 290-upstream, 291-downstream

Elevated Turbidity? (Y/N): N/A Canopy (% open): 40

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) N/A Dissolved Oxygen (mg/l) N/A pH (S.U.) N/A Conductivity (µmhos/cm) N/A

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: Lots of fallen trees in channel; some trash (tires, metal)

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

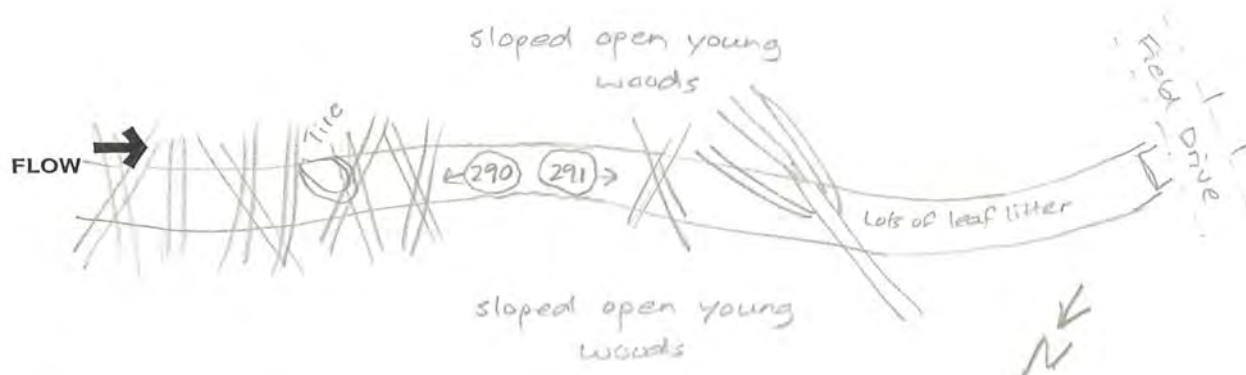
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: None observed

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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





# Primary Headwater Habitat Evaluation Form

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

42

SITE NAME/LOCATION Unnamed Tributary #40

SITE NUMBER S47

RIVER BASIN Little Miami River

DRAINAGE AREA (mi<sup>2</sup>) 0.006

LENGTH OF STREAM REACH (ft) 200

LAT. 39.1167

LONG. 84.3094

RIVER CODE

RIVER MILE 0.0

DATE 10/10/08

SCORER Michael de Villiers

COMMENTS

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

## STREAM CHANNEL MODIFICATIONS:

☒ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	10	<input type="checkbox"/> SILT [3 pts]	10
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input checked="" type="checkbox"/> COBBLE (65-256 mm) [12 pts]	50	<input type="checkbox"/> CLAY or HARDPAN [0 pts]	
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]		<input type="checkbox"/> MUCK [0 pts]	
<input checked="" type="checkbox"/> SAND (<2 mm) [6 pts]	30	<input type="checkbox"/> ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 60 (A)

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

18

TOTAL NUMBER OF SUBSTRATE TYPES:

4

## HHEI METRIC POINTS

Substrate Max = 40

22

A + B

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

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

Pool Depth Max = 30

0

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

0

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

<input type="checkbox"/> > 4.0 meters [30 pts]	<input type="checkbox"/> > 1.0 - 1.5 m [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m [25 pts]	<input type="checkbox"/> ≤ 1.0 m [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m [20 pts]	

Bankfull Width Max = 30

20

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

1.9

This information must also be completed

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

### RIPARIAN WIDTH

L	R	(Per Bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Wide > 10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow < 5m
<input type="checkbox"/>	<input type="checkbox"/>	None

COMMENTS

### FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)	L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland	<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field	<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field	<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture	<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry Channel, no water (Ephemeral)

COMMENTS

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

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input checked="" type="checkbox"/> 2.5	<input type="checkbox"/> >3

### STREAM GRADIENT ESTIMATE

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



**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

**QHEI PERFORMED?** - ☐ Yes ☒ No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☒ WWH Name: Dry Run Distance from Evaluated Stream 2,459 feet  
☐ CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☐ EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangel Name: Withamsville NRCS Soil Map Page: 48 NRCS Soil Map Stream Order 1

County: Hamilton Township / City Anderson

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10-08-08 Quantity: 0.77 inch

Photograph Information: 292-upstream, 293-downstream

Elevated Turbidity? (Y/N): N/A Canopy (% open): 10

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) N/A Dissolved Oxygen (mg/l) N/A pH (S.U.) N/A Conductivity (µmhos/cm) N/A

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: Some trash (plastics, sheet metal)

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

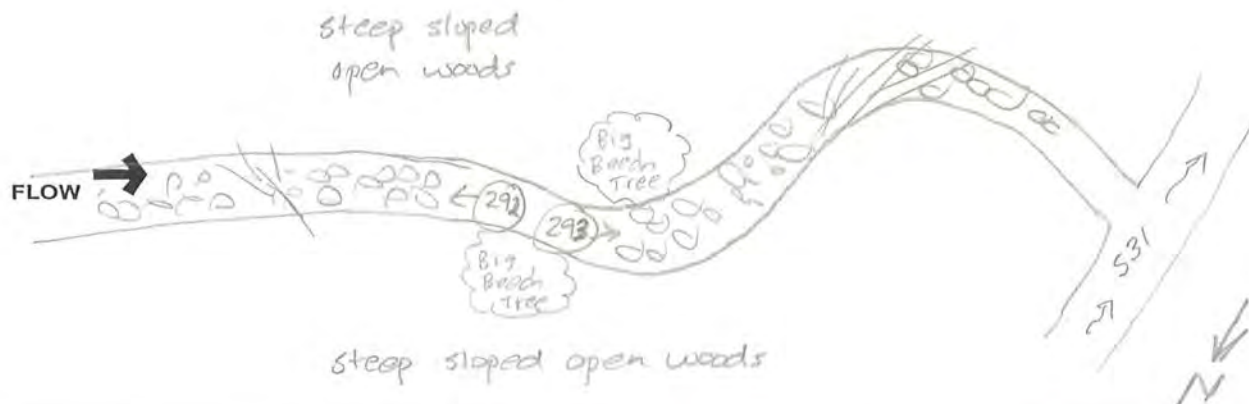
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: None observed

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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



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

SITE NAME/LOCATION Unnamed Tributary #41

SITE NUMBER S48

RIVER BASIN Little Miami River

DRAINAGE AREA (mi<sup>2</sup>) 0.01

LENGTH OF STREAM REACH (ft) 200

LAT. 39.1170

LONG. 84.3099

RIVER CODE

RIVER MILE 0.01

DATE 10/10/08

SCORER Michael de Villiers

COMMENTS

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

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

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	10	<input type="checkbox"/> SILT [3 pts]	10
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input checked="" type="checkbox"/> COBBLE (65-256 mm) [12 pts]	50	<input type="checkbox"/> CLAY or HARDPAN [0 pts]	
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	10	<input type="checkbox"/> MUCK [0 pts]	
<input checked="" type="checkbox"/> SAND (<2 mm) [6 pts]	20	<input type="checkbox"/> ARTIFICIAL [3 pts]	

Total of Percentages of  
Bldr Slabs, Boulder, Cobble, Bedrock 60 (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

18

TOTAL NUMBER OF SUBSTRATE TYPES:

5

HHEI  
METRIC  
POINTSSubstrate  
Max = 40

23

A + B

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

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

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

0

Pool Depth  
Max = 30

0

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

<input type="checkbox"/> > 4.0 meters [30 pts]	<input type="checkbox"/> > 1.0 - 1.5 m [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m [25 pts]	<input type="checkbox"/> ≤ 1.0 m [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

1.6

Bankfull  
Width  
Max = 30

20

This information must also be completed

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

## RIPARIAN WIDTH

L	R	(Per Bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Wide > 10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow < 5m
<input type="checkbox"/>	<input type="checkbox"/>	None

COMMENTS

## FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture

L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry Channel, no water (Ephemeral)

COMMENTS

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

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input checked="" type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

## STREAM GRADIENT ESTIMATE

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

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

**QHEI PERFORMED?** - ☐ Yes ☒ No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☒ WWH Name: Dry Run Distance from Evaluated Stream 2,256 feet  
☐ CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☐ EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangel Name: Withamsville NRCS Soil Map Page: 48 NRCS Soil Map Stream Order 1

County: Hamilton Township / City Anderson

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10-08-08 Quantity: 0.77 inch

Photograph Information: 294-upstream, 295-downstream

Elevated Turbidity? (Y/N): N/A Canopy (% open): 50

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) N/A Dissolved Oxygen (mg/l) N/A pH (S.U.) N/A Conductivity (µmhos/cm) N/A

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: Lots of trash in upstream end of reach

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

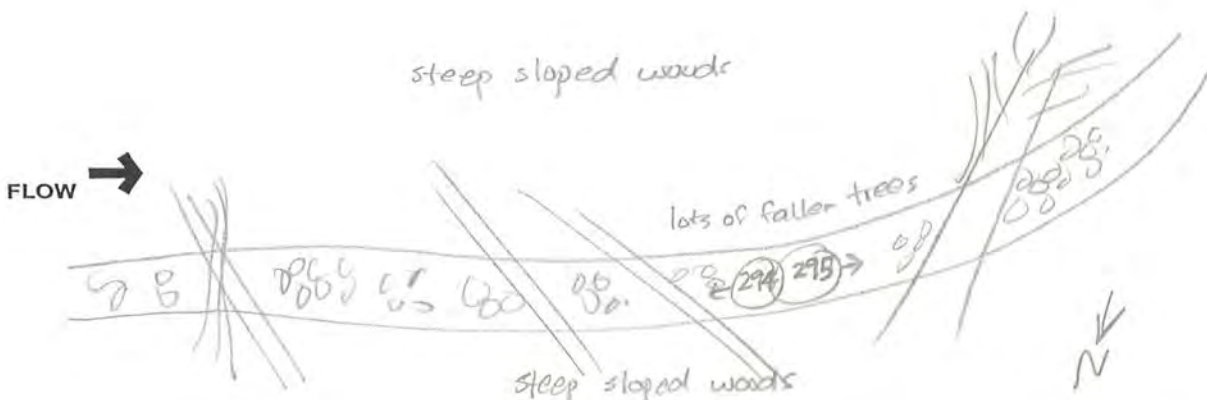
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: None observed

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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







# Primary Headwater Habitat Evaluation Form

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

46

SITE NAME/LOCATION Unnamed Tributary #42

SITE NUMBER S49

RIVER BASIN Little Miami River

DRAINAGE AREA (mi<sup>2</sup>) 0.007

LENGTH OF STREAM REACH (ft) 200

LAT. 39.1153

LONG. 84.3119

RIVER CODE

RIVER MILE 0.0

DATE 10/10/08

SCORER Michael de Villiers

COMMENTS

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

## STREAM CHANNEL MODIFICATIONS:

☒ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input checked="" type="checkbox"/> BLDR SLABS [16 pts]	30	<input type="checkbox"/> SILT [3 pts]	10
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]		<input type="checkbox"/> CLAY or HARDPAN [0 pts]	
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	10	<input type="checkbox"/> MUCK [0 pts]	
<input checked="" type="checkbox"/> SAND (<2 mm) [6 pts]	50	<input type="checkbox"/> ARTIFICIAL [3 pts]	

Total of Percentages of  
Bldr Slabs, Boulder, Cobble, Bedrock 30 (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

22

TOTAL NUMBER OF SUBSTRATE TYPES:

4 (B)

## HHEI METRIC POINTS

Substrate  
Max = 40

26

A + B

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

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

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

0

Pool Depth  
Max = 30

0

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

<input type="checkbox"/> > 4.0 meters [30 pts]	<input type="checkbox"/> > 1.0 - 1.5 m [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m [25 pts]	<input type="checkbox"/> ≤ 1.0 m [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

1.8

Bankfull  
Width  
Max = 30

20

This information must also be completed

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

### RIPARIAN WIDTH

L	R	(Per Bank)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Wide > 10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input type="checkbox"/>	<input type="checkbox"/>	Narrow < 5m
<input type="checkbox"/>	<input type="checkbox"/>	None

COMMENTS

### FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)	L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland	<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field	<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field	<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture	<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry Channel, no water (Ephemeral)

COMMENTS

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

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input checked="" type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

### STREAM GRADIENT ESTIMATE

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

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

**QHEI PERFORMED?** - ☐ Yes ☒ No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☒ WWH Name: Dry Run Distance from Evaluated Stream 1,753 feet  
☐ CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☐ EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangel Name: Withamsville NRCS Soil Map Page: 48 NRCS Soil Map Stream Order 1

County: Hamilton Township / City Anderson

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10-08-08 Quantity: 0.77 inch

Photograph Information: 296-upstream, 297-downstream

Elevated Turbidity? (Y/N): N/A Canopy (% open): 40

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) N/A Dissolved Oxygen (mg/l) N/A pH (S.U.) N/A Conductivity (µmhos/cm) N/A

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: N/A

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

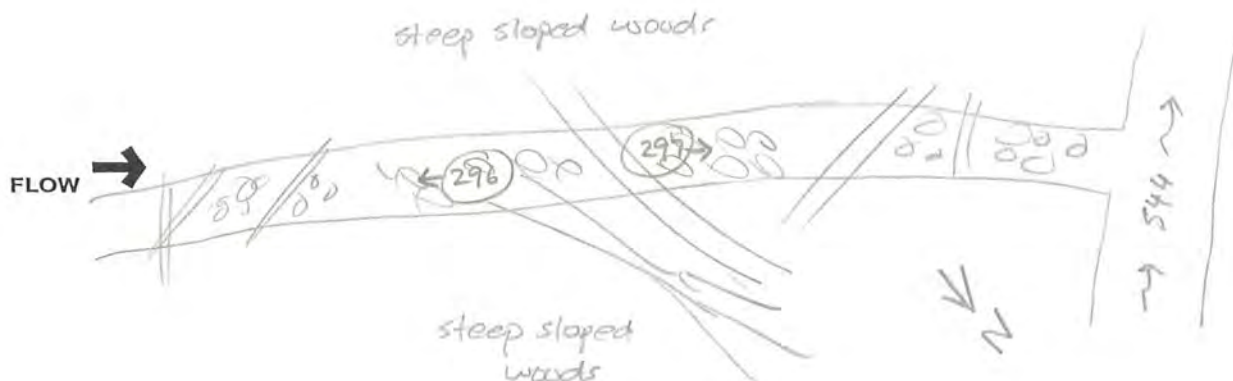
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: None observed

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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





# Primary Headwater Habitat Evaluation Form

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

22

SITE NAME/LOCATION Unnamed Tributary #43

SITE NUMBER S50

RIVER BASIN Little Miami River

DRAINAGE AREA (mi<sup>2</sup>) 0.02

LENGTH OF STREAM REACH (ft) 150

LAT. 39.1123

LONG. 84.3034

RIVER CODE

RIVER MILE 0.92

DATE 10/13/08

SCORER Michael de Villiers

COMMENTS

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

## STREAM CHANNEL MODIFICATIONS:

☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]		<input checked="" type="checkbox"/> SILT [3 pts]	50
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]		<input type="checkbox"/> CLAY or HARDPAN [0 pts]	
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	20	<input type="checkbox"/> MUCK [0 pts]	
<input checked="" type="checkbox"/> SAND (<2 mm) [6 pts]	30	<input type="checkbox"/> ARTIFICIAL [3 pts]	

Total of Percentages of  
Bldr Slabs, Boulder, Cobble, Bedrock 0

(A)

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

9

TOTAL NUMBER OF SUBSTRATE TYPES:

3

## HHEI METRIC POINTS

Substrate  
Max = 40

12

A + B

Pool Depth  
Max = 30

5

Bankfull  
Width  
Max = 30

5

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

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

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

3

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

<input type="checkbox"/> > 4.0 meters [30 pts]	<input type="checkbox"/> > 1.0 - 1.5 m [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m [25 pts]	<input checked="" type="checkbox"/> ≤ 1.0 m [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

0.9

This information must also be completed

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

### RIPARIAN WIDTH

L	R	(Per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Wide > 10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Narrow < 5m
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	None

COMMENTS

### FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland
<input type="checkbox"/>	<input type="checkbox"/>	Immature Forest, Shrub or Old Field
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Residential, Park, New Field
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture

L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

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

<input checked="" type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry Channel, no water (Ephemeral)

COMMENTS

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

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

## STREAM GRADIENT ESTIMATE

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



**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

**QHEI PERFORMED?** - ☐ Yes ☒ No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☒ WWH Name: Hall Run Distance from Evaluated Stream 4,839 feet  
☐ CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☐ EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

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

USGS Quadrangel Name: Withamsville NRCS Soil Map Page: 14 NRCS Soil Map Stream Order 1

County: Clermont Township / City Union

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10-08-08 Quantity: 0.77 inch

Photograph Information: 303-upstream, 304-downstream

Elevated Turbidity? (Y/N): N Canopy (% open): 80

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) 15.3 Dissolved Oxygen (mg/l) 6.1 pH (S.U.) 7.7 Conductivity (µmhos/cm) 1,093

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: Some plastics

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

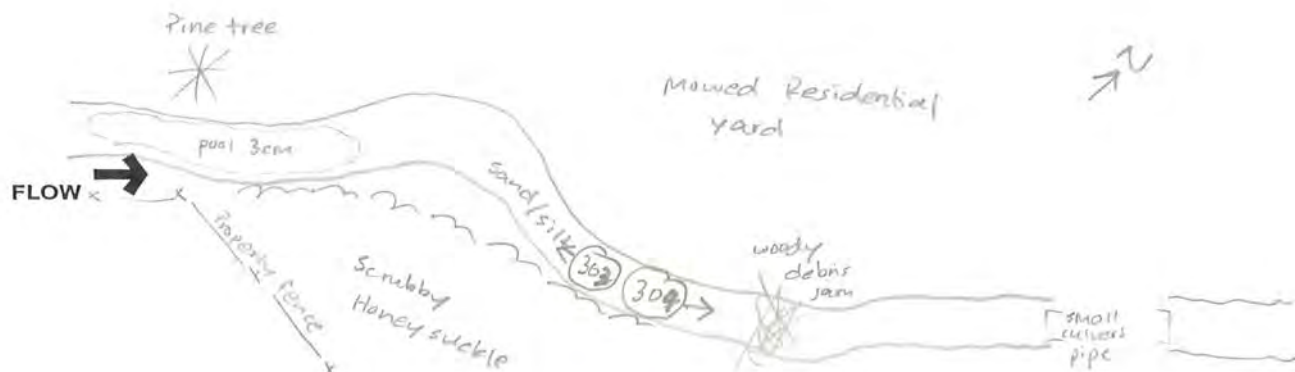
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: None observed

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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



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

SITE NAME/LOCATION Clear CreekSITE NUMBER S51RIVER BASIN Little Miami RiverDRAINAGE AREA (mi<sup>2</sup>) 0.80LENGTH OF STREAM REACH (ft) 200LAT. 39.1318LONG. 84.3776

RIVER CODE \_\_\_\_\_

RIVER MILE 1.03DATE 09/26/08SCORER Michael de Villiers

COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions****STREAM CHANNEL MODIFICATIONS:**☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	_____	<input checked="" type="checkbox"/> <input type="checkbox"/> SILT [3 pts]	50
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	_____	<input type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	10
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pts]	_____	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	_____
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	_____	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pts]	_____
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	_____	<input checked="" type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	40
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	_____	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	_____

Total of Percentages of  
Bldr Slabs, Boulder, Cobble, Bedrock 0 (A)

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3TOTAL NUMBER OF SUBSTRATE TYPES: 3**HHEI METRIC POINTS**Substrate  
Max = 40

6

A + B

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

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

Pool Depth  
Max = 30

20

COMMENTS \_\_\_\_\_

MAXIMUM POOL DEPTH (centimeters): 39

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

<input checked="" type="checkbox"/> > 4.0 meters [30 pts]	<input type="checkbox"/> > 1.0 - 1.5 m [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m [25 pts]	<input type="checkbox"/> ≤ 1.0 m [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m [20 pts]	

Bankfull  
Width  
Max = 30

30

COMMENTS \_\_\_\_\_

AVERAGE BANKFULL WIDTH (meters): 9.0This information must also be completed**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆ NOTE: River Left (L) and Right (R) as looking downstream☆**RIPARIAN WIDTH**

L	R	(Per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Wide > 10m
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Narrow < 5m
<input type="checkbox"/>	<input checked="" type="checkbox"/>	None

**FLOODPLAIN QUALITY**

L	R	(Most Predominant per Bank)
<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland
<input type="checkbox"/>	<input type="checkbox"/>	Immature Forest, Shrub or Old Field
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture

L	R	
<input type="checkbox"/>	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Urban or Industrial
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction

COMMENTS \_\_\_\_\_

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

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry Channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

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

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input checked="" type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

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

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

**QHEI PERFORMED?** - ☐ Yes ☒ No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☐ WWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☐ CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
☒ EWH Name: Little Miami River Distance from Evaluated Stream 1.03 miles

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

USGS Quadrangel Name: Cincinnati East NRCS Soil Map Page: 47 NRCS Soil Map Stream Order 2

County: Hamilton Township / City Anderson

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 9-14-08 Quantity: 0.01 inch

Photograph Information: 120-upstream

Elevated Turbidity? (Y/N): Y Canopy (% open): 90

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: N/A

Field Measures: Temp (°C) N/A Dissolved Oxygen (mg/l) N/A pH (S.U.) N/A Conductivity (µmhos/cm) N/A

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: Upstream and downstream are wetlands

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

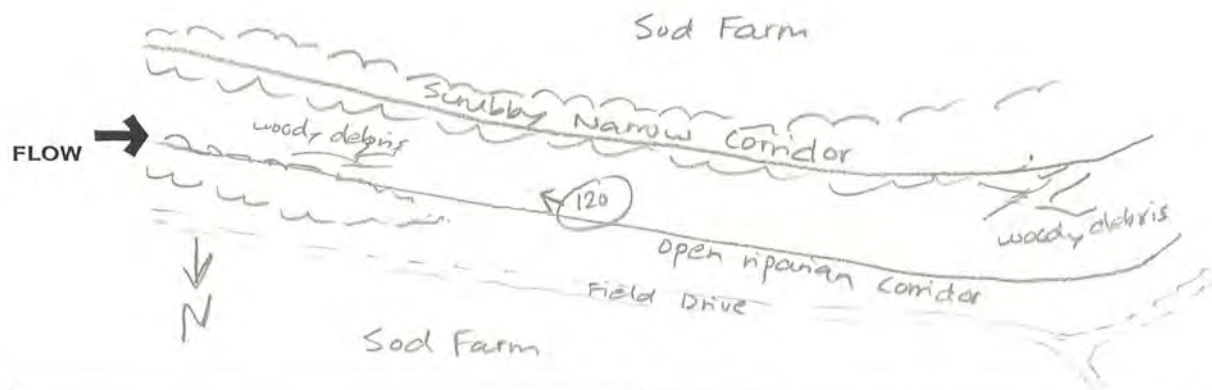
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N

Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: None observed

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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



## ***APPENDIX D***

### ***Wetland Determination Forms***



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

Project Name: <u>Eastern Corridor Segment II/III</u> Wetland Site: <u>Wetland #1</u> Investigator: <u>MikeD</u>	Date: <u>8/27/2008</u> County: <u>Hamilton</u> State: <u>Ohio</u>
Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (If needed, explain) _____	Community ID: <u>Emergent</u> Transect ID: _____ Plot ID: _____ Location: <u>Point In</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>	Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>
<i>Echinochloa muricata</i>	Herb	FACW+			
<i>Leersia oryzoides</i>	Herb	OBL			
<i>Acer saccharinum</i>	Sapling	FACW			
<i>Populus deltoides</i>	Sapling	FAC			
<i>Alnus glutinosa</i>	Sapling	FACW-			

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

Remarks: > 50% wetland species

HYDROLOGY

Recorded Data (Describe in Remarks) _____ Stream, Lake, or Tide Gauge _____ Aerial Photographs _____ Other <input checked="" type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input checked="" type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in upper 12 Inches _____ Water Marks _____ Drift Lines _____ Sediment Deposits <input checked="" type="checkbox"/> Drainage Patterns in Wetland Secondary Indicators (2 or more required): _____ Oxidized Root Channels in Upper 12 Inches _____ Water-Stained Leaves _____ Local Soil Survey Data _____ FAC-Neutral Test _____ Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u>0-3</u> (in.) Depth to Free Water in Pit: <u>&gt;8</u> (in.) Depth to Saturated Soil: <u>&gt;8</u> (in.)	

Remarks: Hydrology indicators present

SOILS

Map Unit Name (Series and Phase): <u>Genesee-Urban Land Complex</u> Taxonomy (Subgroup): <u>Typic Udifluvents</u>	Drainage Class: <u>Well drained</u> Field Observations Confirmed Mapped Type? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																				
Profile Description: <table style="width: 100%;"> <tr> <th style="width: 15%;">Depth (inches)</th> <th style="width: 15%;">Horizon</th> <th style="width: 25%;">Matrix Color (Munsell Moist)</th> <th style="width: 25%;">Mottle Abundance/Size/Contrast</th> <th style="width: 20%;">Tex./Conc./Structure, etc.</th> </tr> <tr> <td><u>0-8"</u></td> <td></td> <td><u>10YR4/1</u></td> <td><u>10YR4/4</u></td> <td></td> </tr> <tr> <td> </td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> </td> <td></td> <td></td> <td></td> <td></td> </tr> </table>		Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.	<u>0-8"</u>		<u>10YR4/1</u>	<u>10YR4/4</u>											
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.																	
<u>0-8"</u>		<u>10YR4/1</u>	<u>10YR4/4</u>																		
Hydric Soil Indicators: <table style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Histol  <input type="checkbox"/> Histic Epipedon  <input type="checkbox"/> Sulfuric Odor  <input type="checkbox"/> Aquic Moisture Regime  <input type="checkbox"/> Reducing Conditions  <input checked="" type="checkbox"/> Gleyed or Low Chroma Colors         </td> <td style="width: 50%; vertical-align: top;"> <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)         </td> </tr> </table>		<input type="checkbox"/> Histol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfuric Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input checked="" 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)																		
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Remarks: Hydric soil indicators present

WETLAND DETERMINATION

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

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

# WETLAND DATA FORM VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #1 State: Ohio  
Investigator: MikeD  
Description: Emergent

Date: 8/27/2008  
County: Hamilton  
Location: Point In

Herbaceous Species	Common Name	Indicator <sup>1</sup> Status	Percent Areal Cover	Rank <sup>2</sup>
1 <i>Echinochloa muricata</i>	barnyard grass	FACW+	60	1 *
2 <i>Leersia oryzoides</i>	cutgrass (rice)	OBL	40	2 *
3 <i>Polygonum hydropiper</i>	waterpepper	OBL	30	3
4 <i>Typha angustifolia</i>	cattail (narrow-leaved)	OBL	20	4
5 <i>Cyperus strigosus</i>	umbrella sedge (strawcolor flat)	FACW	5	5
6 <i>Polygonum amphibian</i>	smartweed (water)	OBL	5	5
7 <i>Scirpus atrovirens</i>	bulrush (small)	OBL	5	5
8 <i>Impatiens capensis</i>	jewelweed (touch-me-not)	FACW	2	6
9				0
10				0
Sum of Percent Areal Cover			167	
0.5 X Sum of Percent Areal Cover			83.5	

Tree Species	Common Name	Indicator <sup>1</sup> Status	Percent Areal Cover	Rank <sup>2</sup>
1				0
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Shrub Species	Common Name	Indicator <sup>1</sup> Status	Percent Areal Cover	Rank <sup>2</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Sapling Species	Common Name	Indicator <sup>1</sup> Status	Percent Areal Cover	Rank <sup>2</sup>
1 <i>Acer saccharinum</i>	maple (silver)	FACW	2	1 *
2 <i>Populus deltoides</i>	cottonwood (eastern)	FAC	2	1 *
3 <i>Alnus glutinosa</i>	alder (European)	FACW-	2	1 *
Sum of Percent Areal Cover			8	
0.5 X Sum of Percent Areal Cover			4	

Woody Vine Species	Common Name	Indicator <sup>1</sup> Status	Percent Areal Cover	Rank <sup>2</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.

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

Project Name: <u>Eastern Corridor Segment II/III</u> Wetland Site: <u>Wetland #1</u> Investigator: <u>MikeD</u>	Date: <u>8/27/2008</u> County: <u>Hamilton</u> State: <u>Ohio</u>
Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (If needed, explain) _____	Community ID: <u>Upland</u> Transect ID: _____ Plot ID: _____ Location: <u>Point Out</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>	Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>
<i>Melilotus officianalis</i>	Herb	FACU-			
<i>Aster ericoides</i>	Herb	FACU			
<i>Bromus inermis</i>	Herb	Not Listed			

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

Remarks: < 50% wetland species

HYDROLOGY

Recorded Data (Describe in Remarks) ___ Stream, Lake, or Tide Gauge ___ Aerial Photographs ___ Other <input checked="" type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: ___ Inundated ___ Saturated in upper 12 Inches ___ Water Marks ___ Drift Lines ___ Sediment Deposits ___ Drainage Patterns in Wetland Secondary Indicators (2 or more required): ___ Oxidized Root Channels in Upper 12 Inches ___ Water-Stained Leaves ___ Local Soil Survey Data ___ FAC-Neutral Test ___ Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u>0</u> (in.) Depth to Free Water in Pit: <u>&gt;8</u> (in.) Depth to Saturated Soil: <u>&gt;8</u> (in.)	

Remarks: No wetland hydrology indicators

SOILS

Map Unit Name (Series and Phase): <u>Genesee-Urban Land Complex</u> Taxonomy (Subgroup): <u>Typic Udifluvents</u>	Drainage Class: <u>Well drained</u> Field Observations Confirmed Mapped Type? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																										
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Hydric Soil Indicators: <table style="width: 100%;"> <tr> <td style="width: 50%;">           ___ Histol            ___ Histic Epipedon            ___ Sulfuric Odor            ___ Aquic Moisture Regime            ___ Reducing Conditions            ___ Gleyed or Low Chroma Colors         </td> <td style="width: 50%;">           ___ Concretions            ___ High Organic Content in Surface Layer in Sandy Soils            ___ Organic Streaking in Sandy Soils            ___ Listed on Local Hydric Soils List            ___ Listed on National Hydric Soils List            ___ Other (Explain in Remarks)         </td> </tr> </table>			___ Histol ___ Histic Epipedon ___ Sulfuric Odor ___ Aquic Moisture Regime ___ Reducing Conditions ___ Gleyed or Low Chroma Colors	___ Concretions ___ High Organic Content in Surface Layer in Sandy Soils ___ Organic Streaking in Sandy Soils ___ Listed on Local Hydric Soils List ___ Listed on National Hydric Soils List ___ Other (Explain in Remarks)																							
___ Histol ___ Histic Epipedon ___ Sulfuric Odor ___ Aquic Moisture Regime ___ Reducing Conditions ___ Gleyed or Low Chroma Colors	___ Concretions ___ High Organic Content in Surface Layer in Sandy Soils ___ Organic Streaking in Sandy Soils ___ Listed on Local Hydric Soils List ___ Listed on National Hydric Soils List ___ Other (Explain in Remarks)																										

Remarks: No hydric soil indicators

WETLAND DETERMINATION

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

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #1 State: Ohio  
Investigator: MikeD  
Description: Upland

Date: 8/27/2008  
County: Hamilton  
Location: Point Out

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Melilotus officianalis</i>	clover (yellow sweet-)	FACU-	20	1 *
2 <i>Aster ericoides</i>	aster (heath)	FACU	20	1 *
3 <i>Bromus inermis</i>	bromegrass (smooth)	Not Listed	20	1 *
4 <i>Trifolium repens</i>	clover (white)	FACU-	15	2
5 <i>Daucus carota</i>	Queen Anne's lace	Not Listed	10	3
6 <i>Cichorium intybus</i>	chicory	Not Listed	5	4
7 <i>Solidago altissima</i>	goldenrod (tall)	FACU-	5	4
8				0
9				0
10				0
Sum of Percent Areal Cover			95	
0.5 X Sum of Percent Areal Cover			47.5	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.



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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>9/24/2008</u>
Wetland Site: <u>Wetland #2</u>	County: <u>Hamilton</u>
Investigator: <u>MikeD</u>	State: <u>Ohio</u>
Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Forested/Emergent/Scrub-Shrub</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point In</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>	Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>
<i>Polygonum persicaria</i>	Herb	FACW			
<i>Acer saccharinum</i>	Tree	FACW			
<i>Salix fragilis</i>	Shrub	FAC+			
<i>Salix nigra</i>	Shrub	FACW+			
<i>Acer saccharinum</i>	Sapling	FACW			

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

Remarks: > 50% wetland species

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p><input type="checkbox"/> Stream, Lake, or Tide Gauge</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p><input type="checkbox"/> Inundated</p> <p><input checked="" type="checkbox"/> Saturated in upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water Marks</p> <p><input checked="" type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input checked="" type="checkbox"/> Drainage Patterns in Wetland</p> <p>Secondary Indicators (2 or more required):</p> <p><input checked="" 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>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;8</u> (in.)</p> <p>Depth to Saturated Soil: <u>0</u> (in.)</p>	
Remarks: <u>Hydrology indicators present</u>	

SOILS

Map Unit Name (Series and Phase): <u>Jules Silt Loam</u>	Drainage Class: <u>Well drained</u>																				
Taxonomy (Subgroup): <u>Typic Udifluvents</u>	Field Observations Confirmed Mapped Type? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																				
<p>Profile Description:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Depth (inches)</th> <th style="width: 15%;">Horizon</th> <th style="width: 25%;">Matrix Color (Munsell Moist)</th> <th style="width: 25%;">Mottle Abundance/Size/Contrast</th> <th style="width: 20%;">Tex./Conc./Structure, etc.</th> </tr> </thead> <tbody> <tr> <td>0-9"</td> <td></td> <td>10Y4/1</td> <td>10YR4/4</td> <td></td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>		Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.	0-9"		10Y4/1	10YR4/4											
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.																	
0-9"		10Y4/1	10YR4/4																		
<p>Hydric Soil Indicators:</p> <p><input type="checkbox"/> Histol <input checked="" type="checkbox"/> Concretions</p> <p><input type="checkbox"/> Histic Epipedon <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils</p> <p><input type="checkbox"/> Sulfuric Odor <input type="checkbox"/> Organic Streaking in Sandy Soils</p> <p><input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Listed on Local Hydric Soils List</p> <p><input type="checkbox"/> Reducing Conditions <input type="checkbox"/> Listed on National Hydric Soils List</p> <p><input checked="" type="checkbox"/> Gleyed or Low Chroma Colors <input type="checkbox"/> Other (Explain in Remarks)</p>																					
Remarks: <u>Hydric soil indicators present</u>																					

WETLAND DETERMINATION

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

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #2 State: Ohio  
Investigator: MikeD  
Description: Forested/Emergent/Scrub-Shrub

Date: 9/24/2008  
County: Hamilton  
Location: Point In

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Polygonum persicaria</i>	lady's thumb	FACW	60	1 *
2 <i>Echinochloa muricata</i>	barnyard grass	FACW+	15	2
3 <i>Senecio aureus</i>	ragwort (golden)	FACW	5	3
4 <i>Xanthium strumarium</i>	clotbur (wetland)	FAC	5	3
5 <i>Cyperus strigosus</i>	umbrella sedge (strawcolor flat)	FACW	3	4
6				0
7				0
8				0
9				0
10				0
Sum of Percent Areal Cover			88	
0.5 X Sum of Percent Areal Cover			44	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Acer saccharinum</i>	maple (silver)	FACW	50	1 *
2 <i>Fraxinus pennsylvanica</i>	ash (green)	FACW	10	2
3 <i>Salix nigra</i>	willow (black)	FACW+	5	3
4				0
5				0
Sum of Percent Areal Cover			65	
0.5 X Sum of Percent Areal Cover			32.5	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Salix fragilis</i>	willow (crack)	FAC+	10	1 *
2 <i>Salix nigra</i>	willow (black)	FACW+	5	2 *
3				0
Sum of Percent Areal Cover			15	
0.5 X Sum of Percent Areal Cover			7.5	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Acer saccharinum</i>	maple (silver)	FACW	10	1 *
2				0
3				0
Sum of Percent Areal Cover			10	
0.5 X Sum of Percent Areal Cover			5	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.

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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>9/24/2008</u>
Wetland Site: <u>Wetland #2</u>	County: <u>Hamilton</u>
Investigator: <u>MikeD</u>	State: <u>Ohio</u>
Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
(If needed, explain) _____	
Community ID: <u>Upland</u>	Transect ID: _____
Plot ID: _____	Location: <u>Point Out</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status [1]	Dominant Plant Species	Stratum	Indicator Status [1]
<i>Setaria faberii</i>	Herb	UPL			
<i>Dipsacus laciniatus</i>	Herb	Not Listed			

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

Remarks: < 50% wetland species

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p><input type="checkbox"/> Stream, Lake, or Tide Gauge</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</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 Wetland</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>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;8</u> (in.)</p> <p>Depth to Saturated Soil: <u>&gt;8</u> (in.)</p>	
Remarks: <u>No wetland hydrology indicators</u>	

SOILS

Map Unit Name (Series and Phase): <u>Jules Silt Loam</u>	Drainage Class: <u>Well drained</u>			
Taxonomy (Subgroup): <u>Typic Udifluvents</u>	Field Observations Confirmed Mapped Type? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
Profile Description:				
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.
<u>0-9"</u>		<u>MIXED FILL</u>		

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

Remarks: No hydric soil indicators

WETLAND DETERMINATION

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

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #2 State: Ohio  
Investigator: MikeD  
Description: Upland

Date: 9/24/2008  
County: Hamilton  
Location: Point Out

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Setaria faberii</i>	foxtail (japanese bristle grass)	UPL	30	1 *
2 <i>Dipsacus laciniatus</i>	teasel (cups stem)	Not Listed	15	2 *
3 <i>Ambrosia artemisiifolia</i>	ragweed (annual)	FACU	10	3
4 <i>Cirsium discolor</i>	thistle (field)	Not Listed	10	3
5 <i>Cichorium intybus</i>	chicory	Not Listed	5	4
6				0
7				0
8				0
9				0
10				0
Sum of Percent Areal Cover			70	
0.5 X Sum of Percent Areal Cover			35	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.



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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>9/24/2008</u>
Wetland Site: <u>Wetland #3</u>	County: <u>Hamilton</u>
Investigator: <u>MikeD</u>	State: <u>Ohio</u>

Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Emergent</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point In</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>	Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>
<u>Echinochloa muricata</u>	<u>Herb</u>	<u>FACW+</u>	_____	_____	_____
<u>Bidens frondosa</u>	<u>Herb</u>	<u>FACW</u>	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

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

Remarks: > 50% wetland species

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p>____ Stream, Lake, or Tide Gauge</p> <p>____ Aerial Photographs</p> <p>____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</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><input checked="" type="checkbox"/> Water Marks</p> <p>____ Drift Lines</p> <p><input checked="" type="checkbox"/> Sediment Deposits</p> <p>____ Drainage Patterns in Wetland</p> <p>Secondary Indicators (2 or more required):</p> <p><input checked="" type="checkbox"/> 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>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;8</u> (in.)</p> <p>Depth to Saturated Soil: <u>2</u> (in.)</p>	

Remarks: Hydrology indicators present

SOILS

Map Unit Name (Series and Phase): <u>Jules Silt Loam</u>	Drainage Class: <u>Well drained</u>
Taxonomy (Subgroup): <u>Typic Udifluvents</u>	Field Observations Confirmed Mapped Type? Yes _____ No <input checked="" type="checkbox"/>

Profile Description:	Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.
0-9"			<u>5Y4/1</u>	<u>10YR4/4</u>	
9-10"			<u>5Y4/1</u>	<u>7.5YR3/4</u>	
_____					

Hydric Soil Indicators:	<input checked="" 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)
<input type="checkbox"/> Histol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfuric Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input checked="" type="checkbox"/> Gleyed or Low Chroma Colors	

Remarks: Hydric soil indicators present

WETLAND DETERMINATION

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

Remarks: All wetland criteria met.

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #3 State: Ohio  
Investigator: MikeD  
Description: Emergent

Date: 9/24/2008  
County: Hamilton  
Location: Point In

Herbaceous Species	Common Name	Indicator <sup>1</sup> Status	Percent Areal Cover	Rank <sup>2</sup>
1 <i>Echinochloa muricata</i>	barnyard grass	FACW+	90	1 *
2 <i>Bidens frondosa</i>	beggar-ticks (devil's)	FACW	90	1 *
3				0
4				0
5				0
6				0
7				0
8				0
9				0
10				0
Sum of Percent Areal Cover			180	
0.5 X Sum of Percent Areal Cover			90	

Tree Species	Common Name	Indicator <sup>1</sup> Status	Percent Areal Cover	Rank <sup>2</sup>
1				0
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Shrub Species	Common Name	Indicator <sup>1</sup> Status	Percent Areal Cover	Rank <sup>2</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Sapling Species	Common Name	Indicator <sup>1</sup> Status	Percent Areal Cover	Rank <sup>2</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Woody Vine Species	Common Name	Indicator <sup>1</sup> Status	Percent Areal Cover	Rank <sup>2</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.

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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>9/24/2008</u>
Wetland Site: <u>Wetland #3</u>	County: <u>Hamilton</u>
Investigator: <u>MikeD</u>	State: <u>Ohio</u>
Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Upland</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point Out</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>	Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>
<i>Setaria faberii</i>	Herb	UPL			
<i>Ambrosia artemisiifolia</i>	Herb	FACU			
<i>Toxicodendron radicans</i>	W. Vine	FAC			

% Dominant Plant Species that are OBL, FACW or FAC (excluding FAC-): 33.33

Remarks: < 50% wetland species

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p><input type="checkbox"/> Stream, Lake, or Tide Gauge</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</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 Wetland</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>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;8</u> (in.)</p> <p>Depth to Saturated Soil: <u>&gt;8</u> (in.)</p>	
Remarks: <u>No wetland hydrology indicators</u>	

SOILS

Map Unit Name (Series and Phase): <u>Jules Silt Loam</u>	Drainage Class: <u>Well drained</u>	Field Observations																																													
Taxonomy (Subgroup): <u>Typic Udifluvents</u>	Confirmed Mapped Type?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																																													
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Remarks: <u>No hydric soil indicators</u>																																															

WETLAND DETERMINATION

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

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #3 State: Ohio  
Investigator: MikeD  
Description: Upland

Date: 9/24/2008  
County: Hamilton  
Location: Point Out

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Setaria faberii</i>	foxtail (japanese bristle grass)	UPL	35	1 *
2 <i>Ambrosia artemisiifolia</i>	ragweed (annual)	FACU	15	2 *
3 <i>Cichorium intybus</i>	chicory	Not Listed	10	3
4 <i>Trifolium pratense</i>	clover (red)	FACU-	10	3
5 <i>Dipsacus laciniatus</i>	teasel (cups stem)	Not Listed	10	3
6 <i>Cirsium discolor</i>	thistle (field)	Not Listed	10	3
7 <i>Chenopodium hybridum</i>	goosefoot (maple-leaved)	Not Listed	5	4
8				0
9				0
10				0
Sum of Percent Areal Cover			95	
0.5 X Sum of Percent Areal Cover			47.5	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Toxicodendron radicans</i>	poison ivy	FAC	5	1 *
2				0
3				0
Sum of Percent Areal Cover			5	
0.5 X Sum of Percent Areal Cover			2.5	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.



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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>9/25/2008</u>
Wetland Site: <u>Wetland #4</u>	County: <u>Hamilton</u>
Investigator: <u>MikeD</u>	State: <u>Ohio</u>
Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Emergent</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point In</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>	Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>
<u>Echinochloa muricata</u>	<u>Herb</u>	<u>FACW+</u>	_____	_____	_____
<u>Typha latifolia</u>	<u>Herb</u>	<u>OBL</u>	_____	_____	_____
<u>Salix nigra</u>	<u>Shrub</u>	<u>FACW+</u>	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

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

Remarks: > 50% wetland species

**HYDROLOGY**

<p>Recorded Data (Describe in Remarks)</p> <p>____ Stream, Lake, or Tide Gauge</p> <p>____ Aerial Photographs</p> <p>____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</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><input checked="" type="checkbox"/> Drainage Patterns in Wetland</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>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>1</u> (in.)</p> <p>Depth to Free Water in Pit: <u>0</u> (in.)</p> <p>Depth to Saturated Soil: <u>0</u> (in.)</p>	
Remarks: <u>Hydrology indicators present</u>	

**SOILS**

Map Unit Name (Series and Phase): <u>Jules Silt Loam</u>	Drainage Class: <u>Well drained</u>																				
Taxonomy (Subgroup): <u>Typic Udifluvents</u>	Field Observations Confirmed Mapped Type? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																				
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Remarks: <u>Hydric soil indicators present</u>																					

**WETLAND DETERMINATION**

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

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #4 State: Ohio  
Investigator: MikeD  
Description: Emergent

Date: 9/25/2008  
County: Hamilton  
Location: Point In

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Echinochloa muricata</i>	barnyard grass	FACW+	50	1 *
2 <i>Typha latifolia</i>	cattail (common)	OBL	20	2 *
3 <i>Sagittaria latifolia</i>	arrowhead (duck potato)	OBL	5	3
4 <i>Typha angustifolia</i>	cattail (narrow-leaved)	OBL	5	3
5 <i>Eleocharis obtusa</i>	spike rush (short)	OBL	5	3
6 <i>Cyperus strigosus</i>	umbrella sedge (strawcolor flat)	FACW	5	3
7				0
8				0
9				0
10				0
Sum of Percent Areal Cover			90	
0.5 X Sum of Percent Areal Cover			45	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Salix nigra</i>	willow (black)	FACW+	5	1 *
2				0
3				0
Sum of Percent Areal Cover			5	
0.5 X Sum of Percent Areal Cover			2.5	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.

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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>9/25/2008</u>
Wetland Site: <u>Wetland #4</u>	County: <u>Hamilton</u>
Investigator: <u>MikeD</u>	State: <u>Ohio</u>
Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Upland</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point Out</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>	Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>
<u>Setaria faberii</u>	<u>Herb</u>	<u>UPL</u>	_____	_____	_____
<u>Festuca rubra</u>	<u>Herb</u>	<u>FACU</u>	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

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

Remarks: < 50% wetland species

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p>____ Stream, Lake, or Tide Gauge</p> <p>____ Aerial Photographs</p> <p>____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p>____ Inundated</p> <p>____ Saturated in upper 12 Inches</p> <p>____ Water Marks</p> <p>____ Drift Lines</p> <p>____ Sediment Deposits</p> <p>____ Drainage Patterns in Wetland</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>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;8</u> (in.)</p> <p>Depth to Saturated Soil: <u>&gt;8</u> (in.)</p>	
Remarks: <u>No wetland hydrology indicators</u>	

SOILS

Map Unit Name (Series and Phase): <u>Jules Silt Loam</u>	Drainage Class: <u>Well drained</u>																				
Taxonomy (Subgroup): <u>Typic Udifluvents</u>	Field Observations Confirmed Mapped Type? Yes _____ No <input checked="" type="checkbox"/>																				
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Remarks: <u>No hydric soil indicators</u>																					

WETLAND DETERMINATION

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

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #4 State: Ohio  
Investigator: MikeD  
Description: Upland

Date: 9/25/2008  
County: Hamilton  
Location: Point Out

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Setaria faberii</i>	foxtail (japanese bristle grass)	UPL	45	1 *
2 <i>Festuca rubra</i>	fescue (red)	FACU	30	2 *
3 <i>Ambrosia artemisiifolia</i>	ragweed (annual)	FACU	10	3
4 <i>Chenopodium hybridum</i>	goosefoot (maple-leaved)	Not Listed	10	3
5 <i>Cichorium intybus</i>	chicory	Not Listed	5	4
6 <i>Trifolium pratense</i>	clover (red)	FACU-	5	4
7				0
8				0
9				0
10				0
Sum of Percent Areal Cover			105	
0.5 X Sum of Percent Areal Cover			52.5	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.



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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>9/26/2008</u>
Wetland Site: <u>Wetland #5</u>	County: <u>Hamilton</u>
Investigator: <u>MikeD</u>	State: <u>Ohio</u>
Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Emergent</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point In</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status <sup>(1)</sup>	Dominant Plant Species	Stratum	Indicator Status <sup>(1)</sup>
<u>Saururus cernuus</u>	<u>Herb</u>	<u>OBL</u>	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

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

Remarks: > 50% wetland species

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p>____ Stream, Lake, or Tide Gauge</p> <p>____ Aerial Photographs</p> <p>____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p>____ Inundated</p> <p>____ Saturated in upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water Marks</p> <p><input checked="" type="checkbox"/> Drift Lines</p> <p>____ Sediment Deposits</p> <p><input checked="" type="checkbox"/> Drainage Patterns in Wetland</p> <p>Secondary Indicators (2 or more required):</p> <p><input checked="" type="checkbox"/> 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>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;8</u> (in.)</p> <p>Depth to Saturated Soil: <u>&gt;8</u> (in.)</p>	
Remarks: <u>Hydrology indicators present</u>	

SOILS

Map Unit Name (Series and Phase): <u>Jules Silt Loam</u>	Drainage Class: <u>Well drained</u>
Taxonomy (Subgroup): <u>Typic Udifluvents</u>	Field Observations Confirmed Mapped Type? Yes _____ No <input checked="" type="checkbox"/>
Profile Description:	
Depth (inches) Horizon Matrix Color (Munsell Moist) Mottle Abundance/Size/Contrast Tex./Conc./Structure, etc.	
<u>0-8"</u> _____ <u>10YR4/2</u> <u>10YR4/6</u> _____	
_____	
_____	
Hydric Soil Indicators:	
____ Histol	<input checked="" type="checkbox"/> Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer in Sandy Soils
____ Sulfuric Odor	____ Organic Streaking in Sandy Soils
____ Aquic Moisture Regime	____ Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
<input checked="" type="checkbox"/> Gleyed or Low Chroma Colors	____ Other (Explain in Remarks)
Remarks: <u>Hydric soil indicators present</u>	

WETLAND DETERMINATION

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

(1) Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #5 State: Ohio  
Investigator: MikeD  
Description: Emergent

Date: 9/26/2008  
County: Hamilton  
Location: Point In

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Saururus cernuus</i>	lizard's-tail (water dragon)	OBL	100	1 *
2				0
3				0
4				0
5				0
6				0
7				0
8				0
9				0
10				0
Sum of Percent Areal Cover:			100	
0.5 X Sum of Percent Areal Cover			50	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.

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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>9/26/2008</u>
Wetland Site: <u>Wetland #5</u>	County: <u>Hamilton</u>
Investigator: <u>MikeD</u>	State: <u>Ohio</u>
Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Upland</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point Out</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status [1]	Dominant Plant Species	Stratum	Indicator Status [1]
<i>Sorghum halepense</i>	Herb	FACU			
<i>Phytolacca americana</i>	Herb	FACU+			
<i>Poa pratensis</i>	Herb	FACU			
<i>Chenopodium hybridum</i>	Herb	Not Listed			
<i>Echinochloa crusgali</i>	Herb	FACU			
<i>Toxicodendron radicans</i>	W. Vine	FAC			

% Dominant Plant Species that are OBL, FACW or FAC (excluding FAC-): 16.66

Remarks: < 50% wetland species

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p><input type="checkbox"/> Stream, Lake, or Tide Gauge</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</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 Wetland</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>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;8</u> (in.)</p> <p>Depth to Saturated Soil: <u>&gt;8</u> (in.)</p>	
Remarks: <u>No wetland hydrology indicators</u>	

SOILS

Map Unit Name (Series and Phase): <u>Jules Silt Loam</u>	Drainage Class: <u>Well drained</u>	Field Observations																				
Taxonomy (Subgroup): <u>Typic Udifluvents</u>	Confirmed Mapped Type?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																				
<p>Profile Description:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Depth (inches)</th> <th style="width: 15%;">Horizon</th> <th style="width: 25%;">Matrix Color (Munsell Moist)</th> <th style="width: 25%;">Mottle Abundance/Size/Contrast</th> <th style="width: 20%;">Tex./Conc./Structure, etc.</th> </tr> </thead> <tbody> <tr> <td>0-8"</td> <td></td> <td>10YR5/3</td> <td></td> <td></td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>			Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.	0-8"		10YR5/3												
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.																		
0-8"		10YR5/3																				
<p>Hydric Soil Indicators:</p> <table style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Histol  <input type="checkbox"/> Histic Epipedon  <input type="checkbox"/> Sulfuric Odor  <input type="checkbox"/> Aquic Moisture Regime  <input type="checkbox"/> Reducing Conditions  <input type="checkbox"/> Gleyed or Low Chroma Colors                 </td> <td style="width: 50%; vertical-align: top;"> <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)                 </td> </tr> </table>			<input type="checkbox"/> Histol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfuric 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)																		
<input type="checkbox"/> Histol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfuric 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 hydric soil indicators</u>																						

WETLAND DETERMINATION

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

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #5 State: Ohio  
Investigator: MikeD  
Description: Upland

Date: 9/26/2008  
County: Hamilton  
Location: Point Out

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Sorghum halepense</i>	johnson grass	FACU	20	1 *
2 <i>Phytolacca americana</i>	pokeweed	FACU+	20	1 *
3 <i>Poa pratensis</i>	bluegrass (Kentucky)	FACU	20	1 *
4 <i>Chenopodium hybridum</i>	goosefoot (maple-leaved)	Not Listed	20	1 *
5 <i>Echinochloa crusgalii</i>	barnyard grass	FACU	20	1 *
6 <i>Tanacetum vulgare</i>	tansy (common)	Not Listed	5	2
7 <i>Bidens frondosa</i>	beggar-ticks (devil's)	FACW	5	2
8				0
9				0
10				0
Sum of Percent Areal Cover			110	
0.5 X Sum of Percent Areal Cover			55	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Toxicodendron radicans</i>	poison ivy	FAC	5	1 *
2				0
3				0
Sum of Percent Areal Cover			5	
0.5 X Sum of Percent Areal Cover			2.5	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.



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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>9/26/2008</u>
Wetland Site: <u>Wetland #6</u>	County: <u>Hamilton</u>
Investigator: <u>MikeD</u>	State: <u>Ohio</u>
Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Emergent</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point In</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status [1]	Dominant Plant Species	Stratum	Indicator Status [1]
<u>Saururus cernuus</u>	<u>Herb</u>	<u>OBL</u>	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

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

Remarks: > 50% wetland species

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p>____ Stream, Lake, or Tide Gauge</p> <p>____ Aerial Photographs</p> <p>____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p>____ Inundated</p> <p>____ Saturated in upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water Marks</p> <p><input checked="" type="checkbox"/> Drift Lines</p> <p>____ Sediment Deposits</p> <p><input checked="" type="checkbox"/> Drainage Patterns in Wetland</p> <p>Secondary Indicators (2 or more required):</p> <p>____ Oxidized Root Channels in Upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water-Stained Leaves</p> <p>____ Local Soil Survey Data</p> <p>____ FAC-Neutral Test</p> <p>____ Other (Explain in Remarks)</p>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;8</u> (in.)</p> <p>Depth to Saturated Soil: <u>&gt;8</u> (in.)</p>	
Remarks: <u>Hydrology indicators present</u>	

SOILS

Map Unit Name (Series and Phase): <u>Jules Silt Loam</u>	Drainage Class: <u>Well drained</u>
Taxonomy (Subgroup): <u>Typic Udifluvents</u>	Field Observations Confirmed Mapped Type? Yes _____ No <input checked="" type="checkbox"/>
Profile Description:	
Depth (inches) Horizon Matrix Color (Munsell Moist) Mottle Abundance/Size/Contrast Tex./Conc./Structure, etc.	
<u>0-8"</u> _____ <u>10YR4/2</u> <u>10YR4/6</u> _____	
_____	
_____	
Hydric Soil Indicators:	
____ Histol	<input checked="" type="checkbox"/> Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer in Sandy Soils
____ Sulfuric Odor	____ Organic Streaking in Sandy Soils
____ Aquic Moisture Regime	____ Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
<input checked="" type="checkbox"/> Gleyed or Low Chroma Colors	____ Other (Explain in Remarks)
Remarks: <u>Hydric soil indicators present</u>	

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____	Is this Sampling Point Within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	
Hydric Soils Present? Yes <input checked="" type="checkbox"/> No _____	
Remarks: <u>All wetland criteria met.</u>	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #6 State: Ohio  
Investigator: MikeD  
Description: Emergent

Date: 9/26/2008  
County: Hamilton  
Location: Point In

Herbaceous Species	Common Name	Indicator <sup>1</sup> Status	Percent Areal Cover	Rank <sup>2</sup>
1 <i>Saururus cernuus</i>	lizard's-tail (water dragon)	OBL	100	1 *
2				0
3				0
4				0
5				0
6				0
7				0
8				0
9				0
10				0
Sum of Percent Areal Cover			100	
0.5 X Sum of Percent Areal Cover			50	

Tree Species	Common Name	Indicator <sup>1</sup> Status	Percent Areal Cover	Rank <sup>2</sup>
1				0
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Shrub Species	Common Name	Indicator <sup>1</sup> Status	Percent Areal Cover	Rank <sup>2</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Sapling Species	Common Name	Indicator <sup>1</sup> Status	Percent Areal Cover	Rank <sup>2</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Woody Vine Species	Common Name	Indicator <sup>1</sup> Status	Percent Areal Cover	Rank <sup>2</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.

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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>9/26/2008</u>
Wetland Site: <u>Wetland #6</u>	County: <u>Hamilton</u>
Investigator: <u>MikeD</u>	State: <u>Ohio</u>
Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Upland</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point Out</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status <sup>1</sup>	Dominant Plant Species	Stratum	Indicator Status <sup>1</sup>
<i>Sorghum halepense</i>	Herb	FACU			
<i>Phytolacca americana</i>	Herb	FACU+			
<i>Poa pratensis</i>	Herb	FACU			
<i>Chenopodium hybridum</i>	Herb	Not Listed			
<i>Echinochloa crusgalii</i>	Herb	FACU			
<i>Toxicodendron radicans</i>	W. Vine	FAC			
% Dominant Plant Species that are OBL, FACW or FAC (excluding FAC-): <u>16.66</u>					
Remarks: <u>&lt; 50% wetland species</u>					

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p>Stream, Lake, or Tide Gauge _____</p> <p>Aerial Photographs _____</p> <p>Other _____</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p>Inundated _____</p> <p>Saturated in upper 12 Inches _____</p> <p>Water Marks _____</p> <p>Drift Lines _____</p> <p>Sediment Deposits _____</p> <p>Drainage Patterns in Wetland _____</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>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;8</u> (in.)</p> <p>Depth to Saturated Soil: <u>&gt;8</u> (in.)</p>	
Remarks: <u>No wetland hydrology indicators</u>	

SOILS

Map Unit Name (Series and Phase): <u>Jules Silt Loam</u>	Drainage Class: <u>Well drained</u>	Field Observations																				
Taxonomy (Subgroup): <u>Typic Udifluvents</u>	Confirmed Mapped Type? Yes _____ No <input checked="" type="checkbox"/>																					
<p>Profile Description:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Depth (inches)</th> <th style="width: 15%;">Horizon</th> <th style="width: 25%;">Matrix Color (Munsell Moist)</th> <th style="width: 25%;">Mottle Abundance/Size/Contrast</th> <th style="width: 20%;">Tex./Conc./Structure, etc.</th> </tr> </thead> <tbody> <tr> <td>0-8"</td> <td></td> <td>10YR5/3</td> <td></td> <td></td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>			Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.	0-8"		10YR5/3												
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0-8"		10YR5/3																				
<p>Hydric Soil Indicators:</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"> <p>Histol _____</p> <p>Histic Epipedon _____</p> <p>Sulfuric Odor _____</p> <p>Aquic Moisture Regime _____</p> <p>Reducing Conditions _____</p> <p>Gleyed or Low Chroma Colors _____</p> </td> <td style="width: 50%;"> <p>Concretions _____</p> <p>High Organic Content in Surface Layer in Sandy Soils _____</p> <p>Organic Streaking in Sandy Soils _____</p> <p>Listed on Local Hydric Soils List _____</p> <p>Listed on National Hydric Soils List _____</p> <p>Other (Explain in Remarks) _____</p> </td> </tr> </table>			<p>Histol _____</p> <p>Histic Epipedon _____</p> <p>Sulfuric Odor _____</p> <p>Aquic Moisture Regime _____</p> <p>Reducing Conditions _____</p> <p>Gleyed or Low Chroma Colors _____</p>	<p>Concretions _____</p> <p>High Organic Content in Surface Layer in Sandy Soils _____</p> <p>Organic Streaking in Sandy Soils _____</p> <p>Listed on Local Hydric Soils List _____</p> <p>Listed on National Hydric Soils List _____</p> <p>Other (Explain in Remarks) _____</p>																		
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Remarks: <u>No hydric soil indicators</u>																						

WETLAND DETERMINATION

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

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #6 State: Ohio  
Investigator: MikeD  
Description: Upland

Date: 9/26/2008  
County: Hamilton  
Location: Point Out

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Sorghum halepense</i>	johnson grass	FACU	20	1 *
2 <i>Phytolacca americana</i>	pokeweed	FACU+	20	1 *
3 <i>Poa pratensis</i>	bluegrass (Kentucky)	FACU	20	1 *
4 <i>Chenopodium hybridum</i>	goosefoot (maple-leaved)	Not Listed	20	1 *
5 <i>Echinochloa crusgalii</i>	barnyard grass	FACU	20	1 *
6 <i>Tanacetum vulgare</i>	tansy (common)	Not Listed	5	2
7 <i>Bidens frondosa</i>	beggar-ticks (devil's)	FACW	5	2
8				0
9				0
10				0
Sum of Percent Areal Cover			110	
0.5 X Sum of Percent Areal Cover			55	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Toxicodendron radicans</i>	poison ivy	FAC	5	1 *
2				0
3				0
Sum of Percent Areal Cover			5	
0.5 X Sum of Percent Areal Cover			2.5	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.



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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>9/26/2008</u>
Wetland Site: <u>Wetland #7</u>	County: <u>Hamilton</u>
Investigator: <u>MikeD</u>	State: <u>Ohio</u>
Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Emergent</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point In</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>	Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>
<u>Saururus cemuus</u>	<u>Herb</u>	<u>OBL</u>	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

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

Remarks: > 50% wetland species

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p>____ Stream, Lake, or Tide Gauge</p> <p>____ Aerial Photographs</p> <p>____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p>____ Inundated</p> <p>____ Saturated in upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water Marks</p> <p><input checked="" type="checkbox"/> Drift Lines</p> <p>____ Sediment Deposits</p> <p><input checked="" type="checkbox"/> Drainage Patterns in Wetland</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>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;8</u> (in.)</p> <p>Depth to Saturated Soil: <u>&gt;8</u> (in.)</p>	
Remarks: <u>Hydrology indicators present</u>	

SOILS

Map Unit Name (Series and Phase): <u>Jules Silt Loam</u>	Drainage Class: <u>Well drained</u>																				
Taxonomy (Subgroup): <u>Typic Udifluvents</u>	Field Observations Confirmed Mapped Type? Yes _____ No <input checked="" type="checkbox"/>																				
<p>Profile Description:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Depth (inches)</th> <th style="width: 15%;">Horizon</th> <th style="width: 25%;">Matrix Color (Munsell Moist)</th> <th style="width: 25%;">Mottle Abundance/Size/Contrast</th> <th style="width: 20%;">Tex./Conc./Structure, etc.</th> </tr> </thead> <tbody> <tr> <td><u>0-8"</u></td> <td>_____</td> <td><u>10YR4/2</u></td> <td><u>10YR4/6</u></td> <td>_____</td> </tr> <tr> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> </tbody> </table>		Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.	<u>0-8"</u>	_____	<u>10YR4/2</u>	<u>10YR4/6</u>	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.																	
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_____	_____	_____	_____	_____																	
_____	_____	_____	_____	_____																	
<p>Hydric Soil Indicators:</p> <p>____ Histol <input checked="" type="checkbox"/> Concretions</p> <p>____ Histic Epipedon <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils</p> <p>____ Sulfuric Odor <input type="checkbox"/> Organic Streaking in Sandy Soils</p> <p>____ Aquic Moisture Regime <input type="checkbox"/> Listed on Local Hydric Soils List</p> <p>____ Reducing Conditions <input type="checkbox"/> Listed on National Hydric Soils List</p> <p><input checked="" type="checkbox"/> Gleyed or Low Chroma Colors <input type="checkbox"/> Other (Explain in Remarks)</p>																					
Remarks: <u>Hydric soil indicators present</u>																					

WETLAND DETERMINATION

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

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #7 State: Ohio  
Investigator: MikeD  
Description: Emergent

Date: 9/26/2008  
County: Hamilton  
Location: Point In

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Saururus cernuus</i>	lizard's-tail (water dragon)	OBL	100	1 *
2				0
3				0
4				0
5				0
6				0
7				0
8				0
9				0
10				0
Sum of Percent Areal Cover			100	
0.5 X Sum of Percent Areal Cover			50	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.

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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>9/26/2008</u>
Wetland Site: <u>Wetland #7</u>	County: <u>Hamilton</u>
Investigator: <u>MikeD</u>	State: <u>Ohio</u>
Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Upland</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point Out</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>	Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>
<i>Sorghum halepense</i>	Herb	FACU			
<i>Phytolacca americana</i>	Herb	FACU+			
<i>Poa pratensis</i>	Herb	FACU			
<i>Chenopodium hybridum</i>	Herb	Not Listed			
<i>Echinochloa crusgalii</i>	Herb	FACU			
<i>Toxicodendron radicans</i>	W. Vine	FAC			

% Dominant Plant Species that are OBL, FACW or FAC (excluding FAC-): 16.66

Remarks: < 50% wetland species

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p><input type="checkbox"/> Stream, Lake, or Tide Gauge</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</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 Wetland</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>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;8</u> (in.)</p> <p>Depth to Saturated Soil: <u>&gt;8</u> (in.)</p>	
Remarks: <u>No wetland hydrology indicators</u>	

SOILS

Map Unit Name (Series and Phase): <u>Jules Silt Loam</u>	Drainage Class: <u>Well drained</u>																				
Taxonomy (Subgroup): <u>Typic Udifluvents</u>	Field Observations Confirmed Mapped Type? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																				
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<p>Hydric Soil Indicators:</p> <p><input type="checkbox"/> Histol</p> <p><input type="checkbox"/> Histic Epipedon</p> <p><input type="checkbox"/> Sulfuric Odor</p> <p><input type="checkbox"/> Aquic Moisture Regime</p> <p><input type="checkbox"/> Reducing Conditions</p> <p><input type="checkbox"/> Gleyed or Low Chroma Colors</p> <p><input type="checkbox"/> Concretions</p> <p><input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils</p> <p><input type="checkbox"/> Organic Streaking in Sandy Soils</p> <p><input type="checkbox"/> Listed on Local Hydric Soils List</p> <p><input type="checkbox"/> Listed on National Hydric Soils List</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>																					
Remarks: <u>No hydric soil indicators</u>																					

WETLAND DETERMINATION

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

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #7 State: Ohio  
Investigator: MikeD  
Description: Upland

Date: 9/26/2008  
County: Hamilton  
Location: Point Out

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Sorghum halepense</i>	johnson grass	FACU	20	1 *
2 <i>Phytolacca americana</i>	pokeweed	FACU+	20	1 *
3 <i>Poa pratensis</i>	bluegrass (Kentucky)	FACU	20	1 *
4 <i>Chenopodium hybridum</i>	goosefoot (maple-leaved)	Not Listed	20	1 *
5 <i>Echinochloa crusgalii</i>	barnyard grass	FACU	20	1 *
6 <i>Tanacetum vulgare</i>	tansy (common)	Not Listed	5	2
7 <i>Bidens frondosa</i>	beggar-ticks (devil's)	FACW	5	2
8				0
9				0
10				0
Sum of Percent Areal Cover			110	
0.5 X Sum of Percent Areal Cover			55	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Toxicodendron radicans</i>	poison ivy	FAC	5	1 *
2				0
3				0
Sum of Percent Areal Cover			5	
0.5 X Sum of Percent Areal Cover			2.5	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.



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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>9/26/2008</u>
Wetland Site: <u>Wetland #8</u>	County: <u>Hamilton</u>
Investigator: <u>MikeD</u>	State: <u>Ohio</u>
Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Emergent</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point In</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status [1]	Dominant Plant Species	Stratum	Indicator Status [1]
<u>Saururus cernuus</u>	<u>Herb</u>	<u>OBL</u>	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

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

Remarks: > 50% wetland species

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p>____ Stream, Lake, or Tide Gauge</p> <p>____ Aerial Photographs</p> <p>____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p>____ Inundated</p> <p>____ Saturated in upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water Marks</p> <p><input checked="" type="checkbox"/> Drift Lines</p> <p>____ Sediment Deposits</p> <p><input checked="" type="checkbox"/> Drainage Patterns in Wetland</p> <p>Secondary Indicators (2 or more required):</p> <p>____ Oxidized Root Channels in Upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water-Stained Leaves</p> <p>____ Local Soil Survey Data</p> <p>____ FAC-Neutral Test</p> <p>____ Other (Explain in Remarks)</p>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;8</u> (in.)</p> <p>Depth to Saturated Soil: <u>&gt;8</u> (in.)</p>	
Remarks: <u>Hydrology indicators present</u>	

SOILS

Map Unit Name (Series and Phase): <u>Jules Silt Loam</u>	Drainage Class: <u>Well drained</u>																				
Taxonomy (Subgroup): <u>Typic Udifluvents</u>	Field Observations Confirmed Mapped Type? Yes _____ No <input checked="" type="checkbox"/>																				
<p>Profile Description:</p> <table style="width: 100%;"> <thead> <tr> <th style="width: 15%;">Depth (inches)</th> <th style="width: 15%;">Horizon</th> <th style="width: 25%;">Matrix Color (Munsell Moist)</th> <th style="width: 25%;">Mottle Abundance/Size/Contrast</th> <th style="width: 20%;">Tex./Conc./Structure, etc.</th> </tr> </thead> <tbody> <tr> <td><u>0-8"</u></td> <td>_____</td> <td><u>10YR4/2</u></td> <td><u>10YR4/6</u></td> <td>_____</td> </tr> <tr> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> </tbody> </table>		Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.	<u>0-8"</u>	_____	<u>10YR4/2</u>	<u>10YR4/6</u>	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.																	
<u>0-8"</u>	_____	<u>10YR4/2</u>	<u>10YR4/6</u>	_____																	
_____	_____	_____	_____	_____																	
_____	_____	_____	_____	_____																	
<p>Hydric Soil Indicators:</p> <p>____ Histol <input checked="" type="checkbox"/> Concretions</p> <p>____ Histic Epipedon <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils</p> <p>____ Sulfuric Odor <input type="checkbox"/> Organic Streaking in Sandy Soils</p> <p>____ Aquic Moisture Regime <input type="checkbox"/> Listed on Local Hydric Soils List</p> <p>____ Reducing Conditions <input type="checkbox"/> Listed on National Hydric Soils List</p> <p><input checked="" type="checkbox"/> Gleyed or Low Chroma Colors <input type="checkbox"/> Other (Explain in Remarks)</p>																					
Remarks: <u>Hydric soil indicators present</u>																					

WETLAND DETERMINATION

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

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #8 State: Ohio  
Investigator: MikeD  
Description: Emergent

Date: 9/26/2008  
County: Hamilton  
Location: Point In

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Saururus cemuus</i>	lizard's-tail (water dragon)	OBL	100	1 *
2				0
3				0
4				0
5				0
6				0
7				0
8				0
9				0
10				0
Sum of Percent Areal Cover			100	
0.5 X Sum of Percent Areal Cover			50	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.

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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>9/26/2008</u>
Wetland Site: <u>Wetland #8</u>	County: <u>Hamilton</u>
Investigator: <u>MikeD</u>	State: <u>Ohio</u>
Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Upland</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point Out</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status <sup>1</sup>	Dominant Plant Species	Stratum	Indicator Status <sup>1</sup>
<i>Sorghum halepense</i>	Herb	FACU			
<i>Phytolacca americana</i>	Herb	FACU+			
<i>Poa pratensis</i>	Herb	FACU			
<i>Chenopodium hybridum</i>	Herb	Not Listed			
<i>Echinochloa crusgali</i>	Herb	FACU			
<i>Toxicodendron radicans</i>	W. Vine	FAC			

% Dominant Plant Species that are OBL, FACW or FAC (excluding FAC-): 16.66

Remarks: < 50% wetland species

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p>____ Stream, Lake, or Tide Gauge</p> <p>____ Aerial Photographs</p> <p>____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p>____ Inundated</p> <p>____ Saturated in upper 12 Inches</p> <p>____ Water Marks</p> <p>____ Drift Lines</p> <p>____ Sediment Deposits</p> <p>____ Drainage Patterns in Wetland</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>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;8</u> (in.)</p> <p>Depth to Saturated Soil: <u>&gt;8</u> (in.)</p>	
<p>Remarks: <u>No wetland hydrology indicators</u></p>	

SOILS

Map Unit Name (Series and Phase): <u>Jules Silt Loam</u>	Drainage Class: <u>Well drained</u>																				
Taxonomy (Subgroup): <u>Typic Udifluvents</u>	Field Observations Confirmed Mapped Type? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																				
<p>Profile Description:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Depth (inches)</th> <th style="width: 15%;">Horizon</th> <th style="width: 25%;">Matrix Color (Munsell Moist)</th> <th style="width: 25%;">Mottle Abundance/Size/Contrast</th> <th style="width: 20%;">Tex./Conc./Structure, etc.</th> </tr> </thead> <tbody> <tr> <td>0-8"</td> <td></td> <td>10YR5/3</td> <td></td> <td></td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>		Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.	0-8"		10YR5/3												
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0-8"		10YR5/3																			
<p>Hydric Soil Indicators:</p> <table style="width: 100%;"> <tr> <td style="width: 50%;"> <p>____ Histol</p> <p>____ Histic Epipedon</p> <p>____ Sulfuric Odor</p> <p>____ Aquic Moisture Regime</p> <p>____ Reducing Conditions</p> <p>____ Gleyed or Low Chroma Colors</p> </td> <td style="width: 50%;"> <p>____ Concretions</p> <p>____ High Organic Content in Surface Layer in Sandy Soils</p> <p>____ Organic Streaking in Sandy Soils</p> <p>____ Listed on Local Hydric Soils List</p> <p>____ Listed on National Hydric Soils List</p> <p>____ Other (Explain in Remarks)</p> </td> </tr> </table>		<p>____ Histol</p> <p>____ Histic Epipedon</p> <p>____ Sulfuric Odor</p> <p>____ Aquic Moisture Regime</p> <p>____ Reducing Conditions</p> <p>____ Gleyed or Low Chroma Colors</p>	<p>____ Concretions</p> <p>____ High Organic Content in Surface Layer in Sandy Soils</p> <p>____ Organic Streaking in Sandy Soils</p> <p>____ Listed on Local Hydric Soils List</p> <p>____ Listed on National Hydric Soils List</p> <p>____ Other (Explain in Remarks)</p>																		
<p>____ Histol</p> <p>____ Histic Epipedon</p> <p>____ Sulfuric Odor</p> <p>____ Aquic Moisture Regime</p> <p>____ Reducing Conditions</p> <p>____ Gleyed or Low Chroma Colors</p>	<p>____ Concretions</p> <p>____ High Organic Content in Surface Layer in Sandy Soils</p> <p>____ Organic Streaking in Sandy Soils</p> <p>____ Listed on Local Hydric Soils List</p> <p>____ Listed on National Hydric Soils List</p> <p>____ Other (Explain in Remarks)</p>																				
<p>Remarks: <u>No hydric soil indicators</u></p>																					

WETLAND DETERMINATION

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

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #8 State: Ohio  
Investigator: MikeD  
Description: Upland

Date: 9/26/2008  
County: Hamilton  
Location: Point Out

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Sorghum halepense</i>	johnson grass	FACU	20	1 *
2 <i>Phytolacca americana</i>	pokeweed	FACU+	20	1 *
3 <i>Poa pratensis</i>	bluegrass (Kentucky)	FACU	20	1 *
4 <i>Chenopodium hybridum</i>	goosefoot (maple-leaved)	Not Listed	20	1 *
5 <i>Echinochloa crusgalii</i>	barnyard grass	FACU	20	1 *
6 <i>Tanacetum vulgare</i>	tansy (common)	Not Listed	5	2
7 <i>Bidens frondosa</i>	beggar-ticks (devil's)	FACW	5	2
8				0
9				0
10				0
Sum of Percent Areal Cover			110	
0.5 X Sum of Percent Areal Cover			55	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Toxicodendron radicans</i>	poison ivy	FAC	5	1 *
2				0
3				0
Sum of Percent Areal Cover			5	
0.5 X Sum of Percent Areal Cover			2.5	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.



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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>9/26/2008</u>
Wetland Site: <u>Wetland #9</u>	County: <u>Hamilton</u>
Investigator: <u>ChrisY</u>	State: <u>Ohio</u>
Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Emergent</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point In</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>	Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>
<u>Saururus cernuus</u>	<u>Herb</u>	<u>OBL</u>	_____	_____	_____
<u>Acer saccharinum</u>	<u>Tree</u>	<u>FACW</u>	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

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

Remarks: > 50% wetland species

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p>____ Stream, Lake, or Tide Gauge</p> <p>____ Aerial Photographs</p> <p>____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p>____ Inundated</p> <p>____ Saturated in upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water Marks</p> <p><input checked="" type="checkbox"/> Drift Lines</p> <p>____ Sediment Deposits</p> <p><input checked="" type="checkbox"/> Drainage Patterns in Wetland</p> <p>Secondary Indicators (2 or more required):</p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water-Stained Leaves</p> <p>____ Local Soil Survey Data</p> <p>____ FAC-Neutral Test</p> <p>____ Other (Explain in Remarks)</p>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;8</u> (in.)</p> <p>Depth to Saturated Soil: <u>&gt;8</u> (in.)</p>	

Remarks: Hydrology indicators present

SOILS

Map Unit Name (Series and Phase): <u>Jules Silt Loam</u>	Drainage Class: <u>Well drained</u>
Taxonomy (Subgroup): <u>Typic Udifluvents</u>	Field Observations Confirmed Mapped Type? Yes _____ No <input checked="" type="checkbox"/>
Profile Description:	
Depth (inches) Horizon Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast Tex./Conc./Structure, etc.
<u>0-8"</u> _____ <u>10YR4/2</u>	<u>5YR4/6</u> _____
_____	_____
_____	_____

Hydric Soil Indicators:	<input checked="" 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)
<input type="checkbox"/> Histol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfuric Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input checked="" type="checkbox"/> Gleyed or Low Chroma Colors	

Remarks: Hydric soil indicators present

WETLAND DETERMINATION

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

Remarks: All wetland criteria met.

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #9 State: Ohio  
Investigator: ChrisY  
Description: Emergent

Date: 9/26/2008  
County: Hamilton  
Location: Point In

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Saururus cernuus</i>	lizard's-tail (water dragon)	OBL	100	1 *
2				0
3				0
4				0
5				0
6				0
7				0
8				0
9				0
10				0
Sum of Percent Areal Cover			100	
0.5 X Sum of Percent Areal Cover			50	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Acer saccharinum</i>	maple (silver)	FACW	30	1 *
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			30	
0.5 X Sum of Percent Areal Cover			15	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.

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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>9/26/2008</u>
Wetland Site: <u>Wetland #9</u>	County: <u>Hamilton</u>
Investigator: <u>ChrisY</u>	State: <u>Ohio</u>

Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Upland</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point Out</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status [1]	Dominant Plant Species	Stratum	Indicator Status [1]
<u>Eleusine indica</u>	<u>Herb</u>	<u>FACU-</u>	_____	_____	_____
<u>Acer saccharinum</u>	<u>Sapling</u>	<u>FACW</u>	_____	_____	_____
<u>Rhus glabra</u>	<u>Sapling</u>	<u>Not Listed</u>	_____	_____	_____
<u>Toxicodendron radicans</u>	<u>W. Vine</u>	<u>FAC</u>	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

% Dominant Plant Species that are OBL, FACW or FAC (excluding FAC-): 50

Remarks: 50% wetland species

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p>____ Stream, Lake, or Tide Gauge</p> <p>____ Aerial Photographs</p> <p>____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p>____ Inundated</p> <p>____ Saturated in upper 12 Inches</p> <p>____ Water Marks</p> <p>____ Drift Lines</p> <p>____ Sediment Deposits</p> <p>____ Drainage Patterns in Wetland</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>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;8</u> (in.)</p> <p>Depth to Saturated Soil: <u>&gt;8</u> (in.)</p>	

Remarks: No wetland hydrology indicators

SOILS

Map Unit Name (Series and Phase): <u>Jules Silt Loam</u>	Drainage Class: <u>Well drained</u>
Taxonomy (Subgroup): <u>Typic Udifluvents</u>	Field Observations Confirmed Mapped Type? Yes _____ No <input checked="" type="checkbox"/>

Profile Description:	Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.
	<u>0-8"</u>		<u>2.5Y4/2</u>		

Hydric Soil Indicators:	Concretions
____ Histol	____ High Organic Content in Surface Layer in Sandy Soils
____ Histic Epipedon	____ Organic Streaking in Sandy Soils
____ Sulfuric Odor	____ Listed on Local Hydric Soils List
____ Aquic Moisture Regime	____ Listed on National Hydric Soils List
____ Reducing Conditions	____ Other (Explain in Remarks)
____ Gleyed or Low Chroma Colors	

Remarks: No hydric soil indicators

WETLAND DETERMINATION

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

Remarks: No wetland criteria met.

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #9 State: Ohio  
Investigator: ChrisY  
Description: Upland

Date: 9/26/2008  
County: Hamilton  
Location: Point Out

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Eleusine indica</i>	Indian goosegrass	FAUC-	50	1 *
2 <i>Oxalis grandis</i>	sorrel (large yellow wood-)	Not Listed	5	2
3 <i>Cirsium arvense</i>	thistle (Canada-creeping)	FACU	5	2
4 <i>Taraxacum officinale</i>	dandelion	FACU-	2	3
5				0
6				0
7				0
8				0
9				0
10				0
Sum of Percent Areal Cover			62	
0.5 X Sum of Percent Areal Cover			31	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Acer saccharinum</i>	maple (silver)	FACW	2	1 *
2 <i>Rhus glabra</i>	sumac (smooth)	Not Listed	2	1 *
3				0
Sum of Percent Areal Cover			4	
0.5 X Sum of Percent Areal Cover			2	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Toxicodendron radicans</i>	poison ivy	FAC	2	1 *
2				0
3				0
Sum of Percent Areal Cover			2	
0.5 X Sum of Percent Areal Cover			1	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.



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

Project Name: <u>Eastern Corridor Segment II/III</u> Wetland Site: <u>Wetland #10</u> Investigator: <u>ChrisY</u>	Date: <u>9/26/2008</u> County: <u>Hamilton</u> State: <u>Ohio</u>
Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (If needed, explain) _____	
Community ID: <u>Forested/Emergent</u> Transect ID: _____ Plot ID: _____ Location: <u>Point In</u>	

VEGETATION

Dominant Plant Species	Stratum	Indicator Status <sup>1</sup>	Dominant Plant Species	Stratum	Indicator Status <sup>1</sup>
<i>Saururus cernuus</i>	Herb	OBL			
<i>Acer saccharinum</i>	Tree	FACW			
<i>Acer rubrum</i>	Sapling	FAC			
<i>Toxicodendron radicans</i>	W. Vine	FAC			

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

Remarks: > 50% wetland species

HYDROLOGY

Recorded Data (Describe in Remarks) _____ Stream, Lake, or Tide Gauge _____ Aerial Photographs _____ Other <input checked="" type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: _____ Inundated <input checked="" type="checkbox"/> Saturated in upper 12 Inches <input checked="" type="checkbox"/> Water Marks _____ Drift Lines <input checked="" type="checkbox"/> Sediment Deposits <input checked="" type="checkbox"/> Drainage Patterns in Wetland Secondary Indicators (2 or more required): <input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input checked="" type="checkbox"/> Water-Stained Leaves _____ Local Soil Survey Data _____ FAC-Neutral Test _____ Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u>0</u> (in.) Depth to Free Water in Pit: <u>&gt;8</u> (in.) Depth to Saturated Soil: <u>0</u> (in.)	

Remarks: Hydrology indicators present

SOILS

Map Unit Name (Series and Phase): <u>Jules Silt Loam</u> Taxonomy (Subgroup): <u>Typic Udifluvents</u>	Drainage Class: <u>Well drained</u> Field Observations Confirmed Mapped Type? Yes _____ No <input checked="" type="checkbox"/>																				
Profile Description: <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Depth (inches)</th> <th style="width: 15%;">Horizon</th> <th style="width: 25%;">Matrix Color (Munsell Moist)</th> <th style="width: 25%;">Mottle Abundance/Size/Contrast</th> <th style="width: 20%;">Tex./Conc./Structure, etc.</th> </tr> </thead> <tbody> <tr> <td>0-8"</td> <td></td> <td>10YR4/1</td> <td>10YR4/6</td> <td></td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>		Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.	0-8"		10YR4/1	10YR4/6											
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0-8"		10YR4/1	10YR4/6																		
Hydric Soil Indicators: <input type="checkbox"/> Histol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfuric Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input checked="" type="checkbox"/> Gleyed or Low Chroma Colors <input checked="" 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: Hydric soil indicators present

WETLAND DETERMINATION

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

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #10 State: Ohio  
Investigator: ChrisY  
Description: Forested/Emergent

Date: 9/26/2008  
County: Hamilton  
Location: Point In

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Saururus cernuus</i>	lizard's-tail (water dragon)	OBL	90	1 *
2 <i>Leersia oryzoides</i>	cutgrass (rice)	OBL	2	2
3 <i>Leersia virginica</i>	cutgrass (white)	FACW	2	2
4 <i>Lysimachia nummularia</i>	moneywort (creeping jenny)	OBL	2	2
5 <i>Bidens frondosa</i>	beggar-ticks (devil's)	FACW	2	2
6				0
7				0
8				0
9				0
10				0
Sum of Percent Areal Cover			98	
0.5 X Sum of Percent Areal Cover			49	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Acer saccharinum</i>	maple (silver)	FACW	40	1 *
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			40	
0.5 X Sum of Percent Areal Cover			20	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Acer rubrum</i>	maple (red)	FAC	5	1 *
2				0
3				0
Sum of Percent Areal Cover			5	
0.5 X Sum of Percent Areal Cover			2.5	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Toxicodendron radicans</i>	poison ivy	FAC	5	1 *
2				0
3				0
Sum of Percent Areal Cover			5	
0.5 X Sum of Percent Areal Cover			2.5	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.

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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>9/26/2008</u>
Wetland Site: <u>Wetland #10</u>	County: <u>Hamilton</u>
Investigator: <u>ChrisY</u>	State: <u>Ohio</u>
Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Upland</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point Out</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status <sup>1</sup>	Dominant Plant Species	Stratum	Indicator Status <sup>1</sup>
<i>Eleusine indica</i>	Herb	FACU-			
<i>Acer saccharinum</i>	Sapling	FACW			
<i>Rhus glabra</i>	Sapling	Not Listed			
<i>Toxicodendron radicans</i>	W. Vine	FAC			

% Dominant Plant Species that are OBL, FACW or FAC (excluding FAC-): 50

Remarks: 50% wetland species

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p><input type="checkbox"/> Stream, Lake, or Tide Gauge</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</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 Wetland</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>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;8</u> (in.)</p> <p>Depth to Saturated Soil: <u>&gt;8</u> (in.)</p>	

Remarks: No wetland hydrology indicators

SOILS

Map Unit Name (Series and Phase): <u>Jules Silt Loam</u>	Drainage Class: <u>Well drained</u>	Field Observations Confirmed Mapped Type? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																				
Taxonomy (Subgroup): <u>Typic Udifluvents</u>																						
<p>Profile Description:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Depth (inches)</th> <th style="width: 15%;">Horizon</th> <th style="width: 25%;">Matrix Color (Munsell Moist)</th> <th style="width: 25%;">Mottle Abundance/Size/Contrast</th> <th style="width: 20%;">Tex./Conc./Structure, etc.</th> </tr> </thead> <tbody> <tr> <td>0-8"</td> <td></td> <td>2.5Y4/2</td> <td></td> <td></td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>			Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.	0-8"		2.5Y4/2												
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0-8"		2.5Y4/2																				
<p>Hydric Soil Indicators:</p> <table style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Histol  <input type="checkbox"/> Histic Epipedon  <input type="checkbox"/> Sulfuric Odor  <input type="checkbox"/> Aquic Moisture Regime  <input type="checkbox"/> Reducing Conditions  <input type="checkbox"/> Gleyed or Low Chroma Colors                 </td> <td style="width: 50%; vertical-align: top;"> <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)                 </td> </tr> </table>			<input type="checkbox"/> Histol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfuric 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)																		
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Remarks: No hydric soil indicators

WETLAND DETERMINATION

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

Remarks: No wetland criteria met.

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #10 State: Ohio  
Investigator: ChrisY  
Description: Upland

Date: 9/26/2008  
County: Hamilton  
Location: Point Out

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Eleusine indica</i>	Indian goosegrass	FACU-	50	1 *
2 <i>Oxalis grandis</i>	sorrel (large yellow wood-)	Not Listed	5	2
3 <i>Cirsium arvense</i>	thistle (Canada-creeping)	FACU	5	2
4 <i>Taraxacum officinale</i>	dandelion	FACU-	2	3
5				0
6				0
7				0
8				0
9				0
10				0
Sum of Percent Areal Cover			62	
0.5 X Sum of Percent Areal Cover			31	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Acer saccharinum</i>	maple (silver)	FACW	2	1 *
2 <i>Rhus glabra</i>	sumac (smooth)	Not Listed	2	1 *
3				0
Sum of Percent Areal Cover			4	
0.5 X Sum of Percent Areal Cover			2	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Toxicodendron radicans</i>	poison ivy	FAC	2	1 *
2				0
3				0
Sum of Percent Areal Cover			2	
0.5 X Sum of Percent Areal Cover			1	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.



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

Project Name: <u>Eastern Corridor Segment II/III.</u>	Date: <u>9/26/2008</u>
Wetland Site: <u>Wetland #11</u>	County: <u>Hamilton</u>
Investigator: <u>ChrisY</u>	State: <u>Ohio</u>
Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Emergent</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point In</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status [1]	Dominant Plant Species	Stratum	Indicator Status [1]
<i>Saururus cernuus</i>	Herb	OBL			
<i>Boehmeria cylindrica</i>	Herb	FACW+			
<i>Bidens frondosa</i>	Herb	FACW			

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

Remarks: > 50% wetland species

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p><input type="checkbox"/> Stream, Lake, or Tide Gauge</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p><input type="checkbox"/> Inundated</p> <p><input checked="" type="checkbox"/> Saturated in upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water Marks</p> <p><input type="checkbox"/> Drift Lines</p> <p><input checked="" type="checkbox"/> Sediment Deposits</p> <p><input checked="" type="checkbox"/> Drainage Patterns in Wetland</p> <p>Secondary Indicators (2 or more required):</p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p><input checked="" 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>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;8</u> (in.)</p> <p>Depth to Saturated Soil: <u>0</u> (in.)</p>	
Remarks: <u>Hydrology indicators present</u>	

SOILS

Map Unit Name (Series and Phase): <u>Water</u>	Drainage Class: <u>N/A</u>	Field Observations																				
Taxonomy (Subgroup): <u>N/A</u>	Confirmed Mapped Type?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																				
<p>Profile Description:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Depth (inches)</th> <th style="width: 15%;">Horizon</th> <th style="width: 25%;">Matrix Color (Munsell Moist)</th> <th style="width: 25%;">Mottle Abundance/Size/Contrast</th> <th style="width: 20%;">Tex./Conc./Structure, etc.</th> </tr> </thead> <tbody> <tr> <td>0-4"</td> <td></td> <td>10YR4/1</td> <td>10YR4/4</td> <td></td> </tr> <tr> <td>0-8"</td> <td></td> <td>10YR4/2</td> <td>10YR5/8</td> <td></td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>			Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.	0-4"		10YR4/1	10YR4/4		0-8"		10YR4/2	10YR5/8						
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.																		
0-4"		10YR4/1	10YR4/4																			
0-8"		10YR4/2	10YR5/8																			
<p>Hydric Soil Indicators:</p> <p><input type="checkbox"/> Histol</p> <p><input type="checkbox"/> Histic Epipedon</p> <p><input type="checkbox"/> Sulfuric Odor</p> <p><input type="checkbox"/> Aquic Moisture Regime</p> <p><input type="checkbox"/> Reducing Conditions</p> <p><input checked="" type="checkbox"/> Gleyed or Low Chroma Colors</p> <p><input checked="" type="checkbox"/> Concretions</p> <p><input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils</p> <p><input type="checkbox"/> Organic Streaking in Sandy Soils</p> <p><input type="checkbox"/> Listed on Local Hydric Soils List</p> <p><input type="checkbox"/> Listed on National Hydric Soils List</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>																						
Remarks: <u>Hydric soil indicators present</u>																						

WETLAND DETERMINATION

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

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #11 State: Ohio  
Investigator: ChrisY  
Description: Emergent

Date: 9/26/2008  
County: Hamilton  
Location: Point In

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Saururus cernuus</i>	lizard's-tail (water dragon)	OBL	50	1 *
2 <i>Boehmeria cylindrica</i>	nettle (false)	FACW+	40	2 *
3 <i>Bidens frondosa</i>	beggar-ticks (devil's)	FACW	30	3 *
4				0
5				0
6				0
7				0
8				0
9				0
10				0
Sum of Percent Areal Cover			120	
0.5 X Sum of Percent Areal Cover			60	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.

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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>9/26/2008</u>
Wetland Site: <u>Wetland #11</u>	County: <u>Hamilton</u>
Investigator: <u>ChrisY</u>	State: <u>Ohio</u>
Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Upland</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point Out</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status <sup>(1)</sup>	Dominant Plant Species	Stratum	Indicator Status <sup>(1)</sup>
<u>Poa pratensis</u>	<u>Herb</u>	<u>FACU</u>	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

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

Remarks: < 50% wetland species

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p>Stream, Lake, or Tide Gauge _____</p> <p>Aerial Photographs _____</p> <p>Other _____</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p>Inundated _____</p> <p>Saturated in upper 12 Inches _____</p> <p>Water Marks _____</p> <p>Drift Lines _____</p> <p>Sediment Deposits _____</p> <p>Drainage Patterns in Wetland _____</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>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;8</u> (in.)</p> <p>Depth to Saturated Soil: <u>&gt;8</u> (in.)</p>	
Remarks: <u>No wetland hydrology indicators</u>	

SOILS

Map Unit Name (Series and Phase): <u>Jules Silt Loam</u>	Drainage Class: <u>Well drained</u>																				
Taxonomy (Subgroup): <u>Typic Udifluvents</u>	Field Observations Confirmed Mapped Type? Yes _____ No <input checked="" type="checkbox"/>																				
<p>Profile Description:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Depth (inches)</th> <th style="width: 15%;">Horizon</th> <th style="width: 25%;">Matrix Color (Munsell Moist)</th> <th style="width: 25%;">Mottle Abundance/Size/Contrast</th> <th style="width: 20%;">Tex./Conc./Structure, etc.</th> </tr> </thead> <tbody> <tr> <td><u>0-8"</u></td> <td>_____</td> <td><u>2.5Y4/2</u></td> <td>_____</td> <td>_____</td> </tr> <tr><td>_____</td><td>_____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>_____</td><td>_____</td><td>_____</td><td>_____</td><td>_____</td></tr> </tbody> </table>		Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.	<u>0-8"</u>	_____	<u>2.5Y4/2</u>	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.																	
<u>0-8"</u>	_____	<u>2.5Y4/2</u>	_____	_____																	
_____	_____	_____	_____	_____																	
_____	_____	_____	_____	_____																	
<p>Hydric Soil Indicators:</p> <p>Histol _____</p> <p>Histic Epipedon _____</p> <p>Sulfuric Odor _____</p> <p>Aquic Moisture Regime _____</p> <p>Reducing Conditions _____</p> <p>Gleyed or Low Chroma Colors _____</p> <p>Concretions _____</p> <p>High Organic Content in Surface Layer in Sandy Soils _____</p> <p>Organic Streaking in Sandy Soils _____</p> <p>Listed on Local Hydric Soils List _____</p> <p>Listed on National Hydric Soils List _____</p> <p>Other (Explain in Remarks) _____</p>																					
Remarks: <u>No hydric soil indicators</u>																					

WETLAND DETERMINATION

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

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #11 State: Ohio  
Investigator: ChrisY  
Description: Upland

Date: 9/26/2008  
County: Hamilton  
Location: Point Out

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Poa pratensis</i>	bluegrass (Kentucky)	FACU	60	1 *
2 <i>Plantago major</i>	plantain (common)	FACU	5	2
3 <i>Setaria glauca</i>	foxtail (yellow)	FAC	5	2
4 <i>Bidens frondosa</i>	beggar-ticks (devil's)	FACW	2	3
5 <i>Taraxacum officinale</i>	dandelion	FACU-	2	3
6 <i>Chenopodium hybridum</i>	goosefoot (maple-leaved)	Not Listed	2	3
7				0
8				0
9				0
10				0
Sum of Percent Areal Cover			76	
0.5 X Sum of Percent Areal Cover			38	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.



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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>9/29/2008</u>
Wetland Site: <u>Wetland #12</u>	County: <u>Hamilton</u>
Investigator: <u>ChrisY</u>	State: <u>Ohio</u>
Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Forested/Emergent</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point In</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>	Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>
<i>Bidens frondosa</i>	Herb	FACW			
<i>Acer saccharinum</i>	Tree	FACW			
<i>Platanus occidentalis</i>	Tree	FACW-			
<i>Sambucus canadensis</i>	Shrub	FACW-			

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

Remarks: > 50% wetland species

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p><input type="checkbox"/> Stream, Lake, or Tide Gauge</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p><input type="checkbox"/> Inundated</p> <p><input checked="" type="checkbox"/> Saturated in upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water Marks</p> <p><input checked="" type="checkbox"/> Drift Lines</p> <p><input checked="" type="checkbox"/> Sediment Deposits</p> <p><input checked="" type="checkbox"/> Drainage Patterns in Wetland</p> <p>Secondary Indicators (2 or more required):</p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p><input checked="" 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>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;8</u> (in.)</p> <p>Depth to Saturated Soil: <u>0</u> (in.)</p>	

Remarks: Hydrology indicators present

SOILS

Map Unit Name (Series and Phase): <u>Water</u>	Drainage Class: <u>N/A</u>	Field Observations Confirmed Mapped Type? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Taxonomy (Subgroup): <u>N/A</u>		
Profile Description:	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast
Depth (inches) Horizon		
<u>0-8"</u>	<u>2.5Y4/1</u>	<u>5YR3/4</u>
Hydric Soil Indicators:		
<input type="checkbox"/> Histol	<input checked="" type="checkbox"/> Concretions	
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils	
<input type="checkbox"/> Sulfuric 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: Hydric soil indicators present

WETLAND DETERMINATION

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

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #12 State: Ohio  
Investigator: ChrisY  
Description: Forested/Emergent

Date: 9/29/2008  
County: Hamilton  
Location: Point In

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Bidens frondosa</i>	beggar-ticks (devil's)	FACW	90	1 *
2 <i>Boehmeria cylindrica</i>	nettle (false)	FACW+	20	2
3 <i>Xanthium strumarium</i>	clotbur (wetland)	FAC	5	3
4				0
5				0
6				0
7				0
8				0
9				0
10				0
Sum of Percent Areal Cover			115	
0.5 X Sum of Percent Areal Cover			57.5	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Acer saccharinum</i>	maple (silver)	FACW	30	1 *
2 <i>Platanus occidentalis</i>	sycamore (American)	FACW-	10	2 *
3				0
4				0
5				0
Sum of Percent Areal Cover			40	
0.5 X Sum of Percent Areal Cover			20	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Sambucus canadensis</i>	elderberry (black- common)	FACW-	5	1 *
2				0
3				0
Sum of Percent Areal Cover			5	
0.5 X Sum of Percent Areal Cover			2.5	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.

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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>9/29/2008</u>
Wetland Site: <u>Wetland #12</u>	County: <u>Hamilton</u>
Investigator: <u>ChrisY</u>	State: <u>Ohio</u>
Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Upland</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point Out</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status <sup>1</sup>	Dominant Plant Species	Stratum	Indicator Status <sup>1</sup>
<u>Laportea canadensis</u>	<u>Herb</u>	<u>FACW</u>	_____	_____	_____
<u>Alliaria petiolata</u>	<u>Herb</u>	<u>FACU-</u>	_____	_____	_____
<u>Celtis occidentalis</u>	<u>Tree</u>	<u>FACU</u>	_____	_____	_____
<u>Lonicera mackii</u>	<u>Shrub</u>	<u>Not Listed</u>	_____	_____	_____
<u>Toxicodendron radicans</u>	<u>W. Vine</u>	<u>FAC</u>	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

% Dominant Plant Species that are OBL, FACW or FAC (excluding FAC-): 40

Remarks: < 50% wetland species

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p>____ Stream, Lake, or Tide Gauge</p> <p>____ Aerial Photographs</p> <p>____ Other</p> <p><u>X</u> No Recorded Data Available</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p>____ Inundated</p> <p>____ Saturated in upper 12 Inches</p> <p>____ Water Marks</p> <p>____ Drift Lines</p> <p>____ Sediment Deposits</p> <p>____ Drainage Patterns in Wetland</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>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;8</u> (in.)</p> <p>Depth to Saturated Soil: <u>&gt;8</u> (in.)</p>	
Remarks: <u>No wetland hydrology indicators</u>	

SOILS

Map Unit Name (Series and Phase): <u>Jules Silt Loam</u>	Drainage Class: <u>Well drained</u>																				
Taxonomy (Subgroup): <u>Typic Udifluvents</u>	Field Observations Confirmed Mapped Type? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																				
<p>Profile Description:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Depth (inches)</th> <th style="width: 15%;">Horizon</th> <th style="width: 25%;">Matrix Color (Munsell Moist)</th> <th style="width: 25%;">Mottle Abundance/Size/Contrast</th> <th style="width: 20%;">Tex./Conc./Structure, etc.</th> </tr> </thead> <tbody> <tr> <td><u>0-8"</u></td> <td>_____</td> <td><u>10YR4/3</u></td> <td>_____</td> <td>_____</td> </tr> <tr> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> </tbody> </table>		Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.	<u>0-8"</u>	_____	<u>10YR4/3</u>	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.																	
<u>0-8"</u>	_____	<u>10YR4/3</u>	_____	_____																	
_____	_____	_____	_____	_____																	
_____	_____	_____	_____	_____																	
<p>Hydric Soil Indicators:</p> <p>____ Histol</p> <p>____ Histic Epipedon</p> <p>____ Sulfuric Odor</p> <p>____ Aquic Moisture Regime</p> <p>____ Reducing Conditions</p> <p>____ Gleyed or Low Chroma Colors</p> <p>____ Concretions</p> <p>____ High Organic Content in Surface Layer in Sandy Soils</p> <p>____ Organic Streaking in Sandy Soils</p> <p>____ Listed on Local Hydric Soils List</p> <p>____ Listed on National Hydric Soils List</p> <p>____ Other (Explain in Remarks)</p>																					
Remarks: <u>No hydric soil indicators</u>																					

WETLAND DETERMINATION

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

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #12 State: Ohio  
Investigator: ChrisY  
Description: Upland

Date: 9/29/2008  
County: Hamilton  
Location: Point Out

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Laportea canadensis</i>	nettle (wood)	FACW	45	1 *
2 <i>Alliaria petiolata</i>	mustard (garlic)	FACU-	30	2 *
3				0
4				0
5				0
6				0
7				0
8				0
9				0
10				0
Sum of Percent Areal Cover			75	
0.5 X Sum of Percent Areal Cover			37.5	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Celtis occidentalis</i>	hackberry (northern)	FACU	30	1 *
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			30	
0.5 X Sum of Percent Areal Cover			15	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Lonicera mackii</i>	honeysuckle (bush)	Not Listed	75	1 *
2				0
3				0
Sum of Percent Areal Cover			75	
0.5 X Sum of Percent Areal Cover			37.5	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Toxicodendron radicans</i>	poison ivy	FAC	20	1 *
2				0
3				0
Sum of Percent Areal Cover			20	
0.5 X Sum of Percent Areal Cover			10	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.



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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>9/29/2008</u>
Wetland Site: <u>Wetland #13</u>	County: <u>Hamilton</u>
Investigator: <u>ChrisY</u>	State: <u>Ohio</u>
Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Emergent</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point In</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status <sup>(1)</sup>	Dominant Plant Species	Stratum	Indicator Status <sup>(1)</sup>
<u>Saururus cernuus</u>	<u>Herb</u>	<u>OBL</u>	_____	_____	_____
<u>Acer saccharinum</u>	<u>Tree</u>	<u>FACW</u>	_____	_____	_____
<u>Acer saccharinum</u>	<u>Sapling</u>	<u>FACW</u>	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

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

Remarks: > 50% wetland species

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p>____ Stream, Lake, or Tide Gauge</p> <p>____ Aerial Photographs</p> <p>____ Other</p> <p><u>X</u> No Recorded Data Available</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p>____ Inundated</p> <p><u>X</u> Saturated in upper 12 Inches</p> <p><u>X</u> Water Marks</p> <p><u>X</u> Drift Lines</p> <p><u>X</u> Sediment Deposits</p> <p><u>X</u> Drainage Patterns in Wetland</p> <p>Secondary Indicators (2 or more required):</p> <p><u>X</u> Oxidized Root Channels in Upper 12 Inches</p> <p><u>X</u> Water-Stained Leaves</p> <p>____ Local Soil Survey Data</p> <p>____ FAC-Neutral Test</p> <p>____ Other (Explain in Remarks)</p>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;8</u> (in.)</p> <p>Depth to Saturated Soil: <u>0</u> (in.)</p>	

Remarks: Hydrology indicators present

SOILS

Map Unit Name (Series and Phase): <u>Jules Silt Loam</u>	Drainage Class: <u>Well drained</u>	Field Observations Confirmed Mapped Type? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>															
Taxonomy (Subgroup): <u>Typic Udifluvents</u>																	
<p>Profile Description:</p> <table style="width: 100%;"> <thead> <tr> <th style="width: 15%;">Depth (inches)</th> <th style="width: 15%;">Horizon</th> <th style="width: 25%;">Matrix Color (Munsell Moist)</th> <th style="width: 25%;">Mottle Abundance/Size/Contrast</th> <th style="width: 20%;">Tex./Conc./Structure, etc.</th> </tr> </thead> <tbody> <tr> <td><u>0-6"</u></td> <td>_____</td> <td><u>10YR3/2</u></td> <td><u>7.5YR4/6</u></td> <td>_____</td> </tr> <tr> <td><u>6-8"</u></td> <td>_____</td> <td><u>2.5Y4/1</u></td> <td><u>2.5Y7/3 &amp; 7.5YR/4</u></td> <td>_____</td> </tr> </tbody> </table>			Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.	<u>0-6"</u>	_____	<u>10YR3/2</u>	<u>7.5YR4/6</u>	_____	<u>6-8"</u>	_____	<u>2.5Y4/1</u>	<u>2.5Y7/3 &amp; 7.5YR/4</u>	_____
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.													
<u>0-6"</u>	_____	<u>10YR3/2</u>	<u>7.5YR4/6</u>	_____													
<u>6-8"</u>	_____	<u>2.5Y4/1</u>	<u>2.5Y7/3 &amp; 7.5YR/4</u>	_____													
<p>Hydric Soil Indicators:</p> <p>____ Histol <u>X</u> Concretions</p> <p>____ Histic Epipedon <u>_____</u> High Organic Content in Surface Layer in Sandy Soils</p> <p>____ Sulfuric Odor <u>_____</u> Organic Streaking in Sandy Soils</p> <p>____ Aquic Moisture Regime <u>_____</u> Listed on Local Hydric Soils List</p> <p>____ Reducing Conditions <u>_____</u> Listed on National Hydric Soils List</p> <p><u>X</u> Gleyed or Low Chroma Colors <u>_____</u> Other (Explain in Remarks)</p>																	

Remarks: Hydric soil indicators present

WETLAND DETERMINATION

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

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #13 State: Ohio  
Investigator: ChrisY  
Description: Emergent

Date: 9/29/2008  
County: Hamilton  
Location: Point In

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Saururus cernuus</i>	lizard's-tail (water dragon)	OBL	90	1 *
2 <i>Boehmeria cylindrica</i>	nettle (false)	FACW+	5	2
3 <i>Polygonum hydropiper</i>	waterpepper	OBL	5	2
4 <i>Bidens frondosa</i>	beggar-ticks (devil's)	FACW	5	2
5 <i>Leersia virginica</i>	cutgrass (white)	FACW	3	3
6				0
7				0
8				0
9				0
10				0
Sum of Percent Areal Cover			108	
0.5 X Sum of Percent Areal Cover			54	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Acer saccharinum</i>	maple (silver)	FACW	20	1 *
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			20	
0.5 X Sum of Percent Areal Cover			10	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Acer saccharinum</i>	maple (silver)	FACW	15	1 *
2				0
3				0
Sum of Percent Areal Cover			15	
0.5 X Sum of Percent Areal Cover			7.5	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.

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

Project Name:	Eastern Corridor Segment II/III	Date:	9/29/2008
Wetland Site:	Wetland #13	County:	Hamilton
Investigator:	ChrisY	State:	Ohio
Do normal circumstances exist on the site?:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID:	Upland
Is the site significantly disturbed (Atypical Situation)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID:	
Is the area a potential Problem Area?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID:	
(If needed, explain)		Location:	Point Out

## VEGETATION

Dominant Plant Species	Stratum	Indicator Status <sup>1</sup>	Dominant Plant Species	Stratum	Indicator Status <sup>1</sup>
<i>Laportea canadensis</i>	Herb	FACW			
<i>Alliaria petiolata</i>	Herb	FACU-			
<i>Celtis occidentalis</i>	Tree	FACU			
<i>Lonicera mackii</i>	Shrub	Not Listed			
<i>Toxicodendron radicans</i>	W. Vine	FAC			
% Dominant Plant Species that are OBL, FACW or FAC (excluding FAC-):			40		
Remarks: < 50% wetland species					

## HYDROLOGY

_____ Recorded Data (Describe in Remarks) _____ Stream, Lake, or Tide Gauge _____ Aerial Photographs _____ Other <u>  X  </u> No Recorded Data Available		Wetland Hydrology Indicators: Primary Indicators: _____ Inundated _____ Saturated in upper 12 Inches _____ Water Marks _____ Drift Lines _____ Sediment Deposits _____ Drainage Patterns in Wetland Secondary Indicators (2 or more required): _____ Oxidized Root Channels in Upper 12 Inches _____ Water-Stained Leaves _____ Local Soil Survey Data _____ FAC-Neutral Test _____ Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u>    0    </u> (in.) Depth to Free Water in Pit: <u>   &gt;8   </u> (in.) Depth to Saturated Soil: <u>   &gt;8   </u> (in.)		
Remarks:       No wetland hydrology indicators		

## SOILS

Map Unit Name (Series and Phase):		Jules Silt Loam		Drainage Class:	Well drained	
Taxonomy (Subgroup):		Typic Udifluvents		Field Observations	Confirmed Mapped Type? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Profile Description:						
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast		Tex./Conc./Structure, etc.	
0-8"		10YR4/3				
Hydric Soil Indicators:						
<input type="checkbox"/>	Histol	<input type="checkbox"/>	Concretions			
<input type="checkbox"/>	Histic Epipedon	<input type="checkbox"/>	High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/>	Sulfuric 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:		No hydric soil indicators				

## WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	_____	No	<u>X</u>	Is this Sampling Point Within a Wetland? Yes _____ No <u>X</u>
Wetland Hydrology Present?	Yes	_____	No	<u>X</u>	
Hydric Soils Present?	Yes	_____	No	<u>X</u>	
Remarks: No wetland criteria met.					

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #13 State: Ohio  
Investigator: ChrisY  
Description: Upland

Date: 9/29/2008  
County: Hamilton  
Location: Point Out

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Laportea canadensis</i>	nettle (wood)	FACW	45	1 *
2 <i>Alliaria petiolata</i>	mustard (garlic)	FACU-	30	2 *
3				0
4				0
5				0
6				0
7				0
8				0
9				0
10				0
Sum of Percent Areal Cover			75	
0.5 X Sum of Percent Areal Cover			37.5	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Celtis occidentalis</i>	hackberry (northern)	FACU	30	1 *
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			30	
0.5 X Sum of Percent Areal Cover			15	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Lonicera mackii</i>	honeysuckle (bush)	Not Listed	75	1 *
2				0
3				0
Sum of Percent Areal Cover			75	
0.5 X Sum of Percent Areal Cover			37.5	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Toxicodendron radicans</i>	poison ivy	FAC	20	1 *
2				0
3				0
Sum of Percent Areal Cover			20	
0.5 X Sum of Percent Areal Cover			10	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.



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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>9/29/2008</u>
Wetland Site: <u>Wetland #14</u>	County: <u>Hamilton</u>
Investigator: <u>ChrisY</u>	State: <u>Ohio</u>
Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Emergent</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point In</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>	Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>
<u>Saururus cemuus</u>	<u>Herb</u>	<u>OBL</u>	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

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

Remarks: > 50% wetland species

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p>____ Stream, Lake, or Tide Gauge</p> <p>____ Aerial Photographs</p> <p>____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</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><input checked="" type="checkbox"/> Water Marks</p> <p><input checked="" type="checkbox"/> Drift Lines</p> <p><input checked="" type="checkbox"/> Sediment Deposits</p> <p><input checked="" type="checkbox"/> Drainage Patterns in Wetland</p> <p>Secondary Indicators (2 or more required):</p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water-Stained Leaves</p> <p>____ Local Soil Survey Data</p> <p>____ FAC-Neutral Test</p> <p>____ Other (Explain in Remarks)</p>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;8</u> (in.)</p> <p>Depth to Saturated Soil: <u>0</u> (in.)</p>	
Remarks: <u>Hydrology indicators present</u>	

SOILS

Map Unit Name (Series and Phase): <u>Jules Silt Loam</u>	Drainage Class: <u>Well drained</u>			
Taxonomy (Subgroup): <u>Typic Udifluvents</u>	Field Observations Confirmed Mapped Type? Yes _____ No <input checked="" type="checkbox"/>			
Profile Description:				
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.
<u>6-8"</u>	_____	<u>2.5Y4/1</u>	<u>2.5Y7/3</u>	_____
<u>0-6"</u>	_____	<u>10YR4/2</u>	<u>10YR3/6</u>	_____
Hydric Soil Indicators:				
____ Histol	<input checked="" type="checkbox"/>	Concretions		
____ Histic Epipedon	____	High Organic Content in Surface Layer in Sandy Soils		
____ Sulfuric Odor	____	Organic Streaking in Sandy Soils		
____ Aquic Moisture Regime	____	Listed on Local Hydric Soils List		
____ Reducing Conditions	____	Listed on National Hydric Soils List		
<input checked="" type="checkbox"/> Gleyed or Low Chroma Colors	____	Other (Explain in Remarks)		
Remarks: <u>Hydric soil indicators present</u>				

WETLAND DETERMINATION

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

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #14 State: Ohio  
Investigator: ChrisY  
Description: Emergent

Date: 9/29/2008  
County: Hamilton  
Location: Point In

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Saururus cernuus</i>	lizard's-tail (water dragon)	OBL	100	1 *
2				0
3				0
4				0
5				0
6				0
7				0
8				0
9				0
10				0
Sum of Percent Areal Cover			100	
0.5 X Sum of Percent Areal Cover			50	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.

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

Project Name: <u>Eastern Corridor Segment II/III</u> Wetland Site: <u>Wetland #14</u> Investigator: <u>ChrisY</u>	Date: <u>9/29/2008</u> County: <u>Hamilton</u> State: <u>Ohio</u>
Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (If needed, explain) _____	
Community ID: <u>Upland</u> Transect ID: _____ Plot ID: _____ Location: <u>Point Out</u>	

VEGETATION

Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>	Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>
<u>Laportea canadensis</u>	<u>Herb</u>	<u>FACW</u>	_____	_____	_____
<u>Alliaria petiolata</u>	<u>Herb</u>	<u>FACU-</u>	_____	_____	_____
<u>Celtis occidentalis</u>	<u>Tree</u>	<u>FACU</u>	_____	_____	_____
<u>Lonicera mackii</u>	<u>Shrub</u>	<u>Not Listed</u>	_____	_____	_____
<u>Toxicodendron radicans</u>	<u>W. Vine</u>	<u>FAC</u>	_____	_____	_____

% Dominant Plant Species that are OBL, FACW or FAC (excluding FAC-): 40

Remarks: < 50% wetland species

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 type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetland Secondary Indicators (2 or more required): <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</u> (in.) Depth to Free Water in Pit: <u>&gt;8</u> (in.) Depth to Saturated Soil: <u>&gt;8</u> (in.)	
Remarks: <u>No wetland hydrology indicators</u>	

SOILS

Map Unit Name (Series and Phase): <u>Jules Silt Loam</u> Taxonomy (Subgroup): <u>Typic Udifluvents</u>	Drainage Class: <u>Well drained</u> Field Observations Confirmed Mapped Type? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																				
Profile Description: <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Depth (inches)</th> <th style="width: 15%;">Horizon</th> <th style="width: 25%;">Matrix Color (Munsell Moist)</th> <th style="width: 25%;">Mottle Abundance/Size/Contrast</th> <th style="width: 20%;">Tex./Conc./Structure, etc.</th> </tr> </thead> <tbody> <tr> <td><u>0-8"</u></td> <td>_____</td> <td><u>10YR4/3</u></td> <td>_____</td> <td>_____</td> </tr> <tr> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> </tbody> </table>		Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.	<u>0-8"</u>	_____	<u>10YR4/3</u>	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.																	
<u>0-8"</u>	_____	<u>10YR4/3</u>	_____	_____																	
_____	_____	_____	_____	_____																	
_____	_____	_____	_____	_____																	
Hydric Soil Indicators: <input type="checkbox"/> Histol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfuric 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 hydric soil indicators</u>																					

WETLAND DETERMINATION

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

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #14 State: Ohio  
Investigator: ChrisY  
Description: Upland

Date: 9/29/2008  
County: Hamilton  
Location: Point Out

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Laportea canadensis</i>	nettle (wood)	FACW	45	1 *
2 <i>Alliaria petiolata</i>	mustard (garlic)	FACU-	30	2 *
3				0
4				0
5				0
6				0
7				0
8				0
9				0
10				0
Sum of Percent Areal Cover			75	
0.5 X Sum of Percent Areal Cover			37.5	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Celtis occidentalis</i>	hackberry (northern)	FACU	30	1 *
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			30	
0.5 X Sum of Percent Areal Cover			15	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Lonicera mackii</i>	honeysuckle (bush)	Not Listed	75	1 *
2				0
3				0
Sum of Percent Areal Cover			75	
0.5 X Sum of Percent Areal Cover			37.5	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Toxicodendron radicans</i>	poison ivy	FAC	20	1 *
2				0
3				0
Sum of Percent Areal Cover			20	
0.5 X Sum of Percent Areal Cover			10	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.



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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>9/29/2008</u>
Wetland Site: <u>Wetland #15</u>	County: <u>Hamilton</u>
Investigator: <u>ChrisY</u>	State: <u>Ohio</u>
Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Emergent</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point In</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>	Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>
<u>Saururus cernuus</u>	<u>Herb</u>	<u>OBL</u>	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

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

Remarks: > 50% wetland species

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p>____ Stream, Lake, or Tide Gauge</p> <p>____ Aerial Photographs</p> <p>____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</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><input checked="" type="checkbox"/> Water Marks</p> <p><input checked="" type="checkbox"/> Drift Lines</p> <p><input checked="" type="checkbox"/> Sediment Deposits</p> <p><input checked="" type="checkbox"/> Drainage Patterns in Wetland</p> <p>Secondary Indicators (2 or more required):</p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water-Stained Leaves</p> <p>____ Local Soil Survey Data</p> <p>____ FAC-Neutral Test</p> <p>____ Other (Explain in Remarks)</p>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;8</u> (in.)</p> <p>Depth to Saturated Soil: <u>0</u> (in.)</p>	
Remarks: <u>Hydrology indicators present</u>	

SOILS

Map Unit Name (Series and Phase): <u>Jules Silt Loam</u>	Drainage Class: <u>Well drained</u>																				
Taxonomy (Subgroup): <u>Typic Udifluvents</u>	Field Observations Confirmed Mapped Type? Yes _____ No <input checked="" type="checkbox"/>																				
<p>Profile Description:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Depth (inches)</th> <th style="width: 15%;">Horizon</th> <th style="width: 25%;">Matrix Color (Munsell Moist)</th> <th style="width: 25%;">Mottle Abundance/Size/Contrast</th> <th style="width: 20%;">Tex./Conc./Structure, etc.</th> </tr> </thead> <tbody> <tr> <td><u>0-8"</u></td> <td>_____</td> <td><u>2.5Y4/1</u></td> <td><u>10YR3/6</u></td> <td>_____</td> </tr> <tr> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> </tbody> </table>		Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.	<u>0-8"</u>	_____	<u>2.5Y4/1</u>	<u>10YR3/6</u>	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.																	
<u>0-8"</u>	_____	<u>2.5Y4/1</u>	<u>10YR3/6</u>	_____																	
_____	_____	_____	_____	_____																	
_____	_____	_____	_____	_____																	
<p>Hydric Soil Indicators:</p> <p>____ Histol <input checked="" type="checkbox"/> Concretions</p> <p>____ Histic Epipedon _____ High Organic Content in Surface Layer in Sandy Soils</p> <p>____ Sulfuric Odor _____ Organic Streaking in Sandy Soils</p> <p>____ Aquic Moisture Regime _____ Listed on Local Hydric Soils List</p> <p>____ Reducing Conditions _____ Listed on National Hydric Soils List</p> <p><input checked="" type="checkbox"/> Gleyed or Low Chroma Colors _____ Other (Explain in Remarks)</p>																					
Remarks: <u>Hydric soil indicators present</u>																					

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____	Is this Sampling Point Within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	
Hydric Soils Present? Yes <input checked="" type="checkbox"/> No _____	
Remarks: <u>All wetland criteria met.</u>	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
 Wetland Site: Wetland #15 State: Ohio  
 Investigator: ChrisY  
 Description: Emergent

Date: 9/29/2008  
 County: Hamilton  
 Location: Point In

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Saururus cernuus</i>	lizard's-tail (water dragon)	OBL	100	1 *
2				0
3				0
4				0
5				0
6				0
7				0
8				0
9				0
10				0
Sum of Percent Areal Cover			100	
0.5 X Sum of Percent Areal Cover			50	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.

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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>9/29/2008</u>
Wetland Site: <u>Wetland #15</u>	County: <u>Hamilton</u>
Investigator: <u>ChrisY</u>	State: <u>Ohio</u>
Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Upland</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point Out</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>	Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>
<u>Laportea canadensis</u>	<u>Herb</u>	<u>FACW</u>	_____	_____	_____
<u>Alliaria petiolata</u>	<u>Herb</u>	<u>FACU-</u>	_____	_____	_____
<u>Celtis occidentalis</u>	<u>Tree</u>	<u>FACU</u>	_____	_____	_____
<u>Lonicera mackii</u>	<u>Shrub</u>	<u>Not Listed</u>	_____	_____	_____
<u>Toxicodendron radicans</u>	<u>W. Vine</u>	<u>FAC</u>	_____	_____	_____
% Dominant Plant Species that are OBL, FACW or FAC (excluding FAC-): <u>40</u>					
Remarks: <u>&lt; 50% wetland species</u>					

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	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 type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetland Secondary Indicators (2 or more required): <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</u> (in.) Depth to Free Water in Pit: <u>&gt;8</u> (in.) Depth to Saturated Soil: <u>&gt;8</u> (in.)	
Remarks: <u>No wetland hydrology indicators</u>	

SOILS

Map Unit Name (Series and Phase): <u>Jules Silt Loam</u>	Drainage Class: <u>Well drained</u>																				
Taxonomy (Subgroup): <u>Typic Udifluvents</u>	Field Observations Confirmed Mapped Type? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																				
Profile Description: <table style="width: 100%;"> <tr> <th style="width: 15%;">Depth (inches)</th> <th style="width: 15%;">Horizon</th> <th style="width: 25%;">Matrix Color (Munsell Moist)</th> <th style="width: 25%;">Mottle Abundance/Size/Contrast</th> <th style="width: 20%;">Tex./Conc./Structure, etc.</th> </tr> <tr> <td><u>0-8"</u></td> <td></td> <td><u>10YR4/3</u></td> <td></td> <td></td> </tr> <tr> <td>_____</td> <td></td> <td>_____</td> <td></td> <td></td> </tr> <tr> <td>_____</td> <td></td> <td>_____</td> <td></td> <td></td> </tr> </table>		Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.	<u>0-8"</u>		<u>10YR4/3</u>			_____		_____			_____		_____		
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.																	
<u>0-8"</u>		<u>10YR4/3</u>																			
_____		_____																			
_____		_____																			
Hydric Soil Indicators: <input type="checkbox"/> Histol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfuric 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 hydric soil indicators</u>																					

WETLAND DETERMINATION

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

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #15 State: Ohio  
Investigator: ChrisY  
Description: Upland

Date: 9/29/2008  
County: Hamilton  
Location: Point Out

Herbaceous Species	Common Name	Indicator <sup>1</sup> Status	Percent Areal Cover	Rank <sup>12</sup>
1 <i>Laportea canadensis</i>	nettle (wood)	FACW	45	1 *
2 <i>Alliaria petiolata</i>	mustard (garlic)	FACU-	30	2 *
3				0
4				0
5				0
6				0
7				0
8				0
9				0
10				0
Sum of Percent Areal Cover			75	
0.5 X Sum of Percent Areal Cover			37.5	

Tree Species	Common Name	Indicator <sup>1</sup> Status	Percent Areal Cover	Rank <sup>12</sup>
1 <i>Celtis occidentalis</i>	hackberry (northern)	FACU	30	1 *
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			30	
0.5 X Sum of Percent Areal Cover			15	

Shrub Species	Common Name	Indicator <sup>1</sup> Status	Percent Areal Cover	Rank <sup>12</sup>
1 <i>Lonicera mackii</i>	honeysuckle (bush)	Not Listed	75	1 *
2				0
3				0
Sum of Percent Areal Cover			75	
0.5 X Sum of Percent Areal Cover			37.5	

Sapling Species	Common Name	Indicator <sup>1</sup> Status	Percent Areal Cover	Rank <sup>12</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Woody Vine Species	Common Name	Indicator <sup>1</sup> Status	Percent Areal Cover	Rank <sup>12</sup>
1 <i>Toxicodendron radicans</i>	poison ivy	FAC	20	1 *
2				0
3				0
Sum of Percent Areal Cover			20	
0.5 X Sum of Percent Areal Cover			10	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.



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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>9/29/2008</u>
Wetland Site: <u>Wetland #16</u>	County: <u>Hamilton</u>
Investigator: <u>ChrisY</u>	State: <u>Ohio</u>

Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Emergent</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point In</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>	Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>
<u>Saururus cernuus</u>	<u>Herb</u>	<u>OBL</u>	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

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

Remarks: > 50% wetland species

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p>____ Stream, Lake, or Tide Gauge</p> <p>____ Aerial Photographs</p> <p>____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</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><input checked="" type="checkbox"/> Water Marks</p> <p><input checked="" type="checkbox"/> Drift Lines</p> <p><input checked="" type="checkbox"/> Sediment Deposits</p> <p><input checked="" type="checkbox"/> Drainage Patterns in Wetland</p> <p>Secondary Indicators (2 or more required):</p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water-Stained Leaves</p> <p>____ Local Soil Survey Data</p> <p>____ FAC-Neutral Test</p> <p>____ Other (Explain in Remarks)</p>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;8</u> (in.)</p> <p>Depth to Saturated Soil: <u>0</u> (in.)</p>	

Remarks: Hydrology indicators present

SOILS

Map Unit Name (Series and Phase): <u>Jules Silt Loam</u>	Drainage Class: <u>Well drained</u>
Taxonomy (Subgroup): <u>Typic Udifluvents</u>	Field Observations Confirmed Mapped Type? Yes _____ No <input checked="" type="checkbox"/>

Profile Description:	Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.
	<u>0-8"</u>		<u>2.5Y4/1</u>	<u>10YR3/6</u>	

Hydric Soil Indicators:	<input checked="" 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)
<input type="checkbox"/> Histol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfuric Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input checked="" type="checkbox"/> Gleyed or Low Chroma Colors	

Remarks: Hydric soil indicators present

WETLAND DETERMINATION

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

Remarks: All wetland criteria met.

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #16 State: Ohio  
Investigator: ChrisY  
Description: Emergent

Date: 9/29/2008  
County: Hamilton  
Location: Point In

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Saururus cernuus</i>	lizard's-tail (water dragon)	OBL	100	1 *
2				0
3				0
4				0
5				0
6				0
7				0
8				0
9				0
10				0
Sum of Percent Areal Cover			100	
0.5 X Sum of Percent Areal Cover			50	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.

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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>9/29/2008</u>
Wetland Site: <u>Wetland #16</u>	County: <u>Hamilton</u>
Investigator: <u>ChrisY</u>	State: <u>Ohio</u>
Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Upland</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point Out</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>	Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>
<i>Laportea canadensis</i>	Herb	FACW			
<i>Alliaria petiolata</i>	Herb	FACU-			
<i>Celtis occidentalis</i>	Tree	FACU			
<i>Lonicera mackii</i>	Shrub	Not Listed			
<i>Toxicodendron radicans</i>	W. Vine	FAC			
% Dominant Plant Species that are OBL, FACW or FAC (excluding FAC-): <u>40</u>					
Remarks: <u>&lt; 50% wetland species</u>					

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p><input type="checkbox"/> Stream, Lake, or Tide Gauge</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</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 Wetland</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>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;8</u> (in.)</p> <p>Depth to Saturated Soil: <u>&gt;8</u> (in.)</p>	
Remarks: <u>No wetland hydrology indicators</u>	

SOILS

Map Unit Name (Series and Phase): <u>Jules Silt Loam</u>	Drainage Class: <u>Well drained</u>																				
Taxonomy (Subgroup): <u>Typic Udifluvents</u>	Field Observations Confirmed Mapped Type? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																				
<p>Profile Description:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Depth (inches)</th> <th style="width: 15%;">Horizon</th> <th style="width: 25%;">Matrix Color (Munsell Moist)</th> <th style="width: 25%;">Mottle Abundance/Size/Contrast</th> <th style="width: 20%;">Tex./Conc./Structure, etc.</th> </tr> </thead> <tbody> <tr> <td>0-8"</td> <td></td> <td>10YR4/3</td> <td></td> <td></td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>		Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.	0-8"		10YR4/3												
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.																	
0-8"		10YR4/3																			
<p>Hydric Soil Indicators:</p> <p><input type="checkbox"/> Histol</p> <p><input type="checkbox"/> Histic Epipedon</p> <p><input type="checkbox"/> Sulfuric Odor</p> <p><input type="checkbox"/> Aquic Moisture Regime</p> <p><input type="checkbox"/> Reducing Conditions</p> <p><input type="checkbox"/> Gleyed or Low Chroma Colors</p> <p><input type="checkbox"/> Concretions</p> <p><input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils</p> <p><input type="checkbox"/> Organic Streaking in Sandy Soils</p> <p><input type="checkbox"/> Listed on Local Hydric Soils List</p> <p><input type="checkbox"/> Listed on National Hydric Soils List</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>																					
Remarks: <u>No hydric soil indicators</u>																					

WETLAND DETERMINATION

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

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #16 State: Ohio  
Investigator: ChrisY  
Description: Upland

Date: 9/29/2008  
County: Hamilton  
Location: Point Out

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Laportea canadensis</i>	nettle (wood)	FACW	45	1 *
2 <i>Alliaria petiolata</i>	mustard (garlic)	FACU-	30	2 *
3				0
4				0
5				0
6				0
7				0
8				0
9				0
10				0
Sum of Percent Areal Cover			75	
0.5 X Sum of Percent Areal Cover			37.5	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Celtis occidentalis</i>	hackberry (northern)	FACU	30	1 *
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			30	
0.5 X Sum of Percent Areal Cover			15	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Lonicera mackii</i>	honeysuckle (bush)	Not Listed	75	1 *
2				0
3				0
Sum of Percent Areal Cover			75	
0.5 X Sum of Percent Areal Cover			37.5	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Toxicodendron radicans</i>	poison ivy	FAC	20	1 *
2				0
3				0
Sum of Percent Areal Cover			20	
0.5 X Sum of Percent Areal Cover			10	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.



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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>9/29/2008</u>
Wetland Site: <u>Wetland #17</u>	County: <u>Hamilton</u>
Investigator: <u>ChrisY</u>	State: <u>Ohio</u>
Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Emergent</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point In</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status [1]	Dominant Plant Species	Stratum	Indicator Status [1]
<u>Saururus cernuus</u>	<u>Herb</u>	<u>OBL</u>	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

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

Remarks: > 50% wetland species

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p>____ Stream, Lake, or Tide Gauge</p> <p>____ Aerial Photographs</p> <p>____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</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><input checked="" type="checkbox"/> Water Marks</p> <p>____ Drift Lines</p> <p><input checked="" type="checkbox"/> Sediment Deposits</p> <p><input checked="" type="checkbox"/> Drainage Patterns in Wetland</p> <p>Secondary Indicators (2 or more required):</p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water-Stained Leaves</p> <p>____ Local Soil Survey Data</p> <p>____ FAC-Neutral Test</p> <p>____ Other (Explain in Remarks)</p>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;8</u> (in.)</p> <p>Depth to Saturated Soil: <u>0</u> (in.)</p>	
Remarks: <u>Hydrology indicators present</u>	

SOILS

Map Unit Name (Series and Phase): <u>Jules Silt Loam</u>	Drainage Class: <u>Well drained</u>																				
Taxonomy (Subgroup): <u>Typic Udifluvents</u>	Field Observations Confirmed Mapped Type? Yes _____ No <input checked="" type="checkbox"/>																				
<p>Profile Description:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Depth (inches)</th> <th style="width: 15%;">Horizon</th> <th style="width: 25%;">Matrix Color (Munsell Moist)</th> <th style="width: 25%;">Mottle Abundance/Size/Contrast</th> <th style="width: 20%;">Tex./Conc./Structure, etc.</th> </tr> </thead> <tbody> <tr> <td><u>0-8"</u></td> <td>_____</td> <td><u>2.5Y4/1</u></td> <td><u>10YR3/6</u></td> <td>_____</td> </tr> <tr> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> </tbody> </table>		Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.	<u>0-8"</u>	_____	<u>2.5Y4/1</u>	<u>10YR3/6</u>	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.																	
<u>0-8"</u>	_____	<u>2.5Y4/1</u>	<u>10YR3/6</u>	_____																	
_____	_____	_____	_____	_____																	
_____	_____	_____	_____	_____																	
<p>Hydric Soil Indicators:</p> <p>____ Histol <input checked="" type="checkbox"/> Concretions</p> <p>____ Histic Epipedon <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils</p> <p>____ Sulfuric Odor <input type="checkbox"/> Organic Streaking in Sandy Soils</p> <p>____ Aquic Moisture Regime <input type="checkbox"/> Listed on Local Hydric Soils List</p> <p>____ Reducing Conditions <input type="checkbox"/> Listed on National Hydric Soils List</p> <p><input checked="" type="checkbox"/> Gleyed or Low Chroma Colors <input type="checkbox"/> Other (Explain in Remarks)</p>																					
Remarks: <u>Hydric soil indicators present</u>																					

WETLAND DETERMINATION

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

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
 Wetland Site: Wetland #17 State: Ohio  
 Investigator: ChrisY  
 Description: Emergent

Date: 9/29/2008  
 County: Hamilton  
 Location: Point In

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <u><i>Saururus cernuus</i></u>	<u>lizard's-tail (water dragon)</u>	<u>OBL</u>	<u>100</u>	<u>1 *</u>
2 _____	_____	_____	_____	<u>0</u>
3 _____	_____	_____	_____	<u>0</u>
4 _____	_____	_____	_____	<u>0</u>
5 _____	_____	_____	_____	<u>0</u>
6 _____	_____	_____	_____	<u>0</u>
7 _____	_____	_____	_____	<u>0</u>
8 _____	_____	_____	_____	<u>0</u>
9 _____	_____	_____	_____	<u>0</u>
10 _____	_____	_____	_____	<u>0</u>
Sum of Percent Areal Cover			<u>100</u>	
0.5 X Sum of Percent Areal Cover			<u>50</u>	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 _____	_____	_____	_____	<u>0</u>
2 _____	_____	_____	_____	<u>0</u>
3 _____	_____	_____	_____	<u>0</u>
4 _____	_____	_____	_____	<u>0</u>
5 _____	_____	_____	_____	<u>0</u>
Sum of Percent Areal Cover			<u>0</u>	
0.5 X Sum of Percent Areal Cover			<u>0</u>	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 _____	_____	_____	_____	<u>0</u>
2 _____	_____	_____	_____	<u>0</u>
3 _____	_____	_____	_____	<u>0</u>
Sum of Percent Areal Cover			<u>0</u>	
0.5 X Sum of Percent Areal Cover			<u>0</u>	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 _____	_____	_____	_____	<u>0</u>
2 _____	_____	_____	_____	<u>0</u>
3 _____	_____	_____	_____	<u>0</u>
Sum of Percent Areal Cover			<u>0</u>	
0.5 X Sum of Percent Areal Cover			<u>0</u>	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 _____	_____	_____	_____	<u>0</u>
2 _____	_____	_____	_____	<u>0</u>
3 _____	_____	_____	_____	<u>0</u>
Sum of Percent Areal Cover			<u>0</u>	
0.5 X Sum of Percent Areal Cover			<u>0</u>	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.

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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>9/29/2008</u>
Wetland Site: <u>Wetland #17</u>	County: <u>Hamilton</u>
Investigator: <u>ChrisY</u>	State: <u>Ohio</u>
Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Upland</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point Out</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>	Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>
<u>Laportea canadensis</u>	<u>Herb</u>	<u>FACW</u>	_____	_____	_____
<u>Alliaria petiolata</u>	<u>Herb</u>	<u>FACU-</u>	_____	_____	_____
<u>Celtis occidentalis</u>	<u>Tree</u>	<u>FACU</u>	_____	_____	_____
<u>Lonicera mackii</u>	<u>Shrub</u>	<u>Not Listed</u>	_____	_____	_____
<u>Toxicodendron radicans</u>	<u>W. Vine</u>	<u>FAC</u>	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

% Dominant Plant Species that are OBL, FACW or FAC (excluding FAC-): 40

Remarks: < 50% wetland species

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p>____ Stream, Lake, or Tide Gauge</p> <p>____ Aerial Photographs</p> <p>____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p>____ Inundated</p> <p>____ Saturated in upper 12 Inches</p> <p>____ Water Marks</p> <p>____ Drift Lines</p> <p>____ Sediment Deposits</p> <p>____ Drainage Patterns in Wetland</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>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;8</u> (in.)</p> <p>Depth to Saturated Soil: <u>&gt;8</u> (in.)</p>	
Remarks: <u>No wetland hydrology indicators</u>	

SOILS

Map Unit Name (Series and Phase): <u>Jules Silt Loam</u>	Drainage Class: <u>Well drained</u>																				
Taxonomy (Subgroup): <u>Typic Udifluvents</u>	Field Observations Confirmed Mapped Type? Yes _____ No <input checked="" type="checkbox"/>																				
<p>Profile Description:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Depth (inches)</th> <th style="width: 15%;">Horizon</th> <th style="width: 25%;">Matrix Color (Munsell Moist)</th> <th style="width: 25%;">Mottle Abundance/Size/Contrast</th> <th style="width: 20%;">Tex./Conc./Structure, etc.</th> </tr> </thead> <tbody> <tr> <td><u>0-8"</u></td> <td>_____</td> <td><u>10YR4/3</u></td> <td>_____</td> <td>_____</td> </tr> <tr> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> </tbody> </table>		Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.	<u>0-8"</u>	_____	<u>10YR4/3</u>	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.																	
<u>0-8"</u>	_____	<u>10YR4/3</u>	_____	_____																	
_____	_____	_____	_____	_____																	
_____	_____	_____	_____	_____																	
<p>Hydric Soil Indicators:</p> <table style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <p>____ Histol</p> <p>____ Histic Epipedon</p> <p>____ Sulfuric Odor</p> <p>____ Aquic Moisture Regime</p> <p>____ Reducing Conditions</p> <p>____ Gleyed or Low Chroma Colors</p> </td> <td style="width: 50%; vertical-align: top;"> <p>____ Concretions</p> <p>____ High Organic Content in Surface Layer in Sandy Soils</p> <p>____ Organic Streaking in Sandy Soils</p> <p>____ Listed on Local Hydric Soils List</p> <p>____ Listed on National Hydric Soils List</p> <p>____ Other (Explain in Remarks)</p> </td> </tr> </table>		<p>____ Histol</p> <p>____ Histic Epipedon</p> <p>____ Sulfuric Odor</p> <p>____ Aquic Moisture Regime</p> <p>____ Reducing Conditions</p> <p>____ Gleyed or Low Chroma Colors</p>	<p>____ Concretions</p> <p>____ High Organic Content in Surface Layer in Sandy Soils</p> <p>____ Organic Streaking in Sandy Soils</p> <p>____ Listed on Local Hydric Soils List</p> <p>____ Listed on National Hydric Soils List</p> <p>____ Other (Explain in Remarks)</p>																		
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Remarks: <u>No hydric soil indicators</u>																					

WETLAND DETERMINATION

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

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #17 State: Ohio  
Investigator: ChrisY  
Description: Upland

Date: 9/29/2008  
County: Hamilton  
Location: Point Out

Herbaceous Species	Common Name	Indicator <sup>1</sup> Status	Percent Areal Cover	Rank <sup>2</sup>
1 <i>Laportea canadensis</i>	nettle (wood)	FACW	45	1 *
2 <i>Alliaria petiolata</i>	mustard (garlic)	FACU-	30	2 *
3				0
4				0
5				0
6				0
7				0
8				0
9				0
10				0
Sum of Percent Areal Cover			75	
0.5 X Sum of Percent Areal Cover			37.5	

Tree Species	Common Name	Indicator <sup>1</sup> Status	Percent Areal Cover	Rank <sup>2</sup>
1 <i>Celtis occidentalis</i>	hackberry (northern)	FACU	30	1 *
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			30	
0.5 X Sum of Percent Areal Cover			15	

Shrub Species	Common Name	Indicator <sup>1</sup> Status	Percent Areal Cover	Rank <sup>2</sup>
1 <i>Lonicera mackii</i>	honeysuckle (bush)	Not Listed	75	1 *
2				0
3				0
Sum of Percent Areal Cover			75	
0.5 X Sum of Percent Areal Cover			37.5	

Sapling Species	Common Name	Indicator <sup>1</sup> Status	Percent Areal Cover	Rank <sup>2</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Woody Vine Species	Common Name	Indicator <sup>1</sup> Status	Percent Areal Cover	Rank <sup>2</sup>
1 <i>Toxicodendron radicans</i>	poison ivy	FAC	20	1 *
2				0
3				0
Sum of Percent Areal Cover			20	
0.5 X Sum of Percent Areal Cover			10	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.



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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>10/1/2008</u>
Wetland Site: <u>Wetland #18</u>	County: <u>Hamilton</u>
Investigator: <u>ChrisY</u>	State: <u>Ohio</u>
Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Emergent</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point In</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>	Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>
<u>Saururus cernuus</u>	<u>Herb</u>	<u>OBL</u>	_____	_____	_____
<u>Impatiens capensis</u>	<u>Herb</u>	<u>FACW</u>	_____	_____	_____
<u>Leersia oryzoides</u>	<u>Herb</u>	<u>OBL</u>	_____	_____	_____
<u>Acer saccharinum</u>	<u>Tree</u>	<u>FACW</u>	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

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

Remarks: > 50% wetland species

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p>____ Stream, Lake, or Tide Gauge</p> <p>____ Aerial Photographs</p> <p>____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</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><input checked="" type="checkbox"/> Water Marks</p> <p>____ Drift Lines</p> <p><input checked="" type="checkbox"/> Sediment Deposits</p> <p><input checked="" type="checkbox"/> Drainage Patterns in Wetland</p> <p>Secondary Indicators (2 or more required):</p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water-Stained Leaves</p> <p>____ Local Soil Survey Data</p> <p>____ FAC-Neutral Test</p> <p>____ Other (Explain in Remarks)</p>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;8</u> (in.)</p> <p>Depth to Saturated Soil: <u>0</u> (in.)</p>	
Remarks: <u>Hydrology indicators present</u>	

SOILS

Map Unit Name (Series and Phase): <u>Jules Silt Loam</u>	Drainage Class: <u>Well drained</u>			
Taxonomy (Subgroup): <u>Typic Udifluvents</u>	Field Observations Confirmed Mapped Type? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
Profile Description:				
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.
<u>0-4"</u>	_____	<u>5Y3/1</u>	<u>10YR5/6</u>	_____
<u>4-8"</u>	_____	<u>2.5Y4/1</u>	<u>10YR4/6</u>	_____
_____	_____	_____	_____	_____
Hydric Soil Indicators:				
____ Histol	<input checked="" type="checkbox"/>	<u>Concretions</u>		
____ Histic Epipedon	____	<u>High Organic Content in Surface Layer in Sandy Soils</u>		
____ Sulfuric Odor	____	<u>Organic Streaking in Sandy Soils</u>		
____ Aquic Moisture Regime	____	<u>Listed on Local Hydric Soils List</u>		
____ Reducing Conditions	____	<u>Listed on National Hydric Soils List</u>		
<input checked="" type="checkbox"/> Gleyed or Low Chroma Colors	____	<u>Other (Explain in Remarks)</u>		
Remarks: <u>Hydric soil indicators present</u>				

WETLAND DETERMINATION

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

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #18 State: Ohio  
Investigator: ChrisY  
Description: Emergent

Date: 10/1/2008  
County: Hamilton  
Location: Point In

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Saururus cernuus</i>	lizard's-tail (water dragon)	OBL	90	1 *
2 <i>Impatiens capensis</i>	jewelweed (touch-me-not)	FACW	40	2 *
3 <i>Leersia oryzoides</i>	cutgrass (rice)	OBL	40	2 *
4 <i>Iris versicolor</i>	blue flag (larger)	OBL	20	3
5 <i>Verbesina alternifolia</i>	wingstem	FAC	10	4
6 <i>Eupatorium perfoliatum</i>	boneset	FACW+	5	5
7				0
8				0
9				0
10				0
Sum of Percent Areal Cover			205	
0.5 X Sum of Percent Areal Cover			102.5	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Acer saccharinum</i>	maple (silver)	FACW	10	1 *
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			10	
0.5 X Sum of Percent Areal Cover			5	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.

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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>10/1/2008</u>
Wetland Site: <u>Wetland #18</u>	County: <u>Hamilton</u>
Investigator: <u>ChrisY</u>	State: <u>Ohio</u>
Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Upland</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point Out</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>	Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>
<u>Aster sp.</u>	<u>Herb</u>	<u>N/A</u>	<u>Acer negundo</u>	<u>Sapling</u>	<u>FAC+</u>
<u>Cryptotaenia canadensis</u>	<u>Herb</u>	<u>FAC</u>	<u>Fraxinus pennsylvanica</u>	<u>Sapling</u>	<u>FACW</u>
<u>Laportea canadensis</u>	<u>Herb</u>	<u>FACW</u>	<u>Campsis radicans</u>	<u>W. Vine</u>	<u>FAC</u>
<u>Acer saccharinum</u>	<u>Tree</u>	<u>FACW</u>	<u>Parthenocissus quinquefolia</u>	<u>W. Vine</u>	<u>FACU</u>
<u>Platanus occidentalis</u>	<u>Tree</u>	<u>FACW-</u>	<u>Toxicodendron radicans</u>	<u>W. Vine</u>	<u>FAC</u>
<u>Lonicera mackii</u>	<u>Shrub</u>	<u>Not Listed</u>			

% Dominant Plant Species that are OBL, FACW or FAC (excluding FAC-): 72.72

Remarks: > 50% wetland species

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p><input type="checkbox"/> Stream, Lake, or Tide Gauge</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</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 Wetland</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>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;8</u> (in.)</p> <p>Depth to Saturated Soil: <u>&gt;8</u> (in.)</p>	
<p>Remarks: <u>No wetland hydrology indicators</u></p>	

SOILS

Map Unit Name (Series and Phase): <u>Jules Silt Loam</u>	Drainage Class: <u>Well drained</u>																				
Taxonomy (Subgroup): <u>Typic Udifluvents</u>	Field Observations Confirmed Mapped Type? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																				
<p>Profile Description:</p> <table style="width: 100%;"> <thead> <tr> <th style="width: 15%;">Depth (inches)</th> <th style="width: 15%;">Horizon</th> <th style="width: 25%;">Matrix Color (Munsell Moist)</th> <th style="width: 25%;">Mottle Abundance/Size/Contrast</th> <th style="width: 20%;">Tex./Conc./Structure, etc.</th> </tr> </thead> <tbody> <tr> <td><u>0-8"</u></td> <td></td> <td><u>10YR4/2</u></td> <td></td> <td></td> </tr> <tr> <td> </td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> </td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.	<u>0-8"</u>		<u>10YR4/2</u>												
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.																	
<u>0-8"</u>		<u>10YR4/2</u>																			
<p>Hydric Soil Indicators:</p> <table style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Histol  <input type="checkbox"/> Histic Epipedon  <input type="checkbox"/> Sulfuric Odor  <input type="checkbox"/> Aquic Moisture Regime  <input type="checkbox"/> Reducing Conditions  <input type="checkbox"/> Gleyed or Low Chroma Colors </td> <td style="width: 50%; vertical-align: top;"> <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) </td> </tr> </table>		<input type="checkbox"/> Histol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfuric 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)																		
<input type="checkbox"/> Histol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfuric 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)																				
<p>Remarks: <u>No hydric soil indicators</u></p>																					

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Hydric Soils Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
<p>Remarks: <u>Not all wetland criteria met.</u></p>	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #18 State: Ohio  
Investigator: ChrisY  
Description: Upland

Date: 10/1/2008  
County: Hamilton  
Location: Point Out

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Aster sp.</i>	Aster sp.	N/A	5	1 *
2 <i>Cryptotaenia canadensis</i>	honewort	FAC	3	2 *
3 <i>Laportea canadensis</i>	nettle (wood)	FACW	3	2 *
4				0
5				0
6				0
7				0
8				0
9				0
10				0
Sum of Percent Areal Cover			11	
0.5 X Sum of Percent Areal Cover			5.5	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Acer saccharinum</i>	maple (silver)	FACW	30	1 *
2 <i>Platanus occidentalis</i>	sycamore (American)	FACW-	20	2 *
3 <i>Celtis occidentalis</i>	hackberry (northern)	FACU	10	3
4				0
5				0
Sum of Percent Areal Cover			60	
0.5 X Sum of Percent Areal Cover			30	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Lonicera mackii</i>	honeysuckle (bush)	Not Listed	50	1 *
2 <i>Lindera benzoin</i>	spice bush	FACW-	5	2
3				0
Sum of Percent Areal Cover			55	
0.5 X Sum of Percent Areal Cover			27.5	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Acer negundo</i>	box-elder (ashleaf maple)	FAC+	3	1 *
2 <i>Fraxinus pennsylvanica</i>	ash (green)	FACW	3	1 *
3				0
Sum of Percent Areal Cover			6	
0.5 X Sum of Percent Areal Cover			3	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Campsis radicans</i>	trumpet-creeper	FAC	3	1 *
2 <i>Parthenocissus quinquefolia</i>	Virginia creeper	FACU	3	1 *
3 <i>Toxicodendron radicans</i>	poison ivy	FAC	3	1 *
Sum of Percent Areal Cover			9	
0.5 X Sum of Percent Areal Cover			4.5	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.



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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>10/1/2008</u>
Wetland Site: <u>Wetland #19</u>	County: <u>Hamilton</u>
Investigator: <u>ChrisY</u>	State: <u>Ohio</u>

Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Emergent</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point In</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>	Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>
<u>Saururus cemuus</u>	<u>Herb</u>	<u>OBL</u>	_____	_____	_____
<u>Fraxinus pennsylvanica</u>	<u>Tree</u>	<u>FACW</u>	_____	_____	_____
<u>Acer negundo</u>	<u>Sapling</u>	<u>FAC+</u>	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

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

Remarks: > 50% wetland species

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p>____ Stream, Lake, or Tide Gauge</p> <p>____ Aerial Photographs</p> <p>____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</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><input checked="" type="checkbox"/> Water Marks</p> <p>____ Drift Lines</p> <p>____ Sediment Deposits</p> <p>____ Drainage Patterns in Wetland</p> <p>Secondary Indicators (2 or more required):</p> <p><input checked="" type="checkbox"/> 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>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;8</u> (in.)</p> <p>Depth to Saturated Soil: <u>0</u> (in.)</p>	

Remarks: Hydrology indicators present

SOILS

Map Unit Name (Series and Phase): <u>Jules Silt Loam</u>	Drainage Class: <u>Well drained</u>
Taxonomy (Subgroup): <u>Typic Udifluvents</u>	Field Observations Confirmed Mapped Type? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

Profile Description:	Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.
	<u>0-3"</u>		<u>10YR3/1</u>		
	<u>3-8"</u>		<u>10YR4/1</u>	<u>10YR4/6</u>	

Hydric Soil Indicators:	<input checked="" 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)
<input type="checkbox"/> Histol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfuric Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input checked="" type="checkbox"/> Gleyed or Low Chroma Colors	

Remarks: Hydric soil indicators present

WETLAND DETERMINATION

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

Remarks: All wetland criteria met.

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #19 State: Ohio  
Investigator: ChrisY  
Description: Emergent

Date: 10/1/2008  
County: Hamilton  
Location: Point In

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <u><i>Saururus cernuus</i></u>	<u>lizard's-tail (water dragon)</u>	<u>OBL</u>	<u>100</u>	<u>1 *</u>
2 _____	_____	_____	_____	<u>0</u>
3 _____	_____	_____	_____	<u>0</u>
4 _____	_____	_____	_____	<u>0</u>
5 _____	_____	_____	_____	<u>0</u>
6 _____	_____	_____	_____	<u>0</u>
7 _____	_____	_____	_____	<u>0</u>
8 _____	_____	_____	_____	<u>0</u>
9 _____	_____	_____	_____	<u>0</u>
10 _____	_____	_____	_____	<u>0</u>
Sum of Percent Areal Cover			<u>100</u>	
0.5 X Sum of Percent Areal Cover			<u>50</u>	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <u><i>Fraxinus pennsylvanica</i></u>	<u>ash (green)</u>	<u>FACW</u>	<u>30</u>	<u>1 *</u>
2 _____	_____	_____	_____	<u>0</u>
3 _____	_____	_____	_____	<u>0</u>
4 _____	_____	_____	_____	<u>0</u>
5 _____	_____	_____	_____	<u>0</u>
Sum of Percent Areal Cover			<u>30</u>	
0.5 X Sum of Percent Areal Cover			<u>15</u>	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 _____	_____	_____	_____	<u>0</u>
2 _____	_____	_____	_____	<u>0</u>
3 _____	_____	_____	_____	<u>0</u>
Sum of Percent Areal Cover			<u>0</u>	
0.5 X Sum of Percent Areal Cover			<u>0</u>	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <u><i>Acer negundo</i></u>	<u>box-elder (ashleaf maple)</u>	<u>FAC+</u>	<u>3</u>	<u>1 *</u>
2 _____	_____	_____	_____	<u>0</u>
3 _____	_____	_____	_____	<u>0</u>
Sum of Percent Areal Cover			<u>3</u>	
0.5 X Sum of Percent Areal Cover			<u>1.5</u>	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 _____	_____	_____	_____	<u>0</u>
2 _____	_____	_____	_____	<u>0</u>
3 _____	_____	_____	_____	<u>0</u>
Sum of Percent Areal Cover			<u>0</u>	
0.5 X Sum of Percent Areal Cover			<u>0</u>	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.

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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>10/1/2008</u>
Wetland Site: <u>Wetland #19</u>	County: <u>Hamilton</u>
Investigator: <u>ChrisY</u>	State: <u>Ohio</u>

Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Upland</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point Out</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>	Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>
<i>Aster sp.</i>	Herb	N/A	<i>Acer negundo</i>	Sapling	FAC+
<i>Cryptotaenia canadensis</i>	Herb	FAC	<i>Fraxinus pennsylvanica</i>	Sapling	FACW
<i>Laportea canadensis</i>	Herb	FACW	<i>Campsis radicans</i>	W. Vine	FAC
<i>Acer saccharinum</i>	Tree	FACW	<i>Parthenocissus quinquefolia</i>	W. Vine	FACU
<i>Platanus occidentalis</i>	Tree	FACW-	<i>Toxicodendron radicans</i>	W. Vine	FAC
<i>Lonicera mackii</i>	Shrub	Not Listed			

% Dominant Plant Species that are OBL, FACW or FAC (excluding FAC-): 72.72

Remarks: > 50% wetland species

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p><input type="checkbox"/> Stream, Lake, or Tide Gauge</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</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 Wetland</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>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;8</u> (in.)</p> <p>Depth to Saturated Soil: <u>&gt;8</u> (in.)</p>	
Remarks: <u>No wetland hydrology indicators</u>	

SOILS

Map Unit Name (Series and Phase): <u>Jules Silt Loam</u>	Drainage Class: <u>Well drained</u>
Taxonomy (Subgroup): <u>Typic Udifluvents</u>	Field Observations Confirmed Mapped Type? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

Profile Description:	Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.
	<u>0-8"</u>		<u>10YR4/2</u>		

Hydric Soil Indicators:	Concretions
<input type="checkbox"/> Histol	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Sulfuric Odor	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Listed on National Hydric Soils List
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Gleyed or Low Chroma Colors	
Remarks: <u>No hydric soil indicators</u>	

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Hydric Soils Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks: <u>Not all wetland criteria met.</u>	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #19 State: Ohio  
Investigator: ChrisY  
Description: Upland

Date: 10/1/2008  
County: Hamilton  
Location: Point Out

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Aster sp.</i>	Aster sp.	N/A	5	1 *
2 <i>Cryptotaenia canadensis</i>	honewort	FAC	3	2 *
3 <i>Laportea canadensis</i>	nettle (wood)	FACW	3	2 *
4				0
5				0
6				0
7				0
8				0
9				0
10				0
Sum of Percent Areal Cover			11	
0.5 X Sum of Percent Areal Cover			5.5	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Acer saccharinum</i>	maple (silver)	FACW	30	1 *
2 <i>Platanus occidentalis</i>	sycamore (American)	FACW-	20	2 *
3 <i>Celtis occidentalis</i>	hackberry (northern)	FACU	10	3
4				0
5				0
Sum of Percent Areal Cover			60	
0.5 X Sum of Percent Areal Cover			30	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Lonicera mackii</i>	honeysuckle (bush)	Not Listed	50	1 *
2 <i>Lindera benzoin</i>	spice bush	FACW-	5	2
3				0
Sum of Percent Areal Cover			55	
0.5 X Sum of Percent Areal Cover			27.5	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Acer negundo</i>	box-elder (ashleaf maple)	FAC+	3	1 *
2 <i>Fraxinus pennsylvanica</i>	ash (green)	FACW	3	1 *
3				0
Sum of Percent Areal Cover			6	
0.5 X Sum of Percent Areal Cover			3	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Campsis radicans</i>	trumpet-creeper	FAC	3	1 *
2 <i>Parthenocissus quinquefolia</i>	Virginia creeper	FACU	3	1 *
3 <i>Toxicodendron radicans</i>	poison ivy	FAC	3	1 *
Sum of Percent Areal Cover			9	
0.5 X Sum of Percent Areal Cover			4.5	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.



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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>10/1/2008</u>
Wetland Site: <u>Wetland #20</u>	County: <u>Hamilton</u>
Investigator: <u>ChrisY</u>	State: <u>Ohio</u>
Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Emergent</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point In</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status <sup>1</sup>	Dominant Plant Species	Stratum	Indicator Status <sup>1</sup>
<u>Sagittaria engelmanniana</u>	<u>Herb</u>	<u>OBL</u>	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

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

Remarks: > 50% wetland species

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p>____ Stream, Lake, or Tide Gauge</p> <p>____ Aerial Photographs</p> <p>____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</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><input checked="" type="checkbox"/> Drainage Patterns in Wetland</p> <p>Secondary Indicators (2 or more required):</p> <p>____ Oxidized Root Channels in Upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water-Stained Leaves</p> <p>____ Local Soil Survey Data</p> <p>____ FAC-Neutral Test</p> <p>____ Other (Explain in Remarks)</p>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;8</u> (in.)</p> <p>Depth to Saturated Soil: <u>0</u> (in.)</p>	
Remarks: <u>Hydrology indicators present</u>	

SOILS

Map Unit Name (Series and Phase): <u>Eldean Loam</u>	Drainage Class: <u>Well drained</u>
Taxonomy (Subgroup): <u>Typic Hapludalfs</u>	Field Observations Confirmed Mapped Type? Yes _____ No <input checked="" type="checkbox"/>
Profile Description:	
Depth (inches)    Horizon    Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast    Tex./Conc./Structure, etc.
<u>0-2"</u> _____ <u>10YR3/1</u>	_____
<u>2-8"</u> _____ <u>10Y4/1</u>	<u>10YR4/3</u>
Hydric Soil Indicators:	
____ Histol	<input checked="" type="checkbox"/> Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer in Sandy Soils
____ Sulfuric Odor	____ Organic Streaking in Sandy Soils
____ Aquic Moisture Regime	____ Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
<input checked="" type="checkbox"/> Gleyed or Low Chroma Colors	____ Other (Explain in Remarks)
Remarks: <u>Hydric soil indicators present</u>	

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____	Is this Sampling Point Within a Wetland?
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Yes <input checked="" type="checkbox"/> No _____
Hydric Soils Present? Yes <input checked="" type="checkbox"/> No _____	
Remarks: <u>All wetland criteria met.</u>	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #20 State: Ohio  
Investigator: ChrisY  
Description: Emergent

Date: 10/1/2008  
County: Hamilton  
Location: Point In

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Sagittaria engelmanniana</i>	arrowhead (long-beaked)	OBL	75	1 *
2 <i>Polygonum persicaria</i>	lady's thumb	FACW	20	2
3 <i>Bidens frondosa</i>	beggar-ticks (devil's)	FACW	15	3
4 <i>Polygonum hydropiper</i>	waterpepper	OBL	10	4
5 <i>Pilea pumila</i>	clearweed	FACW	5	5
6 <i>Lysimachia nummularia</i>	moneywort (creeping jenny)	OBL	5	5
7				0
8				0
9				0
10				0
Sum of Percent Areal Cover			130	
0.5 X Sum of Percent Areal Cover			65	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.

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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>10/1/2008</u>
Wetland Site: <u>Wetland #20</u>	County: <u>Hamilton</u>
Investigator: <u>ChrisY</u>	State: <u>Ohio</u>
Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Upland</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point Out</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>	Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>
<i>Festuca rubra</i>	Herb	FACU			
<i>Poa pratensis</i>	Herb	FACU			

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

Remarks: < 50% wetland species

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p>___ Stream, Lake, or Tide Gauge</p> <p>___ Aerial Photographs</p> <p>___ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p>___ Inundated</p> <p>___ Saturated in upper 12 Inches</p> <p>___ Water Marks</p> <p>___ Drift Lines</p> <p>___ Sediment Deposits</p> <p>___ Drainage Patterns in Wetland</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>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;8</u> (in.)</p> <p>Depth to Saturated Soil: <u>&gt;8</u> (in.)</p>	
Remarks: <u>No wetland hydrology indicators</u>	

SOILS

Map Unit Name (Series and Phase): <u>Eldean Loam</u>	Drainage Class: <u>Well drained</u>																									
Taxonomy (Subgroup): <u>Typic Hapludalfs</u>	Field Observations Confirmed Mapped Type? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																									
<p>Profile Description:</p> <table style="width: 100%;"> <tr> <th style="width: 15%;">Depth (inches)</th> <th style="width: 15%;">Horizon</th> <th style="width: 25%;">Matrix Color (Munsell Moist)</th> <th style="width: 25%;">Mottle Abundance/Size/Contrast</th> <th style="width: 20%;">Tex./Conc./Structure, etc.</th> </tr> <tr> <td>0-8"</td> <td></td> <td>10YR4/2</td> <td></td> <td></td> </tr> <tr><td> </td><td></td><td></td><td></td><td></td></tr> <tr><td> </td><td></td><td></td><td></td><td></td></tr> <tr><td> </td><td></td><td></td><td></td><td></td></tr> </table>		Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.	0-8"		10YR4/2																	
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.																						
0-8"		10YR4/2																								
<p>Hydric Soil Indicators:</p> <table style="width: 100%;"> <tr> <td style="width: 50%;"> <p>___ Histol</p> <p>___ Histic Epipedon</p> <p>___ Sulfuric Odor</p> <p>___ Aquic Moisture Regime</p> <p>___ Reducing Conditions</p> <p>___ Gleyed or Low Chroma Colors</p> </td> <td style="width: 50%;"> <p>___ Concretions</p> <p>___ High Organic Content in Surface Layer in Sandy Soils</p> <p>___ Organic Streaking in Sandy Soils</p> <p>___ Listed on Local Hydric Soils List</p> <p>___ Listed on National Hydric Soils List</p> <p>___ Other (Explain in Remarks)</p> </td> </tr> </table>		<p>___ Histol</p> <p>___ Histic Epipedon</p> <p>___ Sulfuric Odor</p> <p>___ Aquic Moisture Regime</p> <p>___ Reducing Conditions</p> <p>___ Gleyed or Low Chroma Colors</p>	<p>___ Concretions</p> <p>___ High Organic Content in Surface Layer in Sandy Soils</p> <p>___ Organic Streaking in Sandy Soils</p> <p>___ Listed on Local Hydric Soils List</p> <p>___ Listed on National Hydric Soils List</p> <p>___ Other (Explain in Remarks)</p>																							
<p>___ Histol</p> <p>___ Histic Epipedon</p> <p>___ Sulfuric Odor</p> <p>___ Aquic Moisture Regime</p> <p>___ Reducing Conditions</p> <p>___ Gleyed or Low Chroma Colors</p>	<p>___ Concretions</p> <p>___ High Organic Content in Surface Layer in Sandy Soils</p> <p>___ Organic Streaking in Sandy Soils</p> <p>___ Listed on Local Hydric Soils List</p> <p>___ Listed on National Hydric Soils List</p> <p>___ Other (Explain in Remarks)</p>																									
Remarks: <u>No hydric soil indicators</u>																										

WETLAND DETERMINATION

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

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #20 State: Ohio  
Investigator: ChrisY  
Description: Upland

Date: 10/1/2008  
County: Hamilton  
Location: Point Out

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Festuca rubra</i>	fescue (red)	FACU	75	1 *
2 <i>Poa pratensis</i>	bluegrass (Kentucky)	FACU	25	2 *
3 <i>Trifolium repens</i>	clover (white)	FACU-	20	3
4 <i>Taraxacum officinale</i>	dandelion	FACU-	5	4
5				0
6				0
7				0
8				0
9				0
10				0
Sum of Percent Areal Cover			125	
0.5 X Sum of Percent Areal Cover			62.5	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.



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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>10/1/2008</u>
Wetland Site: <u>Wetland #21</u>	County: <u>Hamilton</u>
Investigator: <u>MikeD</u>	State: <u>Ohio</u>
Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Emergent/Scrub-Shrub</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point In</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>	Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>
<u><i>Typha angustifolia</i></u>	<u>Herb</u>	<u>OBL</u>	_____	_____	_____
<u><i>Typha latifolia</i></u>	<u>Herb</u>	<u>OBL</u>	_____	_____	_____
<u><i>Salix fragilis</i></u>	<u>Shrub</u>	<u>FAC+</u>	_____	_____	_____
<u><i>Populus deltoides</i></u>	<u>Sapling</u>	<u>FAC</u>	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

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

Remarks: > 50% wetland species

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p>____ Stream, Lake, or Tide Gauge</p> <p>____ Aerial Photographs</p> <p>____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</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 Wetland</p> <p>Secondary Indicators (2 or more required):</p> <p><input checked="" type="checkbox"/> 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>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>24</u> (in.)</p> <p>Depth to Free Water in Pit: <u>0</u> (in.)</p> <p>Depth to Saturated Soil: <u>0</u> (in.)</p>	
Remarks: <u>Hydrology indicators present</u>	

SOILS

Map Unit Name (Series and Phase): <u>Eldean-Urban Land Complex</u>	Drainage Class: <u>Well drained</u>			
Taxonomy (Subgroup): <u>Typic Hapludalfs</u>	Field Observations Confirmed Mapped Type? Yes _____ No <input checked="" type="checkbox"/>			
Profile Description:				
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.
<u>0-8"</u>	_____	<u>10Y4/1</u>	<u>10YR4/3</u>	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
Hydric Soil Indicators:				
____ Histol	<input checked="" type="checkbox"/>	<u>Concretions</u>		
____ Histic Epipedon	____	<u>High Organic Content in Surface Layer in Sandy Soils</u>		
____ Sulfuric Odor	____	<u>Organic Streaking in Sandy Soils</u>		
____ Aquic Moisture Regime	____	<u>Listed on Local Hydric Soils List</u>		
____ Reducing Conditions	____	<u>Listed on National Hydric Soils List</u>		
<input checked="" type="checkbox"/> Gleyed or Low Chroma Colors	____	<u>Other (Explain in Remarks)</u>		
Remarks: <u>Hydric soil indicators present</u>				

WETLAND DETERMINATION

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

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #21 State: Ohio  
Investigator: MikeD  
Description: Emergent/Scrub-Shrub

Date: 10/1/2008  
County: Hamilton  
Location: Point In

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Typha angustifolia</i>	cattail (narrow-leaved)	OBL	70	1 *
2 <i>Typha latifolia</i>	cattail (common)	OBL	20	2 *
3 <i>Bidens frondosa</i>	beggar-ticks (devil's)	FACW	5	3
4 <i>Polygonum persicaria</i>	lady's thumb	FACW	5	3
5				0
6				0
7				0
8				0
9				0
10				0
Sum of Percent Areal Cover			100	
0.5 X Sum of Percent Areal Cover			50	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Salix fragilis</i>	willow (crack)	FAC+	15	1 *
2				0
3				0
Sum of Percent Areal Cover			15	
0.5 X Sum of Percent Areal Cover			7.5	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Populus deltoides</i>	cottonwood (eastern)	FAC	5	1 *
2				0
3				0
Sum of Percent Areal Cover			5	
0.5 X Sum of Percent Areal Cover			2.5	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.

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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>10/1/2008</u>
Wetland Site: <u>Wetland #21</u>	County: <u>Hamilton</u>
Investigator: <u>MikeD</u>	State: <u>Ohio</u>
Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Upland</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point Out</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>	Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>
<u>Festuca rubra</u>	<u>Herb</u>	<u>FACU</u>	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

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

Remarks: < 50% wetland species

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p>____ Stream, Lake, or Tide Gauge</p> <p>____ Aerial Photographs</p> <p>____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p>____ Inundated</p> <p>____ Saturated in upper 12 Inches</p> <p>____ Water Marks</p> <p>____ Drift Lines</p> <p>____ Sediment Deposits</p> <p>____ Drainage Patterns in Wetland</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>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;8</u> (in.)</p> <p>Depth to Saturated Soil: <u>&gt;8</u> (in.)</p>	
Remarks: <u>No wetland hydrology indicators</u>	

SOILS

Map Unit Name (Series and Phase): <u>Eldean-Urban Land Complex</u>	Drainage Class: <u>Well drained</u>																				
Taxonomy (Subgroup): <u>Typic Hapludalfs</u>	Field Observations Confirmed Mapped Type? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																				
<p>Profile Description:</p> <table style="width: 100%;"> <thead> <tr> <th style="width: 15%;">Depth (inches)</th> <th style="width: 15%;">Horizon</th> <th style="width: 25%;">Matrix Color (Munsell Moist)</th> <th style="width: 25%;">Mottle Abundance/Size/Contrast</th> <th style="width: 20%;">Tex./Conc./Structure, etc.</th> </tr> </thead> <tbody> <tr> <td><u>0-8"</u></td> <td></td> <td><u>MIXED FILL</u></td> <td></td> <td></td> </tr> <tr> <td>_____</td> <td></td> <td>_____</td> <td></td> <td></td> </tr> <tr> <td>_____</td> <td></td> <td>_____</td> <td></td> <td></td> </tr> </tbody> </table>		Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.	<u>0-8"</u>		<u>MIXED FILL</u>			_____		_____			_____		_____		
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.																	
<u>0-8"</u>		<u>MIXED FILL</u>																			
_____		_____																			
_____		_____																			
<p>Hydric Soil Indicators:</p> <p>____ Histol</p> <p>____ Histic Epipedon</p> <p>____ Sulfuric Odor</p> <p>____ Aquic Moisture Regime</p> <p>____ Reducing Conditions</p> <p>____ Gleyed or Low Chroma Colors</p> <p>____ Concretions</p> <p>____ High Organic Content in Surface Layer in Sandy Soils</p> <p>____ Organic Streaking in Sandy Soils</p> <p>____ Listed on Local Hydric Soils List</p> <p>____ Listed on National Hydric Soils List</p> <p>____ Other (Explain in Remarks)</p>																					
Remarks: <u>No hydric soil indicators</u>																					

WETLAND DETERMINATION

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

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #21 State: Ohio  
Investigator: MikeD  
Description: Upland

Date: 10/1/2008  
County: Hamilton  
Location: Point Out

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Festuca rubra</i>	fescue (red)	FACU	75	1 *
2 <i>Medicago lupulina</i>	medick (black)	UPL	15	2
3 <i>Poa pratensis</i>	bluegrass (Kentucky)	FACU	10	3
4 <i>Trifolium repens</i>	clover (white)	FACU-	10	3
5				0
6				0
7				0
8				0
9				0
10				0
Sum of Percent Areal Cover			110	
0.5 X Sum of Percent Areal Cover			55	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.



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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>10/2/2008</u>
Wetland Site: <u>Wetland #22</u>	County: <u>Hamilton</u>
Investigator: <u>MikeD</u>	State: <u>Ohio</u>
Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Emergent</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point In</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status <sup>1</sup>	Dominant Plant Species	Stratum	Indicator Status <sup>1</sup>
<i>Phalaris arundinacea</i>	Herb	FACW+			
<i>Typha angustifolia</i>	Herb	OBL			

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

Remarks: > 50% wetland species

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p><input type="checkbox"/> Stream, Lake, or Tide Gauge</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</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 checked="" type="checkbox"/> Drainage Patterns in Wetland</p> <p>Secondary Indicators (2 or more required):</p> <p><input checked="" 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>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;8</u> (in.)</p> <p>Depth to Saturated Soil: <u>0</u> (in.)</p>	
Remarks: <u>Hydrology indicators present</u>	

SOILS

Map Unit Name (Series and Phase): <u>Bonnell Silt Loam</u>	Drainage Class: <u>Well drained</u>			
Taxonomy (Subgroup): <u>Typic Hapludalfs</u>	Field Observations Confirmed Mapped Type? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
Profile Description:				
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.
<u>0-8"</u>		<u>5Y4/1</u>	<u>110YR4/6</u>	

Hydric Soil Indicators:	<input checked="" 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)
<input type="checkbox"/> Histol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfuric Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input checked="" type="checkbox"/> Gleyed or Low Chroma Colors	

Remarks: Hydric soil indicators present

WETLAND DETERMINATION

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

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #22 State: Ohio  
Investigator: MikeD  
Description: Emergent

Date: 10/2/2008  
County: Hamilton  
Location: Point In

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Phalaris arundinacea</i>	reed canarygrass	FACW+	50	1 *
2 <i>Typha angustifolia</i>	cattail (narrow-leaved)	OBL	40	2 *
3 <i>Impatiens capensis</i>	jewelweed (touch-me-not)	FACW	5	3
4 <i>Bidens frondosa</i>	beggar-ticks (devil's)	FACW	5	3
5 <i>Leersia oryzoides</i>	cutgrass (rice)	OBL	5	3
6 <i>Solidago altissima</i>	goldenrod (tall)	FACU-	2	4
7				0
8				0
9				0
10				0
Sum of Percent Areal Cover			107	
0.5 X Sum of Percent Areal Cover			53.5	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.

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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>10/2/2008</u>
Wetland Site: <u>Wetland #22</u>	County: <u>Hamilton</u>
Investigator: <u>MikeD</u>	State: <u>Ohio</u>
Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Upland</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point Out</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>	Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>
<u>Festuca rubra</u>	<u>Herb</u>	<u>FACU</u>	_____	_____	_____
<u>Poa pratensis</u>	<u>Herb</u>	<u>FACU</u>	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

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

Remarks: < 50% wetland species

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p>____ Stream, Lake, or Tide Gauge</p> <p>____ Aerial Photographs</p> <p>____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p>____ Inundated</p> <p>____ Saturated in upper 12 Inches</p> <p>____ Water Marks</p> <p>____ Drift Lines</p> <p>____ Sediment Deposits</p> <p>____ Drainage Patterns in Wetland</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>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;8</u> (in.)</p> <p>Depth to Saturated Soil: <u>&gt;8</u> (in.)</p>	
Remarks: <u>No wetland hydrology indicators</u>	

SOILS

Map Unit Name (Series and Phase): <u>Bonnell Silt Loam</u>	Drainage Class: <u>Well drained</u>			
Taxonomy (Subgroup): <u>Typic Hapludalfs</u>	Field Observations Confirmed Mapped Type? Yes _____ No <input checked="" type="checkbox"/>			
Profile Description:				
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.
<u>0-8"</u>		<u>MIXED FILL</u>		
_____		_____		
_____		_____		
Hydric Soil Indicators:				
____ Histol		____ Concretions		
____ Histic Epipedon		____ High Organic Content in Surface Layer in Sandy Soils		
____ Sulfuric Odor		____ Organic Streaking in Sandy Soils		
____ Aquic Moisture Regime		____ Listed on Local Hydric Soils List		
____ Reducing Conditions		____ Listed on National Hydric Soils List		
____ Gleyed or Low Chroma Colors		____ Other (Explain in Remarks)		
Remarks: <u>No hydric soil indicators</u>				

WETLAND DETERMINATION

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

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #22 State: Ohio  
Investigator: MikeD  
Description: Upland

Date: 10/2/2008  
County: Hamilton  
Location: Point Out

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Festuca rubra</i>	fescue (red)	FACU	40	1 *
2 <i>Poa pratensis</i>	bluegrass (Kentucky)	FACU	40	1 *
3				0
4				0
5				0
6				0
7				0
8				0
9				0
10				0
Sum of Percent Areal Cover			80	
0.5 X Sum of Percent Areal Cover			40	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.



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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>10/2/2008</u>
Wetland Site: <u>Wetland #23</u>	County: <u>Hamilton</u>
Investigator: <u>MikeD</u>	State: <u>Ohio</u>
Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Emergent/Scrub-Shrub</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point In</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status [1]	Dominant Plant Species	Stratum	Indicator Status [1]
<u><i>Typha angustifolia</i></u>	<u>Herb</u>	<u>OBL</u>	_____	_____	_____
<u><i>Salix nigra</i></u>	<u>Shrub</u>	<u>FACW+</u>	_____	_____	_____
<u><i>Salix fragilis</i></u>	<u>Shrub</u>	<u>FAC+</u>	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

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

Remarks: > 50% wetland species

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p>Stream, Lake, or Tide Gauge _____</p> <p>Aerial Photographs _____</p> <p>Other _____</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</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><input checked="" type="checkbox"/> Water Marks</p> <p>_____ Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetland</p> <p>Secondary Indicators (2 or more required):</p> <p><input checked="" type="checkbox"/> 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>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;8</u> (in.)</p> <p>Depth to Saturated Soil: <u>0</u> (in.)</p>	

Remarks: Hydrology indicators present

SOILS

Map Unit Name (Series and Phase): <u>Martinsville Silt Loam</u>	Drainage Class: <u>Well drained</u>	Field Observations
Taxonomy (Subgroup): <u>Typic Hapludalfs</u>	Confirmed Mapped Type? Yes _____ No <input checked="" type="checkbox"/>	
Profile Description:		
Depth (inches) <u>0-8"</u>	Horizon _____	Matrix Color (Munsell Moist) <u>10Y4/1</u>
		Mottle Abundance/Size/Contrast <u>5YR4/6</u>
		Tex./Conc./Structure, etc. _____
Hydric Soil Indicators:		
_____ Histol	<input checked="" type="checkbox"/> Concretions	
_____ Histic Epipedon	_____ High Organic Content in Surface Layer in Sandy Soils	
_____ Sulfuric Odor	_____ Organic Streaking in Sandy Soils	
_____ Aquic Moisture Regime	_____ Listed on Local Hydric Soils List	
_____ Reducing Conditions	_____ Listed on National Hydric Soils List	
<input checked="" type="checkbox"/> Gleyed or Low Chroma Colors	_____ Other (Explain in Remarks)	

Remarks: Hydric soil indicators present

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____	Is this Sampling Point Within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	
Hydric Soils Present? Yes <input checked="" type="checkbox"/> No _____	
Remarks: <u>All wetland criteria met.</u>	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #23 State: Ohio  
Investigator: MikeD  
Description: Emergent/Scrub-Shrub

Date: 10/2/2008  
County: Hamilton  
Location: Point In

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Typha angustifolia</i>	cattail (narrow-leaved)	OBL	80	1 *
2 <i>Polygonum persicaria</i>	lady's thumb	FACW	5	2
3 <i>Echinochloa muricata</i>	barnyard grass	FACW+	5	2
4 <i>Xanthium strumarium</i>	clotbur (wetland)	FAC	5	2
5				0
6				0
7				0
8				0
9				0
10				0
Sum of Percent Areal Cover			95	
0.5 X Sum of Percent Areal Cover			47.5	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Salix nigra</i>	willow (black)	FACW+	35	1 *
2 <i>Salix fragilis</i>	willow (crack)	FAC+	10	2 *
3				0
Sum of Percent Areal Cover			45	
0.5 X Sum of Percent Areal Cover			22.5	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.

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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>10/2/2008</u>
Wetland Site: <u>Wetland #23</u>	County: <u>Hamilton</u>
Investigator: <u>MikeD</u>	State: <u>Ohio</u>

Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Upland</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point Out</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>	Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>
<i>Poa pratensis</i>	Herb	FACU			
<i>Festuca rubra</i>	Herb	FACU			
<i>Populus deltoides</i>	Tree	FAC			

% Dominant Plant Species that are OBL, FACW or FAC (excluding FAC-): 33.33

Remarks: < 50% wetland species

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p><input type="checkbox"/> Stream, Lake, or Tide Gauge</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</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 Wetland</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>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;8</u> (in.)</p> <p>Depth to Saturated Soil: <u>&gt;8</u> (in.)</p>	

Remarks: No wetland hydrology indicators

SOILS

Map Unit Name (Series and Phase): <u>Martinsville Silt Loam</u>	Drainage Class: <u>Well drained</u>	Field Observations Confirmed Mapped Type? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Taxonomy (Subgroup): <u>Typic Hapludalfs</u>		

Profile Description:	Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.
	<u>0-8"</u>		<u>MIXED FILL</u>		

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

Remarks: No hydric soil indicators

WETLAND DETERMINATION

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

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #23 State: Ohio  
Investigator: MikeD  
Description: Upland

Date: 10/2/2008  
County: Hamilton  
Location: Point Out

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Poa pratensis</i>	bluegrass (Kentucky)	FACU	40	1 *
2 <i>Festuca rubra</i>	fescue (red)	FACU	30	2 *
3 <i>Trifolium repens</i>	clover (white)	FACU-	10	3
4 <i>Cichorium intybus</i>	chicory	Not Listed	10	3
5 <i>Dipsacus sylvestris</i>	teasel (does not cup stem)	NI	10	3
6				0
7				0
8				0
9				0
10				0
Sum of Percent Areal Cover			100	
0.5 X Sum of Percent Areal Cover			50	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Populus deltoides</i>	cottonwood (eastern)	FAC	10	1 *
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			10	
0.5 X Sum of Percent Areal Cover			5	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.



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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>10/2/2008</u>
Wetland Site: <u>Wetland #24</u>	County: <u>Hamilton</u>
Investigator: <u>MikeD</u>	State: <u>Ohio</u>
Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Emergent</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point In</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status [1]	Dominant Plant Species	Stratum	Indicator Status [1]
<u>Polygonum persicaria</u>	<u>Herb</u>	<u>FACW</u>	_____	_____	_____
<u>Acer negundo</u>	<u>Tree</u>	<u>FAC+</u>	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

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

Remarks: > 50% wetland species

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p>____ Stream, Lake, or Tide Gauge</p> <p>____ Aerial Photographs</p> <p>____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</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><input checked="" type="checkbox"/> Water Marks</p> <p>____ Drift Lines</p> <p>____ Sediment Deposits</p> <p><input checked="" type="checkbox"/> Drainage Patterns in Wetland</p> <p>Secondary Indicators (2 or more required):</p> <p><input checked="" type="checkbox"/> 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>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;8</u> (in.)</p> <p>Depth to Saturated Soil: <u>0</u> (in.)</p>	
Remarks: <u>Hydrology indicators present</u>	

SOILS

Map Unit Name (Series and Phase): <u>Martinsville Silt Loam</u>	Drainage Class: <u>Well drained</u>	Field Observations Confirmed Mapped Type? Yes _____ No <input checked="" type="checkbox"/>																				
Taxonomy (Subgroup): <u>Typic Hapludalfs</u>																						
<p>Profile Description:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Depth (inches)</th> <th style="width: 15%;">Horizon</th> <th style="width: 25%;">Matrix Color (Munsell Moist)</th> <th style="width: 25%;">Mottle Abundance/Size/Contrast</th> <th style="width: 20%;">Tex./Conc./Structure, etc.</th> </tr> </thead> <tbody> <tr> <td><u>0-8"</u></td> <td>_____</td> <td><u>2.5Y4/1</u></td> <td><u>10YR4/6</u></td> <td>_____</td> </tr> <tr> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> </tbody> </table>			Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.	<u>0-8"</u>	_____	<u>2.5Y4/1</u>	<u>10YR4/6</u>	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.																		
<u>0-8"</u>	_____	<u>2.5Y4/1</u>	<u>10YR4/6</u>	_____																		
_____	_____	_____	_____	_____																		
_____	_____	_____	_____	_____																		
<p>Hydric Soil Indicators:</p> <p>____ Histol <input checked="" type="checkbox"/> Concretions</p> <p>____ Histic Epipedon <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils</p> <p>____ Sulfuric Odor <input type="checkbox"/> Organic Streaking in Sandy Soils</p> <p>____ Aquic Moisture Regime <input type="checkbox"/> Listed on Local Hydric Soils List</p> <p>____ Reducing Conditions <input type="checkbox"/> Listed on National Hydric Soils List</p> <p><input checked="" type="checkbox"/> Gleyed or Low Chroma Colors <input type="checkbox"/> Other (Explain in Remarks)</p>																						
Remarks: <u>Hydric soil indicators present</u>																						

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____	Is this Sampling Point Within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	
Hydric Soils Present? Yes <input checked="" type="checkbox"/> No _____	
Remarks: <u>All wetland criteria met.</u>	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #24 State: Ohio  
Investigator: MikeD  
Description: Emergent

Date: 10/2/2008  
County: Hamilton  
Location: Point In

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Polygonum persicaria</i>	lady's thumb	FACW	70	1 *
2 <i>Leersia virginica</i>	cutgrass (white)	FACW	10	2
3 <i>Ranunculus sceleratus</i>	buttercup (cursed- crowfoot)	OBL	10	2
4				0
5				0
6				0
7				0
8				0
9				0
10				0
Sum of Percent Areal Cover			90	
0.5 X Sum of Percent Areal Cover			45	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Acer negundo</i>	box-elder (ashleaf maple)	FAC+	10	1 *
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			10	
0.5 X Sum of Percent Areal Cover			5	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.

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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>10/2/2008</u>
Wetland Site: <u>Wetland #24</u>	County: <u>Hamilton</u>
Investigator: <u>MikeD</u>	State: <u>Ohio</u>
Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Upland</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point Out</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status <sup>1</sup>	Dominant Plant Species	Stratum	Indicator Status <sup>1</sup>
<i>Alliaria petiolata</i>	Herb	FACU-	<i>Robinia pseudoacacia</i>	Tree	FACU-
<i>Oxalis europaea</i>	Herb	UPL	<i>Lonicera mackii</i>	Shrub	Not Listed
<i>Agrimonia parviflora</i>	Herb	FAC	<i>Smilax hispida</i>	W. Vine	FAC
<i>Aesculus glabra</i>	Tree	FACU+			
<i>Celtis occidentalis</i>	Tree	FACU			
<i>Fraxinus americana</i>	Tree	FACU			

% Dominant Plant Species that are OBL, FACW or FAC (excluding FAC-): 22.22

Remarks: < 50% wetland species

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p>___ Stream, Lake, or Tide Gauge</p> <p>___ Aerial Photographs</p> <p>___ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p>___ Inundated</p> <p>___ Saturated in upper 12 Inches</p> <p>___ Water Marks</p> <p>___ Drift Lines</p> <p>___ Sediment Deposits</p> <p>___ Drainage Patterns in Wetland</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>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;8</u> (in.)</p> <p>Depth to Saturated Soil: <u>&gt;8</u> (in.)</p>	

Remarks: No wetland hydrology indicators

SOILS

Map Unit Name (Series and Phase): <u>Martinsville Silt Loam</u>	Drainage Class: <u>Well drained</u>	Field Observations Confirmed Mapped Type? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																				
Taxonomy (Subgroup): <u>Typic Hapludalfs</u>																						
<p>Profile Description:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Depth (inches)</th> <th style="width: 15%;">Horizon</th> <th style="width: 25%;">Matrix Color (Munsell Moist)</th> <th style="width: 25%;">Mottle Abundance/Size/Contrast</th> <th style="width: 20%;">Tex./Conc./Structure, etc.</th> </tr> </thead> <tbody> <tr> <td>0-8"</td> <td></td> <td>MIXED FILL</td> <td></td> <td></td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>			Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.	0-8"		MIXED FILL												
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.																		
0-8"		MIXED FILL																				
<p>Hydric Soil Indicators:</p> <p>___ Histol</p> <p>___ Histic Epipedon</p> <p>___ Sulfuric Odor</p> <p>___ Aquic Moisture Regime</p> <p>___ Reducing Conditions</p> <p>___ Gleyed or Low Chroma Colors</p> <p>___ Concretions</p> <p>___ High Organic Content in Surface Layer in Sandy Soils</p> <p>___ Organic Streaking in Sandy Soils</p> <p>___ Listed on Local Hydric Soils List</p> <p>___ Listed on National Hydric Soils List</p> <p>___ Other (Explain in Remarks)</p>																						
Remarks: <u>No hydric soil indicators</u>																						

WETLAND DETERMINATION

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

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #24 State: Ohio  
Investigator: MikeD  
Description: Upland

Date: 10/2/2008  
County: Hamilton  
Location: Point Out

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Alliaria petiolata</i>	mustard (garlic)	FACU-	20	1 *
2 <i>Oxalis europaea</i>	sorrel (yellow wood-)	UPL	10	2 *
3 <i>Agrimonia parviflora</i>	agrimony (groovebur-small-flower)	FAC	10	2 *
4 <i>Podophyllum peltatum</i>	may-apple	FACU	5	3
5 <i>Polygonum persicaria</i>	lady's thumb	FACW	2	4
6				0
7				0
8				0
9				0
10				0
Sum of Percent Areal Cover			47	
0.5 X Sum of Percent Areal Cover			23.5	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Aesculus glabra</i>	buckeye (Ohio)	FACU+	10	1 *
2 <i>Celtis occidentalis</i>	hackberry (northern)	FACU	10	1 *
3 <i>Fraxinus americana</i>	ash (white)	FACU	10	1 *
4 <i>Robinia pseudoacacia</i>	locust (black)	FACU-	10	1 *
5 <i>Crataegus crus-galli</i>	hawthorn (cockspur)	FACU	5	2
Sum of Percent Areal Cover			45	
0.5 X Sum of Percent Areal Cover			22.5	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Lonicera mackii</i>	honeysuckle (bush)	Not Listed	25	1 *
2				0
3				0
Sum of Percent Areal Cover			25	
0.5 X Sum of Percent Areal Cover			12.5	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Smilax hispida</i>	greenbrier (hispid)	FAC	5	1 *
2				0
3				0
Sum of Percent Areal Cover			5	
0.5 X Sum of Percent Areal Cover			2.5	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.



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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>10/2/2008</u>
Wetland Site: <u>Wetland #25</u>	County: <u>Hamilton</u>
Investigator: <u>ChrisY</u>	State: <u>Ohio</u>

Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Emergent/Scrub-Shrub</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point In</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>	Dominant Plant Species	Stratum	Indicator Status <sup>[1]</sup>
<u><i>Eleocharis palustris</i></u>	<u>Herb</u>	<u>OBL</u>	_____	_____	_____
<u><i>Cyperus strigosus</i></u>	<u>Herb</u>	<u>FACW</u>	_____	_____	_____
<u><i>Salix nigra</i></u>	<u>Shrub</u>	<u>FACW+</u>	_____	_____	_____
<u><i>Salix fragilis</i></u>	<u>Shrub</u>	<u>FAC+</u>	_____	_____	_____
<u><i>Populus deltoides</i></u>	<u>Sapling</u>	<u>FAC</u>	_____	_____	_____

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

Remarks: > 50% wetland species

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p>____ Stream, Lake, or Tide Gauge</p> <p>____ Aerial Photographs</p> <p>____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</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 Wetland</p> <p>Secondary Indicators (2 or more required):</p> <p><input checked="" type="checkbox"/> 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>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>2</u> (in.)</p> <p>Depth to Free Water in Pit: <u>0</u> (in.)</p> <p>Depth to Saturated Soil: <u>0</u> (in.)</p>	

Remarks: Hydrology indicators present

SOILS

Map Unit Name (Series and Phase): <u>Pits Gravel</u>	Drainage Class: <u>N/A</u>	Field Observations Confirmed Mapped Type? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Taxonomy (Subgroup): <u>N/A</u>		

Profile Description:	Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.
	<u>0-4"</u>		<u>10Y4/1</u>	<u>10YR3/6</u>	
	<u>4-8"</u>		<u>10YR4/4</u>		

Hydric Soil Indicators:	<input checked="" 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)
<input type="checkbox"/> Histol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfuric Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input checked="" type="checkbox"/> Gleyed or Low Chroma Colors	

Remarks: Hydric soil indicators present

WETLAND DETERMINATION

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

Remarks: All wetland criteria met.

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #25 State: Ohio  
Investigator: ChrisY  
Description: Emergent/Scrub-Shrub

Date: 10/2/2008  
County: Hamilton  
Location: Point In

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Eleocharis palustris</i>	spike rush (long)	OBL	40	1 *
2 <i>Cyperus strigosus</i>	umbrella sedge (strawcolor flat)	FACW	30	2 *
3 <i>Polygonum persicaria</i>	lady's thumb	FACW	10	3
4 <i>Alisma subcordatum</i>	plantain (water)(thick leaves)	OBL	10	3
5 <i>Xanthium chinense</i>	clotbur (cocklebur)(non-wetland)	Not Liste	5	4
6				0
7				0
8				0
9				0
10				0
Sum of Percent Areal Cover			95	
0.5 X Sum of Percent Areal Cover			47.5	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Salix nigra</i>	willow (black)	FACW+	20	1 *
2 <i>Salix fragilis</i>	willow (crack)	FAC+	20	1 *
3				0
Sum of Percent Areal Cover			40	
0.5 X Sum of Percent Areal Cover			20	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Populus deltoides</i>	cottonwood (eastern)	FAC	20	1 *
2				0
3				0
Sum of Percent Areal Cover			20	
0.5 X Sum of Percent Areal Cover			10	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.

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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>10/2/2008</u>
Wetland Site: <u>Wetland #25</u>	County: <u>Hamilton</u>
Investigator: <u>ChrisY</u>	State: <u>Ohio</u>
Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Upland</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point Out</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status [1]	Dominant Plant Species	Stratum	Indicator Status [1]
<u>Daucus carota</u>	<u>Herb</u>	<u>Not Listed</u>	_____	_____	_____
<u>Tridens flavus</u>	<u>Herb</u>	<u>FACU</u>	_____	_____	_____
<u>Solidago altissima</u>	<u>Herb</u>	<u>FACU-</u>	_____	_____	_____
<u>Lonicera mackii</u>	<u>Shrub</u>	<u>Not Listed</u>	_____	_____	_____
<u>Platanus occidentalis</u>	<u>Sapling</u>	<u>FACW-</u>	_____	_____	_____
% Dominant Plant Species that are OBL, FACW or FAC (excluding FAC-): <u>20</u>					
Remarks: <u>&lt; 50% wetland species</u>					

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p>____ Stream, Lake, or Tide Gauge</p> <p>____ Aerial Photographs</p> <p>____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p>____ Inundated</p> <p>____ Saturated in upper 12 Inches</p> <p>____ Water Marks</p> <p>____ Drift Lines</p> <p>____ Sediment Deposits</p> <p>____ Drainage Patterns in Wetland</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>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;8</u> (in.)</p> <p>Depth to Saturated Soil: <u>&gt;8</u> (in.)</p>	
Remarks: <u>No wetland hydrology indicators</u>	

SOILS

Map Unit Name (Series and Phase): <u>Pits Gravel</u>	Drainage Class: <u>N/A</u>																				
Taxonomy (Subgroup): <u>N/A</u>	Field Observations Confirmed Mapped Type? Yes _____ No <input checked="" type="checkbox"/>																				
<p>Profile Description:</p> <table style="width: 100%;"> <thead> <tr> <th style="width: 15%;">Depth (inches)</th> <th style="width: 15%;">Horizon</th> <th style="width: 25%;">Matrix Color (Munsell Moist)</th> <th style="width: 25%;">Mottle Abundance/Size/Contrast</th> <th style="width: 20%;">Tex./Conc./Structure, etc.</th> </tr> </thead> <tbody> <tr> <td><u>0-8"</u></td> <td></td> <td><u>2.5Y4/2</u></td> <td></td> <td></td> </tr> <tr> <td>_____</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>_____</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.	<u>0-8"</u>		<u>2.5Y4/2</u>			_____					_____				
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.																	
<u>0-8"</u>		<u>2.5Y4/2</u>																			
_____																					
_____																					
<p>Hydric Soil Indicators:</p> <table style="width: 100%;"> <tbody> <tr> <td>____ Histol</td> <td>____ Concretions</td> </tr> <tr> <td>____ Histic Epipedon</td> <td>____ High Organic Content in Surface Layer in Sandy Soils</td> </tr> <tr> <td>____ Sulfuric Odor</td> <td>____ Organic Streaking in Sandy Soils</td> </tr> <tr> <td>____ Aquic Moisture Regime</td> <td>____ Listed on Local Hydric Soils List</td> </tr> <tr> <td>____ Reducing Conditions</td> <td>____ Listed on National Hydric Soils List</td> </tr> <tr> <td>____ Gleyed or Low Chroma Colors</td> <td>____ Other (Explain in Remarks)</td> </tr> </tbody> </table>		____ Histol	____ Concretions	____ Histic Epipedon	____ High Organic Content in Surface Layer in Sandy Soils	____ Sulfuric Odor	____ Organic Streaking in Sandy Soils	____ Aquic Moisture Regime	____ Listed on Local Hydric Soils List	____ Reducing Conditions	____ Listed on National Hydric Soils List	____ Gleyed or Low Chroma Colors	____ Other (Explain in Remarks)								
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____ Sulfuric Odor	____ Organic Streaking in Sandy Soils																				
____ Aquic Moisture Regime	____ Listed on Local Hydric Soils List																				
____ Reducing Conditions	____ Listed on National Hydric Soils List																				
____ Gleyed or Low Chroma Colors	____ Other (Explain in Remarks)																				
Remarks: <u>No hydric soil indicators</u>																					

WETLAND DETERMINATION

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

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #25 State: Ohio  
Investigator: ChrisY  
Description: Upland

Date: 10/2/2008  
County: Hamilton  
Location: Point Out

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Daucus carota</i>	Queen Anne's lace	Not Listed	40	1 *
2 <i>Tridens flavus</i>	purpletop	FACU	15	2 *
3 <i>Solidago altissima</i>	goldenrod (tall)	FACU-	15	2 *
4 <i>Dipsacus sylvestris</i>	teasel (does not cup stem)	NI	10	3
5 <i>Solidago nemoralis</i>	goldenrod (gray)	Not Listed	5	4
6 <i>Erigeron annuus</i>	fleabane (daisy)	FACU	5	4
7				0
8				0
9				0
10				0
Sum of Percent Areal Cover			90	
0.5 X Sum of Percent Areal Cover			45	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Lonicera mackii</i>	honeysuckle (bush)	Not Listed	10	1 *
2				0
3				0
Sum of Percent Areal Cover			10	
0.5 X Sum of Percent Areal Cover			5	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Platanus occidentalis</i>	sycamore (American)	FACW-	15	1 *
2 <i>Ulmus rubra</i>	elm (slippery- red)	FAC	3	2
3				0
Sum of Percent Areal Cover			18	
0.5 X Sum of Percent Areal Cover			9	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.

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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>10/2/2008</u>
Wetland Site: <u>Wetland #26</u>	County: <u>Hamilton</u>
Investigator: <u>ChrisY</u>	State: <u>Ohio</u>

Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Emergent/Scrub-Shrub</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point In</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status <sup>1</sup>	Dominant Plant Species	Stratum	Indicator Status <sup>1</sup>
<i>Potamogeton nodosus</i>	Herb	OBL			
<i>Phalaris arundinacea</i>	Herb	FACW+			
<i>Ludwigia palustris</i>	Herb	OBL			
<i>Salix fragilis</i>	Shrub	FAC+			
<i>Salix nigra</i>	Shrub	FACW+			
<i>Acer negundo</i>	Sapling	FAC+			

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

Remarks: > 50% wetland species

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p><input type="checkbox"/> Stream, Lake, or Tide Gauge</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</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><input checked="" type="checkbox"/> Water Marks</p> <p><input checked="" type="checkbox"/> Drift Lines</p> <p><input checked="" type="checkbox"/> Sediment Deposits</p> <p><input checked="" type="checkbox"/> Drainage Patterns in Wetland</p> <p>Secondary Indicators (2 or more required):</p> <p><input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p><input checked="" 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>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>8</u> (in.)</p> <p>Depth to Free Water in Pit: <u>0</u> (in.)</p> <p>Depth to Saturated Soil: <u>0</u> (in.)</p>	

Remarks: Hydrology indicators present

SOILS

Map Unit Name (Series and Phase): <u>Pits Gravel</u>	Drainage Class: <u>N/A</u>	Field Observations Confirmed Mapped Type? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Taxonomy (Subgroup): <u>N/A</u>		

Profile Description:	Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.
	0-3"		10Y3/1		
	3-8"		10Y4/1	N2.5/BLACK	

Hydric Soil Indicators:	<input checked="" 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)
<input type="checkbox"/> Histol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfuric Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input checked="" type="checkbox"/> Gleyed or Low Chroma Colors	

Remarks: Hydric soil indicators present

WETLAND DETERMINATION

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

Remarks: All wetland criteria met.

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.



WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #26 State: Ohio  
Investigator: ChrisY  
Description: Emergent/Scrub-Shrub

Date: 10/2/2008  
County: Hamilton  
Location: Point In

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Potamogeton nodosus</i>	pond weed (long-leaf[floating])	OBL	30	1 *
2 <i>Phalaris arundinacea</i>	reed canarygrass	FACW+	25	2 *
3 <i>Ludwigia palustris</i>	purslane (marsh seedbox)	OBL	20	3 *
4 <i>Bidens frondosa</i>	beggar-ticks (devil's)	FACW	15	4
5 <i>Bidens cernua</i>	beggar-tick (drooping)	OBL	5	5
6				0
7				0
8				0
9				0
10				0
Sum of Percent Areal Cover			95	
0.5 X Sum of Percent Areal Cover			47.5	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Salix fragilis</i>	willow (crack)	FAC+	45	1 *
2 <i>Salix nigra</i>	willow (black)	FACW+	25	2 *
3				0
Sum of Percent Areal Cover			70	
0.5 X Sum of Percent Areal Cover			35	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Acer negundo</i>	box-elder (ashleaf maple)	FAC+	10	1 *
2				0
3				0
Sum of Percent Areal Cover			10	
0.5 X Sum of Percent Areal Cover			5	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.

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

Project Name: <u>Eastern Corridor Segment II/III</u>	Date: <u>10/2/2008</u>
Wetland Site: <u>Wetland #26</u>	County: <u>Hamilton</u>
Investigator: <u>ChrisY</u>	State: <u>Ohio</u>
Do normal circumstances exist on the site?: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Community ID: <u>Upland</u>
Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Transect ID: _____
Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Plot ID: _____
(If needed, explain) _____	Location: <u>Point Out</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator Status [1]	Dominant Plant Species	Stratum	Indicator Status [1]
<u>Daucus carota</u>	<u>Herb</u>	<u>Not Listed</u>	_____	_____	_____
<u>Tridens flavus</u>	<u>Herb</u>	<u>FACU</u>	_____	_____	_____
<u>Solidago altissima</u>	<u>Herb</u>	<u>FACU-</u>	_____	_____	_____
<u>Lonicera mackii</u>	<u>Shrub</u>	<u>Not Listed</u>	_____	_____	_____
<u>Platanus occidentalis</u>	<u>Sapling</u>	<u>FACW-</u>	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

% Dominant Plant Species that are OBL, FACW or FAC (excluding FAC-): 20

Remarks: < 50% wetland species

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p>____ Stream, Lake, or Tide Gauge</p> <p>____ Aerial Photographs</p> <p>____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p>____ Inundated</p> <p>____ Saturated in upper 12 Inches</p> <p>____ Water Marks</p> <p>____ Drift Lines</p> <p>____ Sediment Deposits</p> <p>____ Drainage Patterns in Wetland</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>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;8</u> (in.)</p> <p>Depth to Saturated Soil: <u>&gt;8</u> (in.)</p>	
Remarks: <u>No wetland hydrology indicators</u>	

SOILS

Map Unit Name (Series and Phase): <u>Pits Gravel</u>	Drainage Class: <u>N/A</u>			
Taxonomy (Subgroup): <u>N/A</u>	Field Observations Confirmed Mapped Type? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
Profile Description:				
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Abundance/Size/Contrast	Tex./Conc./Structure, etc.
<u>0-8"</u>	_____	<u>2.5Y4/2</u>	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
Hydric Soil Indicators:				
____ Histol	____ Concretions			
____ Histic Epipedon	____ High Organic Content in Surface Layer in Sandy Soils			
____ Sulfuric Odor	____ Organic Streaking in Sandy Soils			
____ Aquic Moisture Regime	____ Listed on Local Hydric Soils List			
____ Reducing Conditions	____ Listed on National Hydric Soils List			
____ Gleyed or Low Chroma Colors	____ Other (Explain in Remarks)			
Remarks: <u>No hydric soil indicators</u>				

WETLAND DETERMINATION

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

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

WETLAND DATA FORM  
VEGETATION AND DOMINANT SPECIES

Project Name: Eastern Corridor Segment II/III  
Wetland Site: Wetland #26 State: Ohio  
Investigator: ChrisY  
Description: Upland

Date: 10/2/2008  
County: Hamilton  
Location: Point Out

Herbaceous Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Daucus carota</i>	Queen Anne's lace	Not Listed	40	1 *
2 <i>Tridens flavus</i>	purpletop	FACU	15	2 *
3 <i>Solidago altissima</i>	goldenrod (tall)	FACU-	15	2 *
4 <i>Dipsacus sylvestris</i>	teasel (does not cup stem)	NI	10	3
5 <i>Solidago nemoralis</i>	goldenrod (gray)	Not Listed	5	4
6 <i>Erigeron annuus</i>	fleabane (daisy)	FACU	5	4
7				0
8				0
9				0
10				0
Sum of Percent Areal Cover			90	
0.5 X Sum of Percent Areal Cover			45	

Tree Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
4				0
5				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

Shrub Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Lonicera mackii</i>	honeysuckle (bush)	Not Listed	10	1 *
2				0
3				0
Sum of Percent Areal Cover			10	
0.5 X Sum of Percent Areal Cover			5	

Sapling Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1 <i>Platanus occidentalis</i>	sycamore (American)	FACW-	15	1 *
2 <i>Ulmus rubra</i>	elm (slippery- red)	FAC	3	2
3				0
Sum of Percent Areal Cover			18	
0.5 X Sum of Percent Areal Cover			9	

Woody Vine Species	Common Name	Indicator <sup>[1]</sup> Status	Percent Areal Cover	Rank <sup>[2]</sup>
1				0
2				0
3				0
Sum of Percent Areal Cover			0	
0.5 X Sum of Percent Areal Cover			0	

[1] Indicator status obtained from the National List of Plant Species that Occur in Wetlands; 1988 National Summary; N/A indicates the species is unidentifiable due to lack of distinguishing vegetative or reproductive characteristics at time of field survey.

[2] To determine the dominants, first rank the species by their percent areal cover. Then, cumulatively sum the percent areal covers of the ranked species until 50% of the total percent areal cover is immediately exceeded. All species contributing to that cumulative total plus any additional species having 20% of the total percent areal cover should be considered dominants and marked with an asterisk.

## ***APPENDIX E***

***Wetland Ohio Rapid Assessment Method (ORAM) v.5.0 Forms***

**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 8/27/2008

**Wetland Site:** 1

**State:** Ohio

**County:** Hamilton

**Description:** Emergent

**Location:** See Figure 3a

**1.0 1.0 Metric 1. Wetland Area (size)**

Max (6) subtotal

Select one size class and assign score

- ☐ >50 acres (>20.2 ha) (6 pts)  
☐ 25 to <50 acres (10.1 to < 20.2 ha) (5 pts)  
☐ 10 to <25 acres (4 to <10.1 ha) (4 pts)  
☐ 3 to <10 acres (1.2 to <4 ha) (3 pts)  
☐ 0.3 to <3 acres (0.12 to <1.2 ha) (2 pts)  
☒ 0.1 to <0.3 acres (0.04 to <0.12 ha) (1 pt)  
☐ < 0.1 acres (0.04 ha) (0 pts)

**1.0 2.0 Metric 2. Upland Buffers and Surrounding Land Use**

Max (14) subtotal

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

- ☐ WIDE. Buffers average 50 m (164 ft) or more around wetland perimeter (7)  
☐ MEDIUM. Buffers average 25 m to <50 m (82 to <164 ft) around wetland perimeter (4)  
☐ NARROW. Buffers average 10 m to <25 m (32 to <82 ft) around wetland perimeter (1)  
☒ VERY NARROW. Buffers average <10 m (<32 ft) around wetland perimeter (0)

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

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

**8.0 10.0 Metric 3. Hydrology**

Max (30) subtotal

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

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

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

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

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

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

3b. Connectivity. Score all that apply.

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

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

- ☐ Semi-to permanently inundated/saturated (4)  
☐ Regularly inundated/saturated (3)  
☒ Seasonally inundated (2)  
☐ Seasonally saturated in upper 30cm (12in) (1)

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

**13.0 23.0 Metric 4. Habitat Alteration and Development**

Max (20) subtotal

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

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

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

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

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

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

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

**23.0**

Subtotal this page



**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 8/27/2008

**Wetland Site:** 1

**State:** Ohio

**County:** Hamilton

**Description:** Emergent

**Location:** See Figure 3a

**23.0**

subtotal first page

**0.0**
**23.0**
**Metric 5. Special Wetlands**

Max (10)

subtotal

Check all that apply and score as indicated

- ☐ Bog (10)  
☐ Fen (10)  
☐ Old growth forest (10)  
☐ Mature forested wetland (5)  
☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)  
☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)  
☐ Lake Plain Sand Prairies (Oak Openings) (10)  
☐ Relict Wet Prairies (10)  
☐ Known occurrence state/federal threatened or endangered species (10)  
☐ Significant migratory songbird/waterfowl habitat or usage (10)  
☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

**2.0**
**25.0**
**Metric 6. Plant Communities, interspersions, microtopography**

Max (20)

subtotal

**6a. Wetland Vegetation Communities**

Score all present using 0 to 3 scale.

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

**6b. Horizontal (plan view) Interspersion**

Select only one.

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

**6c. Coverage of Invasive Plants.** Refer to Table 1 ORAM long form for list. Add or deduct points for coverage.

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

**6d. Microtopography**

Score all present using 0 to 3 scale.

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

**Vegetation Community Cover Scale**

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

**Narrative Description of Vegetation Quality**

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

**Mudflat and Open Water Class Quality**

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

**Microtopography Cover Scale**

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

**25.0**
**GRAND TOTAL (max 100 pts)**

**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 9/24/2008

**Wetland Site:** 2

**State:** Ohio

**County:** Hamilton

**Description:** Forested/Emergent/Scrub-shrub

**Location:** See Figure 3a

**2.0 2.0 Metric 1. Wetland Area (size)**

Max (6)

subtotal

Select one size class and assign score

- ☐ >50 acres (>20.2 ha) (6 pts)  
☐ 25 to <50 acres (10.1 to < 20.2 ha) (5 pts)  
☐ 10 to <25 acres (4 to <10.1 ha) (4 pts)  
☐ 3 to <10 acres (1.2 to <4 ha) (3 pts)  
☒ 0.3 to <3 acres (0.12 to <1.2 ha) (2 pts)  
☐ 0.1 to <0.3 acres (0.04 to <0.12 ha) (1 pt)  
☐ < 0.1 acres (0.04 ha) (0 pts)

**2.0 4.0 Metric 2. Upland Buffers and Surrounding Land Use**

Max (14)

subtotal

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

- ☐ WIDE. Buffers average 50 m (164 ft) or more around wetland perimeter (7)  
☐ MEDIUM. Buffers average 25 m to <50 m (82 to <164 ft) around wetland perimeter (4)  
☒ NARROW. Buffers average 10 m to <25 m (32 to <82 ft) around wetland perimeter (1)  
☐ VERY NARROW. Buffers average <10 m (<32 ft) around wetland perimeter (0)

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

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

**15.0 19.0 Metric 3. Hydrology**

Max (30)

subtotal

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

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

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

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

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

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

3b. Connectivity. Score all that apply.

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

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

- ☐ Semi-to permanently inundated/saturated (4)  
☐ Regularly inundated/saturated (3)  
☒ Seasonally inundated (2)  
☐ Seasonally saturated in upper 30cm (12in) (1)

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

**14.0 33.0 Metric 4. Habitat Alteration and Development**

Max (20)

subtotal

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

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

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

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

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

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

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

**33.0**

Subtotal this page

**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 9/24/2008

**Wetland Site:** 2

**State:** Ohio

**County:** Hamilton

**Description:** Forested/Emergent/Scrub-shrub

**Location:** See Figure 3a

**33.0**

subtotal first page

**0.0**
**33.0**
**Metric 5. Special Wetlands**

Max (10)

subtotal

Check all that apply and score as indicated

- ☐ Bog (10)  
☐ Fen (10)  
☐ Old growth forest (10)  
☐ Mature forested wetland (5)  
☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)  
☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)  
☐ Lake Plain Sand Prairies (Oak Openings) (10)  
☐ Relict Wet Prairies (10)  
☐ Known occurrence state/federal threatened or endangered species (10)  
☐ Significant migratory songbird/waterfowl habitat or usage (10)  
☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

**12.0**
**45.0**
**Metric 6. Plant Communities, interspersed, microtopography**

Max (20)

subtotal

**6a. Wetland Vegetation Communities**

Score all present using 0 to 3 scale.

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

**6b. Horizontal (plan view) Interspersion**

Select only one.

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

**6c. Coverage of Invasive Plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage.**

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

**6d. Microtopography**

Score all present using 0 to 3 scale.

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

**Vegetation Community Cover Scale**

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

**Narrative Description of Vegetation Quality**

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

**Mudflat and Open Water Class Quality**

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

**Microtopography Cover Scale**

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

**45.0**
**GRAND TOTAL (max 100 pts)**

**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 9/24/2008

**Wetland Site:** 3

**State:** Ohio

**County:** Hamilton

**Description:** Emergent

**Location:** See Figure 3b

**1.0 1.0 Metric 1. Wetland Area (size)**

Max (6)

subtotal

Select one size class and assign score

- ☐ >50 acres (>20.2 ha) (6 pts)  
☐ 25 to <50 acres (10.1 to < 20.2 ha) (5 pts)  
☐ 10 to <25 acres (4 to <10.1 ha) (4 pts)  
☐ 3 to <10 acres (1.2 to <4 ha) (3 pts)  
☐ 0.3 to <3 acres (0.12 to <1.2 ha) (2 pts)  
☒ 0.1 to <0.3 acres (0.04 to <0.12 ha) (1 pt)  
☐ < 0.1 acres (0.04 ha) (0 pts)

**2.0 3.0 Metric 2. Upland Buffers and Surrounding Land Use**

Max (14)

subtotal

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

- ☐ WIDE. Buffers average 50 m (164 ft) or more around wetland perimeter (7)  
☐ MEDIUM. Buffers average 25 m to <50 m (82 to <164 ft) around wetland perimeter (4)  
☒ NARROW. Buffers average 10 m to <25 m (32 to <82 ft) around wetland perimeter (1)  
☐ VERY NARROW. Buffers average <10 m (<32 ft) around wetland perimeter (0)

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

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

**7.0 10.0 Metric 3. Hydrology**

Max (30)

subtotal

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

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

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

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

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

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

3b. Connectivity. Score all that apply.

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

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

- ☐ Semi-to permanently inundated/saturated (4)  
☐ Regularly inundated/saturated (3)  
☒ Seasonally inundated (2)  
☐ Seasonally saturated in upper 30cm (12in) (1)

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

**6.0 16.0 Metric 4. Habitat Alteration and Development**

Max (20)

subtotal

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

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

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

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

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

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

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

**16.0**

Subtotal this page

**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 9/24/2008

**Wetland Site:** 3

**State:** Ohio

**County:** Hamilton

**Description:** Emergent

**Location:** See Figure 3b

**16.0**

subtotal first page

**0.0**
**16.0**
**Metric 5. Special Wetlands**

Max (10)

subtotal

Check all that apply and score as indicated

- ☐ Bog (10)  
☐ Fen (10)  
☐ Old growth forest (10)  
☐ Mature forested wetland (5)  
☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)  
☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)  
☐ Lake Plain Sand Prairies (Oak Openings) (10)  
☐ Relict Wet Prairies (10)  
☐ Known occurrence state/federal threatened or endangered species (10)  
☐ Significant migratory songbird/waterfowl habitat or usage (10)  
☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

**5.0**
**21.0**
**Metric 6. Plant Communities, interspersed, microtopography**

Max (20)

subtotal

**6a. Wetland Vegetation Communities**

Score all present using 0 to 3 scale.

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

**6b. Horizontal (plan view) Interspersion**

Select only one.

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

6c. Coverage of Invasive Plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage.

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

**6d. Microtopography**

Score all present using 0 to 3 scale.

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

**Vegetation Community Cover Scale**

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

**Narrative Description of Vegetation Quality**

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

**Mudflat and Open Water Class Quality**

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

**Microtopography Cover Scale**

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

**21.0**
**GRAND TOTAL (max 100 pts)**



**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 9/25/2008

**Wetland Site:** 4

**State:** Ohio

**County:** Hamilton

**Description:** Emergent

**Location:** See Figure 3a

**1.0 1.0 Metric 1. Wetland Area (size)**

Max (6) subtotal

Select one size class and assign score

- ☐ >50 acres (>20.2 ha) (6 pts)  
☐ 25 to <50 acres (10.1 to < 20.2 ha) (5 pts)  
☐ 10 to <25 acres (4 to <10.1 ha) (4 pts)  
☐ 3 to <10 acres (1.2 to <4 ha) (3 pts)  
☐ 0.3 to <3 acres (0.12 to <1.2 ha) (2 pts)  
☒ 0.1 to <0.3 acres (0.04 to <0.12 ha) (1 pt)  
☐ < 0.1 acres (0.04 ha) (0 pts)

**1.0 2.0 Metric 2. Upland Buffers and Surrounding Land Use**

Max (14) subtotal

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

- ☐ WIDE. Buffers average 50 m (164 ft) or more around wetland perimeter (7)  
☐ MEDIUM. Buffers average 25 m to <50 m (82 to <164 ft) around wetland perimeter (4)  
☐ NARROW. Buffers average 10 m to <25 m (32 to <82 ft) around wetland perimeter (1)  
☒ VERY NARROW. Buffers average <10 m (<32 ft) around wetland perimeter (0)

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

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

**13.0 15.0 Metric 3. Hydrology**

Max (30) subtotal

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

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

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

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

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

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

3b. Connectivity. Score all that apply.

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

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

- ☐ Semi-to permanently inundated/saturated (4)  
☒ Regularly inundated/saturated (3)  
☐ Seasonally inundated (2)  
☐ Seasonally saturated in upper 30cm (12in) (1)

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

**6.0 21.0 Metric 4. Habitat Alteration and Development**

Max (20) subtotal

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

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

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

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

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

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

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

**21.0**

Subtotal this page

**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 9/25/2008

**Wetland Site:** 4

**State:** Ohio

**County:** Hamilton

**Description:** Emergent

**Location:** See Figure 3a

**21.0**

subtotal first page

**0.0**
**21.0**
**Metric 5. Special Wetlands**

Max (10)

subtotal

Check all that apply and score as indicated

- ☐ Bog (10)  
☐ Fen (10)  
☐ Old growth forest (10)  
☐ Mature forested wetland (5)  
☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)  
☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)  
☐ Lake Plain Sand Prairies (Oak Openings) (10)  
☐ Relict Wet Prairies (10)  
☐ Known occurrence state/federal threatened or endangered species (10)  
☐ Significant migratory songbird/waterfowl habitat or usage (10)  
☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

**4.0**
**25.0**
**Metric 6. Plant Communities, interspersation, microtopography**

Max (20)

subtotal

**6a. Wetland Vegetation Communities**

Score all present using 0 to 3 scale.

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

**6b. Horizontal (plan view) Interspersion**

Select only one.

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

**6c. Coverage of Invasive Plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage.**

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

**6d. Microtopography**

Score all present using 0 to 3 scale.

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

**Vegetation Community Cover Scale**

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

**Narrative Description of Vegetation Quality**

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

**Mudflat and Open Water Class Quality**

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

**Microtopography Cover Scale**

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

**25.0**
**GRAND TOTAL (max 100 pts)**

**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 9/26/2008

**Wetland Site:** 5

**State:** Ohio

**County:** Hamilton

**Description:** Emergent

**Location:** See Figure 3b

<b>0.0</b>	<b>0.0</b>	<b>Metric 1. Wetland Area (size)</b>
------------	------------	--------------------------------------

Max (6)

subtotal

Select one size class and assign score

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

<b>12.0</b>	<b>12.0</b>	<b>Metric 2. Upland Buffers and Surrounding Land Use</b>
-------------	-------------	--

Max (14)

subtotal

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

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

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

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

<b>13.0</b>	<b>25.0</b>	<b>Metric 3. Hydrology</b>
-------------	-------------	----------------------------

Max (30)

subtotal

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

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

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

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

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

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

3b. Connectivity. Score all that apply.

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

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

- |                                     |   |
|-------------------------------------|---|
| <input type="checkbox"/>            | Semi-to permanently inundated/saturated (4)   |
| <input type="checkbox"/>            | Regularly inundated/saturated (3)             |
| <input checked="" type="checkbox"/> | Seasonally inundated (2)                      |
| <input type="checkbox"/>            | Seasonally saturated in upper 30cm (12in) (1) |

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

<b>10.0</b>	<b>35.0</b>	<b>Metric 4. Habitat Alteration and Development</b>
-------------	-------------	---

Max (20)

subtotal

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

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

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

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

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

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

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

<b>35.0</b>
-------------

Subtotal this page

**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 9/26/2008

**Wetland Site:** 5

**State:** Ohio

**County:** Hamilton

**Description:** Emergent

**Location:** See Figure 3b

**35.0**

subtotal first page

**0.0**
**35.0**
**Metric 5. Special Wetlands**

Max (10)

subtotal

Check all that apply and score as indicated

- ☐ Bog (10)  
☐ Fen (10)  
☐ Old growth forest (10)  
☐ Mature forested wetland (5)  
☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)  
☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)  
☐ Lake Plain Sand Prairies (Oak Openings) (10)  
☐ Relict Wet Prairies (10)  
☐ Known occurrence state/federal threatened or endangered species (10)  
☐ Significant migratory songbird/waterfowl habitat or usage (10)  
☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

**3.0**
**38.0**
**Metric 6. Plant Communities, interspersation, microtopography**

Max (20)

subtotal

**6a. Wetland Vegetation Communities**

Score all present using 0 to 3 scale.

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

**6b. Horizontal (plan view) Interspersion**

Select only one.

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

6c. Coverage of Invasive Plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage.

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

**6d. Microtopography**

Score all present using 0 to 3 scale.

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

**Vegetation Community Cover Scale**

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

**Narrative Description of Vegetation Quality**

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

**Mudflat and Open Water Class Quality**

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

**Microtopography Cover Scale**

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

**38.0**
**GRAND TOTAL (max 100 pts)**

**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 9/26/2008

**Wetland Site:** 6

**State:** Ohio

**County:** Hamilton

**Description:** Emergent

**Location:** See Figure 3b

**0.0 0.0 Metric 1. Wetland Area (size)**

Max (6)

subtotal

Select one size class and assign score

- ☐ >50 acres (>20.2 ha) (6 pts)  
☐ 25 to <50 acres (10.1 to < 20.2 ha) (5 pts)  
☐ 10 to <25 acres (4 to <10.1 ha) (4 pts)  
☐ 3 to <10 acres (1.2 to <4 ha) (3 pts)  
☐ 0.3 to <3 acres (0.12 to <1.2 ha) (2 pts)  
☐ 0.1 to <0.3 acres (0.04 to <0.12 ha) (1 pt)  
☒ < 0.1 acres (0.04 ha) (0 pts)

**12.0 12.0 Metric 2. Upland Buffers and Surrounding Land Use**

Max (14)

subtotal

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

- ☒ WIDE. Buffers average 50 m (164 ft) or more around wetland perimeter (7)  
☐ MEDIUM. Buffers average 25 m to <50 m (82 to <164 ft) around wetland perimeter (4)  
☐ NARROW. Buffers average 10 m to <25 m (32 to <82 ft) around wetland perimeter (1)  
☐ VERY NARROW. Buffers average <10 m (<32 ft) around wetland perimeter (0)

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

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

**13.0 25.0 Metric 3. Hydrology**

Max (30)

subtotal

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

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

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

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

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

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

3b. Connectivity. Score all that apply.

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

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

- ☐ Semi-to permanently inundated/saturated (4)  
☐ Regularly inundated/saturated (3)  
☒ Seasonally inundated (2)  
☐ Seasonally saturated in upper 30cm (12in) (1)

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

**10.0 35.0 Metric 4. Habitat Alteration and Development**

Max (20)

subtotal

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

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

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

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

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

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

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

**35.0**

Subtotal this page



**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 9/26/2008

**Wetland Site:** 6

**State:** Ohio

**County:** Hamilton

**Description:** Emergent

**Location:** See Figure 3b

**35.0**

subtotal first page

**0.0**
**35.0**
**Metric 5. Special Wetlands**

Max (10)

subtotal

Check all that apply and score as indicated

- ☐ Bog (10)  
☐ Fen (10)  
☐ Old growth forest (10)  
☐ Mature forested wetland (5)  
☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)  
☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)  
☐ Lake Plain Sand Prairies (Oak Openings) (10)  
☐ Relict Wet Prairies (10)  
☐ Known occurrence state/federal threatened or endangered species (10)  
☐ Significant migratory songbird/waterfowl habitat or usage (10)  
☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

**2.0**
**37.0**
**Metric 6. Plant Communities, interspersation, microtopography**

Max (20)

subtotal

**6a. Wetland Vegetation Communities**

Score all present using 0 to 3 scale.

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

**6b. Horizontal (plan view) Interspersion**

Select only one.

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

6c. Coverage of Invasive Plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage.

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

**6d. Microtopography**

Score all present using 0 to 3 scale.

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

**Vegetation Community Cover Scale**

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

**Narrative Description of Vegetation Quality**

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

**Mudflat and Open Water Class Quality**

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

**Microtopography Cover Scale**

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

**37.0**
**GRAND TOTAL (max 100 pts)**

**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 9/26/2008

**Wetland Site:** 7

**State:** Ohio

**County:** Hamilton

**Description:** Emergent

**Location:** See Figure 3b

**0.0 0.0 Metric 1. Wetland Area (size)**

Max (6)

subtotal

Select one size class and assign score

- ☐ >50 acres (>20.2 ha) (6 pts)  
☐ 25 to <50 acres (10.1 to < 20.2 ha) (5 pts)  
☐ 10 to <25 acres (4 to <10.1 ha) (4 pts)  
☐ 3 to <10 acres (1.2 to <4 ha) (3 pts)  
☐ 0.3 to <3 acres (0.12 to <1.2 ha) (2 pts)  
☐ 0.1 to <0.3 acres (0.04 to <0.12 ha) (1 pt)  
☒ < 0.1 acres (0.04 ha) (0 pts)

**12.0 12.0 Metric 2. Upland Buffers and Surrounding Land Use**

Max (14)

subtotal

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

- ☒ WIDE. Buffers average 50 m (164 ft) or more around wetland perimeter (7)  
☐ MEDIUM. Buffers average 25 m to <50 m (82 to <164 ft) around wetland perimeter (4)  
☐ NARROW. Buffers average 10 m to <25 m (32 to <82 ft) around wetland perimeter (1)  
☐ VERY NARROW. Buffers average <10 m (<32 ft) around wetland perimeter (0)

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

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

**13.0 25.0 Metric 3. Hydrology**

Max (30)

subtotal

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

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

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

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

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

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

3b. Connectivity. Score all that apply.

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

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

- ☐ Semi-to permanently inundated/saturated (4)  
☐ Regularly inundated/saturated (3)  
☒ Seasonally inundated (2)  
☐ Seasonally saturated in upper 30cm (12in) (1)

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

**10.0 35.0 Metric 4. Habitat Alteration and Development**

Max (20)

subtotal

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

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

4b. Habitat development. Select only one and assign score.

- ☐ Excellent (7)  
☐ Very good (6)  
☐ Good (5)  
☐ Moderately good (4)  
☐ Fair (3)  
☐ Poor to fair (2)  
☒ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☐ None or none apparent (9)  
☒ Recovered (6)  
☐ Recovering (3)  
☐ Recent or no recovery (1)

Check all disturbances observed		
<input type="checkbox"/>	mowing	<input type="checkbox"/> shrub/sapling removal
<input type="checkbox"/>	grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input type="checkbox"/>	clearcutting	<input type="checkbox"/> sedimentation
<input type="checkbox"/>	selective cutting	<input checked="" type="checkbox"/> dredging
<input type="checkbox"/>	woody debris removal	<input type="checkbox"/> farming
<input type="checkbox"/>	toxic pollutants	<input type="checkbox"/> nutrient enrichment

**35.0**

Subtotal this page

**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 9/26/2008

**Wetland Site:** 7

**State:** Ohio

**County:** Hamilton

**Description:** Emergent

**Location:** See Figure 3b

**35.0**

subtotal first page

**0.0**
**35.0**
**Metric 5. Special Wetlands**

Max (10)

subtotal

Check all that apply and score as indicated

- ☐ Bog (10)  
☐ Fen (10)  
☐ Old growth forest (10)  
☐ Mature forested wetland (5)  
☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)  
☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)  
☐ Lake Plain Sand Prairies (Oak Openings) (10)  
☐ Relict Wet Prairies (10)  
☐ Known occurrence state/federal threatened or endangered species (10)  
☐ Significant migratory songbird/waterfowl habitat or usage (10)  
☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

**3.0**
**38.0**
**Metric 6. Plant Communities, interspersation, microtopography**

Max (20)

subtotal

**6a. Wetland Vegetation Communities**

Score all present using 0 to 3 scale.

- ☐ 0 Aquatic bed  
☐ 1 Emergent  
☐ 0 Shrub  
☐ 0 Forest  
☐ 0 Mudflats  
☐ 0 Open water  
☐ 0 Other

**6b. Horizontal (plan view) Interspersion**

Select only one.

- ☐ High (5)  
☐ Moderately high (4)  
☐ Moderate (3)  
☐ Moderately low (2)  
☐ Low (1)  
☒ X None (0)

6c. Coverage of Invasive Plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage.

- ☐ Extensive >75% cover (-5)  
☐ Moderate 25-75% cover (-3)  
☐ Sparse 5-25% cover (-1)  
☐ Nearly absent <5% cover (0)  
☒ X Absent (1)

**6d. Microtopography**

Score all present using 0 to 3 scale.

- ☐ 0 Vegetated hummocks/tussucks  
☐ 1 Coarse woody debris >15 cm (6 in)  
☐ 0 Standing dead >25 cm (10 in) dbh  
☐ 0 Amphibian breeding pools

**Vegetation Community Cover Scale**

0	Absent or comprises <0.1ha (0.2471ac) contiguous area)
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

**Narrative Description of Vegetation Quality**

low	Low spp diversity and/or predominance of non-native or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with non-native spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

**Mudflat and Open Water Class Quality**

0	Absent <0.1 ha (0.247 acres)
1	Low 0.1 to <1 ha (0.247 to 2.47 acres)
2	Moderate 1 to <4 ha (2.47 to 9.88 acres)
3	High 4 ha (9.88 acres) or more

**Microtopography Cover Scale**

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

**38.0**
**GRAND TOTAL (max 100 pts)**

**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 9/26/2008

**Wetland Site:** 8

**State:** Ohio

**County:** Hamilton

**Description:** Emergent

**Location:** See Figure 3b

**0.0 0.0 Metric 1. Wetland Area (size)**

Max (6)

subtotal

Select one size class and assign score

- ☐ >50 acres (>20.2 ha) (6 pts)  
☐ 25 to <50 acres (10.1 to < 20.2 ha) (5 pts)  
☐ 10 to <25 acres (4 to <10.1 ha) (4 pts)  
☐ 3 to <10 acres (1.2 to <4 ha) (3 pts)  
☐ 0.3 to <3 acres (0.12 to <1.2 ha) (2 pts)  
☐ 0.1 to <0.3 acres (0.04 to <0.12 ha) (1 pt)  
☒ < 0.1 acres (0.04 ha) (0 pts)

**12.0 12.0 Metric 2. Upland Buffers and Surrounding Land Use**

Max (14)

subtotal

2a. Calculate average buffer width. Select only one and assign score. Do not double check

- ☒ WIDE. Buffers average 50 m (164 ft) or more around wetland perimeter (7)  
☐ MEDIUM. Buffers average 25 m to <50 m (82 to <164 ft) around wetland perimeter (4)  
☐ NARROW. Buffers average 10 m to <25 m (32 to <82 ft) around wetland perimeter (1)  
☐ VERY NARROW. Buffers average <10 m (<32 ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)  
☒ LOW. Old field (>10 years), shrubland, young second growth forest (5)  
☐ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field (3)  
☐ HIGH. Urban, industrial, open pasture, row cropping, mining, construction (1)

**13.0 25.0 Metric 3. Hydrology**

Max (30)

subtotal

3a. Sources of water. Score all that apply.

- ☐ High pH groundwater (5)  
☐ Other groundwater (3)  
☒ Precipitation (1)  
☐ Seasonal/Intermittent surface water (3)  
☐ Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score

- ☐ >0.7 (27.6 in) (3)  
☐ 0.4 to 0.7 m (15.7 to 27.6 in) (2)  
☒ <0.4 m (<15.7 in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- ☐ None or none apparent (12)  
☒ Recovered (7)  
☐ Recovering (3)  
☐ Recent or no recovery (1)

3b. Connectivity. Score all that apply.

- ☒ 100 year floodplain (1)  
☐ Between stream/lake and other human use (1)  
☐ Part of wetland/upland (e.g. forest) complex (1)  
☒ Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check and av

- ☐ Semi-to permanently inundated/saturated (4)  
☐ Regularly inundated/saturated (3)  
☒ Seasonally inundated (2)  
☐ Seasonally saturated in upper 30cm (12in) (1)

Check all disturbances observed		
<input checked="" type="checkbox"/>	ditch	<input type="checkbox"/> point source (non-stormwater)
<input checked="" type="checkbox"/>	tile	<input type="checkbox"/> filling/grading
<input type="checkbox"/>	dike	<input type="checkbox"/> road bed/RR track
<input type="checkbox"/>	weir	<input type="checkbox"/> dredging
<input type="checkbox"/>	stormwater input	<input type="checkbox"/> other

**10.0 35.0 Metric 4. Habitat Alteration and Development**

Max (20)

subtotal

4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (4)  
☒ Recovered (3)  
☐ Recovering (2)  
☐ Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- ☐ Excellent (7)  
☐ Very good (6)  
☐ Good (5)  
☐ Moderately good (4)  
☐ Fair (3)  
☐ Poor to fair (2)  
☒ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☐ None or none apparent (9)  
☒ Recovered (6)  
☐ Recovering (3)  
☐ Recent or no recovery (1)

Check all disturbances observed		
<input type="checkbox"/>	mowing	<input type="checkbox"/> shrub/sapling removal
<input type="checkbox"/>	grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input type="checkbox"/>	clearcutting	<input type="checkbox"/> sedimentation
<input type="checkbox"/>	selective cutting	<input checked="" type="checkbox"/> dredging
<input type="checkbox"/>	woody debris removal	<input type="checkbox"/> farming
<input type="checkbox"/>	toxic pollutants	<input type="checkbox"/> nutrient enrichment

**35.0**

Subtotal this page

**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 9/26/2008

**Wetland Site:** 8

**State:** Ohio

**County:** Hamilton

**Description:** Emergent

**Location:** See Figure 3b

**35.0**

subtotal first page

**0.0**
**35.0**
**Metric 5. Special Wetlands**

Max (10)

subtotal

Check all that apply and score as indicated

- ☐ Bog (10)  
☐ Fen (10)  
☐ Old growth forest (10)  
☐ Mature forested wetland (5)  
☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)  
☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)  
☐ Lake Plain Sand Prairies (Oak Openings) (10)  
☐ Relict Wet Prairies (10)  
☐ Known occurrence state/federal threatened or endangered species (10)  
☐ Significant migratory songbird/waterfowl habitat or usage (10)  
☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

**2.0**
**37.0**
**Metric 6. Plant Communities, interspersation, microtopography**

Max (20)

subtotal

**6a. Wetland Vegetation Communities**

Score all present using 0 to 3 scale.

- ☐ 0 Aquatic bed  
☐ 1 Emergent  
☐ 0 Shrub  
☐ 0 Forest  
☐ 0 Mudflats  
☐ 0 Open water  
☐ 0 Other

**6b. Horizontal (plan view) Interspersion**

Select only one.

- ☐ High (5)  
☐ Moderately high (4)  
☐ Moderate (3)  
☐ Moderately low (2)  
☐ Low (1)  
☒ X None (0)

6c. Coverage of Invasive Plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage.

- ☐ Extensive >75% cover (-5)  
☐ Moderate 25-75% cover (-3)  
☐ Sparse 5-25% cover (-1)  
☐ Nearly absent <5% cover (0)  
☒ X Absent (1)

**6d. Microtopography**

Score all present using 0 to 3 scale.

- ☐ 0 Vegetated hummocks/tussocks  
☐ 0 Coarse woody debris >15 cm (6 in)  
☐ 0 Standing dead >25 cm (10 in) dbh  
☐ 0 Amphibian breeding pools

**Vegetation Community Cover Scale**

- |   |   |
|---|---|
| 0 | Absent or comprises <0.1ha (0.2471ac) contiguous area   |
| 1 | Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality |
| 2 | Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is high quality    |
| 3 | Present and comprises significant part, or more, of wetland's vegetation and is of high quality   |

**Narrative Description of Vegetation Quality**

- |      |  |
|------|--|
| low  | Low spp diversity and/or predominance of non-native or disturbance tolerant native species   |
| mod  | Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp |
| high | A predominance of native species, with non-native spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp                         |

**Mudflat and Open Water Class Quality**

- |   |  |
|---|--|
| 0 | Absent <0.1 ha (0.247 acres)             |
| 1 | Low 0.1 to <1 ha (0.247 to 2.47 acres)   |
| 2 | Moderate 1 to <4 ha (2.47 to 9.88 acres) |
| 3 | High 4 ha (9.88 acres) or more           |

**Microtopography Cover Scale**

- |   |  |
|---|--|
| 0 | Absent   |
| 1 | Present very small amounts or if more common of marginal quality                               |
| 2 | Present in moderate amounts, but not of highest quality or in small amounts of highest quality |
| 3 | Present in moderate or greater amounts and of highest quality                                  |

**37.0**
**GRAND TOTAL (max 100 pts)**



**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 9/26/2008

**Wetland Site:** 9

**State:** Ohio

**County:** Hamilton

**Description:** Emergent

**Location:** See Figure 3b

<b>0.0</b>	<b>0.0</b>	<b>Metric 1. Wetland Area (size)</b>
------------	------------	--------------------------------------

Max (6) subtotal

Select one size class and assign score

- |                                     |   |
|-------------------------------------|---|
| <input type="checkbox"/>            | >50 acres (>20.2 ha) (6 pts)                |
| <input type="checkbox"/>            | 25 to <50 acres (10.1 to < 20.2 ha) (5 pts) |
| <input type="checkbox"/>            | 10 to <25 acres (4 to <10.1 ha) (4 pts)     |
| <input type="checkbox"/>            | 3 to <10 acres (1.2 to <4 ha) (3 pts)       |
| <input type="checkbox"/>            | 0.3 to <3 acres (0.12 to <1.2 ha) (2 pts)   |
| <input type="checkbox"/>            | 0.1 to <0.3 acres (0.04 to <0.12 ha) (1 pt) |
| <input checked="" type="checkbox"/> | < 0.1 acres (0.04 ha) (0 pts)               |

<b>2.0</b>	<b>2.0</b>	<b>Metric 2. Upland Buffers and Surrounding Land Use</b>
------------	------------	--

Max (14) subtotal

2a. Calculate average buffer width. Select only one and assign score. Do not double check

- |                                     |  |
|-------------------------------------|--|
| <input type="checkbox"/>            | WIDE. Buffers average 50 m (164 ft) or more around wetland perimeter (7)           |
| <input type="checkbox"/>            | MEDIUM. Buffers average 25 m to <50 m (82 to <164 ft) around wetland perimeter (4) |
| <input checked="" type="checkbox"/> | NARROW. Buffers average 10 m to <25 m (32 to <82 ft) around wetland perimeter (1)  |
| <input type="checkbox"/>            | VERY NARROW. Buffers average <10 m (<32 ft) around wetland perimeter (0)           |

2b. Intensity of surrounding land use. Select one or double check and average.

- |                                     |  |
|-------------------------------------|--|
| <input type="checkbox"/>            | VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)               |
| <input type="checkbox"/>            | LOW. Old field (>10 years), shrubland, young second growth forest (5)                          |
| <input type="checkbox"/>            | MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field (3) |
| <input checked="" type="checkbox"/> | HIGH. Urban, industrial, open pasture, row cropping, mining, construction (1)                  |

<b>13.0</b>	<b>15.0</b>	<b>Metric 3. Hydrology</b>
-------------	-------------	----------------------------

Max (30) subtotal

3a. Sources of water. Score all that apply.

- |                                     |  |
|-------------------------------------|--|
| <input type="checkbox"/>            | High pH groundwater (5)                      |
| <input type="checkbox"/>            | Other groundwater (3)                        |
| <input checked="" type="checkbox"/> | Precipitation (1)                            |
| <input checked="" type="checkbox"/> | Seasonal/Intermittent surface water (3)      |
| <input type="checkbox"/>            | Perennial surface water (lake or stream) (5) |

3c. Maximum water depth. Select only one and assign score

- |                                     |                                    |
|-------------------------------------|------------------------------------|
| <input type="checkbox"/>            | >0.7 (27.6 in) (3)                 |
| <input type="checkbox"/>            | 0.4 to 0.7 m (15.7 to 27.6 in) (2) |
| <input checked="" type="checkbox"/> | <0.4 m (<15.7 in) (1)              |

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- |                                     |                            |
|-------------------------------------|----------------------------|
| <input type="checkbox"/>            | None or none apparent (12) |
| <input type="checkbox"/>            | Recovered (7)              |
| <input checked="" type="checkbox"/> | Recovering (3)             |
| <input type="checkbox"/>            | Recent or no recovery (1)  |

3b. Connectivity. Score all that apply.

- |                                     |  |
|-------------------------------------|--|
| <input checked="" type="checkbox"/> | 100 year floodplain (1)                          |
| <input checked="" type="checkbox"/> | Between stream/lake and other human use (1)      |
| <input type="checkbox"/>            | Part of wetland/upland (e.g. forest) complex (1) |
| <input checked="" type="checkbox"/> | Part of riparian or upland corridor (1)          |

3d. Duration inundation/saturation. Score one or dbl check and av

- |                                     |   |
|-------------------------------------|---|
| <input type="checkbox"/>            | Semi-to permanently inundated/saturated (4)   |
| <input type="checkbox"/>            | Regularly inundated/saturated (3)             |
| <input checked="" type="checkbox"/> | Seasonally inundated (2)                      |
| <input type="checkbox"/>            | Seasonally saturated in upper 30cm (12in) (1) |

Check all disturbances observed			
<input type="checkbox"/>	ditch	<input type="checkbox"/>	point source (non-stormwater)
<input checked="" type="checkbox"/>	tile	<input type="checkbox"/>	filling/grading
<input type="checkbox"/>	dike	<input type="checkbox"/>	road bed/RR track
<input type="checkbox"/>	weir	<input type="checkbox"/>	dredging
<input type="checkbox"/>	stormwater input	<input checked="" type="checkbox"/>	other

<b>10.0</b>	<b>25.0</b>	<b>Metric 4. Habitat Alteration and Development</b>
-------------	-------------	---

Max (20) subtotal

4a. Substrate disturbance. Score one or double check and average.

- |                                     |                           |
|-------------------------------------|---------------------------|
| <input type="checkbox"/>            | None or none apparent (4) |
| <input checked="" type="checkbox"/> | Recovered (3)             |
| <input type="checkbox"/>            | Recovering (2)            |
| <input type="checkbox"/>            | Recent or no recovery (1) |

4b. Habitat development. Select only one and assign score.

- |                                     |                     |
|-------------------------------------|---------------------|
| <input type="checkbox"/>            | Excellent (7)       |
| <input type="checkbox"/>            | Very good (6)       |
| <input type="checkbox"/>            | Good (5)            |
| <input type="checkbox"/>            | Moderately good (4) |
| <input type="checkbox"/>            | Fair (3)            |
| <input type="checkbox"/>            | Poor to fair (2)    |
| <input checked="" type="checkbox"/> | Poor (1)            |

4c. Habitat alteration. Score one or double check and average.

- |                                     |                           |
|-------------------------------------|---------------------------|
| <input type="checkbox"/>            | None or none apparent (9) |
| <input checked="" type="checkbox"/> | Recovered (6)             |
| <input type="checkbox"/>            | Recovering (3)            |
| <input type="checkbox"/>            | Recent or no recovery (1) |

Check all disturbances observed			
<input type="checkbox"/>	mowing	<input type="checkbox"/>	shrub/sapling removal
<input type="checkbox"/>	grazing	<input type="checkbox"/>	herbaceous/aquatic bed removal
<input type="checkbox"/>	clearcutting	<input type="checkbox"/>	sedimentation
<input type="checkbox"/>	selective cutting	<input checked="" type="checkbox"/>	dredging
<input type="checkbox"/>	woody debris removal	<input type="checkbox"/>	farming
<input type="checkbox"/>	toxic pollutants	<input type="checkbox"/>	nutrient enrichment

<b>25.0</b>
-------------

Subtotal this page

**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 9/26/2008

**Wetland Site:** 9

**State:** Ohio

**County:** Hamilton

**Description:** Emergent

**Location:** See Figure 3b

**25.0**

subtotal first page

**0.0**
**25.0**
**Metric 5. Special Wetlands**

Max (10)

subtotal

Check all that apply and score as indicated

- ☐ Bog (10)  
☐ Fen (10)  
☐ Old growth forest (10)  
☐ Mature forested wetland (5)  
☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)  
☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)  
☐ Lake Plain Sand Prairies (Oak Openings) (10)  
☐ Relict Wet Prairies (10)  
☐ Known occurrence state/federal threatened or endangered species (10)  
☐ Significant migratory songbird/waterfowl habitat or usage (10)  
☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

**3.0**
**28.0**
**Metric 6. Plant Communities, interspersation, microtopography**

Max (20)

subtotal

**6a. Wetland Vegetation Communities**

Score all present using 0 to 3 scale.

- ☐ 0 Aquatic bed  
☐ 1 Emergent  
☐ 0 Shrub  
☐ 0 Forest  
☐ 0 Mudflats  
☐ 0 Open water  
☐ 0 Other

**6b. Horizontal (plan view) Interspersion**

Select only one.

- ☐ High (5)  
☐ Moderately high (4)  
☐ Moderate (3)  
☐ Moderately low (2)  
☐ Low (1)  
☒ X None (0)

6c. Coverage of Invasive Plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage.

- ☐ Extensive >75% cover (-5)  
☐ Moderate 25-75% cover (-3)  
☐ Sparse 5-25% cover (-1)  
☐ Nearly absent <5% cover (0)  
☒ X Absent (1)

**6d. Microtopography**

Score all present using 0 to 3 scale.

- ☐ 0 Vegetated hummocks/tussucks  
☐ 1 Coarse woody debris >15 cm (6 in)  
☐ 0 Standing dead >25 cm (10 in) dbh  
☐ 0 Amphibian breeding pools

**Vegetation Community Cover Scale**

- |   |   |
|---|---|
| 0 | Absent or comprises <0.1ha (0.2471ac) contiguous area)  |
| 1 | Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality |
| 2 | Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is high quality    |
| 3 | Present and comprises significant part, or more, of wetland's vegetation and is of high quality   |

**Narrative Description of Vegetation Quality**

- |      |  |
|------|--|
| low  | Low spp diversity and/or predominance of non-native or disturbance tolerant native species   |
| mod  | Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp |
| high | A predominance of native species, with non-native spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp                         |

**Mudflat and Open Water Class Quality**

- |   |  |
|---|--|
| 0 | Absent <0.1 ha (0.247 acres)             |
| 1 | Low 0.1 to <1 ha (0.247 to 2.47 acres)   |
| 2 | Moderate 1 to <4 ha (2.47 to 9.88 acres) |
| 3 | High 4 ha (9.88 acres) or more           |

**Microtopography Cover Scale**

- |   |  |
|---|--|
| 0 | Absent   |
| 1 | Present very small amounts or if more common of marginal quality                               |
| 2 | Present in moderate amounts, but not of highest quality or in small amounts of highest quality |
| 3 | Present in moderate or greater amounts and of highest quality                                  |

**28.0**
**GRAND TOTAL (max 100 pts)**

**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 9/26/2008

**Wetland Site:** 10

**State:** Ohio

**County:** Hamilton

**Description:** Forested/Emergent

**Location:** See Figure 3b

**2.0 2.0 Metric 1. Wetland Area (size)**

Max (6) subtotal

Select one size class and assign score

- ☐ >50 acres (>20.2 ha) (6 pts)  
☐ 25 to <50 acres (10.1 to < 20.2 ha) (5 pts)  
☐ 10 to <25 acres (4 to <10.1 ha) (4 pts)  
☐ 3 to <10 acres (1.2 to <4 ha) (3 pts)  
☒ 0.3 to <3 acres (0.12 to <1.2 ha) (2 pts)  
☐ 0.1 to <0.3 acres (0.04 to <0.12 ha) (1 pt)  
☐ < 0.1 acres (0.04 ha) (0 pts)

**7.0 9.0 Metric 2. Upland Buffers and Surrounding Land Use**

Max (14) subtotal

2a. Calculate average buffer width. Select only one and assign score. Do not double check

- ☐ WIDE. Buffers average 50 m (164 ft) or more around wetland perimeter (7)  
☒ MEDIUM. Buffers average 25 m to <50 m (82 to <164 ft) around wetland perimeter (4)  
☐ NARROW. Buffers average 10 m to <25 m (32 to <82 ft) around wetland perimeter (1)  
☐ VERY NARROW. Buffers average <10 m (<32 ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)  
☐ LOW. Old field (>10 years), shrubland, young second growth forest (5)  
☒ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field (3)  
☐ HIGH. Urban, industrial, open pasture, row cropping, mining, construction (1)

**19.0 28.0 Metric 3. Hydrology**

Max (30) subtotal

3a. Sources of water. Score all that apply.

- ☐ High pH groundwater (5)  
☐ Other groundwater (3)  
☒ Precipitation (1)  
☒ Seasonal/Intermittent surface water (3)  
☐ Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score

- ☐ >0.7 (27.6 in) (3)  
☒ 0.4 to 0.7 m (15.7 to 27.6 in) (2)  
☐ <0.4 m (<15.7 in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- ☐ None or none apparent (12)  
☒ Recovered (7)  
☐ Recovering (3)  
☐ Recent or no recovery (1)

3b. Connectivity. Score all that apply.

- ☒ 100 year floodplain (1)  
☒ Between stream/lake and other human use (1)  
☐ Part of wetland/upland (e.g. forest) complex (1)  
☒ Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check and av

- ☐ Semi-to permanently inundated/saturated (4)  
☒ Regularly inundated/saturated (3)  
☐ Seasonally inundated (2)  
☐ Seasonally saturated in upper 30cm (12in) (1)

Check all disturbances observed		
<input type="checkbox"/>	ditch	<input type="checkbox"/> point source (non-stormwater)
<input checked="" type="checkbox"/>	tile	<input type="checkbox"/> filling/grading
<input type="checkbox"/>	dike	<input type="checkbox"/> road bed/RR track
<input type="checkbox"/>	weir	<input type="checkbox"/> dredging
<input type="checkbox"/>	stormwater input	<input checked="" type="checkbox"/> other

**12.0 40.0 Metric 4. Habitat Alteration and Development**

Max (20) subtotal

4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (4)  
☒ Recovered (3)  
☐ Recovering (2)  
☐ Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- ☐ Excellent (7)  
☐ Very good (6)  
☐ Good (5)  
☐ Moderately good (4)  
☒ Fair (3)  
☐ Poor to fair (2)  
☐ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☐ None or none apparent (9)  
☒ Recovered (6)  
☐ Recovering (3)  
☐ Recent or no recovery (1)

Check all disturbances observed		
<input type="checkbox"/>	mowing	<input type="checkbox"/> shrub/sapling removal
<input type="checkbox"/>	grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input type="checkbox"/>	clearcutting	<input type="checkbox"/> sedimentation
<input type="checkbox"/>	selective cutting	<input checked="" type="checkbox"/> dredging
<input type="checkbox"/>	woody debris removal	<input type="checkbox"/> farming
<input type="checkbox"/>	toxic pollutants	<input type="checkbox"/> nutrient enrichment

**40.0**

Subtotal this page

**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 9/26/2008

**Wetland Site:** 10

**State:** Ohio

**County:** Hamilton

**Description:** Forested/Emergent

**Location:** See Figure 3b

**40.0**

subtotal first page

**0.0**
**40.0**
**Metric 5. Special Wetlands**

Max (10)

subtotal

Check all that apply and score as indicated

- ☐ Bog (10)  
☐ Fen (10)  
☐ Old growth forest (10)  
☐ Mature forested wetland (5)  
☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)  
☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)  
☐ Lake Plain Sand Prairies (Oak Openings) (10)  
☐ Relict Wet Prairies (10)  
☐ Known occurrence state/federal threatened or endangered species (10)  
☐ Significant migratory songbird/waterfowl habitat or usage (10)  
☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

**9.0**
**49.0**
**Metric 6. Plant Communities, interspersed, microtopography**

Max (20)

subtotal

**6a. Wetland Vegetation Communities**

Score all present using 0 to 3 scale.

- ☐ 0 Aquatic bed  
☐ 1 Emergent  
☐ 0 Shrub  
☐ 1 Forest  
☐ 0 Mudflats  
☐ 0 Open water  
☐ 0 Other

**6b. Horizontal (plan view) Interspersion**

Select only one.

- ☐ High (5)  
☐ Moderately high (4)  
☐ Moderate (3)  
☒ Moderately low (2)  
☐ Low (1)  
☐ None (0)

**6c. Coverage of Invasive Plants.** Refer to Table 1 ORAM long form for list. Add or deduct points for coverage.

- ☐ Extensive >75% cover (-5)  
☐ Moderate 25-75% cover (-3)  
☐ Sparse 5-25% cover (-1)  
☒ Nearly absent <5% cover (0)  
☐ Absent (1)

**6d. Microtopography**

Score all present using 0 to 3 scale.

- ☐ 0 Vegetated hummocks/tussocks  
☐ 3 Coarse woody debris >15 cm (6 in)  
☐ 2 Standing dead >25 cm (10 in) dbh  
☐ 0 Amphibian breeding pools

**Vegetation Community Cover Scale**

- |   |   |
|---|---|
| 0 | Absent or comprises <0.1ha (0.2471ac) contiguous area   |
| 1 | Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality |
| 2 | Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is high quality    |
| 3 | Present and comprises significant part, or more, of wetland's vegetation and is of high quality   |

**Narrative Description of Vegetation Quality**

- |      |  |
|------|--|
| low  | Low spp diversity and/or predominance of non-native or disturbance tolerant native species   |
| mod  | Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp |
| high | A predominance of native species, with non-native spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp                         |

**Mudflat and Open Water Class Quality**

- |   |  |
|---|--|
| 0 | Absent <0.1 ha (0.247 acres)             |
| 1 | Low 0.1 to <1 ha (0.247 to 2.47 acres)   |
| 2 | Moderate 1 to <4 ha (2.47 to 9.88 acres) |
| 3 | High 4 ha (9.88 acres) or more           |

**Microtopography Cover Scale**

- |   |  |
|---|--|
| 0 | Absent   |
| 1 | Present very small amounts or if more common of marginal quality                               |
| 2 | Present in moderate amounts, but not of highest quality or in small amounts of highest quality |
| 3 | Present in moderate or greater amounts and of highest quality                                  |

**49.0**
**GRAND TOTAL (max 100 pts)**

**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 9/26/2008

**Wetland Site:** 11

**State:** Ohio

**County:** Hamilton

**Description:** Emergent

**Location:** See Figure 3a

**1.0 1.0 Metric 1. Wetland Area (size)**

Max (6) subtotal

Select one size class and assign score

- ☐ >50 acres (>20.2 ha) (6 pts)  
☐ 25 to <50 acres (10.1 to < 20.2 ha) (5 pts)  
☐ 10 to <25 acres (4 to <10.1 ha) (4 pts)  
☐ 3 to <10 acres (1.2 to <4 ha) (3 pts)  
☐ 0.3 to <3 acres (0.12 to <1.2 ha) (2 pts)  
☒ 0.1 to <0.3 acres (0.04 to <0.12 ha) (1 pt)  
☐ < 0.1 acres (0.04 ha) (0 pts)

**4.0 5.0 Metric 2. Upland Buffers and Surrounding Land Use**

Max (14) subtotal

2a. Calculate average buffer width. Select only one and assign score. Do not double check

- ☐ WIDE. Buffers average 50 m (164 ft) or more around wetland perimeter (7)  
☐ MEDIUM. Buffers average 25 m to <50 m (82 to <164 ft) around wetland perimeter (4)  
☒ NARROW. Buffers average 10 m to <25 m (32 to <82 ft) around wetland perimeter (1)  
☐ VERY NARROW. Buffers average <10 m (<32 ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)  
☐ LOW. Old field (>10 years), shrubland, young second growth forest (5)  
☒ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field (3)  
☐ HIGH. Urban, industrial, open pasture, row cropping, mining, construction (1)

**18.0 23.0 Metric 3. Hydrology**

Max (30) subtotal

3a. Sources of water. Score all that apply.

- ☐ High pH groundwater (5)  
☐ Other groundwater (3)  
☒ Precipitation (1)  
☒ Seasonal/Intermittent surface water (3)  
☐ Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score

- ☐ >0.7 (27.6 in) (3)  
☒ 0.4 to 0.7 m (15.7 to 27.6 in) (2)  
☐ <0.4 m (<15.7 in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- ☐ None or none apparent (12)  
☒ Recovered (7)  
☐ Recovering (3)  
☐ Recent or no recovery (1)

3b. Connectivity. Score all that apply.

- ☒ 100 year floodplain (1)  
☒ Between stream/lake and other human use (1)  
☐ Part of wetland/upland (e.g. forest) complex (1)  
☒ Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check and av

- ☐ Semi-to permanently inundated/saturated (4)  
☐ Regularly inundated/saturated (3)  
☒ Seasonally inundated (2)  
☐ Seasonally saturated in upper 30cm (12in) (1)

Check all disturbances observed		
<input type="checkbox"/>	ditch	<input type="checkbox"/> point source (non-stormwater)
<input checked="" type="checkbox"/>	tile	<input type="checkbox"/> filling/grading
<input checked="" type="checkbox"/>	dike	<input type="checkbox"/> road bed/RR track
<input type="checkbox"/>	weir	<input checked="" type="checkbox"/> dredging
<input type="checkbox"/>	stormwater input	<input type="checkbox"/> other

**10.0 33.0 Metric 4. Habitat Alteration and Development**

Max (20) subtotal

4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (4)  
☒ Recovered (3)  
☐ Recovering (2)  
☐ Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- ☐ Excellent (7)  
☐ Very good (6)  
☐ Good (5)  
☐ Moderately good (4)  
☐ Fair (3)  
☐ Poor to fair (2)  
☒ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☐ None or none apparent (9)  
☒ Recovered (6)  
☐ Recovering (3)  
☐ Recent or no recovery (1)

Check all disturbances observed		
<input type="checkbox"/>	mowing	<input type="checkbox"/> shrub/sapling removal
<input type="checkbox"/>	grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input type="checkbox"/>	clearcutting	<input type="checkbox"/> sedimentation
<input type="checkbox"/>	selective cutting	<input checked="" type="checkbox"/> dredging
<input type="checkbox"/>	woody debris removal	<input type="checkbox"/> farming
<input type="checkbox"/>	toxic pollutants	<input type="checkbox"/> nutrient enrichment

**33.0**

Subtotal this page



**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 9/26/2008

**Wetland Site:** 11

**State:** Ohio

**County:** Hamilton

**Description:** Emergent

**Location:** See Figure 3a

**33.0**

subtotal first page

**0.0**
**33.0**
**Metric 5. Special Wetlands**

Max (10)

subtotal

Check all that apply and score as indicated

- ☐ Bog (10)  
☐ Fen (10)  
☐ Old growth forest (10)  
☐ Mature forested wetland (5)  
☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)  
☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)  
☐ Lake Plain Sand Prairies (Oak Openings) (10)  
☐ Relict Wet Prairies (10)  
☐ Known occurrence state/federal threatened or endangered species (10)  
☐ Significant migratory songbird/waterfowl habitat or usage (10)  
☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

**3.0**
**36.0**
**Metric 6. Plant Communities, interspersed, microtopography**

Max (20)

subtotal

**6a. Wetland Vegetation Communities**

Score all present using 0 to 3 scale.

- ☐ 0 Aquatic bed  
☐ 1 Emergent  
☐ 0 Shrub  
☐ 0 Forest  
☐ 0 Mudflats  
☐ 0 Open water  
☐ 0 Other

**6b. Horizontal (plan view) Interspersion**

Select only one.

- ☐ High (5)  
☐ Moderately high (4)  
☐ Moderate (3)  
☐ Moderately low (2)  
☐ Low (1)  
☒ X None (0)

6c. Coverage of Invasive Plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage.

- ☐ Extensive >75% cover (-5)  
☐ Moderate 25-75% cover (-3)  
☐ Sparse 5-25% cover (-1)  
☐ Nearly absent <5% cover (0)  
☒ X Absent (1)

**6d. Microtopography**

Score all present using 0 to 3 scale.

- ☐ 0 Vegetated hummocks/tussocks  
☐ 1 Coarse woody debris >15 cm (6 in)  
☐ 0 Standing dead >25 cm (10 in) dbh  
☐ 0 Amphibian breeding pools

**Vegetation Community Cover Scale**

0	Absent or comprises <0.1ha (0.2471ac) contiguous area)
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

**Narrative Description of Vegetation Quality**

low	Low spp diversity and/or predominance of non-native or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with non-native spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

**Mudflat and Open Water Class Quality**

0	Absent <0.1 ha (0.247 acres)
1	Low 0.1 to <1 ha (0.247 to 2.47 acres)
2	Moderate 1 to <4 ha (2.47 to 9.88 acres)
3	High 4 ha (9.88 acres) or more

**Microtopography Cover Scale**

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

**36.0**
**GRAND TOTAL (max 100 pts)**

**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 9/29/2008

**Wetland Site:** 12

**State:** Ohio

**County:** Hamilton

**Description:** Forested/Emergent

**Location:** See Figure 3c

**2.0 2.0 Metric 1. Wetland Area (size)**

Max (6)

subtotal

Select one size class and assign score

- ☐ >50 acres (>20.2 ha) (6 pts)  
☐ 25 to <50 acres (10.1 to < 20.2 ha) (5 pts)  
☐ 10 to <25 acres (4 to <10.1 ha) (4 pts)  
☐ 3 to <10 acres (1.2 to <4 ha) (3 pts)  
☒ 0.3 to <3 acres (0.12 to <1.2 ha) (2 pts)  
☐ 0.1 to <0.3 acres (0.04 to <0.12 ha) (1 pt)  
☐ < 0.1 acres (0.04 ha) (0 pts)

**12.0 14.0 Metric 2. Upland Buffers and Surrounding Land Use**

Max (14)

subtotal

2a. Calculate average buffer width. Select only one and assign score. Do not double check

- ☒ WIDE. Buffers average 50 m (164 ft) or more around wetland perimeter (7)  
☐ MEDIUM. Buffers average 25 m to <50 m (82 to <164 ft) around wetland perimeter (4)  
☐ NARROW. Buffers average 10 m to <25 m (32 to <82 ft) around wetland perimeter (1)  
☐ VERY NARROW. Buffers average <10 m (<32 ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)  
☒ LOW. Old field (>10 years), shrubland, young second growth forest (5)  
☐ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field (3)  
☐ HIGH. Urban, industrial, open pasture, row cropping, mining, construction (1)

**19.0 33.0 Metric 3. Hydrology**

Max (30)

subtotal

3a. Sources of water. Score all that apply.

- ☐ High pH groundwater (5)  
☐ Other groundwater (3)  
☒ Precipitation (1)  
☒ Seasonal/Intermittent surface water (3)  
☐ Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score

- ☐ >0.7 (27.6 in) (3)  
☒ 0.4 to 0.7 m (15.7 to 27.6 in) (2)  
☐ <0.4 m (<15.7 in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- ☐ None or none apparent (12)  
☒ Recovered (7)  
☐ Recovering (3)  
☐ Recent or no recovery (1)

3b. Connectivity. Score all that apply.

- ☒ 100 year floodplain (1)  
☒ Between stream/lake and other human use (1)  
☐ Part of wetland/upland (e.g. forest) complex (1)  
☒ Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check and av

- ☐ Semi-to permanently inundated/saturated (4)  
☒ Regularly inundated/saturated (3)  
☐ Seasonally inundated (2)  
☐ Seasonally saturated in upper 30cm (12in) (1)

Check all disturbances observed		
<input type="checkbox"/>	ditch	<input type="checkbox"/> point source (non-stormwater)
<input checked="" type="checkbox"/>	tile	<input type="checkbox"/> filling/grading
<input checked="" type="checkbox"/>	dike	<input type="checkbox"/> road bed/RR track
<input type="checkbox"/>	weir	<input type="checkbox"/> dredging
<input type="checkbox"/>	stormwater input	<input type="checkbox"/> other

**12.0 45.0 Metric 4. Habitat Alteration and Development**

Max (20)

subtotal

4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (4)  
☒ Recovered (3)  
☐ Recovering (2)  
☐ Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- ☐ Excellent (7)  
☐ Very good (6)  
☐ Good (5)  
☐ Moderately good (4)  
☒ Fair (3)  
☐ Poor to fair (2)  
☐ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☐ None or none apparent (9)  
☒ Recovered (6)  
☐ Recovering (3)  
☐ Recent or no recovery (1)

Check all disturbances observed		
<input type="checkbox"/>	mowing	<input type="checkbox"/> shrub/sapling removal
<input type="checkbox"/>	grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input type="checkbox"/>	clearcutting	<input type="checkbox"/> sedimentation
<input type="checkbox"/>	selective cutting	<input checked="" type="checkbox"/> dredging
<input type="checkbox"/>	woody debris removal	<input type="checkbox"/> farming
<input type="checkbox"/>	toxic pollutants	<input type="checkbox"/> nutrient enrichment

**45.0**

Subtotal this page

**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 9/29/2008

**Wetland Site:** 12

**State:** Ohio

**County:** Hamilton

**Description:** Forested/Emergent

**Location:** See Figure 3c

**45.0**

subtotal first page

**0.0**
**45.0**
**Metric 5. Special Wetlands**

Max (10)

subtotal

Check all that apply and score as indicated

- ☐ Bog (10)  
☐ Fen (10)  
☐ Old growth forest (10)  
☐ Mature forested wetland (5)  
☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)  
☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)  
☐ Lake Plain Sand Prairies (Oak Openings) (10)  
☐ Relict Wet Prairies (10)  
☐ Known occurrence state/federal threatened or endangered species (10)  
☐ Significant migratory songbird/waterfowl habitat or usage (10)  
☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

**8.0**
**53.0**
**Metric 6. Plant Communities, interspersation, microtopography**

Max (20)

subtotal

**6a. Wetland Vegetation Communities**

Score all present using 0 to 3 scale.

- ☐ 0 Aquatic bed  
☐ 1 Emergent  
☐ 0 Shrub  
☐ 1 Forest  
☐ 1 Mudflats  
☐ 0 Open water  
☐ 0 Other

**6b. Horizontal (plan view) Interspersion**

Select only one.

- ☐ High (5)  
☐ Moderately high (4)  
☐ Moderate (3)  
☐ Moderately low (2)  
☒ X Low (1)  
☐ None (0)

**6c. Coverage of Invasive Plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage.**

- ☐ Extensive >75% cover (-5)  
☐ Moderate 25-75% cover (-3)  
☐ Sparse 5-25% cover (-1)  
☐ Nearly absent <5% cover (0)  
☒ X Absent (1)

**6d. Microtopography**

Score all present using 0 to 3 scale.

- ☐ 1 Vegetated hummocks/tussucks  
☐ 2 Coarse woody debris >15 cm (6 in)  
☐ 0 Standing dead >25 cm (10 in) dbh  
☐ 0 Amphibian breeding pools

**Vegetation Community Cover Scale**

- |   |   |
|---|---|
| 0 | Absent or comprises <0.1ha (0.2471ac) contiguous area   |
| 1 | Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality |
| 2 | Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is high quality    |
| 3 | Present and comprises significant part, or more, of wetland's vegetation and is of high quality   |

**Narrative Description of Vegetation Quality**

- |      |  |
|------|--|
| low  | Low spp diversity and/or predominance of non-native or disturbance tolerant native species   |
| mod  | Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp |
| high | A predominance of native species, with non-native spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp                         |

**Mudflat and Open Water Class Quality**

- |   |  |
|---|--|
| 0 | Absent <0.1 ha (0.247 acres)             |
| 1 | Low 0.1 to <1 ha (0.247 to 2.47 acres)   |
| 2 | Moderate 1 to <4 ha (2.47 to 9.88 acres) |
| 3 | High 4 ha (9.88 acres) or more           |

**Microtopography Cover Scale**

- |   |  |
|---|--|
| 0 | Absent   |
| 1 | Present very small amounts or if more common of marginal quality                               |
| 2 | Present in moderate amounts, but not of highest quality or in small amounts of highest quality |
| 3 | Present in moderate or greater amounts and of highest quality                                  |

**53.0**
**GRAND TOTAL (max 100 pts)**

**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 9/29/2008

**Wetland Site:** 13

**State:** Ohio

**County:** Hamilton

**Description:** Emergent

**Location:** See Figure 3c

**0.0 0.0 Metric 1. Wetland Area (size)**

Max (6)

subtotal

Select one size class and assign score

- ☐ >50 acres (>20.2 ha) (6 pts)  
☐ 25 to <50 acres (10.1 to < 20.2 ha) (5 pts)  
☐ 10 to <25 acres (4 to <10.1 ha) (4 pts)  
☐ 3 to <10 acres (1.2 to <4 ha) (3 pts)  
☐ 0.3 to <3 acres (0.12 to <1.2 ha) (2 pts)  
☐ 0.1 to <0.3 acres (0.04 to <0.12 ha) (1 pt)  
☒ < 0.1 acres (0.04 ha) (0 pts)

**12.0 12.0 Metric 2. Upland Buffers and Surrounding Land Use**

Max (14)

subtotal

2a. Calculate average buffer width. Select only one and assign score. Do not double check

- ☒ WIDE. Buffers average 50 m (164 ft) or more around wetland perimeter (7)  
☐ MEDIUM. Buffers average 25 m to <50 m (82 to <164 ft) around wetland perimeter (4)  
☐ NARROW. Buffers average 10 m to <25 m (32 to <82 ft) around wetland perimeter (1)  
☐ VERY NARROW. Buffers average <10 m (<32 ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)  
☒ LOW. Old field (>10 years), shrubland, young second growth forest (5)  
☐ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field (3)  
☐ HIGH. Urban, industrial, open pasture, row cropping, mining, construction (1)

**18.0 30.0 Metric 3. Hydrology**

Max (30)

subtotal

3a. Sources of water. Score all that apply.

- ☐ High pH groundwater (5)  
☐ Other groundwater (3)  
☒ Precipitation (1)  
☒ Seasonal/Intermittent surface water (3)  
☐ Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score

- ☐ >0.7 (27.6 in) (3)  
☒ 0.4 to 0.7 m (15.7 to 27.6 in) (2)  
☐ <0.4 m (<15.7 in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- ☐ None or none apparent (12)  
☒ Recovered (7)  
☐ Recovering (3)  
☐ Recent or no recovery (1)

3b. Connectivity. Score all that apply.

- ☒ 100 year floodplain (1)  
☒ Between stream/lake and other human use (1)  
☐ Part of wetland/upland (e.g. forest) complex (1)  
☒ Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check and av

- ☐ Semi-to permanently inundated/saturated (4)  
☐ Regularly inundated/saturated (3)  
☒ Seasonally inundated (2)  
☐ Seasonally saturated in upper 30cm (12in) (1)

Check all disturbances observed		
<input type="checkbox"/>	ditch	<input type="checkbox"/> point source (non-stormwater)
<input checked="" type="checkbox"/>	tile	<input type="checkbox"/> filling/grading
<input type="checkbox"/>	dike	<input type="checkbox"/> road bed/RR track
<input type="checkbox"/>	weir	<input checked="" type="checkbox"/> dredging
<input type="checkbox"/>	stormwater input	<input type="checkbox"/> other

**10.0 40.0 Metric 4. Habitat Alteration and Development**

Max (20)

subtotal

4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (4)  
☒ Recovered (3)  
☐ Recovering (2)  
☐ Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- ☐ Excellent (7)  
☐ Very good (6)  
☐ Good (5)  
☐ Moderately good (4)  
☐ Fair (3)  
☐ Poor to fair (2)  
☒ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☐ None or none apparent (9)  
☒ Recovered (6)  
☐ Recovering (3)  
☐ Recent or no recovery (1)

Check all disturbances observed		
<input type="checkbox"/>	mowing	<input type="checkbox"/> shrub/sapling removal
<input type="checkbox"/>	grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input type="checkbox"/>	clearcutting	<input type="checkbox"/> sedimentation
<input type="checkbox"/>	selective cutting	<input checked="" type="checkbox"/> dredging
<input type="checkbox"/>	woody debris removal	<input type="checkbox"/> farming
<input type="checkbox"/>	toxic pollutants	<input type="checkbox"/> nutrient enrichment

**40.0**

Subtotal this page

**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 9/29/2008

**Wetland Site:** 13

**State:** Ohio

**County:** Hamilton

**Description:** Emergent

**Location:** See Figure 3c

**40.0**

subtotal first page

**0.0**
**40.0**
**Metric 5. Special Wetlands**

Max (10)

subtotal

Check all that apply and score as indicated

- ☐ Bog (10)  
☐ Fen (10)  
☐ Old growth forest (10)  
☐ Mature forested wetland (5)  
☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)  
☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)  
☐ Lake Plain Sand Prairies (Oak Openings) (10)  
☐ Relict Wet Prairies (10)  
☐ Known occurrence state/federal threatened or endangered species (10)  
☐ Significant migratory songbird/waterfowl habitat or usage (10)  
☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

**3.0**
**43.0**
**Metric 6. Plant Communities, interspersions, microtopography**

Max (20)

subtotal

**6a. Wetland Vegetation Communities**

Score all present using 0 to 3 scale.

- ☐ 0 Aquatic bed  
☐ 1 Emergent  
☐ 0 Shrub  
☐ 0 Forest  
☐ 0 Mudflats  
☐ 0 Open water  
☐ 0 Other

**6b. Horizontal (plan view) Interspersion**

Select only one.

- ☐ High (5)  
☐ Moderately high (4)  
☐ Moderate (3)  
☐ Moderately low (2)  
☐ Low (1)  
☒ X None (0)

6c. Coverage of Invasive Plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage.

- ☐ Extensive >75% cover (-5)  
☐ Moderate 25-75% cover (-3)  
☐ Sparse 5-25% cover (-1)  
☐ Nearly absent <5% cover (0)  
☒ X Absent (1)

**6d. Microtopography**

Score all present using 0 to 3 scale.

- ☐ 0 Vegetated hummocks/tussucks  
☐ 1 Coarse woody debris >15 cm (6 in)  
☐ 0 Standing dead >25 cm (10 in) dbh  
☐ 0 Amphibian breeding pools

**Vegetation Community Cover Scale**

- |   |   |
|---|---|
| 0 | Absent or comprises <0.1ha (0.2471ac) contiguous area   |
| 1 | Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality |
| 2 | Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is high quality    |
| 3 | Present and comprises significant part, or more, of wetland's vegetation and is of high quality   |

**Narrative Description of Vegetation Quality**

- |      |  |
|------|--|
| low  | Low spp diversity and/or predominance of non-native or disturbance tolerant native species   |
| mod  | Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp |
| high | A predominance of native species, with non-native spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp                         |

**Mudflat and Open Water Class Quality**

- |   |  |
|---|--|
| 0 | Absent <0.1 ha (0.247 acres)             |
| 1 | Low 0.1 to <1 ha (0.247 to 2.47 acres)   |
| 2 | Moderate 1 to <4 ha (2.47 to 9.88 acres) |
| 3 | High 4 ha (9.88 acres) or more           |

**Microtopography Cover Scale**

- |   |  |
|---|--|
| 0 | Absent   |
| 1 | Present very small amounts or if more common of marginal quality                               |
| 2 | Present in moderate amounts, but not of highest quality or in small amounts of highest quality |
| 3 | Present in moderate or greater amounts and of highest quality                                  |

**43.0**
**GRAND TOTAL (max 100 pts)**



**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 9/29/2008

**Wetland Site:** 14

**State:** Ohio

**County:** Hamilton

**Description:** Emergent

**Location:** See Figure 3c

<b>0.0</b>	<b>0.0</b>	<b>Metric 1. Wetland Area (size)</b>
------------	------------	--------------------------------------

Max (6) subtotal Select one size class and assign score

- |                                     |   |
|-------------------------------------|---|
| <input type="checkbox"/>            | >50 acres (>20.2 ha) (6 pts)                |
| <input type="checkbox"/>            | 25 to <50 acres (10.1 to < 20.2 ha) (5 pts) |
| <input type="checkbox"/>            | 10 to <25 acres (4 to <10.1 ha) (4 pts)     |
| <input type="checkbox"/>            | 3 to <10 acres (1.2 to <4 ha) (3 pts)       |
| <input type="checkbox"/>            | 0.3 to <3 acres (0.12 to <1.2 ha) (2 pts)   |
| <input type="checkbox"/>            | 0.1 to <0.3 acres (0.04 to <0.12 ha) (1 pt) |
| <input checked="" type="checkbox"/> | < 0.1 acres (0.04 ha) (0 pts)               |

<b>9.0</b>	<b>9.0</b>	<b>Metric 2. Upland Buffers and Surrounding Land Use</b>
------------	------------	--

Max (14) subtotal 2a. Calculate average buffer width. Select only one and assign score. Do not double check

- |                                     |  |
|-------------------------------------|--|
| <input type="checkbox"/>            | WIDE. Buffers average 50 m (164 ft) or more around wetland perimeter (7)           |
| <input checked="" type="checkbox"/> | MEDIUM. Buffers average 25 m to <50 m (82 to <164 ft) around wetland perimeter (4) |
| <input type="checkbox"/>            | NARROW. Buffers average 10 m to <25 m (32 to <82 ft) around wetland perimeter (1)  |
| <input type="checkbox"/>            | VERY NARROW. Buffers average <10 m (<32 ft) around wetland perimeter (0)           |

2b. Intensity of surrounding land use. Select one or double check and average.

- |                                     |  |
|-------------------------------------|--|
| <input type="checkbox"/>            | VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)               |
| <input checked="" type="checkbox"/> | LOW. Old field (>10 years), shrubland, young second growth forest (5)                          |
| <input type="checkbox"/>            | MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field (3) |
| <input type="checkbox"/>            | HIGH. Urban, industrial, open pasture, row cropping, mining, construction (1)                  |

<b>18.0</b>	<b>27.0</b>	<b>Metric 3. Hydrology</b>
-------------	-------------	----------------------------

Max (30) subtotal 3a. Sources of water. Score all that apply.

- |                                     |  |
|-------------------------------------|--|
| <input type="checkbox"/>            | High pH groundwater (5)                      |
| <input type="checkbox"/>            | Other groundwater (3)                        |
| <input checked="" type="checkbox"/> | Precipitation (1)                            |
| <input checked="" type="checkbox"/> | Seasonal/Intermittent surface water (3)      |
| <input type="checkbox"/>            | Perennial surface water (lake or stream) (5) |

3c. Maximum water depth. Select only one and assign score

- |                                     |                                    |
|-------------------------------------|------------------------------------|
| <input type="checkbox"/>            | >0.7 (27.6 in) (3)                 |
| <input checked="" type="checkbox"/> | 0.4 to 0.7 m (15.7 to 27.6 in) (2) |
| <input type="checkbox"/>            | <0.4 m (<15.7 in) (1)              |

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- |                                     |                            |
|-------------------------------------|----------------------------|
| <input type="checkbox"/>            | None or none apparent (12) |
| <input checked="" type="checkbox"/> | Recovered (7)              |
| <input type="checkbox"/>            | Recovering (3)             |
| <input type="checkbox"/>            | Recent or no recovery (1)  |

Check all disturbances observed

- |                                     |                  |                                     |                               |
|-------------------------------------|------------------|-------------------------------------|-------------------------------|
| <input type="checkbox"/>            | ditch            | <input type="checkbox"/>            | point source (non-stormwater) |
| <input checked="" type="checkbox"/> | tile             | <input type="checkbox"/>            | filling/grading               |
| <input checked="" type="checkbox"/> | dike             | <input type="checkbox"/>            | road bed/RR track             |
| <input type="checkbox"/>            | weir             | <input checked="" type="checkbox"/> | dredging                      |
| <input type="checkbox"/>            | stormwater input | <input type="checkbox"/>            | other                         |

3b. Connectivity. Score all that apply.

- |                                     |  |
|-------------------------------------|--|
| <input checked="" type="checkbox"/> | 100 year floodplain (1)                          |
| <input checked="" type="checkbox"/> | Between stream/lake and other human use (1)      |
| <input type="checkbox"/>            | Part of wetland/upland (e.g. forest) complex (1) |
| <input checked="" type="checkbox"/> | Part of riparian or upland corridor (1)          |

3d. Duration inundation/saturation. Score one or dbl check and av

- |                                     |   |
|-------------------------------------|---|
| <input type="checkbox"/>            | Semi-to permanently inundated/saturated (4)   |
| <input type="checkbox"/>            | Regularly inundated/saturated (3)             |
| <input checked="" type="checkbox"/> | Seasonally inundated (2)                      |
| <input type="checkbox"/>            | Seasonally saturated in upper 30cm (12in) (1) |

<b>10.0</b>	<b>37.0</b>	<b>Metric 4. Habitat Alteration and Development</b>
-------------	-------------	---

Max (20) subtotal 4a. Substrate disturbance. Score one or double check and average.

- |                                     |                           |
|-------------------------------------|---------------------------|
| <input type="checkbox"/>            | None or none apparent (4) |
| <input checked="" type="checkbox"/> | Recovered (3)             |
| <input type="checkbox"/>            | Recovering (2)            |
| <input type="checkbox"/>            | Recent or no recovery (1) |

4b. Habitat development. Select only one and assign score.

- |                                     |                     |
|-------------------------------------|---------------------|
| <input type="checkbox"/>            | Excellent (7)       |
| <input type="checkbox"/>            | Very good (6)       |
| <input type="checkbox"/>            | Good (5)            |
| <input type="checkbox"/>            | Moderately good (4) |
| <input type="checkbox"/>            | Fair (3)            |
| <input type="checkbox"/>            | Poor to fair (2)    |
| <input checked="" type="checkbox"/> | Poor (1)            |

4c. Habitat alteration. Score one or double check and average.

- |                                     |                           |
|-------------------------------------|---------------------------|
| <input type="checkbox"/>            | None or none apparent (9) |
| <input checked="" type="checkbox"/> | Recovered (6)             |
| <input type="checkbox"/>            | Recovering (3)            |
| <input type="checkbox"/>            | Recent or no recovery (1) |

Check all disturbances observed

- |                          |                      |                                     |                                |
|--------------------------|----------------------|-------------------------------------|--------------------------------|
| <input type="checkbox"/> | mowing               | <input type="checkbox"/>            | shrub/sapling removal          |
| <input type="checkbox"/> | grazing              | <input type="checkbox"/>            | herbaceous/aquatic bed removal |
| <input type="checkbox"/> | clearcutting         | <input type="checkbox"/>            | sedimentation                  |
| <input type="checkbox"/> | selective cutting    | <input checked="" type="checkbox"/> | dredging                       |
| <input type="checkbox"/> | woody debris removal | <input type="checkbox"/>            | farming                        |
| <input type="checkbox"/> | toxic pollutants     | <input type="checkbox"/>            | nutrient enrichment            |

**37.0**

Subtotal this page

**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 9/29/2008

**Wetland Site:** 14

**State:** Ohio

**County:** Hamilton

**Description:** Emergent

**Location:** See Figure 3c

**37.0**

subtotal first page

**0.0**
**37.0**
**Metric 5. Special Wetlands**

Max (10)

subtotal

Check all that apply and score as indicated

- ☐ Bog (10)  
☐ Fen (10)  
☐ Old growth forest (10)  
☐ Mature forested wetland (5)  
☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)  
☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)  
☐ Lake Plain Sand Prairies (Oak Openings) (10)  
☐ Relict Wet Prairies (10)  
☐ Known occurrence state/federal threatened or endangered species (10)  
☐ Significant migratory songbird/waterfowl habitat or usage (10)  
☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

**2.0**
**39.0**
**Metric 6. Plant Communities, interspersation, microtopography**

Max (20)

subtotal

**6a. Wetland Vegetation Communities**

Score all present using 0 to 3 scale.

- ☐ 0 Aquatic bed  
☐ 1 Emergent  
☐ 0 Shrub  
☐ 0 Forest  
☐ 0 Mudflats  
☐ 0 Open water  
☐ 0 Other

**6b. Horizontal (plan view) Interspersion**

Select only one.

- ☐ High (5)  
☐ Moderately high (4)  
☐ Moderate (3)  
☐ Moderately low (2)  
☐ Low (1)  
☒ X None (0)

6c. Coverage of Invasive Plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage.

- ☐ Extensive >75% cover (-5)  
☐ Moderate 25-75% cover (-3)  
☐ Sparse 5-25% cover (-1)  
☐ Nearly absent <5% cover (0)  
☒ X Absent (1)

**6d. Microtopography**

Score all present using 0 to 3 scale.

- ☐ 0 Vegetated hummocks/tussucks  
☐ 0 Coarse woody debris >15 cm (6 in)  
☐ 0 Standing dead >25 cm (10 in) dbh  
☐ 0 Amphibian breeding pools

**Vegetation Community Cover Scale**

- |   |   |
|---|---|
| 0 | Absent or comprises <0.1ha (0.2471ac) contiguous area)  |
| 1 | Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality |
| 2 | Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is high quality    |
| 3 | Present and comprises significant part, or more, of wetland's vegetation and is of high quality   |

**Narrative Description of Vegetation Quality**

- |      |  |
|------|--|
| low  | Low spp diversity and/or predominance of non-native or disturbance tolerant native species   |
| mod  | Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp |
| high | A predominance of native species, with non-native spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp                         |

**Mudflat and Open Water Class Quality**

- |   |  |
|---|--|
| 0 | Absent <0.1 ha (0.247 acres)             |
| 1 | Low 0.1 to <1 ha (0.247 to 2.47 acres)   |
| 2 | Moderate 1 to <4 ha (2.47 to 9.88 acres) |
| 3 | High 4 ha (9.88 acres) or more           |

**Microtopography Cover Scale**

- |   |  |
|---|--|
| 0 | Absent   |
| 1 | Present very small amounts or if more common of marginal quality                               |
| 2 | Present in moderate amounts, but not of highest quality or in small amounts of highest quality |
| 3 | Present in moderate or greater amounts and of highest quality                                  |

**39.0**
**GRAND TOTAL (max 100 pts)**

**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 9/29/2008

**Wetland Site:** 15

**State:** Ohio

**County:** Hamilton

**Description:** Emergent

**Location:** See Figure 3c

**0.0 0.0 Metric 1. Wetland Area (size)**

Max (6) subtotal

Select one size class and assign score

- ☐ >50 acres (>20.2 ha) (6 pts)  
☐ 25 to <50 acres (10.1 to < 20.2 ha) (5 pts)  
☐ 10 to <25 acres (4 to <10.1 ha) (4 pts)  
☐ 3 to <10 acres (1.2 to <4 ha) (3 pts)  
☐ 0.3 to <3 acres (0.12 to <1.2 ha) (2 pts)  
☐ 0.1 to <0.3 acres (0.04 to <0.12 ha) (1 pt)  
☒ < 0.1 acres (0.04 ha) (0 pts)

**9.0 9.0 Metric 2. Upland Buffers and Surrounding Land Use**

Max (14) subtotal

2a. Calculate average buffer width. Select only one and assign score. Do not double check

- ☐ WIDE. Buffers average 50 m (164 ft) or more around wetland perimeter (7)  
☒ MEDIUM. Buffers average 25 m to <50 m (82 to <164 ft) around wetland perimeter (4)  
☐ NARROW. Buffers average 10 m to <25 m (32 to <82 ft) around wetland perimeter (1)  
☐ VERY NARROW. Buffers average <10 m (<32 ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)  
☒ LOW. Old field (>10 years), shrubland, young second growth forest (5)  
☐ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field (3)  
☐ HIGH. Urban, industrial, open pasture, row cropping, mining, construction (1)

**18.0 27.0 Metric 3. Hydrology**

Max (30) subtotal

3a. Sources of water. Score all that apply.

- ☐ High pH groundwater (5)  
☐ Other groundwater (3)  
☒ Precipitation (1)  
☒ Seasonal/Intermittent surface water (3)  
☐ Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score

- ☐ >0.7 (27.6 in) (3)  
☒ 0.4 to 0.7 m (15.7 to 27.6 in) (2)  
☐ <0.4 m (<15.7 in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- ☐ None or none apparent (12)  
☒ Recovered (7)  
☐ Recovering (3)  
☐ Recent or no recovery (1)

3b. Connectivity. Score all that apply.

- ☒ 100 year floodplain (1)  
☒ Between stream/lake and other human use (1)  
☐ Part of wetland/upland (e.g. forest) complex (1)  
☒ Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check and av

- ☐ Semi-to permanently inundated/saturated (4)  
☐ Regularly inundated/saturated (3)  
☒ Seasonally inundated (2)  
☐ Seasonally saturated in upper 30cm (12in) (1)

Check all disturbances observed		
<input type="checkbox"/>	ditch	<input type="checkbox"/> point source (non-stormwater)
<input checked="" type="checkbox"/>	tile	<input type="checkbox"/> filling/grading
<input checked="" type="checkbox"/>	dike	<input type="checkbox"/> road bed/RR track
<input type="checkbox"/>	weir	<input checked="" type="checkbox"/> dredging
<input type="checkbox"/>	stormwater input	<input type="checkbox"/> other

**10.0 37.0 Metric 4. Habitat Alteration and Development**

Max (20) subtotal

4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (4)  
☒ Recovered (3)  
☐ Recovering (2)  
☐ Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- ☐ Excellent (7)  
☐ Very good (6)  
☐ Good (5)  
☐ Moderately good (4)  
☐ Fair (3)  
☐ Poor to fair (2)  
☒ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☐ None or none apparent (9)  
☒ Recovered (6)  
☐ Recovering (3)  
☐ Recent or no recovery (1)

Check all disturbances observed		
<input type="checkbox"/>	mowing	<input type="checkbox"/> shrub/sapling removal
<input type="checkbox"/>	grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input type="checkbox"/>	clearcutting	<input type="checkbox"/> sedimentation
<input type="checkbox"/>	selective cutting	<input checked="" type="checkbox"/> dredging
<input type="checkbox"/>	woody debris removal	<input type="checkbox"/> farming
<input type="checkbox"/>	toxic pollutants	<input type="checkbox"/> nutrient enrichment

**37.0**

Subtotal this page

**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 9/29/2008

**Wetland Site:** 15

**State:** Ohio

**County:** Hamilton

**Description:** Emergent

**Location:** See Figure 3c

**37.0**

subtotal first page

**0.0**
**37.0**
**Metric 5. Special Wetlands**

Max (10)

subtotal

Check all that apply and score as indicated

- ☐ Bog (10)  
☐ Fen (10)  
☐ Old growth forest (10)  
☐ Mature forested wetland (5)  
☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)  
☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)  
☐ Lake Plain Sand Prairies (Oak Openings) (10)  
☐ Relict Wet Prairies (10)  
☐ Known occurrence state/federal threatened or endangered species (10)  
☐ Significant migratory songbird/waterfowl habitat or usage (10)  
☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

**4.0**
**41.0**
**Metric 6. Plant Communities, interspersed, microtopography**

Max (20)

subtotal

**6a. Wetland Vegetation Communities**

Score all present using 0 to 3 scale.

- ☐ 0 Aquatic bed  
☐ 1 Emergent  
☐ 0 Shrub  
☐ 0 Forest  
☐ 0 Mudflats  
☐ 0 Open water  
☐ 0 Other

**6b. Horizontal (plan view) Interspersion**

Select only one.

- ☐ High (5)  
☐ Moderately high (4)  
☐ Moderate (3)  
☐ Moderately low (2)  
☐ Low (1)  
☒ X None (0)

6c. Coverage of Invasive Plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage.

- ☐ Extensive >75% cover (-5)  
☐ Moderate 25-75% cover (-3)  
☐ Sparse 5-25% cover (-1)  
☐ Nearly absent <5% cover (0)  
☒ X Absent (1)

**6d. Microtopography**

Score all present using 0 to 3 scale.

- ☐ 0 Vegetated hummocks/tussocks  
☐ 2 Coarse woody debris >15 cm (6 in)  
☐ 0 Standing dead >25 cm (10 in) dbh  
☐ 0 Amphibian breeding pools

**Vegetation Community Cover Scale**

- |   |   |
|---|---|
| 0 | Absent or comprises <0.1ha (0.2471ac) contiguous area   |
| 1 | Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality |
| 2 | Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is high quality    |
| 3 | Present and comprises significant part, or more, of wetland's vegetation and is of high quality   |

**Narrative Description of Vegetation Quality**

- |      |  |
|------|--|
| low  | Low spp diversity and/or predominance of non-native or disturbance tolerant native species   |
| mod  | Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp |
| high | A predominance of native species, with non-native spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp                         |

**Mudflat and Open Water Class Quality**

- |   |  |
|---|--|
| 0 | Absent <0.1 ha (0.247 acres)             |
| 1 | Low 0.1 to <1 ha (0.247 to 2.47 acres)   |
| 2 | Moderate 1 to <4 ha (2.47 to 9.88 acres) |
| 3 | High 4 ha (9.88 acres) or more           |

**Microtopography Cover Scale**

- |   |  |
|---|--|
| 0 | Absent   |
| 1 | Present very small amounts or if more common of marginal quality                               |
| 2 | Present in moderate amounts, but not of highest quality or in small amounts of highest quality |
| 3 | Present in moderate or greater amounts and of highest quality                                  |

**41.0**
**GRAND TOTAL (max 100 pts)**

**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 9/29/2008

**Wetland Site:** 16

**State:** Ohio

**County:** Hamilton

**Description:** Emergent

**Location:** See Figure 3c

<b>0.0</b>	<b>0.0</b>	<b>Metric 1. Wetland Area (size)</b>
------------	------------	--------------------------------------

Max (6) subtotal Select one size class and assign score

- |                                     |   |
|-------------------------------------|---|
| <input type="checkbox"/>            | >50 acres (>20.2 ha) (6 pts)                |
| <input type="checkbox"/>            | 25 to <50 acres (10.1 to < 20.2 ha) (5 pts) |
| <input type="checkbox"/>            | 10 to <25 acres (4 to <10.1 ha) (4 pts)     |
| <input type="checkbox"/>            | 3 to <10 acres (1.2 to <4 ha) (3 pts)       |
| <input type="checkbox"/>            | 0.3 to <3 acres (0.12 to <1.2 ha) (2 pts)   |
| <input type="checkbox"/>            | 0.1 to <0.3 acres (0.04 to <0.12 ha) (1 pt) |
| <input checked="" type="checkbox"/> | < 0.1 acres (0.04 ha) (0 pts)               |

<b>9.0</b>	<b>9.0</b>	<b>Metric 2. Upland Buffers and Surrounding Land Use</b>
------------	------------	--

Max (14) subtotal 2a. Calculate average buffer width. Select only one and assign score. Do not double check

- |                                     |  |
|-------------------------------------|--|
| <input type="checkbox"/>            | WIDE. Buffers average 50 m (164 ft) or more around wetland perimeter (7)           |
| <input checked="" type="checkbox"/> | MEDIUM. Buffers average 25 m to <50 m (82 to <164 ft) around wetland perimeter (4) |
| <input type="checkbox"/>            | NARROW. Buffers average 10 m to <25 m (32 to <82 ft) around wetland perimeter (1)  |
| <input type="checkbox"/>            | VERY NARROW. Buffers average <10 m (<32 ft) around wetland perimeter (0)           |

2b. Intensity of surrounding land use. Select one or double check and average.

- |                                     |  |
|-------------------------------------|--|
| <input type="checkbox"/>            | VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)               |
| <input checked="" type="checkbox"/> | LOW. Old field (>10 years), shrubland, young second growth forest (5)                          |
| <input type="checkbox"/>            | MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field (3) |
| <input type="checkbox"/>            | HIGH. Urban, industrial, open pasture, row cropping, mining, construction (1)                  |

<b>18.0</b>	<b>27.0</b>	<b>Metric 3. Hydrology</b>
-------------	-------------	----------------------------

Max (30) subtotal 3a. Sources of water. Score all that apply.

- |                                     |  |
|-------------------------------------|--|
| <input type="checkbox"/>            | High pH groundwater (5)                      |
| <input type="checkbox"/>            | Other groundwater (3)                        |
| <input checked="" type="checkbox"/> | Precipitation (1)                            |
| <input checked="" type="checkbox"/> | Seasonal/Intermittent surface water (3)      |
| <input type="checkbox"/>            | Perennial surface water (lake or stream) (5) |

3c. Maximum water depth. Select only one and assign score

- |                                     |                                    |
|-------------------------------------|------------------------------------|
| <input type="checkbox"/>            | >0.7 (27.6 in) (3)                 |
| <input checked="" type="checkbox"/> | 0.4 to 0.7 m (15.7 to 27.6 in) (2) |
| <input type="checkbox"/>            | <0.4 m (<15.7 in) (1)              |

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- |                                     |                            |
|-------------------------------------|----------------------------|
| <input type="checkbox"/>            | None or none apparent (12) |
| <input checked="" type="checkbox"/> | Recovered (7)              |
| <input type="checkbox"/>            | Recovering (3)             |
| <input type="checkbox"/>            | Recent or no recovery (1)  |

3b. Connectivity. Score all that apply.

- |                                     |  |
|-------------------------------------|--|
| <input checked="" type="checkbox"/> | 100 year floodplain (1)                          |
| <input checked="" type="checkbox"/> | Between stream/lake and other human use (1)      |
| <input type="checkbox"/>            | Part of wetland/upland (e.g. forest) complex (1) |
| <input checked="" type="checkbox"/> | Part of riparian or upland corridor (1)          |

3d. Duration inundation/saturation. Score one or dbl check and av

- |                                     |   |
|-------------------------------------|---|
| <input type="checkbox"/>            | Semi-to permanently inundated/saturated (4)   |
| <input type="checkbox"/>            | Regularly inundated/saturated (3)             |
| <input checked="" type="checkbox"/> | Seasonally inundated (2)                      |
| <input type="checkbox"/>            | Seasonally saturated in upper 30cm (12in) (1) |

Check all disturbances observed

- |                                     |                  |                                     |                               |
|-------------------------------------|------------------|-------------------------------------|-------------------------------|
| <input type="checkbox"/>            | ditch            | <input type="checkbox"/>            | point source (non-stormwater) |
| <input checked="" type="checkbox"/> | tile             | <input type="checkbox"/>            | filling/grading               |
| <input checked="" type="checkbox"/> | dike             | <input type="checkbox"/>            | road bed/RR track             |
| <input type="checkbox"/>            | weir             | <input checked="" type="checkbox"/> | dredging                      |
| <input type="checkbox"/>            | stormwater input | <input type="checkbox"/>            | other                         |

<b>10.0</b>	<b>37.0</b>	<b>Metric 4. Habitat Alteration and Development</b>
-------------	-------------	---

Max (20) subtotal 4a. Substrate disturbance. Score one or double check and average.

- |                                     |                           |
|-------------------------------------|---------------------------|
| <input type="checkbox"/>            | None or none apparent (4) |
| <input checked="" type="checkbox"/> | Recovered (3)             |
| <input type="checkbox"/>            | Recovering (2)            |
| <input type="checkbox"/>            | Recent or no recovery (1) |

4b. Habitat development. Select only one and assign score.

- |                                     |                     |
|-------------------------------------|---------------------|
| <input type="checkbox"/>            | Excellent (7)       |
| <input type="checkbox"/>            | Very good (6)       |
| <input type="checkbox"/>            | Good (5)            |
| <input type="checkbox"/>            | Moderately good (4) |
| <input type="checkbox"/>            | Fair (3)            |
| <input type="checkbox"/>            | Poor to fair (2)    |
| <input checked="" type="checkbox"/> | Poor (1)            |

4c. Habitat alteration. Score one or double check and average.

- |                                     |                           |
|-------------------------------------|---------------------------|
| <input type="checkbox"/>            | None or none apparent (9) |
| <input checked="" type="checkbox"/> | Recovered (6)             |
| <input type="checkbox"/>            | Recovering (3)            |
| <input type="checkbox"/>            | Recent or no recovery (1) |

Check all disturbances observed

- |                          |                      |                                     |                                |
|--------------------------|----------------------|-------------------------------------|--------------------------------|
| <input type="checkbox"/> | mowing               | <input type="checkbox"/>            | shrub/sapling removal          |
| <input type="checkbox"/> | grazing              | <input type="checkbox"/>            | herbaceous/aquatic bed removal |
| <input type="checkbox"/> | clearcutting         | <input type="checkbox"/>            | sedimentation                  |
| <input type="checkbox"/> | selective cutting    | <input checked="" type="checkbox"/> | dredging                       |
| <input type="checkbox"/> | woody debris removal | <input type="checkbox"/>            | farming                        |
| <input type="checkbox"/> | toxic pollutants     | <input type="checkbox"/>            | nutrient enrichment            |

**37.0**

Subtotal this page



**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 9/29/2008

**Wetland Site:** 16

**State:** Ohio

**County:** Hamilton

**Description:** Emergent

**Location:** See Figure 3c

**37.0**

subtotal first page

**0.0**
**37.0**
**Metric 5. Special Wetlands**

Max (10)

subtotal

Check all that apply and score as indicated

- ☐ Bog (10)  
☐ Fen (10)  
☐ Old growth forest (10)  
☐ Mature forested wetland (5)  
☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)  
☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)  
☐ Lake Plain Sand Prairies (Oak Openings) (10)  
☐ Relict Wet Prairies (10)  
☐ Known occurrence state/federal threatened or endangered species (10)  
☐ Significant migratory songbird/waterfowl habitat or usage (10)  
☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

**2.0**
**39.0**
**Metric 6. Plant Communities, interspersions, microtopography**

Max (20)

subtotal

**6a. Wetland Vegetation Communities**

Score all present using 0 to 3 scale.

- ☐ 0 Aquatic bed  
☐ 1 Emergent  
☐ 0 Shrub  
☐ 0 Forest  
☐ 0 Mudflats  
☐ 0 Open water  
☐ 0 Other

**6b. Horizontal (plan view) Interspersion**

Select only one.

- ☐ High (5)  
☐ Moderately high (4)  
☐ Moderate (3)  
☐ Moderately low (2)  
☐ Low (1)  
☒ X None (0)

6c. Coverage of Invasive Plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage.

- ☐ Extensive >75% cover (-5)  
☐ Moderate 25-75% cover (-3)  
☐ Sparse 5-25% cover (-1)  
☐ Nearly absent <5% cover (0)  
☒ X Absent (1)

**6d. Microtopography**

Score all present using 0 to 3 scale.

- ☐ 0 Vegetated hummocks/tussocks  
☐ 0 Coarse woody debris >15 cm (6 in)  
☐ 0 Standing dead >25 cm (10 in) dbh  
☐ 0 Amphibian breeding pools

**Vegetation Community Cover Scale**

0	Absent or comprises <0.1ha (0.2471ac) contiguous area)
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

**Narrative Description of Vegetation Quality**

low	Low spp diversity and/or predominance of non-native or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with non-native spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

**Mudflat and Open Water Class Quality**

0	Absent <0.1 ha (0.247 acres)
1	Low 0.1 to <1 ha (0.247 to 2.47 acres)
2	Moderate 1 to <4 ha (2.47 to 9.88 acres)
3	High 4 ha (9.88 acres) or more

**Microtopography Cover Scale**

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

**39.0**
**GRAND TOTAL (max 100 pts)**

**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 9/29/2008

**Wetland Site:** 17

**State:** Ohio

**County:** Hamilton

**Description:** Emergent

**Location:** See Figure 3c

<b>0.0</b>	<b>0.0</b>	<b>Metric 1. Wetland Area (size)</b>
------------	------------	--------------------------------------

Max (6)

subtotal

Select one size class and assign score

- |                                     |   |
|-------------------------------------|---|
| <input type="checkbox"/>            | >50 acres (>20.2 ha) (6 pts)                |
| <input type="checkbox"/>            | 25 to <50 acres (10.1 to < 20.2 ha) (5 pts) |
| <input type="checkbox"/>            | 10 to <25 acres (4 to <10.1 ha) (4 pts)     |
| <input type="checkbox"/>            | 3 to <10 acres (1.2 to <4 ha) (3 pts)       |
| <input type="checkbox"/>            | 0.3 to <3 acres (0.12 to <1.2 ha) (2 pts)   |
| <input type="checkbox"/>            | 0.1 to <0.3 acres (0.04 to <0.12 ha) (1 pt) |
| <input checked="" type="checkbox"/> | < 0.1 acres (0.04 ha) (0 pts)               |

<b>12.0</b>	<b>12.0</b>	<b>Metric 2. Upland Buffers and Surrounding Land Use</b>
-------------	-------------	--

Max (14)

subtotal

2a. Calculate average buffer width. Select only one and assign score. Do not double check

- |                                     |  |
|-------------------------------------|--|
| <input checked="" type="checkbox"/> | WIDE. Buffers average 50 m (164 ft) or more around wetland perimeter (7)           |
| <input type="checkbox"/>            | MEDIUM. Buffers average 25 m to <50 m (82 to <164 ft) around wetland perimeter (4) |
| <input type="checkbox"/>            | NARROW. Buffers average 10 m to <25 m (32 to <82 ft) around wetland perimeter (1)  |
| <input type="checkbox"/>            | VERY NARROW. Buffers average <10 m (<32 ft) around wetland perimeter (0)           |

2b. Intensity of surrounding land use. Select one or double check and average.

- |                                     |  |
|-------------------------------------|--|
| <input type="checkbox"/>            | VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)               |
| <input checked="" type="checkbox"/> | LOW. Old field (>10 years), shrubland, young second growth forest (5)                          |
| <input type="checkbox"/>            | MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field (3) |
| <input type="checkbox"/>            | HIGH. Urban, industrial, open pasture, row cropping, mining, construction (1)                  |

<b>18.0</b>	<b>30.0</b>	<b>Metric 3. Hydrology</b>
-------------	-------------	----------------------------

Max (30)

subtotal

3a. Sources of water. Score all that apply.

- |                                     |  |
|-------------------------------------|--|
| <input type="checkbox"/>            | High pH groundwater (5)                      |
| <input type="checkbox"/>            | Other groundwater (3)                        |
| <input checked="" type="checkbox"/> | Precipitation (1)                            |
| <input checked="" type="checkbox"/> | Seasonal/Intermittent surface water (3)      |
| <input type="checkbox"/>            | Perennial surface water (lake or stream) (5) |

3c. Maximum water depth. Select only one and assign score

- |                                     |                                    |
|-------------------------------------|------------------------------------|
| <input type="checkbox"/>            | >0.7 (27.6 in) (3)                 |
| <input checked="" type="checkbox"/> | 0.4 to 0.7 m (15.7 to 27.6 in) (2) |
| <input type="checkbox"/>            | <0.4 m (<15.7 in) (1)              |

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- |                                     |                            |
|-------------------------------------|----------------------------|
| <input type="checkbox"/>            | None or none apparent (12) |
| <input checked="" type="checkbox"/> | Recovered (7)              |
| <input type="checkbox"/>            | Recovering (3)             |
| <input type="checkbox"/>            | Recent or no recovery (1)  |

3b. Connectivity. Score all that apply.

- |                                     |  |
|-------------------------------------|--|
| <input checked="" type="checkbox"/> | 100 year floodplain (1)                          |
| <input checked="" type="checkbox"/> | Between stream/lake and other human use (1)      |
| <input type="checkbox"/>            | Part of wetland/upland (e.g. forest) complex (1) |
| <input checked="" type="checkbox"/> | Part of riparian or upland corridor (1)          |

3d. Duration inundation/saturation. Score one or dbl check and av

- |                                     |   |
|-------------------------------------|---|
| <input type="checkbox"/>            | Semi-to permanently inundated/saturated (4)   |
| <input type="checkbox"/>            | Regularly inundated/saturated (3)             |
| <input checked="" type="checkbox"/> | Seasonally inundated (2)                      |
| <input type="checkbox"/>            | Seasonally saturated in upper 30cm (12in) (1) |

Check all disturbances observed

- |                                     |                  |                                     |                               |
|-------------------------------------|------------------|-------------------------------------|-------------------------------|
| <input type="checkbox"/>            | ditch            | <input type="checkbox"/>            | point source (non-stormwater) |
| <input type="checkbox"/>            | tile             | <input checked="" type="checkbox"/> | filling/grading               |
| <input checked="" type="checkbox"/> | dike             | <input type="checkbox"/>            | road bed/RR track             |
| <input type="checkbox"/>            | weir             | <input checked="" type="checkbox"/> | dredging                      |
| <input type="checkbox"/>            | stormwater input | <input type="checkbox"/>            | other                         |

<b>10.0</b>	<b>40.0</b>	<b>Metric 4. Habitat Alteration and Development</b>
-------------	-------------	---

Max (20)

subtotal

4a. Substrate disturbance. Score one or double check and average.

- |                                     |                           |
|-------------------------------------|---------------------------|
| <input type="checkbox"/>            | None or none apparent (4) |
| <input checked="" type="checkbox"/> | Recovered (3)             |
| <input type="checkbox"/>            | Recovering (2)            |
| <input type="checkbox"/>            | Recent or no recovery (1) |

4b. Habitat development. Select only one and assign score.

- |                                     |                     |
|-------------------------------------|---------------------|
| <input type="checkbox"/>            | Excellent (7)       |
| <input type="checkbox"/>            | Very good (6)       |
| <input type="checkbox"/>            | Good (5)            |
| <input type="checkbox"/>            | Moderately good (4) |
| <input type="checkbox"/>            | Fair (3)            |
| <input type="checkbox"/>            | Poor to fair (2)    |
| <input checked="" type="checkbox"/> | Poor (1)            |

4c. Habitat alteration. Score one or double check and average.

- |                                     |                           |
|-------------------------------------|---------------------------|
| <input type="checkbox"/>            | None or none apparent (9) |
| <input checked="" type="checkbox"/> | Recovered (6)             |
| <input type="checkbox"/>            | Recovering (3)            |
| <input type="checkbox"/>            | Recent or no recovery (1) |

Check all disturbances observed

- |                          |                      |                                     |                                |
|--------------------------|----------------------|-------------------------------------|--------------------------------|
| <input type="checkbox"/> | mowing               | <input type="checkbox"/>            | shrub/sapling removal          |
| <input type="checkbox"/> | grazing              | <input type="checkbox"/>            | herbaceous/aquatic bed removal |
| <input type="checkbox"/> | clearcutting         | <input type="checkbox"/>            | sedimentation                  |
| <input type="checkbox"/> | selective cutting    | <input checked="" type="checkbox"/> | dredging                       |
| <input type="checkbox"/> | woody debris removal | <input type="checkbox"/>            | farming                        |
| <input type="checkbox"/> | toxic pollutants     | <input type="checkbox"/>            | nutrient enrichment            |

<b>40.0</b>
-------------

Subtotal this page

**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 9/29/2008

**Wetland Site:** 17

**State:** Ohio

**County:** Hamilton

**Description:** Emergent

**Location:** See Figure 3c

**40.0**

subtotal first page

**0.0**
**40.0**
**Metric 5. Special Wetlands**

Max (10)

subtotal

Check all that apply and score as indicated

- ☐ Bog (10)  
☐ Fen (10)  
☐ Old growth forest (10)  
☐ Mature forested wetland (5)  
☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)  
☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)  
☐ Lake Plain Sand Prairies (Oak Openings) (10)  
☐ Relict Wet Prairies (10)  
☐ Known occurrence state/federal threatened or endangered species (10)  
☐ Significant migratory songbird/waterfowl habitat or usage (10)  
☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

**2.0**
**42.0**
**Metric 6. Plant Communities, interspersation, microtopography**

Max (20)

subtotal

**6a. Wetland Vegetation Communities**

Score all present using 0 to 3 scale.

- ☐ 0 Aquatic bed  
☐ 1 Emergent  
☐ 0 Shrub  
☐ 0 Forest  
☐ 0 Mudflats  
☐ 0 Open water  
☐ 0 Other

**6b. Horizontal (plan view) Interspersion**

Select only one.

- ☐ High (5)  
☐ Moderately high (4)  
☐ Moderate (3)  
☐ Moderately low (2)  
☐ Low (1)  
☒ X None (0)

6c. Coverage of Invasive Plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage.

- ☐ Extensive >75% cover (-5)  
☐ Moderate 25-75% cover (-3)  
☐ Sparse 5-25% cover (-1)  
☐ Nearly absent <5% cover (0)  
☒ X Absent (1)

**6d. Microtopography**

Score all present using 0 to 3 scale.

- ☐ 0 Vegetated hummocks/tussocks  
☐ 0 Coarse woody debris >15 cm (6 in)  
☐ 0 Standing dead >25 cm (10 in) dbh  
☐ 0 Amphibian breeding pools

**Vegetation Community Cover Scale**

- |   |   |
|---|---|
| 0 | Absent or comprises <0.1ha (0.2471ac) contiguous area)  |
| 1 | Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality |
| 2 | Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is high quality    |
| 3 | Present and comprises significant part, or more, of wetland's vegetation and is of high quality   |

**Narrative Description of Vegetation Quality**

- |      |  |
|------|--|
| low  | Low spp diversity and/or predominance of non-native or disturbance tolerant native species   |
| mod  | Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp |
| high | A predominance of native species, with non-native spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp                         |

**Mudflat and Open Water Class Quality**

- |   |  |
|---|--|
| 0 | Absent <0.1 ha (0.247 acres)             |
| 1 | Low 0.1 to <1 ha (0.247 to 2.47 acres)   |
| 2 | Moderate 1 to <4 ha (2.47 to 9.88 acres) |
| 3 | High 4 ha (9.88 acres) or more           |

**Microtopography Cover Scale**

- |   |  |
|---|--|
| 0 | Absent   |
| 1 | Present very small amounts or if more common of marginal quality                               |
| 2 | Present in moderate amounts, but not of highest quality or in small amounts of highest quality |
| 3 | Present in moderate or greater amounts and of highest quality                                  |

**42.0**
**GRAND TOTAL (max 100 pts)**

**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 10/1/2008

**Wetland Site:** 18

**State:** Ohio

**County:** Hamilton

**Description:** Emergent

**Location:** See Figure 3c

**1.0 1.0 Metric 1. Wetland Area (size)**

Max (6) subtotal

Select one size class and assign score

- ☐ >50 acres (>20.2 ha) (6 pts)  
☐ 25 to <50 acres (10.1 to < 20.2 ha) (5 pts)  
☐ 10 to <25 acres (4 to <10.1 ha) (4 pts)  
☐ 3 to <10 acres (1.2 to <4 ha) (3 pts)  
☐ 0.3 to <3 acres (0.12 to <1.2 ha) (2 pts)  
☒ 0.1 to <0.3 acres (0.04 to <0.12 ha) (1 pt)  
☐ < 0.1 acres (0.04 ha) (0 pts)

**12.0 13.0 Metric 2. Upland Buffers and Surrounding Land Use**

Max (14) subtotal

2a. Calculate average buffer width. Select only one and assign score. Do not double check

- ☒ WIDE. Buffers average 50 m (164 ft) or more around wetland perimeter (7)  
☐ MEDIUM. Buffers average 25 m to <50 m (82 to <164 ft) around wetland perimeter (4)  
☐ NARROW. Buffers average 10 m to <25 m (32 to <82 ft) around wetland perimeter (1)  
☐ VERY NARROW. Buffers average <10 m (<32 ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)  
☒ LOW. Old field (>10 years), shrubland, young second growth forest (5)  
☐ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field (3)  
☐ HIGH. Urban, industrial, open pasture, row cropping, mining, construction (1)

**17.0 30.0 Metric 3. Hydrology**

Max (30) subtotal

3a. Sources of water. Score all that apply.

- ☐ High pH groundwater (5)  
☐ Other groundwater (3)  
☒ Precipitation (1)  
☒ Seasonal/Intermittent surface water (3)  
☐ Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score

- ☐ >0.7 (27.6 in) (3)  
☐ 0.4 to 0.7 m (15.7 to 27.6 in) (2)  
☒ <0.4 m (<15.7 in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- ☐ None or none apparent (12)  
☒ Recovered (7)  
☐ Recovering (3)  
☐ Recent or no recovery (1)

3b. Connectivity. Score all that apply.

- ☒ 100 year floodplain (1)  
☒ Between stream/lake and other human use (1)  
☐ Part of wetland/upland (e.g. forest) complex (1)  
☒ Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check and av

- ☐ Semi-to permanently inundated/saturated (4)  
☐ Regularly inundated/saturated (3)  
☒ Seasonally inundated (2)  
☐ Seasonally saturated in upper 30cm (12in) (1)

Check all disturbances observed	
<input type="checkbox"/> ditch	<input type="checkbox"/> point source (non-stormwater)
<input type="checkbox"/> tile	<input checked="" type="checkbox"/> filling/grading
<input checked="" type="checkbox"/> dike	<input type="checkbox"/> road bed/RR track
<input type="checkbox"/> weir	<input checked="" type="checkbox"/> dredging
<input type="checkbox"/> stormwater input	<input type="checkbox"/> other

**10.0 40.0 Metric 4. Habitat Alteration and Development**

Max (20) subtotal

4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (4)  
☒ Recovered (3)  
☐ Recovering (2)  
☐ Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- ☐ Excellent (7)  
☐ Very good (6)  
☐ Good (5)  
☐ Moderately good (4)  
☐ Fair (3)  
☐ Poor to fair (2)  
☒ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☐ None or none apparent (9)  
☒ Recovered (6)  
☐ Recovering (3)  
☐ Recent or no recovery (1)

Check all disturbances observed	
<input type="checkbox"/> mowing	<input type="checkbox"/> shrub/sapling removal
<input type="checkbox"/> grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input type="checkbox"/> clearcutting	<input type="checkbox"/> sedimentation
<input type="checkbox"/> selective cutting	<input checked="" type="checkbox"/> dredging
<input type="checkbox"/> woody debris removal	<input type="checkbox"/> farming
<input type="checkbox"/> toxic pollutants	<input type="checkbox"/> nutrient enrichment

**40.0**

Subtotal this page

**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 10/1/2008

**Wetland Site:** 18

**State:** Ohio

**County:** Hamilton

**Description:** Emergent

**Location:** See Figure 3c

**40.0**

subtotal first page

**0.0**
**40.0**
**Metric 5. Special Wetlands**

Max (10)

subtotal

Check all that apply and score as indicated

- ☐ Bog (10)  
☐ Fen (10)  
☐ Old growth forest (10)  
☐ Mature forested wetland (5)  
☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)  
☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)  
☐ Lake Plain Sand Prairies (Oak Openings) (10)  
☐ Relict Wet Prairies (10)  
☐ Known occurrence state/federal threatened or endangered species (10)  
☐ Significant migratory songbird/waterfowl habitat or usage (10)  
☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

**2.0**
**42.0**
**Metric 6. Plant Communities, interspersed, microtopography**

Max (20)

subtotal

**6a. Wetland Vegetation Communities**

Score all present using 0 to 3 scale.

- ☐ 0 Aquatic bed  
☐ 1 Emergent  
☐ 0 Shrub  
☐ 0 Forest  
☐ 0 Mudflats  
☐ 0 Open water  
☐ 0 Other

**6b. Horizontal (plan view) Interspersion**

Select only one.

- ☐ High (5)  
☐ Moderately high (4)  
☐ Moderate (3)  
☐ Moderately low (2)  
☐ Low (1)  
☒ X None (0)

6c. Coverage of Invasive Plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage.

- ☐ Extensive >75% cover (-5)  
☐ Moderate 25-75% cover (-3)  
☐ Sparse 5-25% cover (-1)  
☐ Nearly absent <5% cover (0)  
☒ X Absent (1)

**6d. Microtopography**

Score all present using 0 to 3 scale.

- ☐ 0 Vegetated hummocks/tussocks  
☐ 0 Coarse woody debris >15 cm (6 in)  
☐ 0 Standing dead >25 cm (10 in) dbh  
☐ 0 Amphibian breeding pools

**Vegetation Community Cover Scale**

- |   |   |
|---|---|
| 0 | Absent or comprises <0.1ha (0.2471ac) contiguous area   |
| 1 | Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality |
| 2 | Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is high quality    |
| 3 | Present and comprises significant part, or more, of wetland's vegetation and is of high quality   |

**Narrative Description of Vegetation Quality**

- |      |  |
|------|--|
| low  | Low spp diversity and/or predominance of non-native or disturbance tolerant native species   |
| mod  | Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp |
| high | A predominance of native species, with non-native spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp                         |

**Mudflat and Open Water Class Quality**

- |   |  |
|---|--|
| 0 | Absent <0.1 ha (0.247 acres)             |
| 1 | Low 0.1 to <1 ha (0.247 to 2.47 acres)   |
| 2 | Moderate 1 to <4 ha (2.47 to 9.88 acres) |
| 3 | High 4 ha (9.88 acres) or more           |

**Microtopography Cover Scale**

- |   |  |
|---|--|
| 0 | Absent   |
| 1 | Present very small amounts or if more common of marginal quality                               |
| 2 | Present in moderate amounts, but not of highest quality or in small amounts of highest quality |
| 3 | Present in moderate or greater amounts and of highest quality                                  |

**42.0**
**GRAND TOTAL (max 100 pts)**



**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 10/1/2008

**Wetland Site:** 19

**State:** Ohio

**County:** Hamilton

**Description:** Emergent

**Location:** See Figure 3c

**0.0 0.0 Metric 1. Wetland Area (size)**

Max (6) subtotal

Select one size class and assign score

- ☐ >50 acres (>20.2 ha) (6 pts)  
☐ 25 to <50 acres (10.1 to < 20.2 ha) (5 pts)  
☐ 10 to <25 acres (4 to <10.1 ha) (4 pts)  
☐ 3 to <10 acres (1.2 to <4 ha) (3 pts)  
☐ 0.3 to <3 acres (0.12 to <1.2 ha) (2 pts)  
☐ 0.1 to <0.3 acres (0.04 to <0.12 ha) (1 pt)  
☒ < 0.1 acres (0.04 ha) (0 pts)

**12.0 12.0 Metric 2. Upland Buffers and Surrounding Land Use**

Max (14) subtotal

2a. Calculate average buffer width. Select only one and assign score. Do not double check

- ☒ WIDE. Buffers average 50 m (164 ft) or more around wetland perimeter (7)  
☐ MEDIUM. Buffers average 25 m to <50 m (82 to <164 ft) around wetland perimeter (4)  
☐ NARROW. Buffers average 10 m to <25 m (32 to <82 ft) around wetland perimeter (1)  
☐ VERY NARROW. Buffers average <10 m (<32 ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)  
☒ LOW. Old field (>10 years), shrubland, young second growth forest (5)  
☐ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field (3)  
☐ HIGH. Urban, industrial, open pasture, row cropping, mining, construction (1)

**12.0 24.0 Metric 3. Hydrology**

Max (30) subtotal

3a. Sources of water. Score all that apply.

- ☐ High pH groundwater (5)  
☐ Other groundwater (3)  
☒ Precipitation (1)  
☐ Seasonal/Intermittent surface water (3)  
☐ Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score

- ☐ >0.7 (27.6 in) (3)  
☐ 0.4 to 0.7 m (15.7 to 27.6 in) (2)  
☒ <0.4 m (<15.7 in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- ☐ None or none apparent (12)  
☒ Recovered (7)  
☐ Recovering (3)  
☐ Recent or no recovery (1)

3b. Connectivity. Score all that apply.

- ☒ 100 year floodplain (1)  
☐ Between stream/lake and other human use (1)  
☒ Part of wetland/upland (e.g. forest) complex (1)  
☐ Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check and av

- ☐ Semi-to permanently inundated/saturated (4)  
☐ Regularly inundated/saturated (3)  
☐ Seasonally inundated (2)  
☒ Seasonally saturated in upper 30cm (12in) (1)

Check all disturbances observed	
<input type="checkbox"/> ditch	<input type="checkbox"/> point source (non-stormwater)
<input type="checkbox"/> tile	<input checked="" type="checkbox"/> filling/grading
<input type="checkbox"/> dike	<input type="checkbox"/> road bed/RR track
<input type="checkbox"/> weir	<input type="checkbox"/> dredging
<input type="checkbox"/> stormwater input	<input type="checkbox"/> other

**10.0 34.0 Metric 4. Habitat Alteration and Development**

Max (20) subtotal

4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (4)  
☒ Recovered (3)  
☐ Recovering (2)  
☐ Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- ☐ Excellent (7)  
☐ Very good (6)  
☐ Good (5)  
☐ Moderately good (4)  
☐ Fair (3)  
☐ Poor to fair (2)  
☒ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☐ None or none apparent (9)  
☒ Recovered (6)  
☐ Recovering (3)  
☐ Recent or no recovery (1)

Check all disturbances observed	
<input type="checkbox"/> mowing	<input type="checkbox"/> shrub/sapling removal
<input type="checkbox"/> grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input type="checkbox"/> clearcutting	<input type="checkbox"/> sedimentation
<input type="checkbox"/> selective cutting	<input checked="" type="checkbox"/> dredging
<input type="checkbox"/> woody debris removal	<input type="checkbox"/> farming
<input type="checkbox"/> toxic pollutants	<input type="checkbox"/> nutrient enrichment

**34.0**

Subtotal this page

**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 10/1/2008

**Wetland Site:** 19

**State:** Ohio

**County:** Hamilton

**Description:** Emergent

**Location:** See Figure 3c

**34.0**

subtotal first page

**0.0**
**34.0**
**Metric 5. Special Wetlands**

Max (10)

subtotal

Check all that apply and score as indicated

- ☐ Bog (10)  
☐ Fen (10)  
☐ Old growth forest (10)  
☐ Mature forested wetland (5)  
☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)  
☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)  
☐ Lake Plain Sand Prairies (Oak Openings) (10)  
☐ Relict Wet Prairies (10)  
☐ Known occurrence state/federal threatened or endangered species (10)  
☐ Significant migratory songbird/waterfowl habitat or usage (10)  
☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

**2.0**
**36.0**
**Metric 6. Plant Communities, interspersed, microtopography**

Max (20)

subtotal

**6a. Wetland Vegetation Communities**

Score all present using 0 to 3 scale.

- ☐ 0 Aquatic bed  
☐ 1 Emergent  
☐ 0 Shrub  
☐ 0 Forest  
☐ 0 Mudflats  
☐ 0 Open water  
☐ 0 Other

**6b. Horizontal (plan view) Interspersion**

Select only one.

- ☐ High (5)  
☐ Moderately high (4)  
☐ Moderate (3)  
☐ Moderately low (2)  
☐ Low (1)  
☒ X None (0)

6c. Coverage of Invasive Plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage.

- ☐ Extensive >75% cover (-5)  
☐ Moderate 25-75% cover (-3)  
☐ Sparse 5-25% cover (-1)  
☐ Nearly absent <5% cover (0)  
☒ X Absent (1)

**6d. Microtopography**

Score all present using 0 to 3 scale.

- ☐ 0 Vegetated hummocks/tussocks  
☐ 0 Coarse woody debris >15 cm (6 in)  
☐ 0 Standing dead >25 cm (10 in) dbh  
☐ 0 Amphibian breeding pools

**Vegetation Community Cover Scale**

- |   |   |
|---|---|
| 0 | Absent or comprises <0.1ha (0.2471ac) contiguous area   |
| 1 | Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality |
| 2 | Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is high quality    |
| 3 | Present and comprises significant part, or more, of wetland's vegetation and is of high quality   |

**Narrative Description of Vegetation Quality**

- |      |  |
|------|--|
| low  | Low spp diversity and/or predominance of non-native or disturbance tolerant native species   |
| mod  | Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp |
| high | A predominance of native species, with non-native spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp                         |

**Mudflat and Open Water Class Quality**

- |   |  |
|---|--|
| 0 | Absent <0.1 ha (0.247 acres)             |
| 1 | Low 0.1 to <1 ha (0.247 to 2.47 acres)   |
| 2 | Moderate 1 to <4 ha (2.47 to 9.88 acres) |
| 3 | High 4 ha (9.88 acres) or more           |

**Microtopography Cover Scale**

- |   |  |
|---|--|
| 0 | Absent   |
| 1 | Present very small amounts or if more common of marginal quality                               |
| 2 | Present in moderate amounts, but not of highest quality or in small amounts of highest quality |
| 3 | Present in moderate or greater amounts and of highest quality                                  |

**36.0**
**GRAND TOTAL (max 100 pts)**

**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 10/1/2008

**Wetland Site:** 20

**State:** Ohio

**County:** Hamilton

**Description:** Emergent

**Location:** See Figure 3e

<b>0.0</b>	<b>0.0</b>	<b>Metric 1. Wetland Area (size)</b>
------------	------------	--------------------------------------

Max (6)

subtotal

Select one size class and assign score

- |                                     |   |
|-------------------------------------|---|
| <input type="checkbox"/>            | >50 acres (>20.2 ha) (6 pts)                |
| <input type="checkbox"/>            | 25 to <50 acres (10.1 to < 20.2 ha) (5 pts) |
| <input type="checkbox"/>            | 10 to <25 acres (4 to <10.1 ha) (4 pts)     |
| <input type="checkbox"/>            | 3 to <10 acres (1.2 to <4 ha) (3 pts)       |
| <input type="checkbox"/>            | 0.3 to <3 acres (0.12 to <1.2 ha) (2 pts)   |
| <input type="checkbox"/>            | 0.1 to <0.3 acres (0.04 to <0.12 ha) (1 pt) |
| <input checked="" type="checkbox"/> | < 0.1 acres (0.04 ha) (0 pts)               |

<b>3.0</b>	<b>3.0</b>	<b>Metric 2. Upland Buffers and Surrounding Land Use</b>
------------	------------	--

Max (14)

subtotal

2a. Calculate average buffer width. Select only one and assign score. Do not double check

- |                                     |  |
|-------------------------------------|--|
| <input type="checkbox"/>            | WIDE. Buffers average 50 m (164 ft) or more around wetland perimeter (7)           |
| <input type="checkbox"/>            | MEDIUM. Buffers average 25 m to <50 m (82 to <164 ft) around wetland perimeter (4) |
| <input type="checkbox"/>            | NARROW. Buffers average 10 m to <25 m (32 to <82 ft) around wetland perimeter (1)  |
| <input checked="" type="checkbox"/> | VERY NARROW. Buffers average <10 m (<32 ft) around wetland perimeter (0)           |

2b. Intensity of surrounding land use. Select one or double check and average.

- |                                     |  |
|-------------------------------------|--|
| <input type="checkbox"/>            | VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)               |
| <input type="checkbox"/>            | LOW. Old field (>10 years), shrubland, young second growth forest (5)                          |
| <input checked="" type="checkbox"/> | MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field (3) |
| <input type="checkbox"/>            | HIGH. Urban, industrial, open pasture, row cropping, mining, construction (1)                  |

<b>7.0</b>	<b>10.0</b>	<b>Metric 3. Hydrology</b>
------------	-------------	----------------------------

Max (30)

subtotal

3a. Sources of water. Score all that apply.

- |                                     |  |
|-------------------------------------|--|
| <input type="checkbox"/>            | High pH groundwater (5)                      |
| <input type="checkbox"/>            | Other groundwater (3)                        |
| <input checked="" type="checkbox"/> | Precipitation (1)                            |
| <input type="checkbox"/>            | Seasonal/Intermittent surface water (3)      |
| <input type="checkbox"/>            | Perennial surface water (lake or stream) (5) |

3c. Maximum water depth. Select only one and assign score

- |                                     |                                    |
|-------------------------------------|------------------------------------|
| <input type="checkbox"/>            | >0.7 (27.6 in) (3)                 |
| <input type="checkbox"/>            | 0.4 to 0.7 m (15.7 to 27.6 in) (2) |
| <input checked="" type="checkbox"/> | <0.4 m (<15.7 in) (1)              |

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- |                                     |                            |
|-------------------------------------|----------------------------|
| <input type="checkbox"/>            | None or none apparent (12) |
| <input type="checkbox"/>            | Recovered (7)              |
| <input checked="" type="checkbox"/> | Recovering (3)             |
| <input type="checkbox"/>            | Recent or no recovery (1)  |

3b. Connectivity. Score all that apply.

- |                                     |  |
|-------------------------------------|--|
| <input checked="" type="checkbox"/> | 100 year floodplain (1)                          |
| <input type="checkbox"/>            | Between stream/lake and other human use (1)      |
| <input type="checkbox"/>            | Part of wetland/upland (e.g. forest) complex (1) |
| <input type="checkbox"/>            | Part of riparian or upland corridor (1)          |

3d. Duration inundation/saturation. Score one or dbl check and av

- |                                     |   |
|-------------------------------------|---|
| <input type="checkbox"/>            | Semi-to permanently inundated/saturated (4)   |
| <input type="checkbox"/>            | Regularly inundated/saturated (3)             |
| <input type="checkbox"/>            | Seasonally inundated (2)                      |
| <input checked="" type="checkbox"/> | Seasonally saturated in upper 30cm (12in) (1) |

Check all disturbances observed			
<input type="checkbox"/>	ditch	<input type="checkbox"/>	point source (non-stormwater)
<input checked="" type="checkbox"/>	tile	<input checked="" type="checkbox"/>	filling/grading
<input type="checkbox"/>	dike	<input type="checkbox"/>	road bed/RR track
<input type="checkbox"/>	weir	<input checked="" type="checkbox"/>	dredging
<input type="checkbox"/>	stormwater input	<input type="checkbox"/>	other

<b>6.0</b>	<b>16.0</b>	<b>Metric 4. Habitat Alteration and Development</b>
------------	-------------	---

Max (20)

subtotal

4a. Substrate disturbance. Score one or double check and average.

- |                                     |                           |
|-------------------------------------|---------------------------|
| <input type="checkbox"/>            | None or none apparent (4) |
| <input type="checkbox"/>            | Recovered (3)             |
| <input checked="" type="checkbox"/> | Recovering (2)            |
| <input type="checkbox"/>            | Recent or no recovery (1) |

4b. Habitat development. Select only one and assign score.

- |                                     |                     |
|-------------------------------------|---------------------|
| <input type="checkbox"/>            | Excellent (7)       |
| <input type="checkbox"/>            | Very good (6)       |
| <input type="checkbox"/>            | Good (5)            |
| <input type="checkbox"/>            | Moderately good (4) |
| <input type="checkbox"/>            | Fair (3)            |
| <input type="checkbox"/>            | Poor to fair (2)    |
| <input checked="" type="checkbox"/> | Poor (1)            |

4c. Habitat alteration. Score one or double check and average.

- |                                     |                           |
|-------------------------------------|---------------------------|
| <input type="checkbox"/>            | None or none apparent (9) |
| <input type="checkbox"/>            | Recovered (6)             |
| <input checked="" type="checkbox"/> | Recovering (3)            |
| <input type="checkbox"/>            | Recent or no recovery (1) |

Check all disturbances observed			
<input checked="" type="checkbox"/>	mowing	<input type="checkbox"/>	shrub/sapling removal
<input type="checkbox"/>	grazing	<input type="checkbox"/>	herbaceous/aquatic bed removal
<input type="checkbox"/>	clearcutting	<input type="checkbox"/>	sedimentation
<input type="checkbox"/>	selective cutting	<input checked="" type="checkbox"/>	dredging
<input type="checkbox"/>	woody debris removal	<input type="checkbox"/>	farming
<input type="checkbox"/>	toxic pollutants	<input type="checkbox"/>	nutrient enrichment

<b>16.0</b>
-------------

Subtotal this page

**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 10/1/2008

**Wetland Site:** 20

**State:** Ohio

**County:** Hamilton

**Description:** Emergent

**Location:** See Figure 3e

**16.0**

subtotal first page

**0.0**
**16.0**
**Metric 5. Special Wetlands**

Max (10)

subtotal

Check all that apply and score as indicated

- ☐ Bog (10)  
☐ Fen (10)  
☐ Old growth forest (10)  
☐ Mature forested wetland (5)  
☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)  
☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)  
☐ Lake Plain Sand Prairies (Oak Openings) (10)  
☐ Relict Wet Prairies (10)  
☐ Known occurrence state/federal threatened or endangered species (10)  
☐ Significant migratory songbird/waterfowl habitat or usage (10)  
☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

**2.0**
**18.0**
**Metric 6. Plant Communities, interspersation, microtopography**

Max (20)

subtotal

**6a. Wetland Vegetation Communities**

Score all present using 0 to 3 scale.

- ☐ 0 Aquatic bed  
☐ 1 Emergent  
☐ 0 Shrub  
☐ 0 Forest  
☐ 0 Mudflats  
☐ 0 Open water  
☐ 0 Other

**6b. Horizontal (plan view) Interspersion**

Select only one.

- ☐ High (5)  
☐ Moderately high (4)  
☐ Moderate (3)  
☐ Moderately low (2)  
☐ Low (1)  
☒ X None (0)

**6c. Coverage of Invasive Plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage.**

- ☐ Extensive >75% cover (-5)  
☐ Moderate 25-75% cover (-3)  
☐ Sparse 5-25% cover (-1)  
☐ Nearly absent <5% cover (0)  
☒ X Absent (1)

**6d. Microtopography**

Score all present using 0 to 3 scale.

- ☐ 0 Vegetated hummocks/tussocks  
☐ 0 Coarse woody debris >15 cm (6 in)  
☐ 0 Standing dead >25 cm (10 in) dbh  
☐ 0 Amphibian breeding pools

**Vegetation Community Cover Scale**

- |   |   |
|---|---|
| 0 | Absent or comprises <0.1ha (0.2471ac) contiguous area)  |
| 1 | Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality |
| 2 | Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is high quality    |
| 3 | Present and comprises significant part, or more, of wetland's vegetation and is of high quality   |

**Narrative Description of Vegetation Quality**

- |      |  |
|------|--|
| low  | Low spp diversity and/or predominance of non-native or disturbance tolerant native species   |
| mod  | Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp |
| high | A predominance of native species, with non-native spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp                         |

**Mudflat and Open Water Class Quality**

- |   |  |
|---|--|
| 0 | Absent <0.1 ha (0.247 acres)             |
| 1 | Low 0.1 to <1 ha (0.247 to 2.47 acres)   |
| 2 | Moderate 1 to <4 ha (2.47 to 9.88 acres) |
| 3 | High 4 ha (9.88 acres) or more           |

**Microtopography Cover Scale**

- |   |  |
|---|--|
| 0 | Absent   |
| 1 | Present very small amounts or if more common of marginal quality                               |
| 2 | Present in moderate amounts, but not of highest quality or in small amounts of highest quality |
| 3 | Present in moderate or greater amounts and of highest quality                                  |

**18.0**
**GRAND TOTAL (max 100 pts)**

**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 10/1/2008

**Wetland Site:** 21

**State:** Ohio

**County:** Hamilton

**Description:** Emergent/Scrub-shrub

**Location:** See Figure 3d

**1.0 1.0 Metric 1. Wetland Area (size)**

Max (6) subtotal

Select one size class and assign score

- ☐ >50 acres (>20.2 ha) (6 pts)  
☐ 25 to <50 acres (10.1 to < 20.2 ha) (5 pts)  
☐ 10 to <25 acres (4 to <10.1 ha) (4 pts)  
☐ 3 to <10 acres (1.2 to <4 ha) (3 pts)  
☐ 0.3 to <3 acres (0.12 to <1.2 ha) (2 pts)  
☒ 0.1 to <0.3 acres (0.04 to <0.12 ha) (1 pt)  
☐ < 0.1 acres (0.04 ha) (0 pts)

**3.0 4.0 Metric 2. Upland Buffers and Surrounding Land Use**

Max (14) subtotal

2a. Calculate average buffer width. Select only one and assign score. Do not double check

- ☐ WIDE. Buffers average 50 m (164 ft) or more around wetland perimeter (7)  
☐ MEDIUM. Buffers average 25 m to <50 m (82 to <164 ft) around wetland perimeter (4)  
☐ NARROW. Buffers average 10 m to <25 m (32 to <82 ft) around wetland perimeter (1)  
☒ VERY NARROW. Buffers average <10 m (<32 ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)  
☐ LOW. Old field (>10 years), shrubland, young second growth forest (5)  
☒ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field (3)  
☐ HIGH. Urban, industrial, open pasture, row cropping, mining, construction (1)

**15.0 19.0 Metric 3. Hydrology**

Max (30) subtotal

3a. Sources of water. Score all that apply.

- ☐ High pH groundwater (5)  
☐ Other groundwater (3)  
☒ Precipitation (1)  
☐ Seasonal/Intermittent surface water (3)  
☐ Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score

- ☐ >0.7 (27.6 in) (3)  
☒ 0.4 to 0.7 m (15.7 to 27.6 in) (2)  
☐ <0.4 m (<15.7 in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- ☐ None or none apparent (12)  
☒ Recovered (7)  
☐ Recovering (3)  
☐ Recent or no recovery (1)

3b. Connectivity. Score all that apply.

- ☒ 100 year floodplain (1)  
☐ Between stream/lake and other human use (1)  
☐ Part of wetland/upland (e.g. forest) complex (1)  
☐ Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check and av

- ☒ Semi-to permanently inundated/saturated (4)  
☐ Regularly inundated/saturated (3)  
☐ Seasonally inundated (2)  
☐ Seasonally saturated in upper 30cm (12in) (1)

Check all disturbances observed	
<input type="checkbox"/> ditch	<input type="checkbox"/> point source (non-stormwater)
<input type="checkbox"/> tile	<input checked="" type="checkbox"/> filling/grading
<input type="checkbox"/> dike	<input type="checkbox"/> road bed/RR track
<input type="checkbox"/> weir	<input checked="" type="checkbox"/> dredging
<input checked="" type="checkbox"/> stormwater input	<input type="checkbox"/> other

**10.0 29.0 Metric 4. Habitat Alteration and Development**

Max (20) subtotal

4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (4)  
☒ Recovered (3)  
☐ Recovering (2)  
☐ Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- ☐ Excellent (7)  
☐ Very good (6)  
☐ Good (5)  
☐ Moderately good (4)  
☐ Fair (3)  
☐ Poor to fair (2)  
☒ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☐ None or none apparent (9)  
☒ Recovered (6)  
☐ Recovering (3)  
☐ Recent or no recovery (1)

Check all disturbances observed	
<input type="checkbox"/> mowing	<input type="checkbox"/> shrub/sapling removal
<input type="checkbox"/> grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input type="checkbox"/> clearcutting	<input type="checkbox"/> sedimentation
<input type="checkbox"/> selective cutting	<input checked="" type="checkbox"/> dredging
<input type="checkbox"/> woody debris removal	<input type="checkbox"/> farming
<input type="checkbox"/> toxic pollutants	<input type="checkbox"/> nutrient enrichment

**29.0**

Subtotal this page



**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 10/1/2008

**Wetland Site:** 21

**State:** Ohio

**County:** Hamilton

**Description:** Emergent/Scrub-shrub

**Location:** See Figure 3d

**29.0**

subtotal first page

**0.0**
**29.0**
**Metric 5. Special Wetlands**

Max (10)

subtotal

Check all that apply and score as indicated

- ☐ Bog (10)  
☐ Fen (10)  
☐ Old growth forest (10)  
☐ Mature forested wetland (5)  
☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)  
☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)  
☐ Lake Plain Sand Prairies (Oak Openings) (10)  
☐ Relict Wet Prairies (10)  
☐ Known occurrence state/federal threatened or endangered species (10)  
☐ Significant migratory songbird/waterfowl habitat or usage (10)  
☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

**-1.0**
**28.0**
**Metric 6. Plant Communities, interspersation, microtopography**

Max (20)

subtotal

**6a. Wetland Vegetation Communities**

Score all present using 0 to 3 scale.

- ☐ 0 Aquatic bed  
☐ 1 Emergent  
☐ 1 Shrub  
☐ 0 Forest  
☐ 0 Mudflats  
☐ 0 Open water  
☐ 0 Other

**6b. Horizontal (plan view) Interspersion**

Select only one.

- ☐ High (5)  
☐ Moderately high (4)  
☐ Moderate (3)  
☐ Moderately low (2)  
☒ X Low (1)  
☐ None (0)

**6c. Coverage of Invasive Plants.** Refer to Table 1 ORAM long form for list. Add or deduct points for coverage.

- ☒ X Extensive >75% cover (-5)  
☐ Moderate 25-75% cover (-3)  
☐ Sparse 5-25% cover (-1)  
☐ Nearly absent <5% cover (0)  
☐ Absent (1)

**6d. Microtopography**

Score all present using 0 to 3 scale.

- ☐ 0 Vegetated hummocks/tussucks  
☐ 0 Coarse woody debris >15 cm (6 in)  
☐ 0 Standing dead >25 cm (10 in) dbh  
☐ 1 Amphibian breeding pools

**Vegetation Community Cover Scale**

- |   |   |
|---|---|
| 0 | Absent or comprises <0.1ha (0.2471ac) contiguous area   |
| 1 | Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality |
| 2 | Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is high quality    |
| 3 | Present and comprises significant part, or more, of wetland's vegetation and is of high quality   |

**Narrative Description of Vegetation Quality**

- |      |  |
|------|--|
| low  | Low spp diversity and/or predominance of non-native or disturbance tolerant native species   |
| mod  | Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp |
| high | A predominance of native species, with non-native spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp                         |

**Mudflat and Open Water Class Quality**

- |   |  |
|---|--|
| 0 | Absent <0.1 ha (0.247 acres)             |
| 1 | Low 0.1 to <1 ha (0.247 to 2.47 acres)   |
| 2 | Moderate 1 to <4 ha (2.47 to 9.88 acres) |
| 3 | High 4 ha (9.88 acres) or more           |

**Microtopography Cover Scale**

- |   |  |
|---|--|
| 0 | Absent   |
| 1 | Present very small amounts or if more common of marginal quality                               |
| 2 | Present in moderate amounts, but not of highest quality or in small amounts of highest quality |
| 3 | Present in moderate or greater amounts and of highest quality                                  |

**28.0**
**GRAND TOTAL (max 100 pts)**

**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 10/2/2008

**Wetland Site:** 22

**State:** Ohio

**County:** Hamilton

**Description:** Emergent

**Location:** See Figure 3e

<b>0.0</b>	<b>0.0</b>	<b>Metric 1. Wetland Area (size)</b>
------------	------------	--------------------------------------

Max (6)

subtotal

Select one size class and assign score

- |                                     |   |
|-------------------------------------|---|
| <input type="checkbox"/>            | >50 acres (>20.2 ha) (6 pts)                |
| <input type="checkbox"/>            | 25 to <50 acres (10.1 to < 20.2 ha) (5 pts) |
| <input type="checkbox"/>            | 10 to <25 acres (4 to <10.1 ha) (4 pts)     |
| <input type="checkbox"/>            | 3 to <10 acres (1.2 to <4 ha) (3 pts)       |
| <input type="checkbox"/>            | 0.3 to <3 acres (0.12 to <1.2 ha) (2 pts)   |
| <input type="checkbox"/>            | 0.1 to <0.3 acres (0.04 to <0.12 ha) (1 pt) |
| <input checked="" type="checkbox"/> | < 0.1 acres (0.04 ha) (0 pts)               |

<b>9.0</b>	<b>9.0</b>	<b>Metric 2. Upland Buffers and Surrounding Land Use</b>
------------	------------	--

Max (14)

subtotal

2a. Calculate average buffer width. Select only one and assign score. Do not double check

- |                                     |  |
|-------------------------------------|--|
| <input type="checkbox"/>            | WIDE. Buffers average 50 m (164 ft) or more around wetland perimeter (7)           |
| <input checked="" type="checkbox"/> | MEDIUM. Buffers average 25 m to <50 m (82 to <164 ft) around wetland perimeter (4) |
| <input type="checkbox"/>            | NARROW. Buffers average 10 m to <25 m (32 to <82 ft) around wetland perimeter (1)  |
| <input type="checkbox"/>            | VERY NARROW. Buffers average <10 m (<32 ft) around wetland perimeter (0)           |

2b. Intensity of surrounding land use. Select one or double check and average.

- |                                     |  |
|-------------------------------------|--|
| <input type="checkbox"/>            | VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)               |
| <input checked="" type="checkbox"/> | LOW. Old field (>10 years), shrubland, young second growth forest (5)                          |
| <input type="checkbox"/>            | MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field (3) |
| <input type="checkbox"/>            | HIGH. Urban, industrial, open pasture, row cropping, mining, construction (1)                  |

<b>11.0</b>	<b>20.0</b>	<b>Metric 3. Hydrology</b>
-------------	-------------	----------------------------

Max (30)

subtotal

3a. Sources of water. Score all that apply.

- |                                     |  |
|-------------------------------------|--|
| <input type="checkbox"/>            | High pH groundwater (5)                      |
| <input type="checkbox"/>            | Other groundwater (3)                        |
| <input checked="" type="checkbox"/> | Precipitation (1)                            |
| <input type="checkbox"/>            | Seasonal/Intermittent surface water (3)      |
| <input type="checkbox"/>            | Perennial surface water (lake or stream) (5) |

3c. Maximum water depth. Select only one and assign score

- |                                     |                                    |
|-------------------------------------|------------------------------------|
| <input type="checkbox"/>            | >0.7 (27.6 in) (3)                 |
| <input type="checkbox"/>            | 0.4 to 0.7 m (15.7 to 27.6 in) (2) |
| <input checked="" type="checkbox"/> | <0.4 m (<15.7 in) (1)              |

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- |                                     |                            |
|-------------------------------------|----------------------------|
| <input type="checkbox"/>            | None or none apparent (12) |
| <input checked="" type="checkbox"/> | Recovered (7)              |
| <input type="checkbox"/>            | Recovering (3)             |
| <input type="checkbox"/>            | Recent or no recovery (1)  |

3b. Connectivity. Score all that apply.

- |                                     |  |
|-------------------------------------|--|
| <input type="checkbox"/>            | 100 year floodplain (1)                          |
| <input type="checkbox"/>            | Between stream/lake and other human use (1)      |
| <input checked="" type="checkbox"/> | Part of wetland/upland (e.g. forest) complex (1) |
| <input type="checkbox"/>            | Part of riparian or upland corridor (1)          |

3d. Duration inundation/saturation. Score one or dbl check and av

- |                                     |   |
|-------------------------------------|---|
| <input type="checkbox"/>            | Semi-to permanently inundated/saturated (4)   |
| <input type="checkbox"/>            | Regularly inundated/saturated (3)             |
| <input type="checkbox"/>            | Seasonally inundated (2)                      |
| <input checked="" type="checkbox"/> | Seasonally saturated in upper 30cm (12in) (1) |

Check all disturbances observed		
<input checked="" type="checkbox"/>	ditch	<input type="checkbox"/> point source (non-stormwater)
<input type="checkbox"/>	tile	<input type="checkbox"/> filling/grading
<input type="checkbox"/>	dike	<input type="checkbox"/> road bed/RR track
<input type="checkbox"/>	weir	<input type="checkbox"/> dredging
<input type="checkbox"/>	stormwater input	<input type="checkbox"/> other

<b>10.0</b>	<b>30.0</b>	<b>Metric 4. Habitat Alteration and Development</b>
-------------	-------------	---

Max (20)

subtotal

4a. Substrate disturbance. Score one or double check and average.

- |                                     |                           |
|-------------------------------------|---------------------------|
| <input type="checkbox"/>            | None or none apparent (4) |
| <input checked="" type="checkbox"/> | Recovered (3)             |
| <input type="checkbox"/>            | Recovering (2)            |
| <input type="checkbox"/>            | Recent or no recovery (1) |

4b. Habitat development. Select only one and assign score.

- |                                     |                     |
|-------------------------------------|---------------------|
| <input type="checkbox"/>            | Excellent (7)       |
| <input type="checkbox"/>            | Very good (6)       |
| <input type="checkbox"/>            | Good (5)            |
| <input type="checkbox"/>            | Moderately good (4) |
| <input type="checkbox"/>            | Fair (3)            |
| <input type="checkbox"/>            | Poor to fair (2)    |
| <input checked="" type="checkbox"/> | Poor (1)            |

4c. Habitat alteration. Score one or double check and average.

- |                                     |                           |
|-------------------------------------|---------------------------|
| <input type="checkbox"/>            | None or none apparent (9) |
| <input checked="" type="checkbox"/> | Recovered (6)             |
| <input type="checkbox"/>            | Recovering (3)            |
| <input type="checkbox"/>            | Recent or no recovery (1) |

Check all disturbances observed		
<input type="checkbox"/>	mowing	<input type="checkbox"/> shrub/sapling removal
<input type="checkbox"/>	grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input type="checkbox"/>	clearcutting	<input type="checkbox"/> sedimentation
<input type="checkbox"/>	selective cutting	<input checked="" type="checkbox"/> dredging
<input type="checkbox"/>	woody debris removal	<input type="checkbox"/> farming
<input type="checkbox"/>	toxic pollutants	<input type="checkbox"/> nutrient enrichment

<b>30.0</b>
-------------

Subtotal this page

**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 10/2/2008

**Wetland Site:** 22

**State:** Ohio

**County:** Hamilton

**Description:** Emergent

**Location:** See Figure 3e

**30.0**

subtotal first page

**0.0**
**30.0**
**Metric 5. Special Wetlands**

Max (10)

subtotal

Check all that apply and score as indicated

- ☐ Bog (10)  
☐ Fen (10)  
☐ Old growth forest (10)  
☐ Mature forested wetland (5)  
☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)  
☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)  
☐ Lake Plain Sand Prairies (Oak Openings) (10)  
☐ Relict Wet Prairies (10)  
☐ Known occurrence state/federal threatened or endangered species (10)  
☐ Significant migratory songbird/waterfowl habitat or usage (10)  
☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

**-4.0**
**26.0**
**Metric 6. Plant Communities, interspersation, microtopography**

Max (20)

subtotal

**6a. Wetland Vegetation Communities**

Score all present using 0 to 3 scale.

- ☐ 0 Aquatic bed  
☐ 1 Emergent  
☐ 0 Shrub  
☐ 0 Forest  
☐ 0 Mudflats  
☐ 0 Open water  
☐ 0 Other

**6b. Horizontal (plan view) Interspersion**

Select only one.

- ☐ High (5)  
☐ Moderately high (4)  
☐ Moderate (3)  
☐ Moderately low (2)  
☐ Low (1)  
☒ X None (0)

6c. Coverage of Invasive Plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage.

- ☒ X Extensive >75% cover (-5)  
☐ Moderate 25-75% cover (-3)  
☐ Sparse 5-25% cover (-1)  
☐ Nearly absent <5% cover (0)  
☐ Absent (1)

**6d. Microtopography**

Score all present using 0 to 3 scale.

- ☐ 0 Vegetated hummocks/tussocks  
☐ 0 Coarse woody debris >15 cm (6 in)  
☐ 0 Standing dead >25 cm (10 in) dbh  
☐ 0 Amphibian breeding pools

**Vegetation Community Cover Scale**

0	Absent or comprises <0.1ha (0.2471ac) contiguous area)
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

**Narrative Description of Vegetation Quality**

low	Low spp diversity and/or predominance of non-native or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with non-native spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

**Mudflat and Open Water Class Quality**

0	Absent <0.1 ha (0.247 acres)
1	Low 0.1 to <1 ha (0.247 to 2.47 acres)
2	Moderate 1 to <4 ha (2.47 to 9.88 acres)
3	High 4 ha (9.88 acres) or more

**Microtopography Cover Scale**

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

**26.0**
**GRAND TOTAL (max 100 pts)**

**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 10/2/2008

**Wetland Site:** 23

**State:** Ohio

**County:** Hamilton

**Description:** Emergent/Scrub-shrub

**Location:** See Figure 3e

<b>0.0</b>	<b>0.0</b>	<b>Metric 1. Wetland Area (size)</b>
------------	------------	--------------------------------------

Max (6)

subtotal

Select one size class and assign score

- |                                     |   |
|-------------------------------------|---|
| <input type="checkbox"/>            | >50 acres (>20.2 ha) (6 pts)                |
| <input type="checkbox"/>            | 25 to <50 acres (10.1 to < 20.2 ha) (5 pts) |
| <input type="checkbox"/>            | 10 to <25 acres (4 to <10.1 ha) (4 pts)     |
| <input type="checkbox"/>            | 3 to <10 acres (1.2 to <4 ha) (3 pts)       |
| <input type="checkbox"/>            | 0.3 to <3 acres (0.12 to <1.2 ha) (2 pts)   |
| <input type="checkbox"/>            | 0.1 to <0.3 acres (0.04 to <0.12 ha) (1 pt) |
| <input checked="" type="checkbox"/> | < 0.1 acres (0.04 ha) (0 pts)               |

<b>1.0</b>	<b>1.0</b>	<b>Metric 2. Upland Buffers and Surrounding Land Use</b>
------------	------------	--

Max (14)

subtotal

2a. Calculate average buffer width. Select only one and assign score. Do not double check

- |                                     |  |
|-------------------------------------|--|
| <input type="checkbox"/>            | WIDE. Buffers average 50 m (164 ft) or more around wetland perimeter (7)           |
| <input type="checkbox"/>            | MEDIUM. Buffers average 25 m to <50 m (82 to <164 ft) around wetland perimeter (4) |
| <input type="checkbox"/>            | NARROW. Buffers average 10 m to <25 m (32 to <82 ft) around wetland perimeter (1)  |
| <input checked="" type="checkbox"/> | VERY NARROW. Buffers average <10 m (<32 ft) around wetland perimeter (0)           |

2b. Intensity of surrounding land use. Select one or double check and average.

- |                                     |  |
|-------------------------------------|--|
| <input type="checkbox"/>            | VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)               |
| <input type="checkbox"/>            | LOW. Old field (>10 years), shrubland, young second growth forest (5)                          |
| <input type="checkbox"/>            | MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field (3) |
| <input checked="" type="checkbox"/> | HIGH. Urban, industrial, open pasture, row cropping, mining, construction (1)                  |

<b>8.0</b>	<b>9.0</b>	<b>Metric 3. Hydrology</b>
------------	------------	----------------------------

Max (30)

subtotal

3a. Sources of water. Score all that apply.

- |                                     |  |
|-------------------------------------|--|
| <input type="checkbox"/>            | High pH groundwater (5)                      |
| <input type="checkbox"/>            | Other groundwater (3)                        |
| <input checked="" type="checkbox"/> | Precipitation (1)                            |
| <input type="checkbox"/>            | Seasonal/Intermittent surface water (3)      |
| <input type="checkbox"/>            | Perennial surface water (lake or stream) (5) |

3c. Maximum water depth. Select only one and assign score

- |                                     |                                    |
|-------------------------------------|------------------------------------|
| <input type="checkbox"/>            | >0.7 (27.6 in) (3)                 |
| <input type="checkbox"/>            | 0.4 to 0.7 m (15.7 to 27.6 in) (2) |
| <input checked="" type="checkbox"/> | <0.4 m (<15.7 in) (1)              |

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- |                                     |                            |
|-------------------------------------|----------------------------|
| <input type="checkbox"/>            | None or none apparent (12) |
| <input type="checkbox"/>            | Recovered (7)              |
| <input checked="" type="checkbox"/> | Recovering (3)             |
| <input type="checkbox"/>            | Recent or no recovery (1)  |

3b. Connectivity. Score all that apply.

- |                                     |  |
|-------------------------------------|--|
| <input checked="" type="checkbox"/> | 100 year floodplain (1)                          |
| <input type="checkbox"/>            | Between stream/lake and other human use (1)      |
| <input type="checkbox"/>            | Part of wetland/upland (e.g. forest) complex (1) |
| <input type="checkbox"/>            | Part of riparian or upland corridor (1)          |

3d. Duration inundation/saturation. Score one or dbl check and av

- |                                     |   |
|-------------------------------------|---|
| <input type="checkbox"/>            | Semi-to permanently inundated/saturated (4)   |
| <input type="checkbox"/>            | Regularly inundated/saturated (3)             |
| <input checked="" type="checkbox"/> | Seasonally inundated (2)                      |
| <input type="checkbox"/>            | Seasonally saturated in upper 30cm (12in) (1) |

Check all disturbances observed

- |                          |                  |                                     |                               |
|--------------------------|------------------|-------------------------------------|-------------------------------|
| <input type="checkbox"/> | ditch            | <input type="checkbox"/>            | point source (non-stormwater) |
| <input type="checkbox"/> | tile             | <input checked="" type="checkbox"/> | filling/grading               |
| <input type="checkbox"/> | dike             | <input type="checkbox"/>            | road bed/RR track             |
| <input type="checkbox"/> | weir             | <input type="checkbox"/>            | dredging                      |
| <input type="checkbox"/> | stormwater input | <input type="checkbox"/>            | other                         |

<b>6.0</b>	<b>15.0</b>	<b>Metric 4. Habitat Alteration and Development</b>
------------	-------------	---

Max (20)

subtotal

4a. Substrate disturbance. Score one or double check and average.

- |                                     |                           |
|-------------------------------------|---------------------------|
| <input type="checkbox"/>            | None or none apparent (4) |
| <input type="checkbox"/>            | Recovered (3)             |
| <input checked="" type="checkbox"/> | Recovering (2)            |
| <input type="checkbox"/>            | Recent or no recovery (1) |

4b. Habitat development. Select only one and assign score.

- |                                     |                     |
|-------------------------------------|---------------------|
| <input type="checkbox"/>            | Excellent (7)       |
| <input type="checkbox"/>            | Very good (6)       |
| <input type="checkbox"/>            | Good (5)            |
| <input type="checkbox"/>            | Moderately good (4) |
| <input type="checkbox"/>            | Fair (3)            |
| <input type="checkbox"/>            | Poor to fair (2)    |
| <input checked="" type="checkbox"/> | Poor (1)            |

4c. Habitat alteration. Score one or double check and average.

- |                                     |                           |
|-------------------------------------|---------------------------|
| <input type="checkbox"/>            | None or none apparent (9) |
| <input type="checkbox"/>            | Recovered (6)             |
| <input checked="" type="checkbox"/> | Recovering (3)            |
| <input type="checkbox"/>            | Recent or no recovery (1) |

Check all disturbances observed

- |                          |                      |                                     |                                |
|--------------------------|----------------------|-------------------------------------|--------------------------------|
| <input type="checkbox"/> | mowing               | <input type="checkbox"/>            | shrub/sapling removal          |
| <input type="checkbox"/> | grazing              | <input type="checkbox"/>            | herbaceous/aquatic bed removal |
| <input type="checkbox"/> | clearcutting         | <input type="checkbox"/>            | sedimentation                  |
| <input type="checkbox"/> | selective cutting    | <input checked="" type="checkbox"/> | dredging                       |
| <input type="checkbox"/> | woody debris removal | <input type="checkbox"/>            | farming                        |
| <input type="checkbox"/> | toxic pollutants     | <input type="checkbox"/>            | nutrient enrichment            |

<b>15.0</b>
-------------

Subtotal this page

**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 10/2/2008

**Wetland Site:** 23

**State:** Ohio

**County:** Hamilton

**Description:** Emergent/Scrub-shrub

**Location:** See Figure 3e

**15.0**

subtotal first page

**0.0**
**15.0**
**Metric 5. Special Wetlands**

Max (10)

subtotal

Check all that apply and score as indicated

- ☐ Bog (10)  
☐ Fen (10)  
☐ Old growth forest (10)  
☐ Mature forested wetland (5)  
☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)  
☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)  
☐ Lake Plain Sand Prairies (Oak Openings) (10)  
☐ Relict Wet Prairies (10)  
☐ Known occurrence state/federal threatened or endangered species (10)  
☐ Significant migratory songbird/waterfowl habitat or usage (10)  
☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

**-1.0**
**14.0**
**Metric 6. Plant Communities, interspersed, microtopography**

Max (20)

subtotal

**6a. Wetland Vegetation Communities**

Score all present using 0 to 3 scale.

- ☐ 0 Aquatic bed  
☐ 1 Emergent  
☐ 0 Shrub  
☐ 0 Forest  
☐ 0 Mudflats  
☐ 0 Open water  
☐ 0 Other

**6b. Horizontal (plan view) Interspersion**

Select only one.

- ☐ High (5)  
☐ Moderately high (4)  
☐ Moderate (3)  
☐ Moderately low (2)  
☒ X Low (1)  
☐ None (0)

**6c. Coverage of Invasive Plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage.**

- ☐ Extensive >75% cover (-5)  
☒ X Moderate 25-75% cover (-3)  
☐ Sparse 5-25% cover (-1)  
☐ Nearly absent <5% cover (0)  
☐ Absent (1)

**6d. Microtopography**

Score all present using 0 to 3 scale.

- ☐ 0 Vegetated hummocks/tussocks  
☐ 0 Coarse woody debris >15 cm (6 in)  
☐ 0 Standing dead >25 cm (10 in) dbh  
☐ 0 Amphibian breeding pools

**Vegetation Community Cover Scale**

- |   |   |
|---|---|
| 0 | Absent or comprises <0.1ha (0.2471ac) contiguous area   |
| 1 | Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality |
| 2 | Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is high quality    |
| 3 | Present and comprises significant part, or more, of wetland's vegetation and is of high quality   |

**Narrative Description of Vegetation Quality**

- |      |  |
|------|--|
| low  | Low spp diversity and/or predominance of non-native or disturbance tolerant native species   |
| mod  | Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp |
| high | A predominance of native species, with non-native spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp                         |

**Mudflat and Open Water Class Quality**

- |   |  |
|---|--|
| 0 | Absent <0.1 ha (0.247 acres)             |
| 1 | Low 0.1 to <1 ha (0.247 to 2.47 acres)   |
| 2 | Moderate 1 to <4 ha (2.47 to 9.88 acres) |
| 3 | High 4 ha (9.88 acres) or more           |

**Microtopography Cover Scale**

- |   |  |
|---|--|
| 0 | Absent   |
| 1 | Present very small amounts or if more common of marginal quality                               |
| 2 | Present in moderate amounts, but not of highest quality or in small amounts of highest quality |
| 3 | Present in moderate or greater amounts and of highest quality                                  |

**14.0**
**GRAND TOTAL (max 100 pts)**



**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 10/2/2008

**Wetland Site:** 24

**State:** Ohio

**County:** Hamilton

**Description:** Emergent

**Location:** See Figure 3e

<b>0.0</b>	<b>0.0</b>	<b>Metric 1. Wetland Area (size)</b>
------------	------------	--------------------------------------

Max (6)

subtotal

Select one size class and assign score

- |                                     |   |
|-------------------------------------|---|
| <input type="checkbox"/>            | >50 acres (>20.2 ha) (6 pts)                |
| <input type="checkbox"/>            | 25 to <50 acres (10.1 to < 20.2 ha) (5 pts) |
| <input type="checkbox"/>            | 10 to <25 acres (4 to <10.1 ha) (4 pts)     |
| <input type="checkbox"/>            | 3 to <10 acres (1.2 to <4 ha) (3 pts)       |
| <input type="checkbox"/>            | 0.3 to <3 acres (0.12 to <1.2 ha) (2 pts)   |
| <input type="checkbox"/>            | 0.1 to <0.3 acres (0.04 to <0.12 ha) (1 pt) |
| <input checked="" type="checkbox"/> | < 0.1 acres (0.04 ha) (0 pts)               |

<b>14.0</b>	<b>14.0</b>	<b>Metric 2. Upland Buffers and Surrounding Land Use</b>
-------------	-------------	--

Max (14)

subtotal

2a. Calculate average buffer width. Select only one and assign score. Do not double check

- |                                     |  |
|-------------------------------------|--|
| <input checked="" type="checkbox"/> | WIDE. Buffers average 50 m (164 ft) or more around wetland perimeter (7)           |
| <input type="checkbox"/>            | MEDIUM. Buffers average 25 m to <50 m (82 to <164 ft) around wetland perimeter (4) |
| <input type="checkbox"/>            | NARROW. Buffers average 10 m to <25 m (32 to <82 ft) around wetland perimeter (1)  |
| <input type="checkbox"/>            | VERY NARROW. Buffers average <10 m (<32 ft) around wetland perimeter (0)           |

2b. Intensity of surrounding land use. Select one or double check and average.

- |                                     |  |
|-------------------------------------|--|
| <input checked="" type="checkbox"/> | VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)               |
| <input type="checkbox"/>            | LOW. Old field (>10 years), shrubland, young second growth forest (5)                          |
| <input type="checkbox"/>            | MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field (3) |
| <input type="checkbox"/>            | HIGH. Urban, industrial, open pasture, row cropping, mining, construction (1)                  |

<b>11.0</b>	<b>25.0</b>	<b>Metric 3. Hydrology</b>
-------------	-------------	----------------------------

Max (30)

subtotal

3a. Sources of water. Score all that apply.

- |                                     |  |
|-------------------------------------|--|
| <input type="checkbox"/>            | High pH groundwater (5)                      |
| <input type="checkbox"/>            | Other groundwater (3)                        |
| <input checked="" type="checkbox"/> | Precipitation (1)                            |
| <input checked="" type="checkbox"/> | Seasonal/Intermittent surface water (3)      |
| <input type="checkbox"/>            | Perennial surface water (lake or stream) (5) |

3c. Maximum water depth. Select only one and assign score

- |                                     |                                    |
|-------------------------------------|------------------------------------|
| <input type="checkbox"/>            | >0.7 (27.6 in) (3)                 |
| <input type="checkbox"/>            | 0.4 to 0.7 m (15.7 to 27.6 in) (2) |
| <input checked="" type="checkbox"/> | <0.4 m (<15.7 in) (1)              |

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- |                                     |                            |
|-------------------------------------|----------------------------|
| <input type="checkbox"/>            | None or none apparent (12) |
| <input type="checkbox"/>            | Recovered (7)              |
| <input checked="" type="checkbox"/> | Recovering (3)             |
| <input type="checkbox"/>            | Recent or no recovery (1)  |

3b. Connectivity. Score all that apply.

- |                                     |  |
|-------------------------------------|--|
| <input checked="" type="checkbox"/> | 100 year floodplain (1)                          |
| <input type="checkbox"/>            | Between stream/lake and other human use (1)      |
| <input checked="" type="checkbox"/> | Part of wetland/upland (e.g. forest) complex (1) |
| <input type="checkbox"/>            | Part of riparian or upland corridor (1)          |

3d. Duration inundation/saturation. Score one or dbl check and av

- |                                     |   |
|-------------------------------------|---|
| <input type="checkbox"/>            | Semi-to permanently inundated/saturated (4)   |
| <input type="checkbox"/>            | Regularly inundated/saturated (3)             |
| <input type="checkbox"/>            | Seasonally inundated (2)                      |
| <input checked="" type="checkbox"/> | Seasonally saturated in upper 30cm (12in) (1) |

Check all disturbances observed			
<input checked="" type="checkbox"/>	ditch	<input type="checkbox"/>	point source (non-stormwater)
<input type="checkbox"/>	tile	<input type="checkbox"/>	filling/grading
<input type="checkbox"/>	dike	<input checked="" type="checkbox"/>	road bed/RR track
<input type="checkbox"/>	weir	<input type="checkbox"/>	dredging
<input type="checkbox"/>	stormwater input	<input type="checkbox"/>	other

<b>6.0</b>	<b>31.0</b>	<b>Metric 4. Habitat Alteration and Development</b>
------------	-------------	---

Max (20)

subtotal

4a. Substrate disturbance. Score one or double check and average.

- |                                     |                           |
|-------------------------------------|---------------------------|
| <input type="checkbox"/>            | None or none apparent (4) |
| <input type="checkbox"/>            | Recovered (3)             |
| <input checked="" type="checkbox"/> | Recovering (2)            |
| <input type="checkbox"/>            | Recent or no recovery (1) |

4b. Habitat development. Select only one and assign score.

- |                                     |                     |
|-------------------------------------|---------------------|
| <input type="checkbox"/>            | Excellent (7)       |
| <input type="checkbox"/>            | Very good (6)       |
| <input type="checkbox"/>            | Good (5)            |
| <input type="checkbox"/>            | Moderately good (4) |
| <input type="checkbox"/>            | Fair (3)            |
| <input type="checkbox"/>            | Poor to fair (2)    |
| <input checked="" type="checkbox"/> | Poor (1)            |

4c. Habitat alteration. Score one or double check and average.

- |                                     |                           |
|-------------------------------------|---------------------------|
| <input type="checkbox"/>            | None or none apparent (9) |
| <input type="checkbox"/>            | Recovered (6)             |
| <input checked="" type="checkbox"/> | Recovering (3)            |
| <input type="checkbox"/>            | Recent or no recovery (1) |

Check all disturbances observed			
<input type="checkbox"/>	mowing	<input type="checkbox"/>	shrub/sapling removal
<input type="checkbox"/>	grazing	<input type="checkbox"/>	herbaceous/aquatic bed removal
<input type="checkbox"/>	clearcutting	<input type="checkbox"/>	sedimentation
<input type="checkbox"/>	selective cutting	<input type="checkbox"/>	dredging
<input checked="" type="checkbox"/>	woody debris removal	<input type="checkbox"/>	farming
<input type="checkbox"/>	toxic pollutants	<input type="checkbox"/>	nutrient enrichment

<b>31.0</b>
-------------

Subtotal this page

**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 10/2/2008

**Wetland Site:** 24

**State:** Ohio

**County:** Hamilton

**Description:** Emergent

**Location:** See Figure 3e

**31.0**

subtotal first page

**0.0**
**31.0**
**Metric 5. Special Wetlands**

Max (10)

subtotal

Check all that apply and score as indicated

- ☐ Bog (10)  
☐ Fen (10)  
☐ Old growth forest (10)  
☐ Mature forested wetland (5)  
☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)  
☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)  
☐ Lake Plain Sand Prairies (Oak Openings) (10)  
☐ Relict Wet Prairies (10)  
☐ Known occurrence state/federal threatened or endangered species (10)  
☐ Significant migratory songbird/waterfowl habitat or usage (10)  
☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

**2.0**
**33.0**
**Metric 6. Plant Communities, interspersions, microtopography**

Max (20)

subtotal

**6a. Wetland Vegetation Communities**

Score all present using 0 to 3 scale.

- ☐ 0 Aquatic bed  
☐ 1 Emergent  
☐ 0 Shrub  
☐ 0 Forest  
☐ 0 Mudflats  
☐ 0 Open water  
☐ 0 Other

**6b. Horizontal (plan view) Interspersion**

Select only one.

- ☐ High (5)  
☐ Moderately high (4)  
☐ Moderate (3)  
☐ Moderately low (2)  
☐ Low (1)  
☒ X None (0)

6c. Coverage of Invasive Plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage.

- ☐ Extensive >75% cover (-5)  
☐ Moderate 25-75% cover (-3)  
☐ Sparse 5-25% cover (-1)  
☐ Nearly absent <5% cover (0)  
☒ X Absent (1)

**6d. Microtopography**

Score all present using 0 to 3 scale.

- ☐ 0 Vegetated hummocks/tussocks  
☐ 0 Coarse woody debris >15 cm (6 in)  
☐ 0 Standing dead >25 cm (10 in) dbh  
☐ 0 Amphibian breeding pools

**Vegetation Community Cover Scale**

- |   |   |
|---|---|
| 0 | Absent or comprises <0.1ha (0.2471ac) contiguous area   |
| 1 | Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality |
| 2 | Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is high quality    |
| 3 | Present and comprises significant part, or more, of wetland's vegetation and is of high quality   |

**Narrative Description of Vegetation Quality**

- |      |  |
|------|--|
| low  | Low spp diversity and/or predominance of non-native or disturbance tolerant native species   |
| mod  | Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp |
| high | A predominance of native species, with non-native spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp                         |

**Mudflat and Open Water Class Quality**

- |   |  |
|---|--|
| 0 | Absent <0.1 ha (0.247 acres)             |
| 1 | Low 0.1 to <1 ha (0.247 to 2.47 acres)   |
| 2 | Moderate 1 to <4 ha (2.47 to 9.88 acres) |
| 3 | High 4 ha (9.88 acres) or more           |

**Microtopography Cover Scale**

- |   |  |
|---|--|
| 0 | Absent   |
| 1 | Present very small amounts or if more common of marginal quality                               |
| 2 | Present in moderate amounts, but not of highest quality or in small amounts of highest quality |
| 3 | Present in moderate or greater amounts and of highest quality                                  |

**33.0**
**GRAND TOTAL (max 100 pts)**

**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 10/2/2008

**Wetland Site:** 25

**State:** Ohio

**County:** Hamilton

**Description:** Emergent/Scrub-shrub

**Location:** See Figure 3e

**2.0 2.0 Metric 1. Wetland Area (size)**

Max (6)

subtotal

Select one size class and assign score

- ☐ >50 acres (>20.2 ha) (6 pts)  
☐ 25 to <50 acres (10.1 to < 20.2 ha) (5 pts)  
☐ 10 to <25 acres (4 to <10.1 ha) (4 pts)  
☐ 3 to <10 acres (1.2 to <4 ha) (3 pts)  
☒ 0.3 to <3 acres (0.12 to <1.2 ha) (2 pts)  
☐ 0.1 to <0.3 acres (0.04 to <0.12 ha) (1 pt)  
☐ < 0.1 acres (0.04 ha) (0 pts)

**12.0 14.0 Metric 2. Upland Buffers and Surrounding Land Use**

Max (14)

subtotal

2a. Calculate average buffer width. Select only one and assign score. Do not double check

- ☒ WIDE. Buffers average 50 m (164 ft) or more around wetland perimeter (7)  
☐ MEDIUM. Buffers average 25 m to <50 m (82 to <164 ft) around wetland perimeter (4)  
☐ NARROW. Buffers average 10 m to <25 m (32 to <82 ft) around wetland perimeter (1)  
☐ VERY NARROW. Buffers average <10 m (<32 ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)  
☒ LOW. Old field (>10 years), shrubland, young second growth forest (5)  
☐ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field (3)  
☐ HIGH. Urban, industrial, open pasture, row cropping, mining, construction (1)

**13.0 27.0 Metric 3. Hydrology**

Max (30)

subtotal

3a. Sources of water. Score all that apply.

- ☐ High pH groundwater (5)  
☐ Other groundwater (3)  
☒ Precipitation (1)  
☒ Seasonal/Intermittent surface water (3)  
☐ Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score

- ☐ >0.7 (27.6 in) (3)  
☐ 0.4 to 0.7 m (15.7 to 27.6 in) (2)  
☒ <0.4 m (<15.7 in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- ☐ None or none apparent (12)  
☐ Recovered (7)  
☒ Recovering (3)  
☐ Recent or no recovery (1)

3b. Connectivity. Score all that apply.

- ☒ 100 year floodplain (1)  
☐ Between stream/lake and other human use (1)  
☒ Part of wetland/upland (e.g. forest) complex (1)  
☐ Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check and av

- ☐ Semi-to permanently inundated/saturated (4)  
☒ Regularly inundated/saturated (3)  
☐ Seasonally inundated (2)  
☐ Seasonally saturated in upper 30cm (12in) (1)

Check all disturbances observed

- ☐ ditch  
☐ tile  
☒ dike  
☐ weir  
☐ stormwater input

- ☐ point source (non-stormwater)  
☒ filling/grading  
☐ road bed/RR track  
☒ dredging  
☐ other

**9.0 36.0 Metric 4. Habitat Alteration and Development**

Max (20)

subtotal

4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (4)  
☐ Recovered (3)  
☒ Recovering (2)  
☐ Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- ☐ Excellent (7)  
☐ Very good (6)  
☐ Good (5)  
☒ Moderately good (4)  
☐ Fair (3)  
☐ Poor to fair (2)  
☐ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☐ None or none apparent (9)  
☐ Recovered (6)  
☒ Recovering (3)  
☐ Recent or no recovery (1)

Check all disturbances observed

- ☐ mowing  
☐ grazing  
☐ clearcutting  
☐ selective cutting  
☐ woody debris removal  
☐ toxic pollutants

- ☐ shrub/sapling removal  
☐ herbaceous/aquatic bed removal  
☐ sedimentation  
☒ dredging  
☐ farming  
☐ nutrient enrichment

**36.0**

Subtotal this page

**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 10/2/2008

**Wetland Site:** 25

**State:** Ohio

**County:** Hamilton

**Description:** Emergent/Scrub-shrub

**Location:** See Figure 3e

**36.0**

subtotal first page

**0.0**
**36.0**
**Metric 5. Special Wetlands**

Max (10)

subtotal

Check all that apply and score as indicated

- ☐ Bog (10)  
☐ Fen (10)  
☐ Old growth forest (10)  
☐ Mature forested wetland (5)  
☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)  
☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)  
☐ Lake Plain Sand Prairies (Oak Openings) (10)  
☐ Relict Wet Prairies (10)  
☐ Known occurrence state/federal threatened or endangered species (10)  
☐ Significant migratory songbird/waterfowl habitat or usage (10)  
☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

**8.0**
**44.0**
**Metric 6. Plant Communities, interspersed, microtopography**

Max (20)

subtotal

**6a. Wetland Vegetation Communities**

Score all present using 0 to 3 scale.

- ☐ 0 Aquatic bed  
☐ 1 Emergent  
☐ 1 Shrub  
☐ 0 Forest  
☐ 0 Mudflats  
☐ 0 Open water  
☐ 0 Other

**6b. Horizontal (plan view) Interspersion**

Select only one.

- ☐ High (5)  
☐ Moderately high (4)  
☒ Moderate (3)  
☐ Moderately low (2)  
☐ Low (1)  
☐ None (0)

**6c. Coverage of Invasive Plants.** Refer to Table 1 ORAM long form for list. Add or deduct points for coverage.

- ☐ Extensive >75% cover (-5)  
☐ Moderate 25-75% cover (-3)  
☐ Sparse 5-25% cover (-1)  
☐ Nearly absent <5% cover (0)  
☒ Absent (1)

**6d. Microtopography**

Score all present using 0 to 3 scale.

- ☐ 0 Vegetated hummocks/tussocks  
☐ 0 Coarse woody debris >15 cm (6 in)  
☐ 0 Standing dead >25 cm (10 in) dbh  
☐ 2 Amphibian breeding pools

**Vegetation Community Cover Scale**

- |   |   |
|---|---|
| 0 | Absent or comprises <0.1ha (0.2471ac) contiguous area   |
| 1 | Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality |
| 2 | Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is high quality    |
| 3 | Present and comprises significant part, or more, of wetland's vegetation and is of high quality   |

**Narrative Description of Vegetation Quality**

- |      |  |
|------|--|
| low  | Low spp diversity and/or predominance of non-native or disturbance tolerant native species   |
| mod  | Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp |
| high | A predominance of native species, with non-native spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp                         |

**Mudflat and Open Water Class Quality**

- |   |  |
|---|--|
| 0 | Absent <0.1 ha (0.247 acres)             |
| 1 | Low 0.1 to <1 ha (0.247 to 2.47 acres)   |
| 2 | Moderate 1 to <4 ha (2.47 to 9.88 acres) |
| 3 | High 4 ha (9.88 acres) or more           |

**Microtopography Cover Scale**

- |   |  |
|---|--|
| 0 | Absent   |
| 1 | Present very small amounts or if more common of marginal quality                               |
| 2 | Present in moderate amounts, but not of highest quality or in small amounts of highest quality |
| 3 | Present in moderate or greater amounts and of highest quality                                  |

**44.0**
**GRAND TOTAL (max 100 pts)**

**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 10/2/2008

**Wetland Site:** 26

**State:** Ohio

**County:** Hamilton

**Description:** Emergent/Scrub-shrub

**Location:** See Figure 3e

**2.0 2.0 Metric 1. Wetland Area (size)**

Max (6)

subtotal

Select one size class and assign score

- ☐ >50 acres (>20.2 ha) (6 pts)  
☐ 25 to <50 acres (10.1 to < 20.2 ha) (5 pts)  
☐ 10 to <25 acres (4 to <10.1 ha) (4 pts)  
☐ 3 to <10 acres (1.2 to <4 ha) (3 pts)  
☒ 0.3 to <3 acres (0.12 to <1.2 ha) (2 pts)  
☐ 0.1 to <0.3 acres (0.04 to <0.12 ha) (1 pt)  
☐ < 0.1 acres (0.04 ha) (0 pts)

**12.0 14.0 Metric 2. Upland Buffers and Surrounding Land Use**

Max (14)

subtotal

2a. Calculate average buffer width. Select only one and assign score. Do not double check

- ☒ WIDE. Buffers average 50 m (164 ft) or more around wetland perimeter (7)  
☐ MEDIUM. Buffers average 25 m to <50 m (82 to <164 ft) around wetland perimeter (4)  
☐ NARROW. Buffers average 10 m to <25 m (32 to <82 ft) around wetland perimeter (1)  
☐ VERY NARROW. Buffers average <10 m (<32 ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)  
☒ LOW. Old field (>10 years), shrubland, young second growth forest (5)  
☐ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field (3)  
☐ HIGH. Urban, industrial, open pasture, row cropping, mining, construction (1)

**20.0 34.0 Metric 3. Hydrology**

Max (30)

subtotal

3a. Sources of water. Score all that apply.

- ☐ High pH groundwater (5)  
☐ Other groundwater (3)  
☒ Precipitation (1)  
☒ Seasonal/Intermittent surface water (3)  
☐ Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score

- ☒ >0.7 (27.6 in) (3)  
☐ 0.4 to 0.7 m (15.7 to 27.6 in) (2)  
☐ <0.4 m (<15.7 in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- ☐ None or none apparent (12)  
☒ Recovered (7)  
☐ Recovering (3)  
☐ Recent or no recovery (1)

Check all disturbances observed

- ☐ ditch  
☐ tile  
☒ dike  
☐ weir  
☐ stormwater input

3b. Connectivity. Score all that apply.

- ☒ 100 year floodplain (1)  
☐ Between stream/lake and other human use (1)  
☒ Part of wetland/upland (e.g. forest) complex (1)  
☐ Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check and av

- ☒ Semi-to permanently inundated/saturated (4)  
☐ Regularly inundated/saturated (3)  
☐ Seasonally inundated (2)  
☐ Seasonally saturated in upper 30cm (12in) (1)

- ☐ point source (non-stormwater)  
☒ filling/grading  
☐ road bed/RR track  
☒ dredging  
☐ other

**11.0 45.0 Metric 4. Habitat Alteration and Development**

Max (20)

subtotal

4a. Substrate disturbance. Score one or double check and average.

- ☐ None or none apparent (4)  
☒ Recovered (3)  
☐ Recovering (2)  
☐ Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- ☐ Excellent (7)  
☐ Very good (6)  
☐ Good (5)  
☐ Moderately good (4)  
☐ Fair (3)  
☒ Poor to fair (2)  
☐ Poor (1)

4c. Habitat alteration. Score one or double check and average.

- ☐ None or none apparent (9)  
☒ Recovered (6)  
☐ Recovering (3)  
☐ Recent or no recovery (1)

Check all disturbances observed

- ☐ mowing  
☐ grazing  
☐ clearcutting  
☐ selective cutting  
☐ woody debris removal  
☐ toxic pollutants  
☐ shrub/sapling removal  
☐ herbaceous/aquatic bed removal  
☐ sedimentation  
☒ dredging  
☐ farming  
☐ nutrient enrichment

**45.0**

Subtotal this page



**ORAM v. 5.0 Field Form Quantitative Rating**
**Rater: ENTRAN**
**Project Name:** Eastern Corridor Segment II/III

**Date:** 10/2/2008

**Wetland Site:** 26

**State:** Ohio

**County:** Hamilton

**Description:** Emergent/Scrub-shrub

**Location:** See Figure 3e

**45.0**

subtotal first page

**0.0**
**45.0**
**Metric 5. Special Wetlands**

Max (10)

subtotal

Check all that apply and score as indicated

- ☐ Bog (10)  
☐ Fen (10)  
☐ Old growth forest (10)  
☐ Mature forested wetland (5)  
☐ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)  
☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)  
☐ Lake Plain Sand Prairies (Oak Openings) (10)  
☐ Relict Wet Prairies (10)  
☐ Known occurrence state/federal threatened or endangered species (10)  
☐ Significant migratory songbird/waterfowl habitat or usage (10)  
☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

**6.0**
**51.0**
**Metric 6. Plant Communities, interspersed, microtopography**

Max (20)

subtotal

**6a. Wetland Vegetation Communities**

Score all present using 0 to 3 scale.

- ☐ 0 Aquatic bed  
☐ 1 Emergent  
☐ 2 Shrub  
☐ 0 Forest  
☐ 0 Mudflats  
☐ 0 Open water  
☐ 0 Other

**6b. Horizontal (plan view) Interspersion**

Select only one.

- ☐ High (5)  
☐ Moderately high (4)  
☐ Moderate (3)  
☐ Moderately low (2)  
☒ X Low (1)  
☐ None (0)

**6c. Coverage of Invasive Plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage.**

- ☐ Extensive >75% cover (-5)  
☐ Moderate 25-75% cover (-3)  
☒ X Sparse 5-25% cover (-1)  
☐ Nearly absent <5% cover (0)  
☐ Absent (1)

**6d. Microtopography**

Score all present using 0 to 3 scale.

- ☐ 0 Vegetated hummocks/tussocks  
☐ 2 Coarse woody debris >15 cm (6 in)  
☐ 0 Standing dead >25 cm (10 in) dbh  
☐ 1 Amphibian breeding pools

**Vegetation Community Cover Scale**

- |   |   |
|---|---|
| 0 | Absent or comprises <0.1 ha (0.2471 ac) contiguous area   |
| 1 | Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality |
| 2 | Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is high quality    |
| 3 | Present and comprises significant part, or more, of wetland's vegetation and is of high quality   |

**Narrative Description of Vegetation Quality**

- |      |  |
|------|--|
| low  | Low spp diversity and/or predominance of non-native or disturbance tolerant native species   |
| mod  | Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp |
| high | A predominance of native species, with non-native spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp                         |

**Mudflat and Open Water Class Quality**

- |   |  |
|---|--|
| 0 | Absent <0.1 ha (0.247 acres)             |
| 1 | Low 0.1 to <1 ha (0.247 to 2.47 acres)   |
| 2 | Moderate 1 to <4 ha (2.47 to 9.88 acres) |
| 3 | High 4 ha (9.88 acres) or more           |

**Microtopography Cover Scale**

- |   |  |
|---|--|
| 0 | Absent   |
| 1 | Present very small amounts or if more common of marginal quality                               |
| 2 | Present in moderate amounts, but not of highest quality or in small amounts of highest quality |
| 3 | Present in moderate or greater amounts and of highest quality                                  |

**51.0**
**GRAND TOTAL (max 100 pts)**

## ***APPENDIX F***

### ***Woodlot/Community Data Forms***

**WOODLOT/COMMUNITY DATA FORM**  
(Adapted from Anderson 1982, Plant Communities of Ohio)

<b>Project/Site:</b>	Eastern Corridor Segment II/III	<b>Date:</b>	8/27/08
<b>Owner:</b>	City of Cincinnati	<b>County:</b>	Hamilton
<b>Investigator(s):</b>	Mike D (ENTRAN)	<b>State:</b>	Ohio
<b>Community type:</b>	Oak-Ash		
<b>Stand number:</b>	Woodland A (Ault Park)		
<b>Stand size (acres):</b>	Approximately 117 acres		
<b>Location (if map is not provided):</b>	See Figure 4a and Photo 119		

**BIOLOGICAL FEATURES**

<b>Sampling method</b>	
<b>Qualitative:</b>	✓
<b>Quantitative:</b>	_____ Attach methods sheet (except when Basic Methods used).
<b>Sampling intensity for qualitative study</b>	
<b>Time (hours):</b>	0.5
<b>Area (percent of community covered):</b>	Approx. 70% (of acreage within study area)

**Description (dominants, tree size ranges, canopy closure, under story development, compositional variation, transitions to adjacent communities):**

**Canopy:** Oaks, white ash, American sycamore, hickories, sugar maple and walnut; sizes ranged from 18" dbh to 38" dbh

**Sub-canopy:** Buckeye, sugar maple, pawpaw, bush honeysuckle and grape vine

**Groundcover:** Virginia creeper and garlic mustard

Steeply sloped hills and ravines, mostly open with scattered large canopy trees, with sycamores and cottonwoods along riparian areas; understory dominated by sugar maple.

**Stability (possible successional history and trend):**

Secondary succession; mostly mature large canopy trees; fairly open understory with scattered younger sugar maple; smaller areas of dense honeysuckle (associated with disturbance); some standing dead with an abundance of decaying logs and tree stumps.

## PHYSICAL FEATURES

### Geology (type, depth to bedrock):

Ordovician-aged carbonaceous limestone and calciferous shale, overlain with Illinoian-aged morainic drift, ranging in thickness from 15 feet to 400 feet.

### Soils classification (topographic and soil variation, or water characteristics):

Soils were formed in several kinds of parent material, including glacial drift, weathered limestone and shale bedrock, wind deposited silt, lacustrine deposits, and alluvium from all these materials; Eden-Pate association, moderately deep and deep, strongly sloping to very steep, well drained and moderately well drained, moderately fine textured soils, on uplands.

## DISTURBANCE FEATURES (cut, grazed, flooded, drained, burned, etc.)

### Past disturbances:

Edge effect disturbance; clearing for construction of railroad grade

### Present disturbances:

Edge effect disturbance; ongoing maintenance (mowing/clearing) along railroad grade; mosaic of hiking trails throughout.

### Future threats:

None apparent.

## COMPARATIVE EVALUATION (statewide or local comparison):

Locally this is very nice woodland. It is the largest woodland feature partially within the study area. It has fairly steep topography with some wooded ravines. This woodland is well developed with mostly larger more mature trees and a nice open sub-canopy.

## ADDITIONAL AND CONTINUED COMMENTS:

**WOODLOT/COMMUNITY DATA FORM**  
(Adapted from Anderson 1982, Plant Communities of Ohio)

<b>Project/Site:</b>	Eastern Corridor Segment II/III	<b>Date:</b>	9/25/08
<b>Owner:</b>	Multiple (see additional comments)	<b>County:</b>	Hamilton
<b>Investigator(s):</b>	Mike D (ENTRAN)	<b>State:</b>	Ohio
<b>Community type:</b>	Maple-Cottonwood-Ash		
<b>Stand number:</b>	Woodland B		
<b>Stand size (acres):</b>	Approximately 25 acres		
<b>Location (if map is not provided):</b>	See Figure 4a and Photo 120		

**BIOLOGICAL FEATURES**

<b>Sampling method</b>	
<b>Qualitative:</b>	✓
<b>Quantitative:</b>	_____ Attach methods sheet (except when Basic Methods used).
<b>Sampling intensity for qualitative study</b>	
<b>Time (hours):</b>	1.0
<b>Area (percent of community covered):</b>	Approx. 70% (of acreage within study area)

**Description (dominants, tree size ranges, canopy closure, under story development, compositional variation, transitions to adjacent communities):**

**Canopy:** Silver maple, cottonwood, white ash and American sycamore; sizes ranged from 6" dbh to 34" dbh

**Sub-canopy:** Box-elder, silver maple, elm, sandbar willow, crack willow, red mulberry, elderberry and honeysuckle

**Groundcover:** Giant ragweed, beggar ticks and false nettle

Mostly open, level to gently rolling floodplain/bottomland with some large canopy trees; edges scrubby with some honeysuckle and elderberry mixed with mostly sandbar willow and crack willow.

**Stability (possible successional history and trend):**

Secondary succession; mostly older more mature canopy trees with some younger understory trees; some standing dead with an abundance of decaying logs and flood debris.



## PHYSICAL FEATURES

### Geology (type, depth to bedrock):

Ordovician-aged carbonaceous limestone and calciferous shale, overlain with Illinoian-aged morainic drift, ranging in thickness from 15 feet to 400 feet.

### Soils classification (topographic and soil variation, or water characteristics):

Soils were formed in several kinds of parent material, including glacial drift, weathered limestone and shale bedrock, wind deposited silt, lacustrine deposits, and alluvium from all these materials; Jules-Stonelick association, deep, nearly level, well drained, medium textured and moderately coarse textured soils, and urban land on floodplains.

## DISTURBANCE FEATURES (cut, grazed, flooded, drained, burned, etc.)

### Past disturbances:

None apparent.

### Present disturbances:

Mosaic of hiking trails and all terrain vehicle (ATV) tracks throughout; some flood debris junk at east end of woodland.

### Future threats:

None apparent.

## COMPARATIVE EVALUATION (statewide or local comparison):

Locally this is a nice woodland island. It is a fairly large woodland feature completely within the study area. The topography is mostly flat to gently undulating. Canopy trees are well established with mostly open sub-canopy layer, except for scrub-shrub willow areas.

## ADDITIONAL AND CONTINUED COMMENTS:

Multiple property owners include: Earl A. Rapp, Robert T. Fischer, Edmond G. Motz, Linda Haffner, and Village of Mariemont.

**WOODLOT/COMMUNITY DATA FORM**  
(Adapted from Anderson 1982, Plant Communities of Ohio)

<b>Project/Site:</b>	Eastern Corridor Segment II/III	<b>Date:</b>	9/26/08
<b>Owner:</b>	Multiple (see additional comments)	<b>County:</b>	Hamilton
<b>Investigator(s):</b>	Mike D and Chris Y (ENTRAN)	<b>State:</b>	Ohio
<b>Community type:</b>	Maple-Cottonwood		
<b>Stand number:</b>	Woodland C (Horseshoe Bend)		
<b>Stand size (acres):</b>	Approximately 44 acres		
<b>Location (if map is not provided):</b>	See Figures 4a, 4b and Photo 121		

**BIOLOGICAL FEATURES**

<b>Sampling method</b>	
<b>Qualitative:</b>	✓
<b>Quantitative:</b>	_____ Attach methods sheet (except when Basic Methods used).
<b>Sampling intensity for qualitative study</b>	
<b>Time (hours):</b>	0.75
<b>Area (percent of community covered):</b>	Approx. 70% (of acreage within study area)

**Description (dominants, tree size ranges, canopy closure, under story development, compositional variation, transitions to adjacent communities):**

**Canopy:** Silver maple, cottonwood and American sycamore; sizes ranged from 8" dbh to 38" dbh

**Sub-canopy:** Box-elder, silver maple, elm, willow, elderberry and honeysuckle

**Groundcover:** Giant ragweed and wood nettle

Mostly open, level to gently rolling floodplain/bottomland with large canopy trees; edges scrubby with some honeysuckle, elderberry, sandbar willow and crack willow; flood debris concentrated at northern and southern ends.

**Stability (possible successional history and trend):**

Secondary succession; mostly mature canopy trees with some younger understory trees; some standing dead with an abundance of decaying logs and flood debris.

## PHYSICAL FEATURES

### Geology (type, depth to bedrock):

Ordovician-aged carbonaceous limestone and calciferous shale, overlain with Illinoian-aged morainic drift, ranging in thickness from 15 feet to 400 feet.

### Soils classification (topographic and soil variation, or water characteristics):

Soils were formed in several kinds of parent material, including glacial drift, weathered limestone and shale bedrock, wind deposited silt, lacustrine deposits, and alluvium from all these materials; Jules-Stonelick association, deep, nearly level, well drained, medium textured and moderately coarse textured soils, and urban land on floodplains.

## DISTURBANCE FEATURES (cut, grazed, flooded, drained, burned, etc.)

### Past disturbances:

Construction of high tension power line along northeast edge.

### Present disturbances:

Edge effect disturbance, maintenance of high tension power line along northeast edge; some flood debris junk at north end.

### Future threats:

None apparent.

## COMPARATIVE EVALUATION (statewide or local comparison):

Locally this floodplain woodland is very nice. It is one of the larger woodlands completely within the study area. It has gently undulating topography. The sub-canopy includes areas of open ground and scrubby areas. Large mature canopy trees are located throughout. There are several small emergent wetlands located within the woodland along the east edge.

## ADDITIONAL AND CONTINUED COMMENTS:

Multiple property owners include: Robert T. Fischer, Toad Inc., and Donald Turpin Cavett, Little Miami River Incorporated.

**WOODLOT/COMMUNITY DATA FORM**  
(Adapted from Anderson 1982, Plant Communities of Ohio)

<b>Project/Site:</b>	Eastern Corridor Segment II/III	<b>Date:</b>	9/26/08
<b>Owner:</b>	Anderson Township	<b>County:</b>	Hamilton
<b>Investigator(s):</b>	Mike D and Chris Y (ENTRAN)	<b>State:</b>	Ohio
<b>Community type:</b>	Maple-Sycamore		
<b>Stand number:</b>	Woodland D (Clear Creek Park)		
<b>Stand size (acres):</b>	Approximately 12 acres		
<b>Location (if map is not provided):</b>	See Figure 4c and Photo 122		

**BIOLOGICAL FEATURES**

<b>Sampling method</b>	
<b>Qualitative:</b>	✓
<b>Quantitative:</b>	_____ Attach methods sheet (except when Basic Methods used).
<b>Sampling intensity for qualitative study</b>	
<b>Time (hours):</b>	0.5
<b>Area (percent of community covered):</b>	Approx. 70% (of acreage within study area)

**Description (dominants, tree size ranges, canopy closure, under story development, compositional variation, transitions to adjacent communities):**

**Canopy:** Silver maple, cottonwood, American sycamore, green ash and black walnut; sizes ranged from 4" dbh to 30" dbh

**Sub-canopy:** Box-elder, hackberry, silver maple, elm, mulberry and honeysuckle

**Groundcover:** Wood nettle, ryegrass, hog peanut, Virginia knotweed and ground ivy

Mostly scrubby, level floodplain/bottomland with medium to large canopy trees; edges very scrubby with some honeysuckle and mulberry.

**Stability (possible successional history and trend):**

Secondary succession; mixture of mature large canopy trees and younger understory trees; some standing dead and decaying logs.

## PHYSICAL FEATURES

### Geology (type, depth to bedrock):

Ordovician-aged carbonaceous limestone and calciferous shale, overlain with Illinoian-aged morainic drift, ranging in thickness from 15 feet to 400 feet.

### Soils classification (topographic and soil variation, or water characteristics):

Soils were formed in several kinds of parent material, including glacial drift, weathered limestone and shale bedrock, wind deposited silt, lacustrine deposits, and alluvium from all these materials; Jules-Stonelick association, deep, nearly level, well drained, medium textured and moderately coarse textured soils, and urban land on floodplains.

## DISTURBANCE FEATURES (cut, grazed, flooded, drained, burned, etc.)

### Past disturbances:

None apparent.

### Present disturbances:

Edge effect disturbance; surrounded by sod farm.

### Future threats:

None apparent.

## COMPARATIVE EVALUATION (statewide or local comparison):

Locally this is moderately nice woodland. It is one of the smaller woodlands completely within the study area. Topography is mostly flat to gently undulating. There are some large canopy trees, however, most of the woodland includes a scrubby sub-canopy.

## ADDITIONAL AND CONTINUED COMMENTS:



**WOODLOT/COMMUNITY DATA FORM**  
(Adapted from Anderson 1982, Plant Communities of Ohio)

<b>Project/Site:</b> <u>Eastern Corridor Segment II/III</u> <b>Owner:</b> <u>Anderson Township</u> <b>Investigator(s):</b> <u>Mike D and Chris Y (ENTRAN)</u>	<b>Date:</b> <u>10/2/08</u> <b>County:</b> <u>Hamilton</u> <b>State:</b> <u>Ohio</u>
<b>Community type:</b> <u>Oak-Hickory</u> <b>Stand number:</b> <u>Woodland E (Broadwell Road Site)</u> <b>Stand size (acres):</b> <u>Approximately 110 acres</u> <b>Location (if map is not provided):</b> <u>See Figures 4e, 4f and Photo 123</u> <u> </u> <u> </u>	

**BIOLOGICAL FEATURES**

<b>Sampling method</b>	
<b>Qualitative:</b> <u>  ✓  </u> <b>Quantitative:</b> <u>          </u>	<b>Attach methods sheet (except when Basic Methods used).</b>
<b>Sampling intensity for qualitative study</b>	
<b>Time (hours):</b> <u>  2.0  </u> <b>Area (percent of community covered):</b> <u>  Approx. 70%  </u>	<b>(of acreage within study area)</b>

**Description (dominants, tree size ranges, canopy closure, under story development, compositional variation, transitions to adjacent communities):**

**Canopy:** Chestnut oak, hickory, black locust, white ash and black walnut; sizes ranged from 6" dbh to 36" dbh

**Sub-canopy:** Box-elder, hackberry, maple, honey locust, black cherry, yellow buckeye, beech, pawpaw and honeysuckle

**Groundcover:** Wood nettle, garlic mustard and ground ivy

Mostly large wooded ravines; open with large canopy trees; edges scrubby with small trees and dense honeysuckle.

**Stability (possible successional history and trend):**

Secondary succession; a good balance between young sugar maple trees and older oaks and hickories; some standing dead and lots of downed trees, tree tops and decaying logs.

## PHYSICAL FEATURES

### Geology (type, depth to bedrock):

Ordovician-aged carbonaceous limestone and calciferous shale, overlain with Illinoian-aged morainic drift, ranging in thickness from 15 feet to 400 feet.

### Soils classification (topographic and soil variation, or water characteristics):

Soils were formed in several kinds of parent material, including glacial drift, weathered limestone and shale bedrock, wind deposited silt, lacustrine deposits, and alluvium from all these materials; Eldean-Princeton association, deep, nearly level to sloping, well drained, medium textured and moderately coarse textured soils.

## DISTURBANCE FEATURES (cut, grazed, flooded, drained, burned, etc.)

### Past disturbances:

Edge effect disturbance; cleared for construction of railroad grade.

### Present disturbances:

Edge effect disturbance; maintenance of railroad grade; a northeast section of woodland has recently been clear cut; walking hiking and riding trails through the woodland.

### Future threats:

None apparent.

## COMPARATIVE EVALUATION (statewide or local comparison):

Locally this is nice woodland. It is one of the larger woodlands partially within the study area. It has gently rolling to steep topography, including wooded ravines. The sub-canopy is mostly open with some patches of scrubby honeysuckle, mostly associated with edge effect disturbance.

## ADDITIONAL AND CONTINUED COMMENTS:

**WOODLOT/COMMUNITY DATA FORM**  
(Adapted from Anderson 1982, Plant Communities of Ohio)

<b>Project/Site:</b>	Eastern Corridor Segment II/III	<b>Date:</b>	10/9/08
<b>Owner:</b>	Anderson Township	<b>County:</b>	Hamilton
<b>Investigator(s):</b>	Mike D and Chris Y (ENTRAN)	<b>State:</b>	Ohio
<b>Community type:</b>	Ash-Cherry		
<b>Stand number:</b>	Woodland F (Anderson Township Greenspace)		
<b>Stand size (acres):</b>	Approximately 68 acres		
<b>Location (if map is not provided):</b>	See Figure 4g and Photo 124		

**BIOLOGICAL FEATURES**

<b>Sampling method</b>	
<b>Qualitative:</b>	✓
<b>Quantitative:</b>	_____ Attach methods sheet (except when Basic Methods used).
<b>Sampling intensity for qualitative study</b>	
<b>Time (hours):</b>	2.0
<b>Area (percent of community covered):</b>	Approx. 70% (of acreage within study area)

**Description (dominants, tree size ranges, canopy closure, under story development, compositional variation, transitions to adjacent communities):**

**Canopy:** Sugar maple, black cherry, white ash and hackberry; sizes ranged from 6" dbh to 25" dbh

**Sub-canopy:** Box-elder, hackberry, sugar maple, yellow buckeye, pawpaw, osage, spice bush and honeysuckle

**Groundcover:** Wingstem, snakeroot, garlic mustard and ground ivy

Scrubby hillside in south portion of woodland; mostly young secondary growth and honeysuckle understory; more mature scrubby secondary growth in north portion of woodland with the subdominant species being sugar maple.

**Stability (possible successional history and trend):**

Secondary succession; south section of woodland younger, more scrubby; north section of woodland more mature secondary growth and less scrubby; some standing dead and downed trees, tree tops and decaying logs.

## PHYSICAL FEATURES

### Geology (type, depth to bedrock):

Ordovician-aged carbonaceous limestone and calciferous shale, overlain with Illinoian-aged morainic drift, ranging in thickness from 15 feet to 400 feet.

### Soils classification (topographic and soil variation, or water characteristics):

Soils were formed in several kinds of parent material, including glacial drift, weathered limestone and shale bedrock, wind deposited silt, lacustrine deposits, and alluvium from all these materials; Rossmoyne-Urban land-Switzerland association, deep, nearly level to moderately steep, moderately well drained and well drained, medium textured soils, and urban land.

## DISTURBANCE FEATURES (cut, grazed, flooded, drained, burned, etc.)

### Past disturbances:

Edge effect disturbance; logging.

### Present disturbances:

Edge effect disturbance; logging road dividing north and south portions of the woodland; mosaic of non-maintained walking hiking and riding trails through the woodland; power line right-of-way easement.

### Future threats:

None apparent.

## COMPARATIVE EVALUATION (statewide or local comparison):

Locally this is moderately nice woodland. It is one of the larger woodlands partially within the study area. It has gently rolling to steep topography. The woodland is less established and consists of more scrubby areas compared to the other larger woodlands in the study area.

## ADDITIONAL AND CONTINUED COMMENTS:

## ***APPENDIX G***

### ***Photograph Sheets***





**Photo 1:** Site S1; Unnamed Tributary #1; Provisional Class II PHWH; Facing Downstream



**Photo 2:** Site S2; Unnamed Tributary #2; Provisional Class III PHWH; Facing Downstream



**Photo 3:** Site S3; Unnamed Tributary #3; Provisional Modified Warmwater Habitat; Facing Downstream



**Photo 4:** Site S4; Duck Creek; Provisional Modified Warmwater Habitat; Facing Downstream



**Photo 5:** Site S5; Unnamed Tributary #4; Provisional Class I PHWH; Facing Downstream



**Photo 6:** Site S6; Little Miami River; Provisional Warmwater Habitat; Facing Upstream



**Photo 7:** Site S7; Little Miami River; Provisional Warmwater Habitat; Facing Downstream



**Photo 8:** Site S8; Unnamed Tributary #5; Provisional Warmwater Habitat; Facing Downstream



**Photo 9:** Site S9; Unnamed Tributary #6; Provisional Class II PHWH; Facing Upstream





**Photo 10:** Site S10; Clear Creek; Provisional Modified Class II PHWH; Facing Upstream



**Photo 11:** Site S11; Unnamed Tributary #7; Provisional Modified Class I PHWH; Facing Upstream



**Photo 12:** Site S12; Unnamed Tributary #8; Provisional Modified Class II PHWH; Facing Upstream



**Photo 13:** Site S13; McCullough Run; Provisional Modified Warmwater Habitat; Facing Upstream



**Photo 14:** Site S14; Dry Run; Provisional Warmwater Habitat; Facing Upstream



**Photo 15:** Site S15; Unnamed Tributary #9; Provisional Class II PHWH; Facing Downstream



**Photo 16:** Site S16; Unnamed Tributary #10; Provisional Modified Class II PHWH; Facing Upstream



**Photo 17:** Site S17; Unnamed Tributary #11; Provisional Class II PHWH; Facing Downstream



**Photo 18:** Site S18; Unnamed Tributary #12; Provisional Class II PHWH; Facing Downstream





**Photo 19:** Site S19; Unnamed Tributary #13;  
Provisional Class II PHWH; Facing Downstream



**Photo 20:** Site S20; Dry Run; Provisional Warmwater  
Habitat; Facing Upstream



**Photo 21:** Site S21; Unnamed Tributary #14;  
Provisional Class II PHWH; Facing Downstream



**Photo 22:** Site S22; Unnamed Tributary #15;  
Provisional Class I PHWH; Facing Upstream



**Photo 23:** Site S23; Unnamed Tributary #16;  
Provisional Class I PHWH; Facing Downstream



**Photo 24:** Site S24; Unnamed Tributary #17;  
Provisional Class II PHWH; Facing Downstream



**Photo 25:** Site S25; Unnamed Tributary #18; Provisional  
Class I PHWH; Facing Downstream



**Photo 26:** Site S26; Unnamed Tributary #19; Provisional  
Class I PHWH; Facing Upstream



**Photo 27:** Site S27; Unnamed Tributary #20;  
Provisional Class II; Facing Upstream





**Photo 28:** Site S28; Unnamed Tributary #21;  
Provisional Class II PHWH; Facing Upstream



**Photo 29:** Site S29; Unnamed Tributary #22; Provisional  
Class II PHWH; Facing Upstream



**Photo 30:** Site S30; Unnamed Tributary #23;  
Provisional Class II PHWH; Facing Downstream



**Photo 31:** Site S31; Unnamed Tributary #24;  
Provisional Class II PHWH; Facing Upstream



**Photo 32:** Site S32; Unnamed Tributary #25;  
Provisional Modified Class I PHWH; Facing Upstream



**Photo 33:** Site S33; Unnamed Tributary #26;  
Provisional Class II PHWH; Facing Downstream



**Photo 34:** Site S34; Unnamed Tributary #27; Provisional  
Class II PHWH; Facing Upstream



**Photo 35:** Site S35; Unnamed Tributary #28; Provisional  
Class I PHWH; Facing Downstream



**Photo 36:** Site S36; Unnamed Tributary #29;  
Provisional Class I; Facing Downstream





**Photo 37:** Site S37; Unnamed Tributary #30; Provisional Class I PHWH; Facing Upstream



**Photo 38:** Site S38; Unnamed Tributary #31; Provisional Class II PHWH; Facing Upstream



**Photo 39:** Site S39; Unnamed Tributary #32; Provisional Class I PHWH; Facing Upstream



**Photo 40:** Site S40; Unnamed Tributary #33; Provisional Class II PHWH; Facing Downstream



**Photo 41:** Site S41; Unnamed Tributary #34; Provisional Class II PHWH; Facing Downstream



**Photo 42:** Site S42; Unnamed Tributary #35; Provisional Modified Class II PHWH; Facing Upstream



**Photo 43:** Site S43; Unnamed Tributary #36; Provisional Class II PHWH; Facing Downstream



**Photo 44:** Site S44; Unnamed Tributary #37; Provisional Class II PHWH; Facing Downstream



**Photo 45:** Site S45; Unnamed Tributary #38; Provisional Class II PHWH; Facing Upstream





**Photo 46:** Site S46; Unnamed Tributary #39; Provisional Class I PHWH; Facing Downstream



**Photo 47:** Site S47; Unnamed Tributary #40; Provisional Class II PHWH; Facing Downstream



**Photo 48:** Site S48; Unnamed Tributary #41; Provisional Class II PHWH; Facing Upstream



**Photo 49:** Site S49; Unnamed Tributary #42; Provisional Class II PHWH; Facing Upstream



**Photo 50:** Site S50; Unnamed Tributary #43; Provisional Modified Class I PHWH; Facing Upstream



**Photo 51:** Site S51; Clear Creek; Provisional Modified Class II PHWH; Facing Upstream



**Photo 52:** Clear Creek; Upstream of Site S51; Facing Upstream



**Photo 53:** Clear Creek; Upstream of Site S51; Facing Upstream

## OTHER AQUATIC FEATURES



**Photo 54:** Other Aquatic Feature; Abandoned Channel of Duck Creek; Impounded; East of Red Bank Road



**Photo 55:** Other Aquatic Feature; High Flow Channel of Little Miami River (slough); Just Upstream of Clear Creek Confluence



**Photo 56:** Other Aquatic Feature; High Flow Channel of Little Miami River (slough); Just Upstream of Stream Site S8 Confluence





**Photo 57:** Wetland W1; Emergent; Provisional Category 1; Total Size: 0.154 acre



**Photo 58:** Wetland W2; Forested/Emergent/Scrub-shrub; Provisional Category 2; Total Size: 1.831 acres



**Photo 59:** Wetland W3; Emergent; Provisional Category 1; Total Size: 0.106 acre



**Photo 60:** Wetland W4; Emergent; Provisional Category 1; Total Size: 0.226 acre



**Photo 61:** Wetland W5; Emergent; Provisional Category Modified 2; Total Size: 0.087 acre



**Photo 62:** Wetland W6; Emergent; Provisional Category Modified 2; Total Size: 0.01 acre



**Photo 63:** Wetland W7; Emergent; Provisional Category Modified 2; Total Size: 0.005 acre



**Photo 64:** Wetland W8; Emergent; Provisional Category Modified 2; Total Size: 0.004 acre



**Photo 65:** Wetland W9; Emergent; Provisional Category 1; Total Size: 0.009 acre





**Photo 66:** Wetland W10; Forested/Emergent; Provisional Category 2; Total Size: 1.689 acres



**Photo 67:** Wetland W11; Emergent; Provisional Category Modified 2; Total Size: 0.112 acre



**Photo 68:** Wetland W12; Forested/Emergent; Provisional Category 2; Total Size: 0.375 acre



**Photo 69:** Wetland W13; Emergent; Provisional Category Modified 2; Total Size: 0.043 acre



**Photo 70:** Wetland W14; Emergent; Provisional Category Modified 2; Total Size: 0.017 acre



**Photo 71:** Wetland W15; Emergent; Provisional Category Modified 2; Total Size: 0.061 acre



**Photo 72:** Wetland W16; Emergent; Provisional Category Modified 2; Total Size: 0.007 acre



**Photo 73:** Wetland W17; Emergent; Provisional Category Modified 2; Total Size: 0.017 acre



**Photo 74:** Wetland W18; Emergent; Provisional Category Modified 2; Total Size: 0.208 acre





**Photo 75:** Wetland W19; Emergent; Provisional Category Modified 2; Total Size: 0.017 acre



**Photo 76:** Wetland W20; Emergent; Provisional Category 1; Total Size: 0.02 acre



**Photo 77:** Wetland W21; Emergent/Scrub-shrub; Provisional Category 1; Total Size: 0.164 acre



**Photo 78:** Wetland W22; Emergent; Provisional Category 1; Total Size: 0.074 acre



**Photo 79:** Wetland W23; Emergent/Scrub-shrub; Provisional Category 1; Total Size: 0.036 acre



**Photo 80:** Wetland W24; Emergent; Provisional Category 1 or 2; Total Size: 0.02 acre



**Photo 81:** Wetland W25; Emergent/Scrub-shrub; Provisional Category Modified 2; Total Size: 0.302 acre



**Photo 82:** Wetland W26; Emergent/Scrub-shrub; Provisional Category 2; Total Size: 0.54 acre





**Photo 83:** Ponds P4 and P5; Approximate Size: 0.6 acre and 0.49 acre, Respectively; Retention and Recreational Use



**Photo 84:** Pond P6; Approximate Size: 0.46 acre; Retention Use; Residential Setting



**Photo 85:** Pond P7; Approximate Size: 0.29 acre; Retention Use; Residential Setting



**Photo 86:** Ponds P8 and P9; Approximate Size: 1.43 acres and 0.95 acre, Respectively; Golf Course Use



**Photo 87:** Pond P10; Approximate Size: 3.11 acres; Golf Course Use



**Photo 88:** Pond P11; Approximate Size: 8.19 acres; Recreational Use; Old Quarry Lake



**Photo 89:** Pond P13; Approximate Size: 118.1 acres; Recreational Use; Old Quarry Lake



**Photo 90:** Pond P14; Approximate Size: 9.37 acres; Recreational Use; Old Quarry Lake

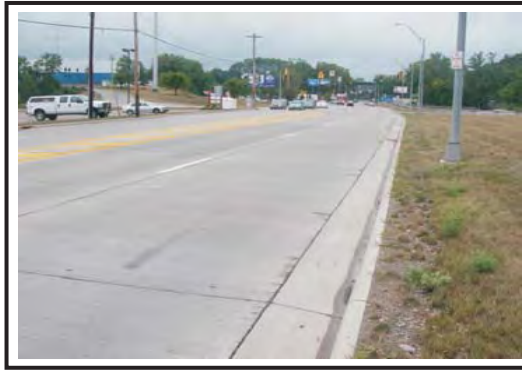


**Photo 91:** Pond P16; Approximate Size: 0.31 acre; Recreational Use; Old Quarry Pond

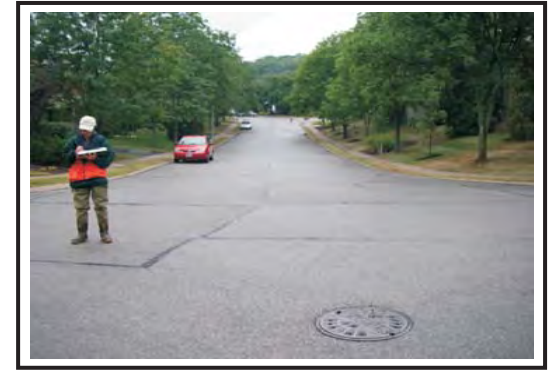




**Photo 92:** Roadway Right-of-Way; SR 32 Divided Roadway; Facing Northwest



**Photo 93:** Local Road Right-of-Way; Red Bank Road; Facing South



**Photo 94:** Local Road Right-of-Way; Traskwood Circle; Facing South



**Photo 95:** Railroad Right-of-Way; North Side of Newtown; Facing West



**Photo 96:** Railroad Right-of-Way; Far East Side of Newtown; Facing Southwest



**Photo 97:** Overhead Transmission Line Right-of-Way; North of Horseshoe Bend; Facing West



**Photo 98:** Developed Land; Single Family Residential; Facing West



**Photo 99:** Developed Land; Multi Family Residential; Facing Northeast



**Photo 100:** Developed Land; Commercial Topsoil Mining; Facing South





**Photo 101:** Developed Land; Commercial Landfill; Facing Southeast



**Photo 102:** Developed Land; Commercial Waste Pile; Facing Southwest



**Photo 103:** Developed Land; Commercial Land Under Development (Future Church); Facing West



**Photo 104:** Developed Land; Commercial Light Industrial; Facing Northwest



**Photo 105:** Developed Land; Schools; Facing Northwest



**Photo 106:** Developed Land; Church; Facing North



**Photo 107:** Maintained Openspace; Cemetery; Facing Northwest



**Photo 108:** Maintained Openspace; Riverside Park Ball Fields; Facing Northeast



**Photo 109:** Agricultural Land; Sod Farm; Facing Southwest





**Photo 110:** Agricultural Land; Soybean Field; Facing Northeast



**Photo 111:** Agricultural Land; Corn Field; Facing West



**Photo 112:** Agricultural Land; Horse Pasture; Facing South



**Photo 113:** Wooded Habitat; Riparian Linked Woods; Facing West



**Photo 114:** Wooded Habitat; Riparian Linked Woods; Facing South



**Photo 115:** Wooded Habitat; Wooded Riparian Corridor; Facing East



**Photo 116:** Wooded Habitat; Wooded Riparian Corridor; Facing Northeast



**Photo 117:** Field Habitat; Oldfield; Facing Southeast



**Photo 118:** Field Habitat; Newfield; Facing East



## SURVEYED WOODLANDS



**Photo 119:** Woodland A; Upland Woods; Total Size: 117 acres



**Photo 120:** Woodland B; Bottomland Woods; Total Size: 25 acres



**Photo 121:** Woodland C; Bottomland Woods; Total Size: 44 acres



**Photo 122:** Woodland D; Bottomland Woods; Total Size: 12 acres



**Photo 123:** Woodland E; Upland Woods; Total Size: 110 acres



**Photo 124:** Woodland F; Upland Woods; Total Size: 68 acres