

CUYAHOGA VALLEY NATIONAL PARK  
Environmental Assessment for Rockside Boarding Area Parking Expansion  
and Trail Bridge over the Cuyahoga River

**Appendix D**

**Wetlands Delineation Report**

**DRAFT**

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**Rockside Boarding Area Parking Expansion  
and Trail Bridge Over Cuyahoga River  
Lock 39 to Rockside Station**

**Independence, Ohio**

**July, 2005**

# **DRAFT**

## ***Wetlands Delineation Report***

### ***Rockside Boarding Area Parking Expansion and Trail Bridge Over Cuyahoga River Lock 39 to Rockside Station***

***Independence, Ohio***

July, 2005

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# Introduction

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## Site Description and Location

The 11.45-acre site is located in Independence, Cuyahoga County, Ohio (Appendix A). The property is south of Rockside Road and on both sides of the Cuyahoga River. The site is located within the Cuyahoga Valley National Park (CVNP) (Appendix B).

The property contains successional woods, upland old fields and shrub thickets, palustrine emergent wetlands, and palustrine forested wetlands. Much of the study area contains existing parking lots and access roads. The 2002 Cuyahoga County aerial photograph showing the site is in Appendix C.

The Cuyahoga River bisects the site (Photograph 9, Appendix J). A small, intermittent drainage way flows along the northern site boundary (Photograph 1, Appendix J). Stream 2 is a small, ephemeral stream flowing out of Wetland G (Photograph 8, Appendix J). Stream 3 is an extremely small, ephemeral ditch that flows from Wetland F to the Cuyahoga River (Photograph 10, Appendix J). All drainage on the site flows into the Cuyahoga River, which has a watershed area of 809 square miles and enters Lake Erie at Cleveland.

## Secondary Source Information

The property is shown on the Cleveland South quadrangle of the United States Geological Survey (USGS) map (Appendix D). Elevations on the site are around 600 feet.

The National Wetlands Inventory (NWI) map (Cleveland South quadrangle) is in Appendix E. The Cuyahoga River is mapped as a riverine, lower perennial, open water/unknown bottom, intermittently exposed/permanent wetlands system (code R2OWZ). A wetlands map for the Cuyahoga Valley National Park prepared by Davey Resource Group in 2000 is also in Appendix F. This map shows a large wetland, Wetland Number 1140, just south of the site.

Information obtained from the Cuyahoga County Soil Survey (Musgrave and Holloran, 1980) is found in Appendix G. The site is located on sheet 40 of the soil survey. See Table 1 for a list of soil types mapped for the site.

**Table 1. Soil Types Mapped for the Site**

Map Unit	Soil Description
Ch	Chagrin silt loam, occasionally flooded
Ua	Udorthents, loamy

Descriptions for the soil types found on the site from Musgrave and Holloran (1980) are in Appendix G. Lists of hydric soils and non-hydric soils with hydric inclusions are also found in Appendix G.

## Methodology

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The *Corps of Engineers Wetlands Delineation Manual* (United States Army Engineer Waterways Experiment Station Environmental Laboratory, 1987) was used in delineating wetlands within the study area. The routine on-site determination method for sites over five acres was used (Section D, page 53). The National Park Service (NPS) has additional methods that were used. For purposes of compliance with NPS wetlands procedures, a wetland is any area that is classified as such according to Cowardin, *et al.*, 1979. For the Cowardin classification system, a wetland must have one or more of the following attributes:

- The land predominantly supports hydrophytes (wetland vegetation)
- The substrate is predominantly undrained hydric soil
- The substrate is non-soil and is saturated with water or covered by shallow water at some time during the growing season of each year

The wetlands were delineated and surveyed on June 20, 2005. The wetlands delineation fieldwork, boundary survey, and data analysis were performed by Todd Crandall. Ken Christensen prepared the vegetation, soils, and wetlands maps using AutoCAD Map® 2005 software. Ana Burns and Michelle Malcosky provided technical oversight and quality control.

Wetlands are identified based on three characteristics: vegetation, soils, and hydrology. Fourteen sampling stations were established in the field to determine wetlands boundaries. Data sheets reporting the results of soils, vegetation, and hydrology analyses were completed for each sample station.

Soil samples were obtained to determine the extent of hydric soils on the site. A standard Munsell soil color chart was used to determine the hue, value, and chroma of each soil sample. Soil samples were taken at a depth of ten inches or immediately below the A horizon. Criteria established by the National Technical Committee for Hydric Soils (1991) were used to determine hydric soils.

Wetlands hydrology was characterized during this wetlands delineation. Inundation and/or soil saturation were noted for each sample site. Secondary hydrological indicators, including watermarks, drift lines, sediment deposits, wetlands drainage patterns, blackened leaves, and morphological indicators, were also noted. Other hydrological indicators observed include iron/manganese concretions and oxidized root zones within the upper soil layers.

Quantitative vegetation data were collected at each sampling station. Dominance was estimated by percent areal cover. Four strata were considered for each sample site—trees, saplings/shrubs, herbs, and woody vines. Trees are defined as any woody plant having a diameter at breast height (DBH) greater than 3.0 inches. Saplings and shrubs are those woody plants that have a DBH of less than 3.0 inches and are greater than 3.2 feet in height. For each stratum, plant species within a quadrat were identified and percent areal cover was estimated for each species. Fifteen-foot-square quadrats were used for trees, saplings/shrubs, and woody vines. A three-foot-square quadrat was used for herbs.

Any species within a stratum comprising 20 percent or more of the total quadrat areal cover was considered to be dominant. Dominant species within all strata were then added to determine the percentage of wetlands vegetation for each sample point. The wetlands vegetation criterion was met if greater than 50 percent of the dominant vegetation was indicative of wetlands conditions.

Reed (1988 and 1997) was used to assign indicator statuses to each identified species. Plants with an indicator status of obligate (OBL), facultative wetland (FACW), or facultative (FAC) were considered to be indicative of wetlands conditions. Plants with an indicator status of facultative minus (FAC-), facultative upland (FACU), or upland (UPL) were considered to be indicative of upland conditions. Plants that could only be identified to genus were sometimes assigned an indicator status based on the professional judgment of Davey Resource Group. These plants are classified as wetlands indicator species (WIS) or upland indicator species (UIS). See Appendix H for a more detailed explanation of wetlands vegetation indicator statuses.

Survey flags were placed at necessary points around each wetlands to accurately depict its boundary. The location of each flag was surveyed using a 12-channel Trimble Pathfinder® Pro XRS differential global positioning system (GPS), which has sub-meter accuracy when used in conjunction with GPS data collected from a base station (a static GPS receiver set over a known point). The field-collected GPS information was compiled and differentially corrected using a desktop computer equipped with Trimble’s Pathfinder® Office™ software and GPS data collected from an appropriate base station. The corrected GPS latitude-longitude positions were exported into a compatible coordinate system as an AutoCAD® drawing interchange file (DXF). The vegetation, soils, and wetlands maps included in this report were prepared using AutoCAD Map® 2005 software.

Ohio Rapid Assessment Method v. 5.0 (ORAM) forms were completed for each wetland within the study area. This method is a qualitative wetlands assessment that gives a numerical quality rating to wetlands based on a variety of factors. Wetlands are classified as Category 1, 2, or 3 based on the numerical rating (Table 2). For wetlands that extend out of the study area, the ORAM is based on the entire wetlands, not just the portion that occurs within the study area.

**Table 2. Ohio Rapid Assessment Method (ORAM)  
Numerical Scores and Categories**

Numerical Score	Category
0-29.9	1
30-34.9	1 or 2
35-44.9	Modified 2
45-59.9	2
60-64.9	2 or 3
65-100	3

# Results

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## Vegetation

A map showing the locations of vegetative communities present on the property is in Appendix I. The site contains successional woods, upland old fields and shrub thickets, palustrine emergent wetlands, and palustrine forested wetlands. Species identifications are based on Braun (1989), Newcomb (1977), and Weishaupt (1971). Reed (1988) was consulted to assign wetlands indicator statuses to plant species. Kartesz (1994) was used as a taxonomic reference.

**Successional Woods.** Areas of successional floodplain woods are along the Cuyahoga River. Common species found here include *Populus deltoides* (cottonwood, FAC<sup>1</sup>), *Acer negundo* (box elder, FAC+), *Polygonum cuspidatum* (Japanese knotweed, FACU+), and *Alliaria petiolata* (garlic mustard, FACU).

**Upland Old Fields and Shrub Thickets.** Much of the site is an upland old field and shrub thicket. Common species include *Eleagnus umbellata* (oleaster, UPL), *Chrysanthemum leucanthemum* (oxeye daisy, FACU), *Juncus tenuis* (path rush, FAC-), *Solidago canadensis* (Canada goldenrod, FACU), and *Festuca* sp. (fescue).

**Palustrine Emergent Wetlands.** Wetlands B, C, D, E, and G are palustrine emergent wetlands (Photographs 2, 3, 4, 5, and 7, Appendix J). Wetlands B and G are dominated mostly by *Phragmites australis* (common reed, FACW). The remaining wetlands contain *Carex* spp. (sedges), *Lysimachia nummularia* (moneywort, FACW), *Asclepias incarnata* (swamp milkweed, OBL), and *Juncus tenuis* (path rush, FAC-).

**Palustrine Forested Wetlands.** Wetlands A and F are palustrine, forested wetlands (Photographs 1 and 6, Appendix J). This area contains *Populus deltoides* (cottonwood, FAC), *Acer negundo* (box elder, FAC+), and *Phalaris arundinacea* (reed canary grass, FACW+).

## Soils

The study area mostly contains disturbed soils and fill associated with the parking lots. In addition, the soil survey maps these areas as disturbed, indicating that the fill is relatively old. Small areas of hydric soils are associated with some of the wetlands areas. Small areas of undisturbed Chagrin soils are found along the Cuyahoga River. A map showing the general locations of soil types as shown on the soil survey and identified in the field is included in Appendix K.

## Hydrology

The wetlands were mostly dry at the time of our sampling. Wetlands B, C, D, E, and G are slight depressions that collect surface water. Wetland A may receive some ground water input. Wetland F, located along Stream 1, receives overflow from the Cuyahoga River.

Vegetation, soils, and hydrology data sheets and a summary table of sample point data are included in Appendix L.

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<sup>1</sup> Please refer to Appendix H for a description of wetlands vegetation indicator status symbols.

## Wetlands

Seven wetlands were identified in the study area (Appendix M). Ohio Rapid Assessment Method for wetlands (ORAM) forms Version 5 were completed for each wetland. ORAM forms and a summary table are located in Appendix N. In addition, a letter from Ohio Department of Natural Resources Division of Natural Areas and Preserves regarding the review of the Natural Heritage database is included in Appendix O. Following is a description of the functions and values for each wetland.

**Wetland A.** Wetland A is a palustrine forested wetland located along a small stream (Photograph 1, Appendix J). This area scored within the Category 1-2 gray zone, which is assumed to be Category 2 per Ohio Environmental Protection Agency (EPA) regulations.

Soils within this area are hydric but borderline. Hydrological indicators at the time of our fieldwork were limited to moist soils and a few oxidized root zones. This area receives surface water runoff, including runoff from Rockside Road, and also may have some ground water input, though no direct evidence of ground water was observed. The deeply cut stream channel prevents water from ponding in this area. Wetland A is located on a relatively steep slope on either side of the stream channel. This wetland was delineated mainly by changes in vegetation.

Wetland A is typical of small, roadside disturbed wetlands that are found along ditches and small streams. Similar wetlands can be found throughout the CVNP. This wetland represents a recovered ecological state from past disturbances. This community is now relatively stable.

Wetland A provides very limited functions and values. The area may act to slow and filter runoff from Rockside Road before it enters Stream 1; however, the sloping nature of the wetland limits these functions. This wetland and surrounding areas provide some wildlife habitat for upland species as well as species that move between uplands and wetlands. The relative lack of hydrology in this wetland provides very little habitat for wetland dependant species. Habitat value is limited because of the adjacent developed areas including Rockside Road, the railroad track, and Rockside Boarding parking area.

**Wetland B.** This wetland scored Category 1 on the ORAM form. This is a very small palustrine, emergent wetland (Photograph 2, Appendix J). It is dominated by *Phragmites australis* (common reed, FACW), a non-native, invasive plant. This area was generally delineated by the limits of the *Phragmites* stand as well as hydrological indicators.

Wetland B is located in a slight depression. It receives runoff from the adjacent parking area and old fields. This area probably briefly ponds surface water. The area was dry at the time of our fieldwork. Sediment deposits were observed. Soils within the wetland and surrounding areas have been disturbed.

Wetlands such as this that are dominated by *Phragmites* are common throughout the CVNP and surrounding areas. They are typically found adjacent to roadsides, parking lots, and disturbed areas, particularly in areas where road salt is used, as *Phragmites* is a salt tolerant species.

Wetland B provides limited functions and values. It may be utilized as wildlife habitat occasionally for common wildlife species. This area does not pond water long enough to provide habitat for aquatic insects or amphibians. The presence of invasive plants within this area makes the wetland a threat to nearby undisturbed wetlands. Sediment deposits indicate that this wetland may prevent small amounts of sediment and runoff from entering the adjacent streams.

**Wetlands C, D, and E.** These are small palustrine emergent wetlands located south of the parking area (Photographs 3, 4, and 5, Appendix J). All three of these wetlands scored Category 1 on the ORAM forms. Borderline hydric soils are found within these areas. Hydrological indicators were limited to sediment deposits at the time of our fieldwork. These areas were delineated by changes in vegetation as well as the presence of sediment deposits. *Juncus tenuis* (path rush, FAC-) was present in both the wetland and upland portions of this area. The greater dominance of wetland plants as compared to this species was used to help determine the wetland boundary decision.

These wetlands formed in disturbed soils, probably due to soil compaction and/or rutting associated with past disturbances. The soils here appear to be low in organic matter as evidenced by weak plant growth. These wetlands pond surface water for brief periods after heavy rains and snow melt as evidenced by sediment deposits. Wetlands C, D, and E are typical of wet meadow habitat that forms on disturbed soils. Such wetlands are common within the CVNP and throughout northeast Ohio and are typically found adjacent to roadsides, farm fields, and developed areas.

All three of these wetlands provide little wetlands functions and values. They are too shallow to pond significant amounts of water or to provide any significant wetland habitat. The habitat provided is not significantly different from the surrounding upland old field and shrub thicket habitat.

**Wetland F.** Wetland F is a palustrine forested wetland located in the Cuyahoga River floodplain (Photograph 6, Appendix J). This area scored within the Modified Category 2 range on the ORAM form. Non-hydric, alluvial Chagrin soils are found here. Although the soils are non-hydric, this wetland meets NPS wetlands criteria based on vegetation and hydrology using the Cowardin classification methods. This wetlands will likely not be regulated by U.S. Army Corps of Engineers (USACE).

Vegetation was used to delineate this wetland, specifically the change in dominance within the understory from *Phalaris arundinacea* (reed canary grass, FACW) to *Polygonum cuspidatum* (Japanese knotweed, FACU). Hydrological indicators were evident throughout the floodplain including sediment deposits, wetlands drainage patterns, and drift lines. This wetland extends out of the study area to the south.

Wetlands similar to Wetland F occur along the Cuyahoga River throughout the CVNP. Many of these wetlands are large, covering broad flood plains over many acres. Wetland F may have been larger before the disturbances occurred on adjacent lands. Wetland F is part of a large riparian wetland shown south of one study area on the wetlands inventory map prepared by Davey Resource Group (Appendix F).

Forested floodplain wetlands provide significant functions and values. Flood attenuation and possibly ground water recharge are important functions of this wetland. The large amounts of sediment observed indicate that sediment is allowed to settle out of flood waters that enter this area, improving down stream water quality. As part of an extensive forested riparian corridor, this wetland is important for wildlife habitat and movement through the park. This represents the northern portion of a large wooded area that ends at Rockside Road.

Forested floodplain wetlands provide an obvious example to the public of some of the functions that wetlands provide including flood control, water purification, and wildlife habitat. As such, floodplain wetlands have interpretative value.

**Wetland G.** Wetland G is similar to Wetland B (Photograph 7, Appendix J). This area was delineated based on the limits of *Phragmites* as well as the presence of sediment deposits. Hydric soils were observed in this area. Wetland G scored Category 1 on the ORAM form.

Wetland G provides limited functions and values. This wetland receives parking lot runoff and briefly ponds surface water before it enters Stream 2. As such, this wetland may provide minimal water purification functions. It may be occasionally utilized as wildlife habitat for common wildlife species. This area does not pond water long enough to provide habitat for aquatic insects or amphibians. The presence of invasive plants within this area makes the wetland a threat to nearby undisturbed wetlands.

## Conclusions

A map showing the location and size of the jurisdictional wetlands and aquatic features identified on the property, along with the locations of sample points, is shown in Appendix M. Seven wetlands totaling 1.15 acres are found within the study area (Table 3).

**Table 3. Jurisdictional Wetlands Delineated on the Site**

Wetlands	Cowardin Type	Wetland Type	ORAM Category	Area (Acres)
A	Palustrine forested	USACE Jurisdictional	2	0.18
B	Palustrine emergent	USACE Jurisdictional	1	0.30
C	Palustrine emergent	USACE Jurisdictional	1	0.21
D	Palustrine emergent	USACE Jurisdictional	1	0.07
E	Palustrine emergent	USACE Jurisdictional	1	0.03
F	Palustrine forested	Cowardin only	Modified 2	0.35
G	Palustrine emergent	USACE Jurisdictional	1	0.01
Total				1.15

In addition to the wetlands, there are 289 linear feet of intermittent drainageways and 201 linear feet of ephemeral drainageways on the site (Table 4).

**Table 4. Jurisdictional Drainageways Delineated on the Site**

<b>Stream</b>	<b>Type</b>	<b>Length (Linear Feet)</b>
1	Intermittent	289
2	Ephemeral	153
3	Ephemeral	48
Total Ephemeral		201
Total Intermittent		289

Davey Resource Group is confident that all jurisdictional wetlands and drainageways were identified on this site. No unusual or problem areas were found. All wetlands studies conducted by Davey Resource Group are objective and based strictly on professional judgment. Davey Resource Group and its employees have no vested interest in this property or the proposed project. Appendix P contains references used in the creation of this report and Appendix Q provides profiles of the Davey personnel involved.

All wetlands delineations must be verified by the U.S. Army Corps of Engineers to be considered official. This wetlands delineation is reflective of environmental conditions at the time the fieldwork was performed. Wetlands are dynamic natural systems; therefore, boundaries may change slightly over time. Wetlands delineations performed during extremely wet or dry weather conditions are subject to slight seasonal changes.

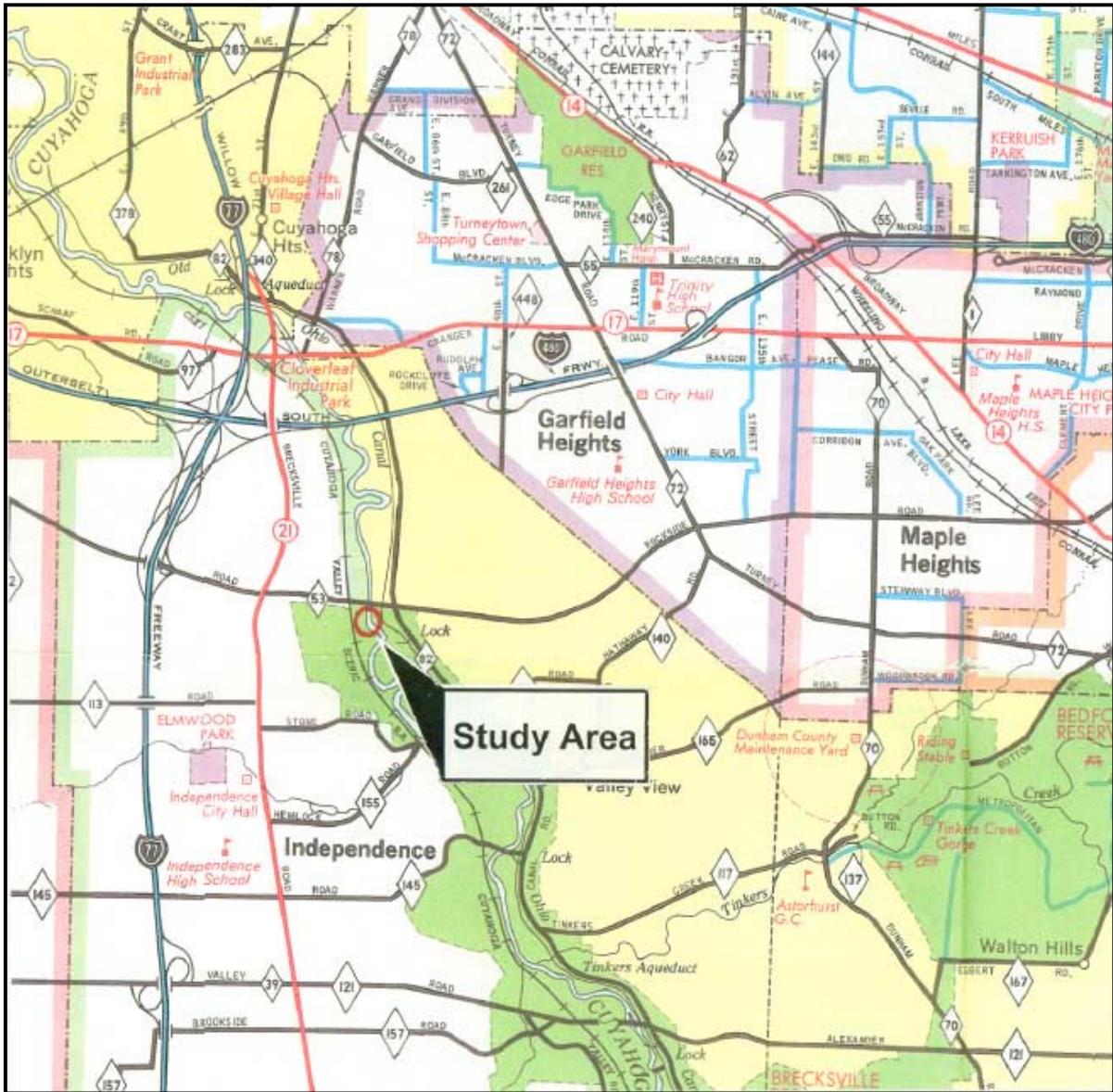


## Appendix B Location of Study Area on Highway Map



**Site:** Rockside Boarding Area Parking Expansion and Trail Bridge Over Cuyahoga River  
Lock 39 to Rockside Station  
Independence, Ohio

**Scale:** 1" = 1 mile



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***Appendix C***  
***Cuyahoga County Aerial Photograph, 2002***

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Prepared for  
**Bergmann Associates**

Rockside Boarding Area Parking Expansion  
and Trail Bridge  
Lock 39 to Rockside Station  
Independence, Ohio

Prepared by  
**DAVEY**  
RESOURCES GROUP  
A Division of The Davey Tree Expert Company

Data used to produce this  
map were collected  
on June 20, 2005



--- = Study area (11.45 acres)

GRAPHIC SCALE  
( IN FEET )  
0 100 200

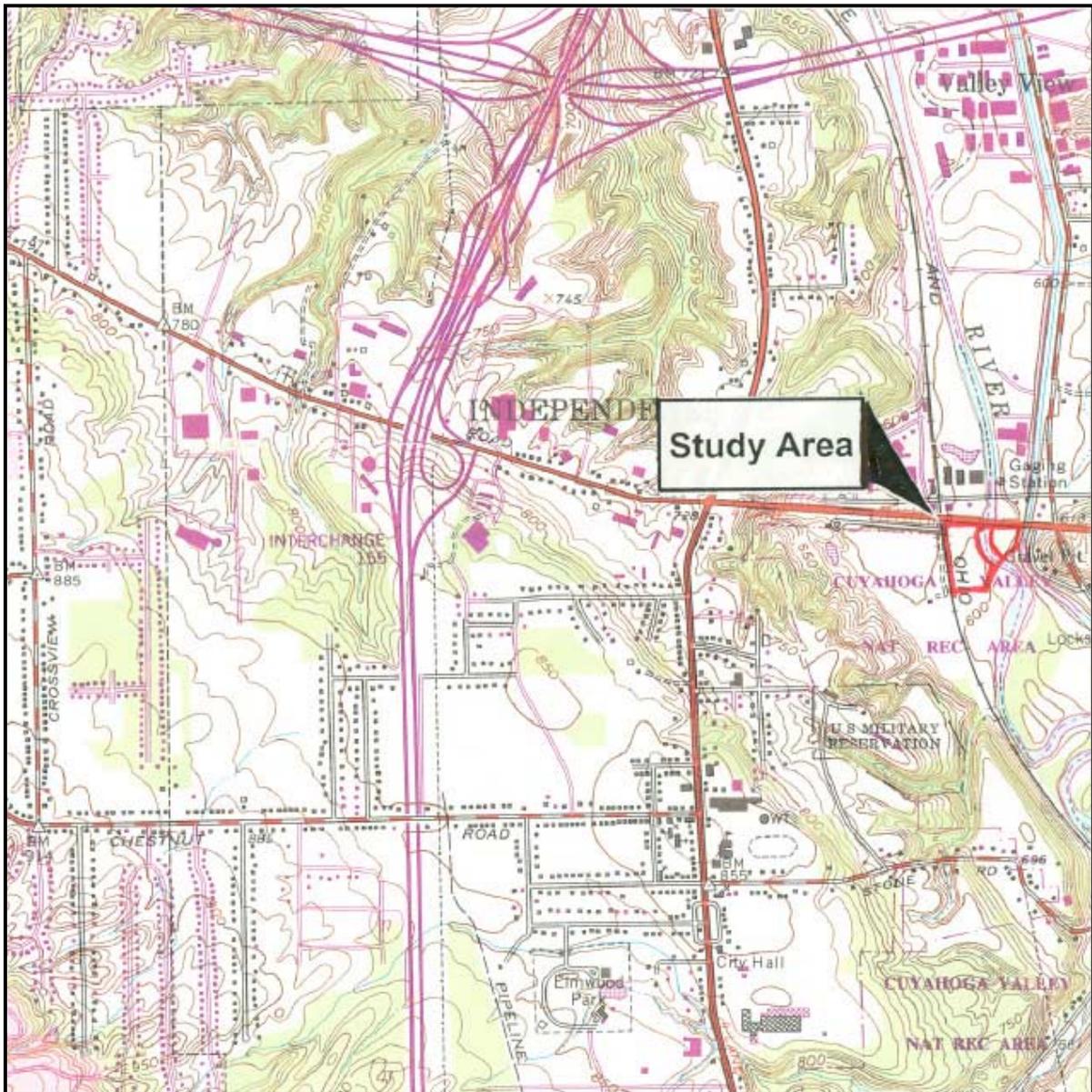
1 inch = 100 feet

**Appendix D**  
**Location of Study Area on**  
**USGS 7.5-Minute Topographic Map (Cleveland South Quadrangle)**



**Site:** Rockside Boarding Area Parking Expansion and Trail Bridge Over Cuyahoga River  
Lock 39 to Rockside Station  
Independence, Ohio

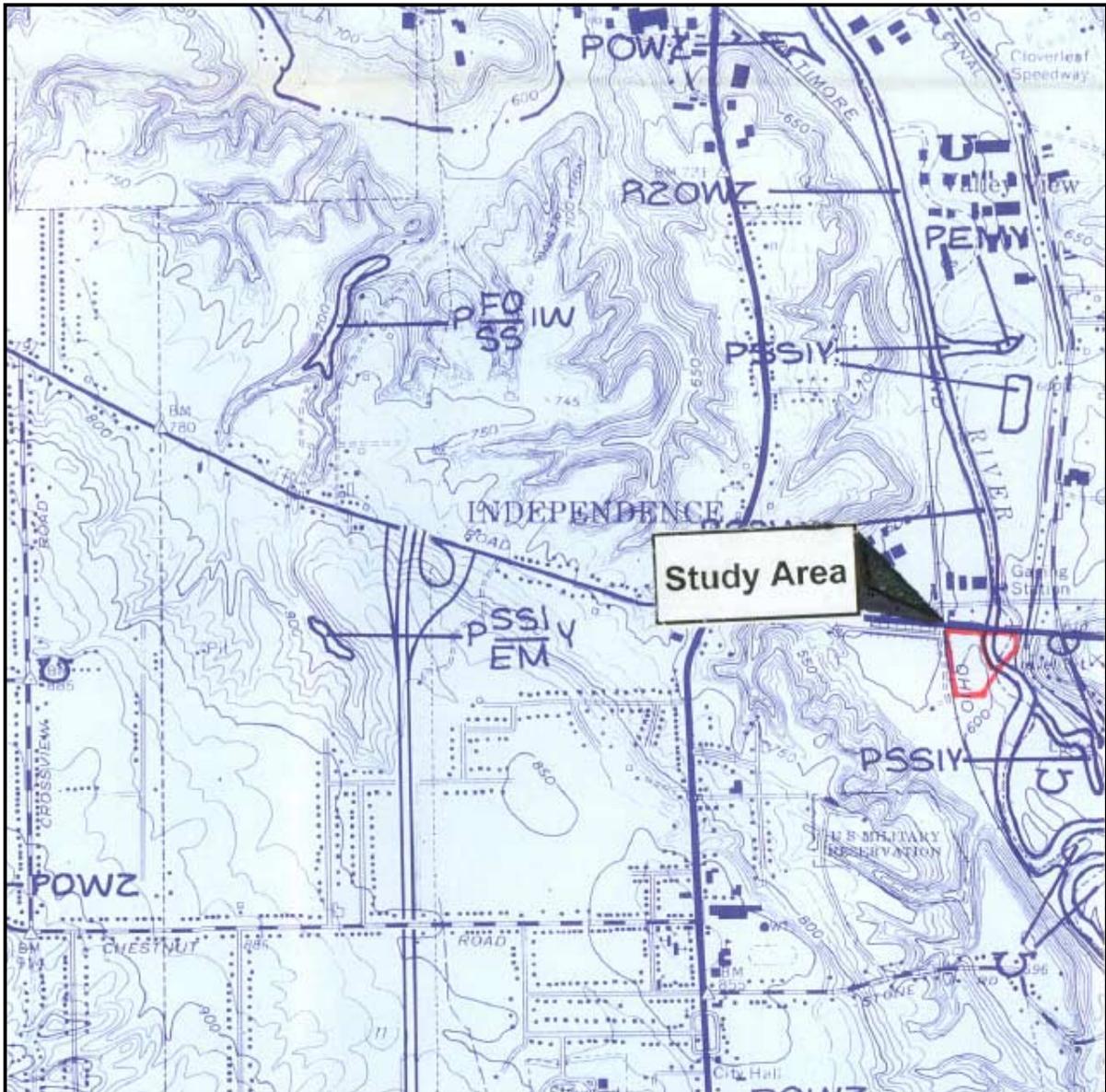
**Scale:** 1" = 1 mile



**Appendix E**  
**Location of Study Area on**  
**National Wetlands Inventory Map (Cleveland South Quadrangle)**



**Site:** Rockside Boarding Area Parking Expansion and Trail Bridge Over Cuyahoga River  
Lock 39 to Rockside Station  
Independence, Ohio



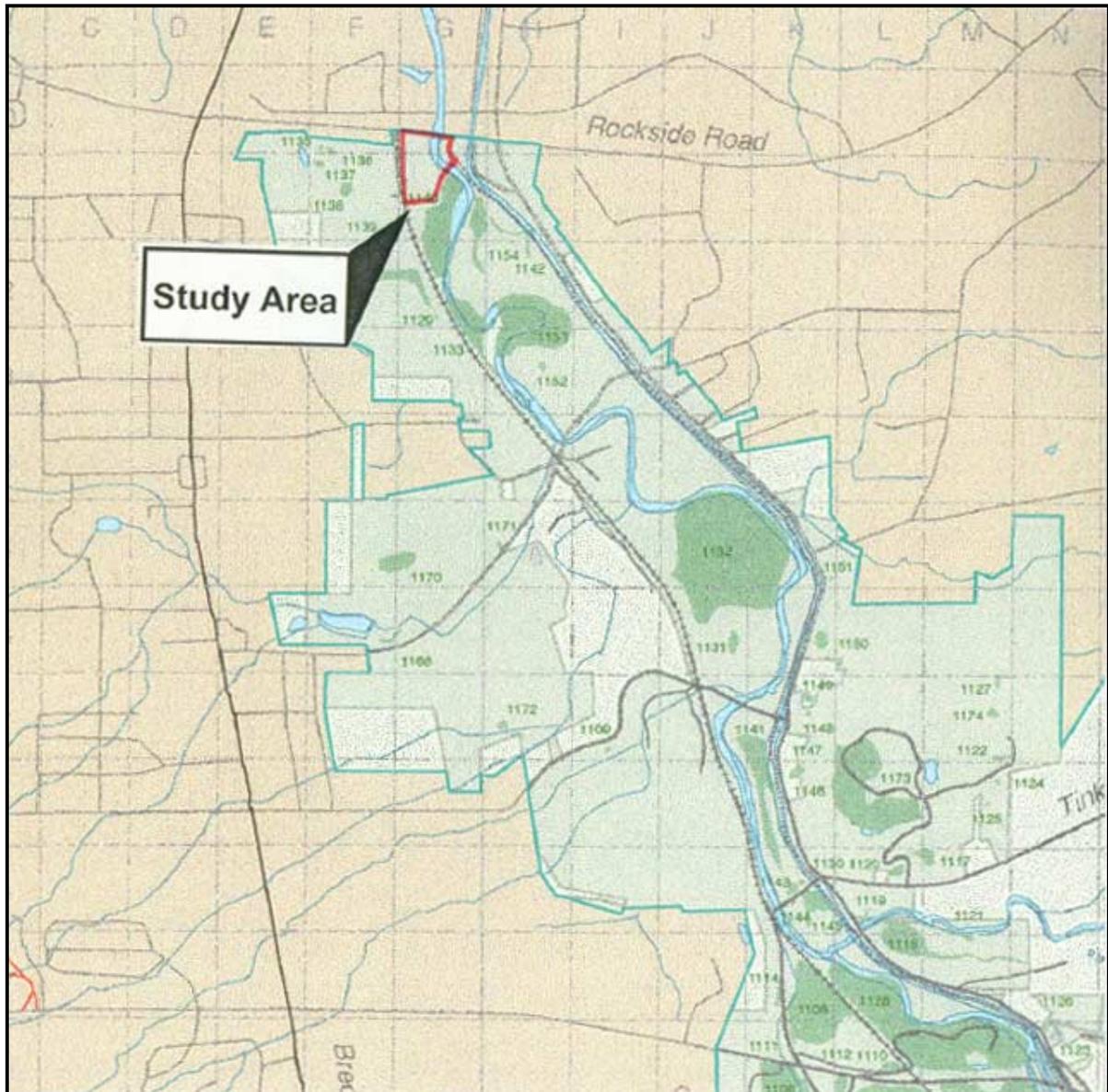
**Appendix F**  
**Wetland Inventory of Cuyahoga Valley National Park**  
**by Davey Resource Group**

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**Site:** Rockside Boarding Area Parking Expansion and Trail Bridge Over Cuyahoga River  
Lock 39 to Rockside Station  
Independence, Ohio

**Scale:** 1" = 1,320'



# Appendix G

## Cuyahoga County Soil Survey Information for Study Area

### Location of Study Area on Cuyahoga County Soil Survey Map



**Site:** Rockside Boarding Area Parking Expansion and Trail Bridge Over Cuyahoga River  
Lock 39 to Rockside Station  
Independence, Ohio

**Scale:** 1" = 1,320'



## Description of Soils Found on the Site (from Musgrave and Holloran, 1980)

**Ch—Chagrin silt loam, occasionally flooded.** This deep soil is nearly level and well drained. This soil is in the highest position on flood plains. It is occasionally flooded for brief periods in fall, winter, and spring. Slope is 0 to 2 percent. Most areas are long and narrow and range from 10 to 100 acres in size.

Typically, the surface layer is dark grayish brown, friable silt loam about 8 inches thick. The subsoil is about 27 inches thick. It is dark yellowish brown, friable silt loam. The substratum to a depth of about 60 inches is dark brown and olive brown, friable silt loam. In some areas the soil has a very dark grayish brown surface layer.

Included with this soil in mapping are narrow strips of the somewhat poorly drained Orrville soils at a slightly lower elevation on flood plains. This inclusion makes up about 15 percent of most areas.

Permeability is moderate, and surface runoff is slow. The root zone is deep, and available water capacity is high. Reaction is slightly acid or neutral throughout the soil. The surface layer is easily tilled through a fairly wide range of moisture content.

The soil is used mostly for recreation and woodland. A few areas are used for sweet corn and sod production. This soil has high potential for cropland, pasture, and woodland. It has low potential for building site development and sanitary facilities. The potential is medium or high for recreation.

The main hazard for lawns, flowers, vegetables, trees, hay, pasture, and shrubs is flooding. Annual flowers and vegetables do well on this soil if they are planted after the major threat of flooding. Perennial plants should be selected for tolerance to brief flooding. Lawns are easy to establish when the soil is not flooded, but flooding of extended duration kills grasses. Planting cover crops protects the surface during floods. Tree seedlings grow well if competing vegetation is controlled or removed by such practices as spraying, mowing, or disking.

Flooding seriously limits this soil as a site for most buildings and sanitary facilities. Installing dikes to control flooding is difficult. Fill can elevate roads above normal flood levels. This soil is suited to extensive recreational uses, such as golf fairways, hiking trails, and picnic areas. Special measures are needed in some places to control streambank erosion and keep channels from cutting through the soil.

**Ua—Udorthents, loamy.** These soils are in areas of cut or fill. In areas that have been cut, the remaining soil material typically is similar to the subsoil or substratum of adjacent soils. In fill or disposal areas, the characteristics of the soil material are more varied; this soil material generally is the subsoil and substratum of nearby soils. Slope ranges from 0 to 6 percent.

Typically, the upper 60 inches is silty clay loam, clay loam, or silt loam. The surface layer is commonly littered with shale fragments and is firm and dense. Available water capacity is variable but dominantly low or very low in the root zone. Internal water movement and runoff are variable. Tilth is poor. Hard rains tend to seal the surface rate and restricting the

emergence and growth of plants. A seasonal high water table is evident in some areas, particularly where the soil is graded and depressed or bowl-shaped. The root zone is medium acid to mildly alkaline. Included with this soil in mapping are small areas where the slopes are 6 to 15 percent.

In most areas, the construction has taken place. About one-half of the areas have no vegetation cover. In areas where the surface is bare, the erosion hazard is severe. Suitable plant cover is needed to control erosion.

The suitability of these soils as a site for buildings and sanitary facilities varies. Onsite investigation is needed to determine the potential and limitation for any proposed use.

**List of Hydric Soils for Cuyahoga County, Ohio**

<b>Map Unit Symbol</b>	<b>Map Unit Name</b>
As	Allis silt loam
At	Allis-Urban land complex
Ca	Canadice silty clay loam
Cg	Carlisle silty clay loam
Ct	Condit silty clay loam
Cu	Condit-urban land complex
Ho	Holly silt loam, frequently flooded
Mo	Mermill loam
Mr	Miner silty clay loam
Sb	Sebring silt loam

**Supplemental List of Non-hydric Soil Map Units  
with Hydric Inclusions for Cuyahoga County, Ohio**

<b>Map Unit Symbol</b>	<b>Map Unit Name</b>	<b>Where Hydric Soil Component Occurs</b>
BrF	Brecksville silt loam, 25 to 70 percent slopes	narrow floodplains
CcA	Caneadea silt loam, 0 to 2 percent slopes	depressions and drainageways
FcA	Fitchville silt loam, 0 to 2 percent slopes	depressions and drainageways
FcB	Fitchville silt loam, 2 to 6 percent slopes	depressions and drainageways
HaA	Haskins loam, 0 to 2 percent slopes	depressions and drainageways
HbA	Haskins-urban land complex, nearly level	depressions and drainageways
HrB	Hornell silt loam, 2 to 6 percent slopes	flat areas and drainageways
HsC	Hornell-urban land complex, rolling	toe slopes and flat areas
MgA	Mahoning silt loam, 0 to 2 percent slopes	depressions
MmB	Mahoning-urban land complex, undulating	depressions and drainageways
MtA	Mitiwanga silt loam, 0 to 2 percent slopes	depressions
Or	Orrville silt loam, frequently flooded	depressions and old meander channels
Uc	Urban land-Allis complex	mostly open land not developed
UmB	Urban land-Mahoning complex, undulating	depressions
UnB	Urban land-Mitiwanga complex, undulating	flat areas underlain by rippable shale

## **Appendix H**

### **Definition of Wetlands Vegetation Indicator Status**

**(from Reed, 1988)**

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**Obligate Wetlands (OBL).** Occur almost always (estimated probability is greater than 99%) under natural conditions in wetlands.

**Facultative Wetlands (FACW).** Usually occur in wetlands (estimated probability 67–99%) but occasionally found in non-wetlands.

**Facultative (FAC).** Equally likely to occur in wetlands or non-wetlands (estimated probability 34–66%).

**Facultative Upland (FACU).** Usually occur in non-wetlands (estimated probability 67–99%) but occasionally found in wetlands (estimated probability 1–33%).

**Obligate Upland (UPL).** Occur in wetlands in another region, but occur almost always (estimated probability > 99%) under natural conditions in non-wetlands in the region specified. If a species does not occur in wetlands in any region, it is not on the *National List*.

Species for which little or no information was available to base an indicator status were assigned a no indicator (NI) status. An asterisk (\*) after the indicator status indicates that the indicator status was based on limited ecological information.

The wetlands indicator categories should not be equated to degrees of wetness. Many obligate wetlands species occur in permanently or semipermanently flooded wetlands, but a number of obligates also occur and some are restricted to wetlands that are only temporarily or seasonally flooded. The facultative upland species include a diverse collection of plants that range from weedy species adapted to exist in a number of environmentally stressful or disturbed sites (including wetlands) to species in which a portion of the gene pool (an ecotype) always occurs in wetlands. Both the weedy and ecotype representatives of the facultative upland category occur in seasonally and semipermanently flooded wetlands.

Davey Resource Group has added two additional indicators for situations when plants can only be identified to genus. A Wetlands Indicator Species (WIS) is a plant that is most likely obligate wetlands, facultative wetlands, or facultative. An Upland Indicator Species (UIS) is a plant that is most likely indicative of upland or facultative upland conditions. These additional indicators are used when species identification is not possible. A variety of factors are part of the UIS and WIS assignments. Indicator statuses of all locally occurring members of the genus in question are considered, as are the health and size of the population and the indicator status of nearby plants.

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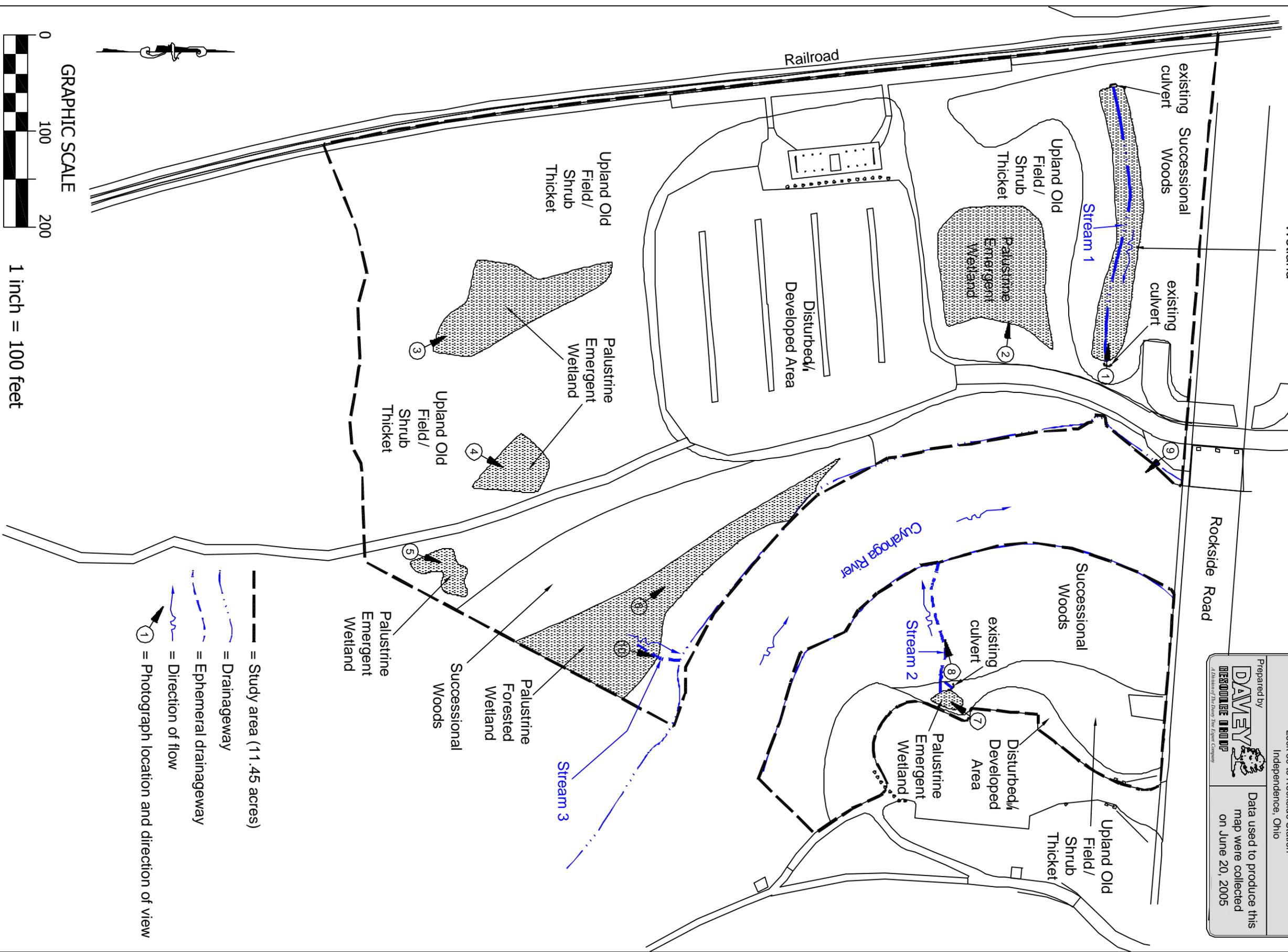
***Appendix I***  
***General Plant Communities on the Site from Field Data***

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**Appendix I**

*General Plant Communities on the Site from Field Data*

Prepared for <b>Bergmann Associates</b>		Data used to produce this map were collected on June 20, 2005
Prepared by <b>DAVEY</b> RESOURCES GROUP <small>A Division of The Flintco Group</small>		
Rockside Boarding Area Parking Expansion and Trail Bridge Lock 39 to Rockside Station Independence, Ohio		



- = Study area (11.45 acres)
- - - = Drainageway
- · - · - = Ephemeral drainageway
- = Direction of flow
- ① = Photograph location and direction of view

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***Appendix J***  
***Photographs of Site***

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**Photograph 1 (6-20-05)** Stream 1 flows through Wetland A.



**Photograph 2 (6-20-05)** Wetland B is a palustrine emergent wetland dominated by *Phragmites australis* (common reed).



**Photograph 3 (6-20-05)** Wetland C is a palustrine emergent wetland.



**Photograph 4 (6-20-05)** Wetland D is a palustrine emergent wetland.



**Photograph 5 (6-20-05)** Wetland E is a palustrine emergent wetland.



**Photograph 6 (6-20-05)** Wetland F is a palustrine forested wetland.



**Photograph 7 (6-20-05)** Wetland G is a palustrine emergent wetland dominated by *Phragmites australis* (common reed).



**Photograph 8 (6-20-05)** Stream 2 is a very small, ephemeral stream flowing out of Wetland G.



**Photograph 9 (6-20-05)** The Cuyahoga River bisects the site.



**Photograph 10 (6-20-05)** Stream 3 is a very small, ephemeral stream flowing between Wetland F and the Cuyahoga River.

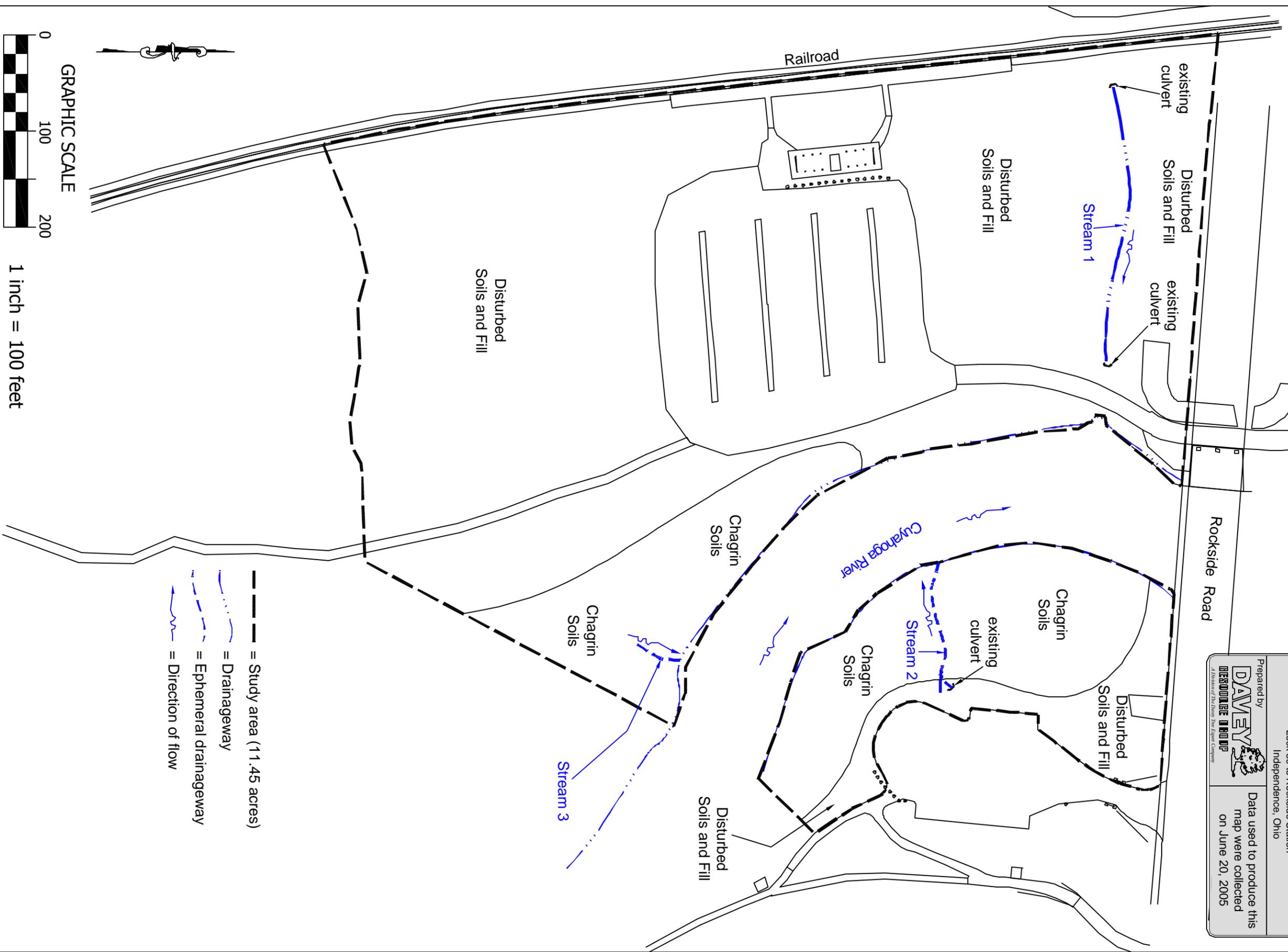
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***Appendix K***  
***Soils Based on Field Data and Soil Survey Map***

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**Appendix K**  
Soils Based on Field Data and Soil Survey Map

Prepared for <b>Bergmann Associates</b>	 <b>DAVEY</b> RESOURCES & RUDIP <small>A Division of The Davey Tree Expert Company</small>	Data used to produce this map were collected on June 20, 2005
Prepared by <b>Bergmann Associates</b> Rockside Boarding Area Parking Expansion and Trail Bridge Lock 39 to Rockside Station Independence, Ohio		



- = Study area (11.45 acres)
- = Drainageway
- - - = Ephemeral drainageway
- = Direction of flow

**Appendix L**  
**Vegetation, Hydrology, and Soils Data Sheets**

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**Summary Table of Vegetation, Hydrology, and Soils Sample Point Data**

Sample Number	Hydric Soil	Wetlands Hydrology	Percent Wetlands Vegetation	USACE Jurisdictional Wetlands	Cowardin Classified Wetlands	Comments
1	Yes	Yes	100	Yes	Yes	Palustrine forested (Wetland A)
2	No	No	40	No	No	Successional woods
3	Yes	Yes	100	Yes	Yes	Palustrine emergent (Wetland B)
4	No	No	33	No	No	Upland old field/shrub thicket
5	Yes	Yes	67	Yes	Yes	Palustrine emergent (Wetland C)
6	No	No	0	No	No	Upland old field/shrub thicket
7	Yes	Yes	75	Yes	Yes	Palustrine emergent (Wetland D)
8	No	No	25	No	No	Upland old field/shrub thicket
9	Yes	Yes	67	Yes	Yes	Palustrine emergent (Wetland E)
10	No	No	0	No	No	Upland old field/shrub thicket
11	No	Yes	100	No	Yes	Palustrine forested (Wetland F)
12	No	Yes	50	No	No	Successional woods
13	Yes	Yes	100	Yes	Yes	Palustrine emergent (Wetland G)
14	No	No	50	No	No	Upland old field/shrub thicket



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

<b>Project/Site:</b> Rockside Boarding Area, Independence, Ohio <b>Applicant/Owner:</b> Bergmann Associates <b>Investigators:</b> Todd Crandall	<b>Project No:</b>	<b>Date:</b> 20-Jun-2005 <b>County:</b> Cuyahoga <b>State:</b> Ohio <b>Plot ID:</b> 1
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**SOILS**

<b>Map Unit Name (Series and Phase):</b> Disturbed soils and fill		<b>Map Symbol:</b> N/A		<b>Drainage Class:</b> Variable	<b>Mapped Hydric Inclusion?</b>
<b>Taxonomy (Subgroup):</b>				<b>Field Observations Confirm Mapped Type?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No	
<b>Profile Description</b>					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc
10	B	10YR4/2	10YR5/4	Few Faint	Silt loam
<b>Hydric Soil Indicators:</b>					
<u>NO</u> Histosol		<u>NO</u> Concretions			
<u>NO</u> Histic Epipedon		<u>NO</u> High Organic Content in Surface Layer in Sandy Soils			
<u>NO</u> Sulfidic Odor		<u>NO</u> Organic Streaking in Sandy Soils			
<u>NO</u> Aquic Moisture Regime		<u>UNK</u> Listed on Local Hydric Soils List			
<u>NO</u> Reducing Conditions		<u>UNK</u> Listed on National Hydric Soils List			
<u>YES</u> Gleyed or Low Chroma Colors		<u>NO</u> Other (Explain in Remarks)			
<b>Remarks:</b>					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Hydric Soils Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	Is the Sampling Point within the Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No
<b>Remarks:</b>	
This is a jurisdictional wetland based on current U.S. Army Corps of Engineers methodology	



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

<b>Project/Site:</b> Rockside Boarding Area, Independence, Ohio <b>Applicant/Owner:</b> Bergmann Associates <b>Investigators:</b> Todd Crandall	<b>Project No:</b>	<b>Date:</b> 20-Jun-2005 <b>County:</b> Cuyahoga <b>State:</b> Ohio <b>Plot ID:</b> 2
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**SOILS**

<b>Map Unit Name (Series and Phase):</b> Disturbed soils and fill		<b>Map Symbol:</b> N/A		<b>Drainage Class:</b> Variable	<b>Mapped Hydric Inclusion?</b>	
<b>Taxonomy (Subgroup):</b>		<b>Field Observations Confirm Mapped Type?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No				
<b>Profile Description</b>						
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
10	B	10YR5/3	N/A	N/A	N/A	Silt loam
<b>Hydric Soil Indicators:</b>						
<u>NO</u> Histosol		<u>NO</u> Concretions				
<u>NO</u> Histic Epipedon		<u>NO</u> High Organic Content in Surface Layer in Sandy Soils				
<u>NO</u> Sulfidic Odor		<u>NO</u> Organic Streaking in Sandy Soils				
<u>NO</u> Aquic Moisture Regime		<u>UNK</u> Listed on Local Hydric Soils List				
<u>NO</u> Reducing Conditions		<u>UNK</u> Listed on National Hydric Soils List				
<u>NO</u> Gleyed or Low Chroma Colors		<u>NO</u> Other (Explain in Remarks)				
<b>Remarks:</b>						

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present?    Yes <input type="radio"/> <input checked="" type="radio"/> No Wetland Hydrology Present?        Yes <input type="radio"/> <input checked="" type="radio"/> No Hydric Soils Present?                Yes <input type="radio"/> <input checked="" type="radio"/> No	Is the Sampling Point within the Wetland?    Yes <input type="radio"/> <input checked="" type="radio"/> No
<b>Remarks:</b>	



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

<b>Project/Site:</b> Rockside Boarding Area, Independence, Ohio <b>Applicant/Owner:</b> Bergmann Associates <b>Investigators:</b> Todd Crandall	<b>Project No:</b>	<b>Date:</b> 20-Jun-2005 <b>County:</b> Cuyahoga <b>State:</b> Ohio <b>Plot ID:</b> 3
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**SOILS**

<b>Map Unit Name (Series and Phase):</b> Disturbed soils and fill		<b>Map Symbol:</b> N/A		<b>Drainage Class:</b> Variable	<b>Mapped Hydric Inclusion?</b>	
<b>Taxonomy (Subgroup):</b>		<b>Field Observations Confirm Mapped Type?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No				
<b>Profile Description</b>						
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
10	B	10YR5/2	10YR5/4	Few	Faint	Silt loam
<b>Hydric Soil Indicators:</b>						
<u>NO</u> Histosol		<u>NO</u> Concretions				
<u>NO</u> Histic Epipedon		<u>NO</u> High Organic Content in Surface Layer in Sandy Soils				
<u>NO</u> Sulfidic Odor		<u>NO</u> Organic Streaking in Sandy Soils				
<u>NO</u> Aquic Moisture Regime		<u>UNK</u> Listed on Local Hydric Soils List				
<u>NO</u> Reducing Conditions		<u>UNK</u> Listed on National Hydric Soils List				
<u>YES</u> Gleyed or Low Chroma Colors		<u>NO</u> Other (Explain in Remarks)				
<b>Remarks:</b>						

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Hydric Soils Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	Is the Sampling Point within the Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No
<b>Remarks:</b>	
This is a jurisdictional wetland based on current U.S. Army Corps of Engineers methodology	



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

<b>Project/Site:</b> Rockside Boarding Area, Independence, Ohio <b>Applicant/Owner:</b> Bergmann Associates <b>Investigators:</b> Todd Crandall	<b>Project No:</b>	<b>Date:</b> 20-Jun-2005 <b>County:</b> Cuyahoga <b>State:</b> Ohio <b>Plot ID:</b> 4
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**SOILS**

<b>Map Unit Name (Series and Phase):</b> Disturbed soils and fill		<b>Map Symbol:</b> N/A		<b>Drainage Class:</b> Variable		<b>Mapped Hydric Inclusion?</b>	
<b>Taxonomy (Subgroup):</b>						<b>Field Observations Confirm Mapped Type?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No	
<b>Profile Description</b>							
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc	
10	B	10YR5/3	N/A	N/A	N/A	Silt loam	
<b>Hydric Soil Indicators:</b>							
<u>NO</u> Histosol				<u>NO</u> Concretions			
<u>NO</u> Histic Epipedon				<u>NO</u> High Organic Content in Surface Layer in Sandy Soils			
<u>NO</u> Sulfidic Odor				<u>NO</u> Organic Streaking in Sandy Soils			
<u>NO</u> Aquic Moisture Regime				<u>UNK</u> Listed on Local Hydric Soils List			
<u>NO</u> Reducing Conditions				<u>UNK</u> Listed on National Hydric Soils List			
<u>NO</u> Gleyed or Low Chroma Colors				<u>NO</u> Other (Explain in Remarks)			
<b>Remarks:</b>							

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present?    Yes <input type="radio"/> <input checked="" type="radio"/> No Wetland Hydrology Present?        Yes <input type="radio"/> <input checked="" type="radio"/> No Hydric Soils Present?                Yes <input type="radio"/> <input checked="" type="radio"/> No	Is the Sampling Point within the Wetland?    Yes <input type="radio"/> <input checked="" type="radio"/> No
<b>Remarks:</b>	



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

<b>Project/Site:</b> Rockside Boarding Area, Independence, Ohio <b>Applicant/Owner:</b> Bergmann Associates <b>Investigators:</b> Todd Crandall	<b>Project No:</b>	<b>Date:</b> 20-Jun-2005 <b>County:</b> Cuyahoga <b>State:</b> Ohio <b>Plot ID:</b> 5
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**SOILS**

<b>Map Unit Name (Series and Phase):</b> Disturbed soils and fill		<b>Map Symbol:</b> N/A		<b>Drainage Class:</b> Variable	<b>Mapped Hydric Inclusion?</b>
<b>Taxonomy (Subgroup):</b>		<b>Field Observations Confirm Mapped Type?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No			
<b>Profile Description</b>					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc
10	B	10YR4/2	10YR4/4	Few Faint	Silt loam
<b>Hydric Soil Indicators:</b>					
<u>NO</u> Histosol		<u>NO</u> Concretions			
<u>NO</u> Histic Epipedon		<u>NO</u> High Organic Content in Surface Layer in Sandy Soils			
<u>NO</u> Sulfidic Odor		<u>NO</u> Organic Streaking in Sandy Soils			
<u>NO</u> Aquic Moisture Regime		<u>UNK</u> Listed on Local Hydric Soils List			
<u>NO</u> Reducing Conditions		<u>UNK</u> Listed on National Hydric Soils List			
<u>YES</u> Gleyed or Low Chroma Colors		<u>NO</u> Other (Explain in Remarks)			
<b>Remarks:</b>					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Hydric Soils Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	Is the Sampling Point within the Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No
<b>Remarks:</b>	
This is a jurisdictional wetland based on current U.S. Army Corps of Engineers methodology	



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

<b>Project/Site:</b> Rockside Boarding Area, Independence, Ohio <b>Applicant/Owner:</b> Bergmann Associates <b>Investigators:</b> Todd Crandall	<b>Project No:</b>	<b>Date:</b> 20-Jun-2005 <b>County:</b> Cuyahoga <b>State:</b> Ohio <b>Plot ID:</b> 6
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**SOILS**

<b>Map Unit Name (Series and Phase):</b> Disturbed soils and fill		<b>Map Symbol:</b> N/A		<b>Drainage Class:</b> Variable		<b>Mapped Hydric Inclusion?</b>	
<b>Taxonomy (Subgroup):</b>						<b>Field Observations Confirm Mapped Type?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No	
<b>Profile Description</b>							
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc	
10	B	10YR4/2	N/A	N/A	N/A	Silt loam	
<b>Hydric Soil Indicators:</b>							
<u>NO</u> Histosol				<u>NO</u> Concretions			
<u>NO</u> Histic Epipedon				<u>NO</u> High Organic Content in Surface Layer in Sandy Soils			
<u>NO</u> Sulfidic Odor				<u>NO</u> Organic Streaking in Sandy Soils			
<u>NO</u> Aquic Moisture Regime				<u>UNK</u> Listed on Local Hydric Soils List			
<u>NO</u> Reducing Conditions				<u>UNK</u> Listed on National Hydric Soils List			
<u>NO</u> Gleyed or Low Chroma Colors				<u>NO</u> Other (Explain in Remarks)			
<b>Remarks:</b>							

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present?    Yes <input type="radio"/> <input checked="" type="radio"/> No Wetland Hydrology Present?        Yes <input type="radio"/> <input checked="" type="radio"/> No Hydric Soils Present?                Yes <input type="radio"/> <input checked="" type="radio"/> No	Is the Sampling Point within the Wetland?    Yes <input type="radio"/> <input checked="" type="radio"/> No
<b>Remarks:</b>	



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

<b>Project/Site:</b> Rockside Boarding Area, Independence, Ohio <b>Applicant/Owner:</b> Bergmann Associates <b>Investigators:</b> Todd Crandall	<b>Project No:</b>	<b>Date:</b> 20-Jun-2005 <b>County:</b> Cuyahoga <b>State:</b> Ohio <b>Plot ID:</b> 7
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**SOILS**

<b>Map Unit Name (Series and Phase):</b> Disturbed soils and fill		<b>Map Symbol:</b> N/A		<b>Drainage Class:</b> Variable	<b>Mapped Hydric Inclusion?</b>	
<b>Taxonomy (Subgroup):</b>		<b>Field Observations Confirm Mapped Type?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No				
<b>Profile Description</b>						
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
10	B	10YR5/2	10YR5/6	Few	Distinct	Silt loam
<b>Hydric Soil Indicators:</b>						
<u>NO</u> Histosol		<u>NO</u> Concretions				
<u>NO</u> Histic Epipedon		<u>NO</u> High Organic Content in Surface Layer in Sandy Soils				
<u>NO</u> Sulfidic Odor		<u>NO</u> Organic Streaking in Sandy Soils				
<u>NO</u> Aquic Moisture Regime		<u>UNK</u> Listed on Local Hydric Soils List				
<u>NO</u> Reducing Conditions		<u>UNK</u> Listed on National Hydric Soils List				
<u>YES</u> Gleyed or Low Chroma Colors		<u>NO</u> Other (Explain in Remarks)				
<b>Remarks:</b>						

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Hydric Soils Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	Is the Sampling Point within the Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No
<b>Remarks:</b>	
This is a jurisdictional wetland based on current U.S. Army Corps of Engineers methodology	



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

<b>Project/Site:</b> Rockside Boarding Area, Independence, Ohio <b>Applicant/Owner:</b> Bergmann Associates <b>Investigators:</b> Todd Crandall	<b>Project No:</b>	<b>Date:</b> 20-Jun-2005 <b>County:</b> Cuyahoga <b>State:</b> Ohio <b>Plot ID:</b> 8
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**SOILS**

<b>Map Unit Name (Series and Phase):</b> Disturbed soils and fill		<b>Map Symbol:</b> N/A		<b>Drainage Class:</b> Variable		<b>Mapped Hydric Inclusion?</b>	
<b>Taxonomy (Subgroup):</b>						<b>Field Observations Confirm Mapped Type?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No	
<b>Profile Description</b>							
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc	
10	B	10YR5/3	N/A	N/A	N/A	Silt loam	
<b>Hydric Soil Indicators:</b>							
<u>NO</u> Histosol				<u>NO</u> Concretions			
<u>NO</u> Histic Epipedon				<u>NO</u> High Organic Content in Surface Layer in Sandy Soils			
<u>NO</u> Sulfidic Odor				<u>NO</u> Organic Streaking in Sandy Soils			
<u>NO</u> Aquic Moisture Regime				UNK Listed on Local Hydric Soils List			
<u>NO</u> Reducing Conditions				UNK Listed on National Hydric Soils List			
<u>NO</u> Gleyed or Low Chroma Colors				<u>NO</u> Other (Explain in Remarks)			
<b>Remarks:</b>							

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present?    Yes <input type="radio"/> <input checked="" type="radio"/> No Wetland Hydrology Present?        Yes <input type="radio"/> <input checked="" type="radio"/> No Hydric Soils Present?                Yes <input type="radio"/> <input checked="" type="radio"/> No	Is the Sampling Point within the Wetland?    Yes <input type="radio"/> <input checked="" type="radio"/> No
<b>Remarks:</b>	



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

<b>Project/Site:</b> Rockside Boarding Area, Independence, Ohio <b>Applicant/Owner:</b> Bergmann Associates <b>Investigators:</b> Todd Crandall	<b>Project No:</b>	<b>Date:</b> 20-Jun-2005 <b>County:</b> Cuyahoga <b>State:</b> Ohio <b>Plot ID:</b> 9
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**SOILS**

<b>Map Unit Name (Series and Phase):</b> Disturbed soils and fill		<b>Map Symbol:</b> N/A		<b>Drainage Class:</b> Variable	<b>Mapped Hydric Inclusion?</b>	
<b>Taxonomy (Subgroup):</b>		<b>Field Observations Confirm Mapped Type?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No				
<b>Profile Description</b>						
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
10	B	10YR5/2	10YR5/6	Few	N/A	Silt loam
<b>Hydric Soil Indicators:</b>						
<u>NO</u> Histosol		<u>NO</u> Concretions				
<u>NO</u> Histic Epipedon		<u>NO</u> High Organic Content in Surface Layer in Sandy Soils				
<u>NO</u> Sulfidic Odor		<u>NO</u> Organic Streaking in Sandy Soils				
<u>NO</u> Aquic Moisture Regime		<u>UNK</u> Listed on Local Hydric Soils List				
<u>NO</u> Reducing Conditions		<u>UNK</u> Listed on National Hydric Soils List				
<u>YES</u> Gleyed or Low Chroma Colors		<u>NO</u> Other (Explain in Remarks)				
<b>Remarks:</b>						

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Hydric Soils Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	Is the Sampling Point within the Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No
<b>Remarks:</b>	
This is a jurisdictional wetland based on current U.S. Army Corps of Engineers methodology	



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

<b>Project/Site:</b> Rockside Boarding Area, Independence, Ohio <b>Applicant/Owner:</b> Bergmann Associates <b>Investigators:</b> Todd Crandall	<b>Project No:</b>	<b>Date:</b> 20-Jun-2005 <b>County:</b> Cuyahoga <b>State:</b> Ohio <b>Plot ID:</b> 10
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**SOILS**

<b>Map Unit Name (Series and Phase):</b> Disturbed soils and fill		<b>Map Symbol:</b> N/A		<b>Drainage Class:</b> Variable		<b>Mapped Hydric Inclusion?</b>	
<b>Taxonomy (Subgroup):</b>						<b>Field Observations Confirm Mapped Type?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No	
<b>Profile Description</b>							
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc	
10	B	10YR4/2	N/A	N/A	N/A	Silt loam	
<b>Hydric Soil Indicators:</b>							
<u>NO</u> Histosol				<u>NO</u> Concretions			
<u>NO</u> Histic Epipedon				<u>NO</u> High Organic Content in Surface Layer in Sandy Soils			
<u>NO</u> Sulfidic Odor				<u>NO</u> Organic Streaking in Sandy Soils			
<u>NO</u> Aquic Moisture Regime				<u>UNK</u> Listed on Local Hydric Soils List			
<u>NO</u> Reducing Conditions				<u>UNK</u> Listed on National Hydric Soils List			
<u>NO</u> Gleyed or Low Chroma Colors				<u>NO</u> Other (Explain in Remarks)			
<b>Remarks:</b>							

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present?    Yes <input type="radio"/> <input checked="" type="radio"/> No Wetland Hydrology Present?        Yes <input type="radio"/> <input checked="" type="radio"/> No Hydric Soils Present?                Yes <input type="radio"/> <input checked="" type="radio"/> No	Is the Sampling Point within the Wetland?    Yes <input type="radio"/> <input checked="" type="radio"/> No
<b>Remarks:</b>	



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

<b>Project/Site:</b> Rockside Boarding Area, Independence, Ohio <b>Applicant/Owner:</b> Bergmann Associates <b>Investigators:</b> Todd Crandall	<b>Project No:</b>	<b>Date:</b> 20-Jun-2005 <b>County:</b> Cuyahoga <b>State:</b> Ohio <b>Plot ID:</b> 11
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**SOILS**

<b>Map Unit Name (Series and Phase):</b> Chagrin silt loam		<b>Map Symbol:</b> Ch		<b>Drainage Class:</b> Moderately well drained	<b>Mapped Hydric Inclusion?</b>	
<b>Taxonomy (Subgroup):</b>		<b>Field Observations Confirm Mapped Type?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No				
<b>Profile Description</b>						
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
10	B	10YR5/3	N/A	N/A	N/A	Silt loam
<b>Hydric Soil Indicators:</b>						
<u>NO</u> Histosol		<u>NO</u> Concretions				
<u>NO</u> Histic Epipedon		<u>NO</u> High Organic Content in Surface Layer in Sandy Soils				
<u>NO</u> Sulfidic Odor		<u>NO</u> Organic Streaking in Sandy Soils				
<u>NO</u> Aquic Moisture Regime		<u>NO</u> Listed on Local Hydric Soils List				
<u>NO</u> Reducing Conditions		<u>NO</u> Listed on National Hydric Soils List				
<u>NO</u> Gleyed or Low Chroma Colors		<u>NO</u> Other (Explain in Remarks)				
<b>Remarks:</b>						

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Hydric Soils Present? Yes <input checked="" type="radio"/> No	Is the Sampling Point within the Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No
<b>Remarks:</b>	
This is a wetland following National Park Service procedures using Cowardin classification methods.	



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

<b>Project/Site:</b> Rockside Boarding Area, Independence, Ohio <b>Applicant/Owner:</b> Bergmann Associates <b>Investigators:</b> Todd Crandall	<b>Project No:</b>	<b>Date:</b> 20-Jun-2005 <b>County:</b> Cuyahoga <b>State:</b> Ohio <b>Plot ID:</b> 12
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**SOILS**

<b>Map Unit Name (Series and Phase):</b> Chagrin silt loam		<b>Map Symbol:</b> Ch		<b>Drainage Class:</b> Moderately well drained	<b>Mapped Hydric Inclusion?</b>	
<b>Taxonomy (Subgroup):</b>		<b>Field Observations Confirm Mapped Type?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No				
<b>Profile Description</b>						
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
10	B	10YR4/3	N/A	N/A	N/A	Silt loam
<b>Hydric Soil Indicators:</b>						
<u>NO</u> Histosol		<u>NO</u> Concretions				
<u>NO</u> Histic Epipedon		<u>NO</u> High Organic Content in Surface Layer in Sandy Soils				
<u>NO</u> Sulfidic Odor		<u>NO</u> Organic Streaking in Sandy Soils				
<u>NO</u> Aquic Moisture Regime		<u>NO</u> Listed on Local Hydric Soils List				
<u>NO</u> Reducing Conditions		<u>NO</u> Listed on National Hydric Soils List				
<u>NO</u> Gleyed or Low Chroma Colors		<u>NO</u> Other (Explain in Remarks)				
<b>Remarks:</b>						

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present?    Yes <input type="radio"/> <input checked="" type="radio"/> No Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Hydric Soils Present?                 Yes <input type="radio"/> <input checked="" type="radio"/> No	Is the Sampling Point within the Wetland?    Yes <input type="radio"/> <input checked="" type="radio"/> No
<b>Remarks:</b>	



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

<b>Project/Site:</b> Rockside Boarding Area, Independence, Ohio <b>Applicant/Owner:</b> Bergmann Associates <b>Investigators:</b> Todd Crandall	<b>Project No:</b>	<b>Date:</b> 20-Jun-2005 <b>County:</b> Cuyahoga <b>State:</b> Ohio <b>Plot ID:</b> 13
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**SOILS**

<b>Map Unit Name (Series and Phase):</b> Disturbed soils and fill		<b>Map Symbol:</b> N/A		<b>Drainage Class:</b> Variable	<b>Mapped Hydric Inclusion?</b>	
<b>Taxonomy (Subgroup):</b>		<b>Field Observations Confirm Mapped Type?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No				
<b>Profile Description</b>						
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
10	B	10YR4/2	10YR5/6	Few	Distinct	Silt loam
<b>Hydric Soil Indicators:</b>						
<u>NO</u> Histosol		<u>NO</u> Concretions				
<u>NO</u> Histic Epipedon		<u>NO</u> High Organic Content in Surface Layer in Sandy Soils				
<u>NO</u> Sulfidic Odor		<u>NO</u> Organic Streaking in Sandy Soils				
<u>NO</u> Aquic Moisture Regime		<u>UNK</u> Listed on Local Hydric Soils List				
<u>NO</u> Reducing Conditions		<u>UNK</u> Listed on National Hydric Soils List				
<u>YES</u> Gleyed or Low Chroma Colors		<u>NO</u> Other (Explain in Remarks)				
<b>Remarks:</b>						

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Hydric Soils Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	Is the Sampling Point within the Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No
<b>Remarks:</b>	
This is a jurisdictional wetland based on current U.S. Army Corps of Engineers methodology	

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

<b>Project/Site:</b> Rockside Boarding Area, Independence, Ohio <b>Applicant/Owner:</b> Bergmann Associates <b>Investigators:</b> Todd Crandall	<b>Project No:</b>	<b>Date:</b> 20-Jun-2005 <b>County:</b> Cuyahoga <b>State:</b> Ohio <b>Plot ID:</b> 14
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<b>Do Normal Circumstances exist on the site?</b> Yes <input checked="" type="radio"/> No <input type="radio"/> <b>Is the site significantly disturbed (Atypical Situation:)?</b> Yes <input type="radio"/> No <input checked="" type="radio"/> <b>Is the area a potential Problem Area?</b> Yes <input type="radio"/> No <input checked="" type="radio"/> (If needed, explain on the reverse side)	<b>Community ID:</b> Upland old field/shrub thicket <b>Transect ID:</b> <b>Field Location:</b>
--	--

**VEGETATION** (USFWS Region No. 1)

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
<i>Verbesina alternifolia</i> Wingstem	Herb	FAC	<i>Cirsium arvense</i> Thistle,Creeping	Herb	FACU
<i>Phragmites australis</i> Reed,Common	Herb	FACW	<i>Taraxacum officinale</i> Dandelion,Common	Herb	FACU-

<b>Percent of Dominant Species that are OBL, FACW or FAC:</b> (excluding FAC-)      2/4 = 50.00%	<b>FAC Neutral:</b> 1/3 = 33.33% <b>Numeric Index:</b> 13/4 = 3.25
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**Remarks:**

**HYDROLOGY**

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

**Remarks:**  
 No hydrological indicators

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

<b>Project/Site:</b> Rockside Boarding Area, Independence, Ohio <b>Applicant/Owner:</b> Bergmann Associates <b>Investigators:</b> Todd Crandall	<b>Project No:</b>	<b>Date:</b> 20-Jun-2005 <b>County:</b> Cuyahoga <b>State:</b> Ohio <b>Plot ID:</b> 14
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**SOILS**

<b>Map Unit Name (Series and Phase):</b> Disturbed soils and fill		<b>Map Symbol:</b> N/A		<b>Drainage Class:</b> Variable	<b>Mapped Hydric Inclusion?</b>	
<b>Taxonomy (Subgroup):</b>				<b>Field Observations Confirm Mapped Type?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No		
<b>Profile Description</b>						
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
10	B	10YR5/3	N/A	N/A	N/A	Silt loam
<b>Hydric Soil Indicators:</b>						
<u>NO</u> Histosol		<u>NO</u> Concretions				
<u>NO</u> Histic Epipedon		<u>NO</u> High Organic Content in Surface Layer in Sandy Soils				
<u>NO</u> Sulfidic Odor		<u>NO</u> Organic Streaking in Sandy Soils				
<u>NO</u> Aquic Moisture Regime		<u>UNK</u> Listed on Local Hydric Soils List				
<u>NO</u> Reducing Conditions		<u>UNK</u> Listed on National Hydric Soils List				
<u>NO</u> Gleyed or Low Chroma Colors		<u>NO</u> Other (Explain in Remarks)				
<b>Remarks:</b>						

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present?    Yes <input type="radio"/> <input checked="" type="radio"/> No Wetland Hydrology Present?        Yes <input type="radio"/> <input checked="" type="radio"/> No Hydric Soils Present?                Yes <input type="radio"/> <input checked="" type="radio"/> No	Is the Sampling Point within the Wetland?    Yes <input type="radio"/> <input checked="" type="radio"/> No
<b>Remarks:</b>	

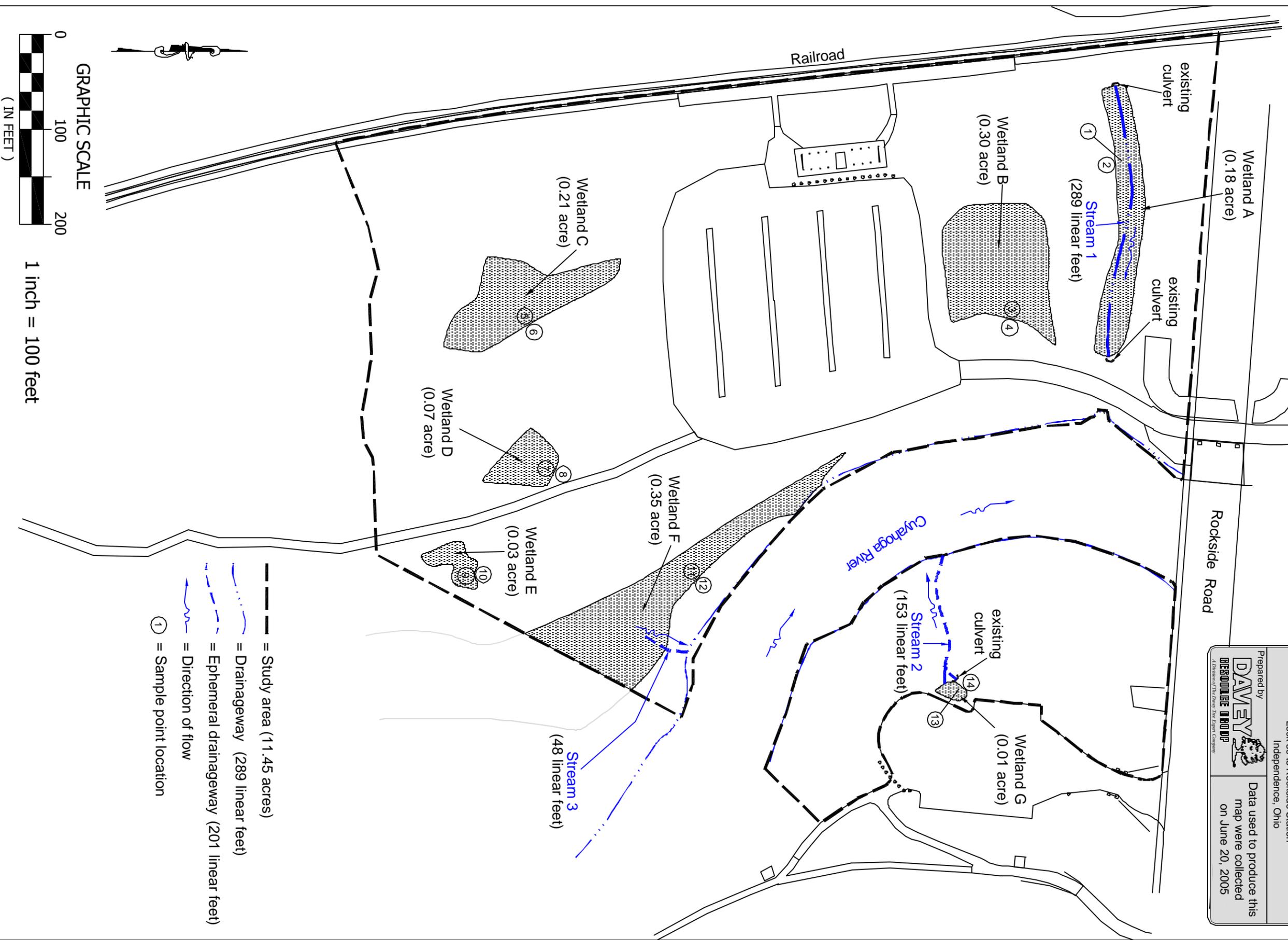
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***Appendix M***  
***Wetlands Boundaries, Acreages, and Sample Point Locations***

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**Appendix M**  
Wetlands Boundaries, Acreages, and Sample Point Locations

Prepared for <b>Bergmann Associates</b>	Data used to produce this map were collected on June 20, 2005
Prepared by <b>DAVEY</b> RESOURCES GROUP <small>A Division of The James H. Fox Company</small>	
Rockside Boarding Area Parking Expansion and Trail Bridge Lock 39 to Rockside Station Independence, Ohio	



- = Study area (11.45 acres)
- = Drainageway (289 linear feet)
- - - = Ephemeral drainageway (201 linear feet)
- = Direction of flow
- ① = Sample point location

**Appendix N**  
**Ohio Rapid Assessment Method for**  
**Wetlands (ORAM) Version 5 Forms**

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Ohio Environmental Protection Agency's (EPA) Ohio Rapid Assessment Method for wetlands (ORAM v.5) forms were completed for all of the wetlands on the site. Wetlands are given a numeric Category of 1, 2, or 3, with Category 3 being the highest quality wetlands. The table below provides a summary of the ORAM scores and categories for the site in Independence.

**Summary of ORAM Scores and Categories**

<b>Wetland</b>	<b>Vegetation</b>	<b>Size (Acres)</b>	<b>ORAM Score</b>	<b>ORAM Category</b>
A	Palustrine forested	0.185	33	1 or 2 gray zone (assumed 2)
B	Palustrine emergent	0.300	20	1
C	Palustrine emergent	0.208	29	1
D	Palustrine emergent	0.068	28	1
E	Palustrine emergent	0.035	28	1
F	Palustrine forested	0.350	43.5	Modified 2
G	Palustrine emergent	0.010	22.5	1

## Background Information Form

<b>Name:</b>	Todd Crandall	<b>Date:</b>	June 22, 2005
<b>Affiliation:</b>	Davey Resource Group		
<b>User Address:</b>	1500 North Mantua Street, Kent, Ohio 44240		
<b>Phone:</b>	1-800-828-8312		
<b>e-mail address</b>	<a href="mailto:tcrandall@davey.com">tcrandall@davey.com</a>		
<b>Wetlands Name</b>	Wetland A		
<b>Location of Wetlands including address if available</b>	Rockside Boarding Area, Cuyahoga Valley National Park, Valley View, Ohio		
		<b>Sources of information used (check all that apply)</b>	
UTM		Site Visit	<input checked="" type="checkbox"/>
USGS Quad	Cleveland South	USGS Topo	<input checked="" type="checkbox"/>
Hydrologic Unit Code	4110002	NWI Map	<input checked="" type="checkbox"/>
Wetland Size (acres)	0.185	OWI Map	<input type="checkbox"/>
<b>How was size estimated?</b>  Wetlands Delineation		Aerial Photo	<input type="checkbox"/>
		Soil Survey	<input checked="" type="checkbox"/>
		ODNR - DNAP	<input checked="" type="checkbox"/>
		Delineation Report/Map	<input checked="" type="checkbox"/>
<b>Photograph</b>			
<div style="border: 1px solid black; padding: 10px; min-height: 300px;"> <p style="font-size: 1.2em; margin-top: 0;">See Wetlands Delineation Report</p> </div>			
final score:	33	Provisional Wetland Category:	1 or 2 gray zone

### Narrative Rating Questions

<b>Name:</b> Todd Crandall	<b>Date:</b> June 22, 2005
<b>Wetlands Name</b> Wetland A	

<b>1: Critical Habitat</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>2: Threatened or Endangered Species</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>3: Documented High Quality Wetland</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>4: Significant Breeding or Concentration Area (waterfowl)</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>5: Category 1 Wetlands (hydrologically isolated)</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>6: Bogs</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>7: Fens</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>8a: “Old Growth Forest”</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>8b: Mature Forested Wetlands</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>9a: Lake Erie Coastal and Tributary Wetlands</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>9b: Hydrology result of Erosion Control Measures (Lake Erie)</b>	<input type="checkbox"/> NO	<input type="checkbox"/> YES
<b>9c: Hydrology unrestricted</b>	<input type="checkbox"/> NO	<input type="checkbox"/> YES
<b>9d: Native Species Predominate</b>	<input type="checkbox"/> NO	<input type="checkbox"/> YES
<b>9e: Non-native Species Predominate</b>	<input type="checkbox"/> NO	<input type="checkbox"/> YES
<b>10: Oak Openings</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>11: Relict Wet Prairies</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES

<b>Site:</b> Rockside Boarding Area, Cuyahoga Valley National Park, Independence	<b>Date:</b> June 22, 2005
<b>Wetlands:</b> Wetland A	<b>Rater:</b> Todd Crandall

1	1
Subtotal	Points

**Metric 1. Wetland Area (size). (max 6 pts)**

*Select one size class and assign score.*

- >50 acres (>20.2ha) (6 pts)
- 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- 10 to <25 acres (4 to <10.1ha) (4 pts)
- 3 to <10 acres (1.2 to <4ha) (3 pts)
- 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- <0.1 acres (0.04ha) (0 pts)

4	3
Subtotal	Points

**Metric 2. Upland buffers and surrounding land use. (max 14 pts)**

*2a. Calculate average buffer width (select one, do not double check)*

- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

*2b. Intensity of surrounding land use (select one or double check & 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	15
Subtotal	Points

**Metric 3. Hydrology. (max 30 pts)**

*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)

*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)

*3c. Maximum water depth. Select only 1.*

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

*3d. Duration inundation/saturation.*

*(select one or double check & average)*

- Semi- to permanently inundated/saturated (4)
- Regularly inundated/saturated (3)
- Seasonally inundated (2)
- Seasonally saturated in upper 30cm (12in) (1)

*3e. Modifications to natural hydrologic regime.*

*(select one or double check & average)*

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

Check all disturbances observed	
<input checked="" type="checkbox"/> ditch	<input type="checkbox"/> point source (nonstormwater)
<input type="checkbox"/> dike	<input type="checkbox"/> filling/grading
<input type="checkbox"/> tile	<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- list

31	12
Subtotal	Points

**Metric 4. Habitat Alteration and Development. (max 20 pts.)**

*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 one.*

- 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

31	subtotal this page
----	--------------------

<b>Site:</b> Rockside Boarding Area, Cuyahoga Valley National Park, Independence, OH		<b>Date:</b> June 22, 2005	
<b>Wetland:</b>	Wetland A	<b>Rater:</b>	Todd Crandall

**31** subtotal first page

**31** **0**  
Subtotal Points

**Metric 5. Special Wetlands. (max 10 pts.)**

*Check all that apply and score as indicated*

- Bog (10 pts)
- Fen (10 pts)
- Old Growth Forest (10 pts)
- Mature forested wetland (5 pts)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10 pts)
- Lake Erie coastal/tributary wetland-restricted hydrology (5 pts)
- Lake Plain Sand Prairies (Oak Openings) (10 pts)
- Relict Wet Prairies (10 pts)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/waterfowl habitat or usage (10 pts)
- Category 1 Wetland. See Question 1 of Qualitative Rating. (-10 pts)

**33** **2**  
Subtotal Points

**Metric 6. Plant Communities, interspersions, microtopography. (max 20 pts.)**

**6a. Wetland Vegetation Communities**

Score all present using 0 to 3 scale

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

**Vegetation Community Cover Scale**

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

**6b. Horizontal (plan view) interspersions**

Select only one

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

**Narrative Description of Vegetation Quality**

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

**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)

**Mudflat and Open Water Class Quality**

0	Absent <0.1 ha (0.2471 acres)
1	Low 0.1 ha to <1 ha (0.2471 acres to 2.47 acres)
2	Moderate 1 ha to <4 ha (2.47 acres 9.88 acres)
3	High 4 ha (9.88 acres) or more

**6d. Microtopography**

Score all present using 0 to 3 scale

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

**Microtopography Cover Scale**

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

**33** **GRAND TOTAL (max 100 pts)**

Provisional Wetland Category: 1 or 2 gray zone

**Background Information Form**

<b>Name:</b>	Todd Crandall	<b>Date:</b>	June 22, 2005
<b>Affiliation:</b>	Davey Resource Group		
<b>User Address:</b>	1500 North Mantua Street, Kent, Ohio 44240		
<b>Phone:</b>	1-800-828-8312		
<b>e-mail address</b>	<a href="mailto:tcrandall@davey.com">tcrandall@davey.com</a>		
<b>Wetlands Name</b>	Wetland B		
<b>Location of Wetlands including address if available</b>	Rockside Boarding Area, Cuyahoga Valley National Park, Valley View, Ohio		
	<b>Sources of information used (check all that apply)</b>		
UTM	Site Visit	<input checked="" type="checkbox"/>	
USGS Quad Cleveland South	USGS Topo	<input checked="" type="checkbox"/>	
Hydrologic Unit Code 4110002	NWI Map	<input checked="" type="checkbox"/>	
Wetland Size (acres) 0.3	OWI Map	<input type="checkbox"/>	
<b>How was size estimated?</b>  Wetlands Delineation	Aerial Photo	<input type="checkbox"/>	
	Soil Survey	<input checked="" type="checkbox"/>	
	ODNR - DNAP	<input checked="" type="checkbox"/>	
	Delineation Report/Map	<input checked="" type="checkbox"/>	
<b>Photograph</b>			
See Wetlands Delineation Report			
final score:	20	Provisional Wetland Category:	Category 1

### Narrative Rating Questions

<b>Name:</b> Todd Crandall	<b>Date:</b> June 22, 2005
<b>Wetlands Name</b> Wetland B	

<b>1: Critical Habitat</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>2: Threatened or Endangered Species</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>3: Documented High Quality Wetland</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>4: Significant Breeding or Concentration Area (waterfowl)</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>5: Category 1 Wetlands (hydrologically isolated)</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>6: Bogs</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>7: Fens</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>8a: “Old Growth Forest”</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>8b: Mature Forested Wetlands</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>9a: Lake Erie Coastal and Tributary Wetlands</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>9b: Hydrology result of Erosion Control Measures (Lake Erie)</b>	<input type="checkbox"/> NO	<input type="checkbox"/> YES
<b>9c: Hydrology unrestricted</b>	<input type="checkbox"/> NO	<input type="checkbox"/> YES
<b>9d: Native Species Predominate</b>	<input type="checkbox"/> NO	<input type="checkbox"/> YES
<b>9e: Non-native Species Predominate</b>	<input type="checkbox"/> NO	<input type="checkbox"/> YES
<b>10: Oak Openings</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>11: Relict Wet Prairies</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES

<b>Site:</b> Rockside Boarding Area, Cuyahoga Valley National Park, Independence	<b>Date:</b> June 22, 2005
<b>Wetlands:</b> Wetland B	<b>Rater:</b> Todd Crandall

1	1
Subtotal	Points

**Metric 1. Wetland Area (size). (max 6 pts)**

*Select one size class and assign score.*

- >50 acres (>20.2ha) (6 pts)
- 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- 10 to <25 acres (4 to <10.1ha) (4 pts)
- 3 to <10 acres (1.2 to <4ha) (3 pts)
- 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- <0.1 acres (0.04ha) (0 pts)

4	3
Subtotal	Points

**Metric 2. Upland buffers and surrounding land use. (max 14 pts)**

*2a. Calculate average buffer width (select one, do not double check)*

- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

*2b. Intensity of surrounding land use (select one or double check & 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)

14	10
Subtotal	Points

**Metric 3. Hydrology. (max 30 pts)**

*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)

*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)

*3c. Maximum water depth. Select only 1.*

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

*3d. Duration inundation/saturation.*

*(select one or double check & average)*

- Semi- to permanently inundated/saturated (4)
- Regularly inundated/saturated (3)
- Seasonally inundated (2)
- Seasonally saturated in upper 30cm (12in) (1)

*3e. Modifications to natural hydrologic regime.*

*(select one or double check & average)*

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

Check all disturbances observed	
<input type="checkbox"/> ditch	<input type="checkbox"/> point source (nonstormwater)
<input type="checkbox"/> dike	<input checked="" type="checkbox"/> filling/grading
<input type="checkbox"/> tile	<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- list

24	10
Subtotal	Points

**Metric 4. Habitat Alteration and Development. (max 20 pts.)**

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

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

*4b. Habitat development. Select one.*

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

Check all disturbances observed	
<input type="checkbox"/> mowing	<input type="checkbox"/> shrub/sapling removal
<input type="checkbox"/> grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input type="checkbox"/> clearcutting	<input checked="" 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

24	subtotal this page
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<b>Site:</b> Rockside Boarding Area, Cuyahoga Valley National Park, Independence, OH		<b>Date:</b> June 22, 2005	
<b>Wetland:</b>	Wetland B	<b>Rater:</b>	Todd Crandall

24 subtotal first page

24	0
Subtotal	Points

**Metric 5. Special Wetlands. (max 10 pts.)**

*Check all that apply and score as indicated*

- Bog (10 pts)
- Fen (10 pts)
- Old Growth Forest (10 pts)
- Mature forested wetland (5 pts)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10 pts)
- Lake Erie coastal/tributary wetland-restricted hydrology (5 pts)
- Lake Plain Sand Prairies (Oak Openings) (10 pts)
- Relict Wet Prairies (10 pts)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/waterfowl habitat or usage (10 pts)
- Category 1 Wetland. See Question 1 of Qualitative Rating. (-10 pts)

20	-4
Subtotal	Points

**Metric 6. Plant Communities, interspersions, microtopography. (max 20 pts.)**

6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale

- Aquatic bed
- 1 Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other (list) \_\_\_\_\_

**Vegetation Community Cover Scale**

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

6b. Horizontal (plan view) interspersions

Select only one

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

**Narrative Description of Vegetation Quality**

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

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)

**Mudflat and Open Water Class Quality**

0	Absent <0.1 ha (0.2471 acres)
1	Low 0.1 ha to <1 ha (0.2471 acres to 2.47 acres)
2	Moderate 1 ha to <4 ha (2.47 acres to 9.88 acres)
3	High 4 ha (9.88 acres) or more

6d. Microtopography

Score all present using 0 to 3 scale

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

**Microtopography Cover Scale**

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

20 **GRAND TOTAL (max 100 pts)**

Provisional Wetland Category: Category 1

## Background Information Form

<b>Name:</b>	Todd Crandall	<b>Date:</b>	June 22, 2005
<b>Affiliation:</b>	Davey Resource Group		
<b>User Address:</b>	1500 North Mantua Street, Kent, Ohio 44240		
<b>Phone:</b>	1-800-828-8312		
<b>e-mail address</b>	<a href="mailto:tcrandall@davey.com">tcrandall@davey.com</a>		
<b>Wetlands Name</b>	Wetland C		
<b>Location of Wetlands including address if available</b>	Rockside Boarding Area, Cuyahoga Valley National Park, Valley View, Ohio		
		<b>Sources of information used (check all that apply)</b>	
UTM		Site Visit	<input checked="" type="checkbox"/>
USGS Quad	Cleveland South	USGS Topo	<input checked="" type="checkbox"/>
Hydrologic Unit Code	4110002	NWI Map	<input checked="" type="checkbox"/>
Wetland Size (acres)	0.208	OWI Map	<input type="checkbox"/>
<b>How was size estimated?</b>  Wetlands Delineation		Aerial Photo	<input type="checkbox"/>
		Soil Survey	<input checked="" type="checkbox"/>
		ODNR - DNAP	<input checked="" type="checkbox"/>
		Delineation Report/Map	<input checked="" type="checkbox"/>
<b>Photograph</b>			
<div style="border: 1px solid black; padding: 10px; min-height: 300px;"> <p style="font-size: 1.2em; margin-top: 0;">See Wetlands Delineation Report</p> </div>			
final score:	29	Provisional Wetland Category:	Category 1

### Narrative Rating Questions

<b>Name:</b> Todd Crandall	<b>Date:</b> June 22, 2005
<b>Wetlands Name</b> Wetland C	

<b>1: Critical Habitat</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>2: Threatened or Endangered Species</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>3: Documented High Quality Wetland</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>4: Significant Breeding or Concentration Area (waterfowl)</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>5: Category 1 Wetlands (hydrologically isolated)</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>6: Bogs</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>7: Fens</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>8a: "Old Growth Forest"</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>8b: Mature Forested Wetlands</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>9a: Lake Erie Coastal and Tributary Wetlands</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>9b: Hydrology result of Erosion Control Measures (Lake Erie)</b>	<input type="checkbox"/> NO	<input type="checkbox"/> YES
<b>9c: Hydrology unrestricted</b>	<input type="checkbox"/> NO	<input type="checkbox"/> YES
<b>9d: Native Species Predominate</b>	<input type="checkbox"/> NO	<input type="checkbox"/> YES
<b>9e: Non-native Species Predominate</b>	<input type="checkbox"/> NO	<input type="checkbox"/> YES
<b>10: Oak Openings</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>11: Relict Wet Prairies</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES

<b>Site:</b> Rockside Boarding Area, Cuyahoga Valley National Park, Independence	<b>Date:</b> June 22, 2005
<b>Wetlands:</b> Wetland C	<b>Rater:</b> Todd Crandall

1	1
Subtotal	Points

**Metric 1. Wetland Area (size). (max 6 pts)**

*Select one size class and assign score.*

- >50 acres (>20.2ha) (6 pts)
- 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- 10 to <25 acres (4 to <10.1ha) (4 pts)
- 3 to <10 acres (1.2 to <4ha) (3 pts)
- 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- <0.1 acres (0.04ha) (0 pts)

8	7
Subtotal	Points

**Metric 2. Upland buffers and surrounding land use. (max 14 pts)**

*2a. Calculate average buffer width (select one, do not double check)*

- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

*2b. Intensity of surrounding land use (select one or double check & 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	10
Subtotal	Points

**Metric 3. Hydrology. (max 30 pts)**

*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)

*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)

*3c. Maximum water depth. Select only 1.*

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

*3d. Duration inundation/saturation.*

*(select one or double check & average)*

- Semi- to permanently inundated/saturated (4)
- Regularly inundated/saturated (3)
- Seasonally inundated (2)
- Seasonally saturated in upper 30cm (12in) (1)

*3e. Modifications to natural hydrologic regime.*

*(select one or double check & average)*

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

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

28	10
Subtotal	Points

**Metric 4. Habitat Alteration and Development. (max 20 pts.)**

*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 one.*

- 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

28	subtotal this page
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<b>Site:</b> Rockside Boarding Area, Cuyahoga Valley National Park, Independence, OH		<b>Date:</b> June 22, 2005	
<b>Wetland:</b>	Wetland C	<b>Rater:</b>	Todd Crandall

28 subtotal first page

28	0
Subtotal	Points

**Metric 5. Special Wetlands. (max 10 pts.)**

*Check all that apply and score as indicated*

- Bog (10 pts)
- Fen (10 pts)
- Old Growth Forest (10 pts)
- Mature forested wetland (5 pts)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10 pts)
- Lake Erie coastal/tributary wetland-restricted hydrology (5 pts)
- Lake Plain Sand Prairies (Oak Openings) (10 pts)
- Relict Wet Prairies (10 pts)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/waterfowl habitat or usage (10 pts)
- Category 1 Wetland. See Question 1 of Qualitative Rating. (-10 pts)

29	1
Subtotal	Points

**Metric 6. Plant Communities, interspersions, microtopography. (max 20 pts.)**

6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale

- Aquatic bed
- 1 Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other (list) \_\_\_\_\_

**Vegetation Community Cover Scale**

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

6b. Horizontal (plan view) interspersions

Select only one

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

**Narrative Description of Vegetation Quality**

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

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)

**Mudflat and Open Water Class Quality**

0	Absent <0.1 ha (0.2471 acres)
1	Low 0.1 ha to <1 ha (0.2471 acres to 2.47 acres)
2	Moderate 1 ha to <4 ha (2.47 acres to 9.88 acres)
3	High 4 ha (9.88 acres) or more

6d. Microtopography

Score all present using 0 to 3 scale

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

**Microtopography Cover Scale**

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

29 **GRAND TOTAL (max 100 pts)**

Provisional Wetland Category: Category 1

## Background Information Form

<b>Name:</b>	Todd Crandall	<b>Date:</b>	June 22, 2005
<b>Affiliation:</b>	Davey Resource Group		
<b>User Address:</b>	1500 North Mantua Street, Kent, Ohio 44240		
<b>Phone:</b>	1-800-828-8312		
<b>e-mail address</b>	<a href="mailto:tcrandall@davey.com">tcrandall@davey.com</a>		
<b>Wetlands Name</b>	Wetland D		
<b>Location of Wetlands including address if available</b>	Rockside Boarding Area, Cuyahoga Valley National Park, Valley View, Ohio		
		<b>Sources of information used (check all that apply)</b>	
UTM		Site Visit	<input checked="" type="checkbox"/>
USGS Quad	Cleveland South	USGS Topo	<input checked="" type="checkbox"/>
Hydrologic Unit Code	4110002	NWI Map	<input checked="" type="checkbox"/>
Wetland Size (acres)	0.068	OWI Map	<input type="checkbox"/>
<b>How was size estimated?</b>  Wetlands Delineation		Aerial Photo	<input type="checkbox"/>
		Soil Survey	<input checked="" type="checkbox"/>
		ODNR - DNAP	<input checked="" type="checkbox"/>
		Delineation Report/Map	<input checked="" type="checkbox"/>
<b>Photograph</b>			
<div style="border: 1px solid black; padding: 10px; min-height: 300px;"> <p style="font-size: 1.2em; margin-top: 0;">See Wetlands Delineation Report</p> </div>			
final score:	28	Provisional Wetland Category:	Category 1

### Narrative Rating Questions

<b>Name:</b> Todd Crandall	<b>Date:</b> June 22, 2005
<b>Wetlands Name</b> Wetland D	

<b>1: Critical Habitat</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>2: Threatened or Endangered Species</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>3: Documented High Quality Wetland</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>4: Significant Breeding or Concentration Area (waterfowl)</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>5: Category 1 Wetlands (hydrologically isolated)</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>6: Bogs</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>7: Fens</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>8a: "Old Growth Forest"</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>8b: Mature Forested Wetlands</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>9a: Lake Erie Coastal and Tributary Wetlands</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>9b: Hydrology result of Erosion Control Measures (Lake Erie)</b>	<input type="checkbox"/> NO	<input type="checkbox"/> YES
<b>9c: Hydrology unrestricted</b>	<input type="checkbox"/> NO	<input type="checkbox"/> YES
<b>9d: Native Species Predominate</b>	<input type="checkbox"/> NO	<input type="checkbox"/> YES
<b>9e: Non-native Species Predominate</b>	<input type="checkbox"/> NO	<input type="checkbox"/> YES
<b>10: Oak Openings</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>11: Relict Wet Prairies</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES

<b>Site:</b> Rockside Boarding Area, Cuyahoga Valley National Park, Independence	<b>Date:</b> June 22, 2005
<b>Wetlands:</b> Wetland D	<b>Rater:</b> Todd Crandall

0	0
Subtotal	Points

**Metric 1. Wetland Area (size). (max 6 pts)**

*Select one size class and assign score.*

- >50 acres (>20.2ha) (6 pts)
- 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- 10 to <25 acres (4 to <10.1ha) (4 pts)
- 3 to <10 acres (1.2 to <4ha) (3 pts)
- 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- <0.1 acres (0.04ha) (0 pts)

7	7
Subtotal	Points

**Metric 2. Upland buffers and surrounding land use. (max 14 pts)**

*2a. Calculate average buffer width (select one, do not double check)*

- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

*2b. Intensity of surrounding land use (select one or double check & 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	10
Subtotal	Points

**Metric 3. Hydrology. (max 30 pts)**

*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)

*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)

*3c. Maximum water depth. Select only 1.*

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

*3d. Duration inundation/saturation.*

*(select one or double check & average)*

- Semi- to permanently inundated/saturated (4)
- Regularly inundated/saturated (3)
- Seasonally inundated (2)
- Seasonally saturated in upper 30cm (12in) (1)

*3e. Modifications to natural hydrologic regime.*

*(select one or double check & average)*

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

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

27	10
Subtotal	Points

**Metric 4. Habitat Alteration and Development. (max 20 pts.)**

*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 one.*

- 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

27	subtotal this page
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<b>Site:</b> Rockside Boarding Area, Cuyahoga Valley National Park, Independence, OH		<b>Date:</b> June 22, 2005	
<b>Wetland:</b>	Wetland D	<b>Rater:</b>	Todd Crandall

27 subtotal first page

27	0
Subtotal	Points

**Metric 5. Special Wetlands. (max 10 pts.)**

*Check all that apply and score as indicated*

- Bog (10 pts)
- Fen (10 pts)
- Old Growth Forest (10 pts)
- Mature forested wetland (5 pts)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10 pts)
- Lake Erie coastal/tributary wetland-restricted hydrology (5 pts)
- Lake Plain Sand Prairies (Oak Openings) (10 pts)
- Relict Wet Prairies (10 pts)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/waterfowl habitat or usage (10 pts)
- Category 1 Wetland. See Question 1 of Qualitative Rating. (-10 pts)

28	1
Subtotal	Points

**Metric 6. Plant Communities, interspersions, microtopography. (max 20 pts.)**

6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale

- Aquatic bed
- 1 Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other (list) \_\_\_\_\_

**Vegetation Community Cover Scale**

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

6b. Horizontal (plan view) interspersions

Select only one

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

**Narrative Description of Vegetation Quality**

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

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)

**Mudflat and Open Water Class Quality**

0	Absent <0.1 ha (0.2471 acres)
1	Low 0.1 ha to <1 ha (0.2471 acres to 2.47 acres)
2	Moderate 1 ha to <4 ha (2.47 acres to 9.88 acres)
3	High 4 ha (9.88 acres) or more

6d. Microtopography

Score all present using 0 to 3 scale

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

**Microtopography Cover Scale**

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

28 **GRAND TOTAL (max 100 pts)**

Provisional Wetland Category: Category 1

## Background Information Form

<b>Name:</b>	Todd Crandall	<b>Date:</b>	June 22, 2005
<b>Affiliation:</b>	Davey Resource Group		
<b>User Address:</b>	1500 North Mantua Street, Kent, Ohio 44240		
<b>Phone:</b>	1-800-828-8312		
<b>e-mail address</b>	<a href="mailto:tcrandall@davey.com">tcrandall@davey.com</a>		
<b>Wetlands Name</b>	Wetland E		
<b>Location of Wetlands including address if available</b>	Rockside Boarding Area, Cuyahoga Valley National Park, Valley View, Ohio		
		<b>Sources of information used (check all that apply)</b>	
UTM		Site Visit	<input checked="" type="checkbox"/>
USGS Quad	Cleveland South	USGS Topo	<input checked="" type="checkbox"/>
Hydrologic Unit Code	4110002	NWI Map	<input checked="" type="checkbox"/>
Wetland Size (acres)	0.035	OWI Map	<input type="checkbox"/>
<b>How was size estimated?</b>  Wetlands Delineation		Aerial Photo	<input type="checkbox"/>
		Soil Survey	<input checked="" type="checkbox"/>
		ODNR - DNAP	<input checked="" type="checkbox"/>
		Delineation Report/Map	<input checked="" type="checkbox"/>
<b>Photograph</b>			
<div style="border: 1px solid black; padding: 10px; min-height: 300px;"> <p style="font-size: 1.2em; margin-top: 0;">See Wetlands Delineation Report</p> </div>			
final score:	28	Provisional Wetland Category:	Category 1

### Narrative Rating Questions

<b>Name:</b> Todd Crandall	<b>Date:</b> June 22, 2005
<b>Wetlands Name</b> Wetland E	

<b>1: Critical Habitat</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>2: Threatened or Endangered Species</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>3: Documented High Quality Wetland</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>4: Significant Breeding or Concentration Area (waterfowl)</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>5: Category 1 Wetlands (hydrologically isolated)</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>6: Bogs</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>7: Fens</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>8a: “Old Growth Forest”</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>8b: Mature Forested Wetlands</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>9a: Lake Erie Coastal and Tributary Wetlands</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>9b: Hydrology result of Erosion Control Measures (Lake Erie)</b>	<input type="checkbox"/> NO	<input type="checkbox"/> YES
<b>9c: Hydrology unrestricted</b>	<input type="checkbox"/> NO	<input type="checkbox"/> YES
<b>9d: Native Species Predominate</b>	<input type="checkbox"/> NO	<input type="checkbox"/> YES
<b>9e: Non-native Species Predominate</b>	<input type="checkbox"/> NO	<input type="checkbox"/> YES
<b>10: Oak Openings</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>11: Relict Wet Prairies</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES

<b>Site:</b> Rockside Boarding Area, Cuyahoga Valley National Park, Independence	<b>Date:</b> June 22, 2005
<b>Wetlands:</b> Wetland E	<b>Rater:</b> Todd Crandall

0	0
Subtotal	Points

**Metric 1. Wetland Area (size). (max 6 pts)**

*Select one size class and assign score.*

- >50 acres (>20.2ha) (6 pts)
- 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- 10 to <25 acres (4 to <10.1ha) (4 pts)
- 3 to <10 acres (1.2 to <4ha) (3 pts)
- 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- <0.1 acres (0.04ha) (0 pts)

7	7
Subtotal	Points

**Metric 2. Upland buffers and surrounding land use. (max 14 pts)**

*2a. Calculate average buffer width (select one, do not double check)*

- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

*2b. Intensity of surrounding land use (select one or double check & 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	10
Subtotal	Points

**Metric 3. Hydrology. (max 30 pts)**

*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)

*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)

*3c. Maximum water depth. Select only 1.*

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

*3d. Duration inundation/saturation.*

*(select one or double check & average)*

- Semi- to permanently inundated/saturated (4)
- Regularly inundated/saturated (3)
- Seasonally inundated (2)
- Seasonally saturated in upper 30cm (12in) (1)

*3e. Modifications to natural hydrologic regime.*

*(select one or double check & average)*

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

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

27	10
Subtotal	Points

**Metric 4. Habitat Alteration and Development. (max 20 pts.)**

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

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

*4b. Habitat development. Select one.*

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

Check all disturbances observed	
<input type="checkbox"/> mowing	<input type="checkbox"/> shrub/sapling removal
<input type="checkbox"/> grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input type="checkbox"/> clearcutting	<input type="checkbox"/> sedimentation
<input 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

27	subtotal this page
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<b>Site:</b> Rockside Boarding Area, Cuyahoga Valley National Park, Independence, OH		<b>Date:</b> June 22, 2005	
<b>Wetland:</b>	Wetland E	<b>Rater:</b>	Todd Crandall

**27** subtotal first page

**27** **0**  
Subtotal Points

**Metric 5. Special Wetlands. (max 10 pts.)**

*Check all that apply and score as indicated*

- Bog (10 pts)
- Fen (10 pts)
- Old Growth Forest (10 pts)
- Mature forested wetland (5 pts)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10 pts)
- Lake Erie coastal/tributary wetland-restricted hydrology (5 pts)
- Lake Plain Sand Prairies (Oak Openings) (10 pts)
- Relict Wet Prairies (10 pts)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/waterfowl habitat or usage (10 pts)
- Category 1 Wetland. See Question 1 of Qualitative Rating. (-10 pts)

**28** **1**  
Subtotal Points

**Metric 6. Plant Communities, interspersions, microtopography. (max 20 pts.)**

**6a. Wetland Vegetation Communities**

Score all present using 0 to 3 scale

- Aquatic bed
- 1 Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other (list)

**Vegetation Community Cover Scale**

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

**6b. Horizontal (plan view) interspersions**

Select only one

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

**Narrative Description of Vegetation Quality**

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

**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)

**Mudflat and Open Water Class Quality**

0	Absent <0.1 ha (0.2471 acres)
1	Low 0.1 ha to <1 ha (0.2471 acres to 2.47 acres)
2	Moderate 1 ha to <4 ha (2.47 acres 9.88 acres)
3	High 4 ha (9.88 acres) or more

**6d. Microtopography**

Score all present using 0 to 3 scale

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

**Microtopography Cover Scale**

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

**28** **GRAND TOTAL (max 100 pts)**

Provisional Wetland Category: Category 1

## Background Information Form

<b>Name:</b>	Todd Crandall	<b>Date:</b>	June 22, 2005
<b>Affiliation:</b>	Davey Resource Group		
<b>User Address:</b>	1500 North Mantua Street, Kent, Ohio 44240		
<b>Phone:</b>	1-800-828-8312		
<b>e-mail address</b>	<a href="mailto:tcrandall@davey.com">tcrandall@davey.com</a>		
<b>Wetlands Name</b>	Wetland F		
<b>Location of Wetlands including address if available</b>	Rockside Boarding Area, Cuyahoga Valley National Park, Valley View, Ohio		
		<b>Sources of information used (check all that apply)</b>	
UTM		Site Visit	<input checked="" type="checkbox"/>
USGS Quad	Cleveland South	USGS Topo	<input checked="" type="checkbox"/>
Hydrologic Unit Code	4110002	NWI Map	<input checked="" type="checkbox"/>
Wetland Size (acres)	> 0.350	OWI Map	<input type="checkbox"/>
<b>How was size estimated?</b>  Wetlands Delineation		Aerial Photo	<input type="checkbox"/>
		Soil Survey	<input checked="" type="checkbox"/>
		ODNR - DNAP	<input checked="" type="checkbox"/>
		Delineation Report/Map	<input checked="" type="checkbox"/>
<b>Photograph</b>			
<div style="border: 1px solid black; padding: 10px; min-height: 300px;"> <p style="font-size: 1.2em; margin-top: 0;">See Wetlands Delineation Report</p> </div>			
final score:	43.5	Provisional Wetland Category:	modified 2

### Narrative Rating Questions

<b>Name:</b> Todd Crandall	<b>Date:</b> June 22, 2005
<b>Wetlands Name</b> Wetland F	

<b>1: Critical Habitat</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>2: Threatened or Endangered Species</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>3: Documented High Quality Wetland</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>4: Significant Breeding or Concentration Area (waterfowl)</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>5: Category 1 Wetlands (hydrologically isolated)</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>6: Bogs</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>7: Fens</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>8a: "Old Growth Forest"</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>8b: Mature Forested Wetlands</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>9a: Lake Erie Coastal and Tributary Wetlands</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>9b: Hydrology result of Erosion Control Measures (Lake Erie)</b>	<input type="checkbox"/> NO	<input type="checkbox"/> YES
<b>9c: Hydrology unrestricted</b>	<input type="checkbox"/> NO	<input type="checkbox"/> YES
<b>9d: Native Species Predominate</b>	<input type="checkbox"/> NO	<input type="checkbox"/> YES
<b>9e: Non-native Species Predominate</b>	<input type="checkbox"/> NO	<input type="checkbox"/> YES
<b>10: Oak Openings</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>11: Relict Wet Prairies</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES

<b>Site:</b> Rockside Boarding Area, Cuyahoga Valley National Park, Independence	<b>Date:</b> June 22, 2005
<b>Wetlands:</b> Wetland F	<b>Rater:</b> Todd Crandall

2	2
Subtotal	Points

**Metric 1. Wetland Area (size). (max 6 pts)**

*Select one size class and assign score.*

- >50 acres (>20.2ha) (6 pts)
- 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- 10 to <25 acres (4 to <10.1ha) (4 pts)
- 3 to <10 acres (1.2 to <4ha) (3 pts)
- 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- <0.1 acres (0.04ha) (0 pts)

10	8
Subtotal	Points

**Metric 2. Upland buffers and surrounding land use. (max 14 pts)**

*2a. Calculate average buffer width (select one, do not double check)*

- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

*2b. Intensity of surrounding land use (select one or double check & 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)

26.5	16.5
Subtotal	Points

**Metric 3. Hydrology. (max 30 pts)**

*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)

*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)

*3c. Maximum water depth. Select only 1.*

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

*3d. Duration inundation/saturation.*

*(select one or double check & average)*

- Semi- to permanently inundated/saturated (4)
- Regularly inundated/saturated (3)
- Seasonally inundated (2)
- Seasonally saturated in upper 30cm (12in) (1)

*3e. Modifications to natural hydrologic regime.*

*(select one or double check & average)*

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

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

43.5	17
Subtotal	Points

**Metric 4. Habitat Alteration and Development. (max 20 pts.)**

*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 one.*

- 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

43.5	subtotal this page
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<b>Site:</b> Rockside Boarding Area, Cuyahoga Valley National Park, Independence, OH		<b>Date:</b> June 22, 2005	
<b>Wetland:</b>	Wetland F	<b>Rater:</b>	Todd Crandall

43.5 subtotal first page

43.5 0  
Subtotal Points

**Metric 5. Special Wetlands. (max 10 pts.)**

*Check all that apply and score as indicated*

- Bog (10 pts)
- Fen (10 pts)
- Old Growth Forest (10 pts)
- Mature forested wetland (5 pts)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10 pts)
- Lake Erie coastal/tributary wetland-restricted hydrology (5 pts)
- Lake Plain Sand Prairies (Oak Openings) (10 pts)
- Relict Wet Prairies (10 pts)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/waterfowl habitat or usage (10 pts)
- Category 1 Wetland. See Question 1 of Qualitative Rating. (-10 pts)

43.5 0  
Subtotal Points

**Metric 6. Plant Communities, interspersions, microtopography. (max 20 pts.)**

6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale

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

**Vegetation Community Cover Scale**

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

6b. Horizontal (plan view) interspersions

Select only one

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

**Narrative Description of Vegetation Quality**

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

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)

**Mudflat and Open Water Class Quality**

0	Absent <0.1 ha (0.2471 acres)
1	Low 0.1 ha to <1 ha (0.2471 acres to 2.47 acres)
2	Moderate 1 ha to <4 ha (2.47 acres to 9.88 acres)
3	High 4 ha (9.88 acres) or more

6d. Microtopography

Score all present using 0 to 3 scale

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

**Microtopography Cover Scale**

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

43.5 GRAND TOTAL (max 100 pts)

Provisional Wetland Category: modified 2

## Background Information Form

<b>Name:</b>	Todd Crandall	<b>Date:</b>	June 22, 2005
<b>Affiliation:</b>	Davey Resource Group		
<b>User Address:</b>	1500 North Mantua Street, Kent, Ohio 44240		
<b>Phone:</b>	1-800-828-8312		
<b>e-mail address</b>	<a href="mailto:tcrandall@davey.com">tcrandall@davey.com</a>		
<b>Wetlands Name</b>	Wetland G		
<b>Location of Wetlands including address if available</b>	Rockside Boarding Area, Cuyahoga Valley National Park, Valley View, Ohio		
		<b>Sources of information used (check all that apply)</b>	
UTM		Site Visit	<input checked="" type="checkbox"/>
USGS Quad	Cleveland South	USGS Topo	<input checked="" type="checkbox"/>
Hydrologic Unit Code	4110002	NWI Map	<input checked="" type="checkbox"/>
Wetland Size (acres)	0.01	OWI Map	<input type="checkbox"/>
<b>How was size estimated?</b>  Wetlands Delineation		Aerial Photo	<input type="checkbox"/>
		Soil Survey	<input checked="" type="checkbox"/>
		ODNR - DNAP	<input checked="" type="checkbox"/>
		Delineation Report/Map	<input checked="" type="checkbox"/>
<b>Photograph</b>			
<div style="border: 1px solid black; padding: 10px; min-height: 300px;"> <p style="font-size: 1.2em; margin-top: 0;">See Wetlands Delineation Report</p> </div>			
final score:	22.5	Provisional Wetland Category:	Category 1

### Narrative Rating Questions

<b>Name:</b> Todd Crandall	<b>Date:</b> June 22, 2005
<b>Wetlands Name</b> Wetland G	

<b>1: Critical Habitat</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>2: Threatened or Endangered Species</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>3: Documented High Quality Wetland</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>4: Significant Breeding or Concentration Area (waterfowl)</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>5: Category 1 Wetlands (hydrologically isolated)</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>6: Bogs</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>7: Fens</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>8a: “Old Growth Forest”</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>8b: Mature Forested Wetlands</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>9a: Lake Erie Coastal and Tributary Wetlands</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>9b: Hydrology result of Erosion Control Measures (Lake Erie)</b>	<input type="checkbox"/> NO	<input type="checkbox"/> YES
<b>9c: Hydrology unrestricted</b>	<input type="checkbox"/> NO	<input type="checkbox"/> YES
<b>9d: Native Species Predominate</b>	<input type="checkbox"/> NO	<input type="checkbox"/> YES
<b>9e: Non-native Species Predominate</b>	<input type="checkbox"/> NO	<input type="checkbox"/> YES
<b>10: Oak Openings</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<b>11: Relict Wet Prairies</b>	<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES

<b>Site:</b> Rockside Boarding Area, Cuyahoga Valley National Park, Independence		<b>Date:</b> June 22, 2005	
<b>Wetlands:</b>	Wetland G	<b>Rater:</b>	Todd Crandall

0	0
Subtotal	Points

**Metric 1. Wetland Area (size). (max 6 pts)**

Select one size class and assign score.

- >50 acres (>20.2ha) (6 pts)
- 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- 10 to <25 acres (4 to <10.1ha) (4 pts)
- 3 to <10 acres (1.2 to <4ha) (3 pts)
- 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- <0.1 acres (0.04ha) (0 pts)

4	4
Subtotal	Points

**Metric 2. Upland buffers and surrounding land use. (max 14 pts)**

2a. Calculate average buffer width (select one, do not double check)

- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use (select one or double check & 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)

16.5	12.5
Subtotal	Points

**Metric 3. Hydrology. (max 30 pts)**

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)

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)

3c. Maximum water depth. Select only 1.

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

3d. Duration inundation/saturation.

(select one or double check & average)

- Semi- to permanently inundated/saturated (4)
- Regularly inundated/saturated (3)
- Seasonally inundated (2)
- Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime.

(select one or double check & average)

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

Check all disturbances observed	
<input type="checkbox"/> ditch	<input type="checkbox"/> point source (nonstormwater)
<input type="checkbox"/> dike	<input checked="" type="checkbox"/> filling/grading
<input type="checkbox"/> tile	<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- list

26.5	10
Subtotal	Points

**Metric 4. Habitat Alteration and Development. (max 20 pts.)**

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 one.

- 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 checked="" 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

26.5	subtotal this page
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<b>Site:</b> Rockside Boarding Area, Cuyahoga Valley National Park, Independence, OH		<b>Date:</b> June 22, 2005	
<b>Wetland:</b>	Wetland G	<b>Rater:</b>	Todd Crandall

26.5 subtotal first page

26.5 0  
Subtotal Points

**Metric 5. Special Wetlands. (max 10 pts.)**

*Check all that apply and score as indicated*

- Bog (10 pts)
- Fen (10 pts)
- Old Growth Forest (10 pts)
- Mature forested wetland (5 pts)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10 pts)
- Lake Erie coastal/tributary wetland-restricted hydrology (5 pts)
- Lake Plain Sand Prairies (Oak Openings) (10 pts)
- Relict Wet Prairies (10 pts)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/waterfowl habitat or usage (10 pts)
- Category 1 Wetland. See Question 1 of Qualitative Rating. (-10 pts)

22.5 -4  
Subtotal Points

**Metric 6. Plant Communities, interspersions, microtopography. (max 20 pts.)**

6a. Wetland Vegetation Communities

Score all present using 0 to 3 scale

- Aquatic bed
- 1 Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other (list)

**Vegetation Community Cover Scale**

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

6b. Horizontal (plan view) interspersions

Select only one

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

**Narrative Description of Vegetation Quality**

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

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)

**Mudflat and Open Water Class Quality**

0	Absent <0.1 ha (0.2471 acres)
1	Low 0.1 ha to <1 ha (0.2471 acres to 2.47 acres)
2	Moderate 1 ha to <4 ha (2.47 acres 9.88 acres)
3	High 4 ha (9.88 acres) or more

6d. Microtopography

Score all present using 0 to 3 scale

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

**Microtopography Cover Scale**

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

22.5 GRAND TOTAL (max 100 pts)

Provisional Wetland Category: Category 1

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***Appendix O***  
***Ohio Department of Natural Resources, Division of Natural Areas  
and Preserves Natural Heritage Review***

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# Ohio Department of Natural Resources

BOB TAFT, GOVERNOR

SAMUEL W. SPECK, DIRECTOR

## Division of Natural Areas and Preserves

Tom Linkous, Chief

2045 Morse Rd., Bldg. F-1  
Columbus, OH 43229-6693

Phone: (614) 265-6453; Fax: (614) 267-3096

June 21, 2005

Todd Crandall  
Davey Resource Group  
3728 Fishcreek Rd.  
Stow, OH 44224

Dear Mr. Crandall:

After reviewing our Natural Heritage maps and files, I find the Division of Natural Areas and Preserves has no records of rare or endangered species in the unnamed project area, including a one mile radius, located northwest of the junction of Jaeger Rd. and State Route 58 in Black River Township, Lorain County, and on the Lorain Quad. There are no existing or proposed state nature preserves or scenic rivers at the project site. We are also unaware of any unique ecological sites, geologic features, breeding or non-breeding animal concentrations or state parks, forests or wildlife areas within a one mile radius of the project area.

I have reviewed our Natural Heritage maps and files for the Rockside Boarding Area/Cuyahoga Valley National Park project site, including a one mile radius, southeast of the junction of Rockside Rd. and the Baltimore & Ohio RR, in Independence and Valley View, Cuyahoga County, and on the Cleveland South Quad. The numbers/letters on the list below correspond to the areas marked on the accompanying map. Common name, scientific name and status are given for each species.

### Cleveland South/Shaker Heights Quads

- A. Cuyahoga Valley National Park - National Park Service
- B. Ohio & Erie Canal Reservation - Cleveland Metro Parks
- 1. *Gentianopsis crinita* - Fringed Gentian, potentially threatened

There are no existing or proposed state nature preserves or scenic rivers at the project site. We are also unaware of any geologic features, breeding or non-breeding animal concentrations or state parks, forests or wildlife areas in the project vicinity.

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

Todd Crandall  
June 21, 2005  
Page 2

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.

Sincerely,

A handwritten signature in blue ink, appearing to read "Debbie Woischke". The signature is fluid and cursive, with the first name "Debbie" written in a larger, more prominent script than the last name "Woischke".

Debbie Woischke, Ecological Analyst  
Natural Heritage Program



## Appendix P References

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- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. U.S. Fish and Wildlife Service.
- Braun, E. Lucy. 1989 (2nd edition). *The Woody Plants of Ohio: Trees, Shrubs, and Woody Climbers Native, Naturalized, and Escaped*. The Ohio State University Press, Columbus. 362 pp.
- Kartesz, J.T. 1994. *A Synonymized Checklist of the Vascular Flora of the United States, Canada, and Greenland. Volume I, Checklist and Volume II, Thesaurus*. Timber Press, Portland, OR
- Musgrave, D.K. and D.M. Holloran. 1980. *Soil Survey of Cuyahoga County, Ohio*. United States Department of Agriculture, Soil Conservation Service, Washington.
- National Technical Committee for Hydric Soils. 1991. *Hydric Soils of the United States*. United States Department of Agriculture Soil Conservation Service, Washington.
- Newcomb, Lawrence. 1977. *Newcomb's Wildflower Guide*. Little, Brown, and Company, Boston. xxii + 490 pp.
- Reed, Porter B., Jr. 1988. *National List of Plant Species that Occur in Wetlands: Ohio*. U.S. Fish and Wildlife Service, St. Petersburg.
- Reed, Porter B., Jr. 1997. *Draft National List of Vascular Plant Species that Occur in Wetlands: 1996 National Summary*. Fish and Wildlife Service, Department of the Interior.
- United States Army Engineer Waterways Experiment Station Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. *United States Army Engineer Waterways Experiment Station Wetlands Research Program Technical Report Y-87-1: 1-100*, 4 appendices.
- Weishaupt, Clara G. 1971 (3rd edition). *The Vascular Plants of Ohio*. Kendall/Hunt Publishing Company, Dubuque. iii + 293 pp.

## **Appendix Q**

### **Davey Resource Group Personnel Profiles**

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**Ana Burns, M.S.E.S.,** is a biologist responsible for project management, data analysis, and report writing for ecological surveys, watershed studies, park inventories, and other projects. She has managed multiple 401/404 permitting projects along with numerous natural resource inventory and planning projects. Ms. Burns is knowledgeable of state and federal stream and wetlands regulations, all aspects of Section 401 and 404 permitting, isolated wetlands regulations, and compensatory mitigation for unavoidable impacts to streams and wetlands. She has reviewed and assessed erosion and sediment control plans and is familiar with NPDES regulations. In addition, Ms. Burns has provided assistance with grant writing and managing grant funded projects and has experience in aerial photograph interpretation and geographic information systems (GIS). She joined Davey Resource Group in August, 2002 after working for three years as an environmental planner for a county planning department. In this position, she gained valuable experience in facilitating public meetings, developing educational outreach materials, and assisting the Planning Commission and their subcommittees in implementing and enforcing comprehensive plans and zoning ordinances. Ms. Burns also served as the primary liaison for the Historic Preservation Board in her community. Ms. Burns graduated from Indiana University with a Bachelor of Science degree in biology, and holds a Master of Science degree in environmental science from IU's School of Public and Environmental Affairs.

**Kenneth John Christensen** is a biologist with more than 23 years of experience in the natural resource field. Mr. Christensen assists in plant surveys and wetlands delineations and in the field identification of vertebrate populations, especially amphibians, reptiles, and mammals. He currently holds a permit from the State of Ohio to conduct mist-netting surveys for the federally endangered Indiana bat (*Myotis sodalis*). Proficient with AutoCAD software, Mr. Christensen is responsible for managing the GPS data collection and AutoCAD mapping operations for all natural resource studies. As a *Certified Arborist* by the International Society of Arboriculture, he performs tree appraisals and inventories and also develops tree preservation plans. Mr. Christensen has been involved in all aspects of wetland and stream restoration projects including design, planting, and implementation. He is also involved with the subsequent monitoring of mitigation and restoration projects to ensure that such endeavors reach an expected successful conclusion. Clients for these mitigation, stream restoration, and tree preservation projects have included the Ohio Wetlands Foundation, Medina County Park District, Metro Parks Serving Summit County, and American Electric Power. He is a member of the Ecological Landscaping Association and holds a Bachelor of Science degree in conservation from Kent State University.

**Todd A. Crandall, M.En.,** is a wetlands scientist that is responsible for all wetlands delineations performed at Davey Resource Group. Mr. Crandall also performs ecological surveys, vegetation cover mapping, plant identification, Section 401-404 and isolated wetlands permitting, and prepares restoration and mitigation plans. Mr. Crandall is responsible for vegetation monitoring at numerous wetland mitigation sites throughout Northeast Ohio. He has completed several large-scale wetland inventories for the Cuyahoga Valley National Park, as well as Cuyahoga, Portage, and Summit Counties in Ohio. He is certified for wetlands studies by the U.S. Army Wetlands Delineator Certification Program, and is a certified Professional Wetlands Scientist (PWS) through the Society of Wetland Scientists. He has completed the 40-hour OSHA health and safety training (OSHA Standard 29 CFR 1910.120). Mr. Crandall has also completed training through the Ohio Environmental Protection Agency (EPA) for the following: Headwater Habitat Evaluation Index (HHEI); Ohio Rapid Assessment Method (ORAM); and Vegetation Index of Biotic Integrity (VIBI). He has 14 years of experience and holds a bachelor's degree from Hiram College in biology and a master's degree in environmental science from Miami University.

**Michelle Malcosky** is a biologist responsible for overseeing Davey's ecological and wetlands permitting projects, endangered species surveys, and natural resource restoration projects. Ms. Malcosky writes technical reports and assists with many of the ecological surveys, wetland and stream restorations, mitigation monitoring, endangered species surveys, and watershed studies that she oversees. She has managed ecological studies for the Ohio Department of Transportation I-75/I-475 Interchange upgrade in Toledo, Ohio, American Electric Power's Davidson-Dublin 138kV Underground Transmission Line in Franklin County, and an Ohio Department of Natural Resources study assessing cumulative and secondary effects of development in watersheds. Ms. Malcosky, a botanist by training, conducts plant surveys with an emphasis on rare, threatened, and endangered species identification. Ms. Malcosky also has extensive experience conducting habitat, emergence, and mist-netting surveys for rare bats throughout Ohio and holds permits from both U.S. Fish and Wildlife and the State of Ohio to conduct surveys for the federally endangered Indiana bat (*Myotis sodalis*). She is participating in on-going Indiana bat research at Pond Brook Metro Park in Twinsburg, Ohio. The study is being funded by a State of Ohio grant awarded to Metro Parks, Serving Summit County. Ms. Malcosky joined Davey in 1999 and graduated from The University of Akron with a Bachelor of Science degree in biology with an emphasis on botany.

**Karen M. Wise, M.S.**, supervises the Natural Resource Consulting group at Davey. This unit provides comprehensive consulting services to governments, development companies, and engineering/design firms. Services provided include wetlands consulting, endangered species surveys, watershed mapping and planning, and comprehensive urban forestry consulting. Ms. Wise is responsible for business development, client and project management, and supervision of the 16 biologists and urban foresters working within the Natural Resource Consulting group. Ms. Wise is a wetlands biologist by training and has more than 12 years of experience in the fields of wetland ecology, restoration, design, and management. She is particularly versed in wetlands policy and familiar with all aspects of Section 401 and 404 permitting, isolated wetlands regulations, and compensatory mitigation for unavoidable impacts to streams and wetlands. Ms. Wise is active in local chapters of the National Home Builders Association and has served on the land use policy subcommittee. She has attended and presented projects at national meetings of the Society of Wetland Scientists, of which she has been a member throughout her career. She is also a supporting member of The Nature Conservancy (TNC) and has coordinated public-private partnerships to assist TNC in land acquisition and land management at holdings in northern Ohio. Ms. Wise holds a Bachelor of Science degree in biology from Wheeling Jesuit College and a Master of Science degree in natural resources from The Ohio State University.