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## Large Filing Separator Sheet

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Section : 4 of 4

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TRANSCRIPT



## United States Department of the Interior

### FISH AND WILDLIFE SERVICE

Ecological Services  
6950 Americana Parkway, Suite H  
Reynoldsburg, Ohio 43068-4127  
(614) 469-6923/Fax: (614) 469-6919

August 11, 2004

Mr. Allan M. Hale  
URS Corporation  
36 East 7<sup>th</sup> Street, Suite 2300  
Cincinnati, OH 45202-4434

Dear Mr. Hale:

This is in response to your June 29, 2004 letter requesting information we may have regarding the occurrence or possible occurrence of Federally-listed threatened or endangered species within the vicinity of the proposed construction of a substation located at the corner of Hillcrest Road and Greenbush East Road in Brown County, Ohio. The new substation will require approximately seven miles of transmission line to the Eastwood substation in Clermont County. Per our conversation August 11, 2004, the transmission line will be above ground. This preliminary request for information will be used to develop a preferred and alternative route within the study area. There are no Federal wildlife refuges, wilderness areas, or Critical Habitat within the vicinity of this project.

The Service recommends that once the preferred and alternative route have been developed, requests for threatened and endangered species information submitted to the Service's Ohio Field Office include the following information: 1) location data including latitude and longitude of project area, site address, and county; 2) a detailed project description, including layout of any new construction; 3) a detailed description of onsite habitat, including the size, location, and quality (when available) of streams, wetlands, forested areas and other natural areas, and proposed impacts; 4) a description of the forested habitat onsite, including type of forest, and presence of dead trees, split branches or trunks, and exfoliating bark, and proposed impacts; 5) photographs representative of all cover types on the site and encompassing views of the entire site (photocopies are acceptable); and 6) a topographic map with the project area identified. This information may enable our staff to fully evaluate potential impacts to any threatened or endangered species which may occur within the vicinity of the project.

**ENDANGERED SPECIES COMMENTS:** The proposed project lies within the range of the **Indiana bat** (*Myotis sodalis*), a Federally-listed endangered species. Since first listed as endangered in 1967, their population has declined by nearly 60%. Several factors have contributed to the decline of the Indiana bat including the loss and degradation of suitable hibernacula, human disturbance during hibernation, pesticides, and the loss and degradation of forested habitat, particularly stands of large, mature trees. Fragmentation of forest habitat may also contribute to declines. Summer habitat requirements for the species are not well defined but the following are considered important:

1. Dead or live trees and snags with peeling or exfoliating bark, split tree trunk and/or branches, or cavities, which may be used as maternity roost areas.
2. Live trees (such as shagbark hickory and oaks) which have exfoliating bark.
3. Stream corridors, riparian areas, and upland woodlots which provide forage sites.

Should the proposed site contain trees or associated habitats exhibiting any of the characteristics listed above, we recommend that the habitat and surrounding trees be saved wherever possible. If the trees must be cut, further coordination with this office is recommended. Additionally, suitable bat roost trees should not be cut between April 15 and September 15.

If desirable trees are present and must be cut, mist net or other surveys may be warranted to determine if bats are present. Any survey should be designed and conducted in coordination with the Endangered Species Coordinator for this office. The survey should be conducted in June or July, since the bats would only be expected in the project area from approximately April 15 to September 15.

A portion of the study area includes Clermont County which lies within the range of the **running buffalo clover** (*Trifolium stoloniferum*), a Federally-listed endangered species. This species can be found in partially shaded woodlots, mowed areas (lawns, parks, cemeteries), and along streams and trails. Running buffalo clover requires periodic disturbance and a somewhat open habitat to successfully flourish, but cannot tolerate full-sun, full-shade, or severe disturbance. Should the proposed project impact any of the habitat types described above, further coordination with this office may be required.


The proposed site is also within the range of the **rayed bean mussel** (*Villosa fabalis*), a Federal Candidate species. The Service is providing the following information regarding this species in the event there are potential stream impacts associated with the construction of this project. The rayed bean is generally known from smaller, headwater creeks, but records exist in larger rivers. They are usually found in or near shoal or riffle areas, and in the shallow, wave-washed areas of lakes. Substrates typically include gravel and sand, and they are often associated with, and buried under the roots of, vegetation, including water willow (*Justicia americana*) and water milfoil (*Myriophyllum* sp.). The rayed bean has been recorded in the East Fork of the Little Miami River, and is potentially present in its tributaries. Should the proposed project directly or indirectly impact any of the habitat types described above, further coordination with this office may be required.

The proposed project lies within the range of the **sheepnose mussel** (*Plethobasus cyphus*), a Federal Candidate species. The sheepnose mussel is primarily a larger-stream species. Due to the project location, no impacts to this species are anticipated. Relative to this species, this precludes the need for further action on this project as required by the 1973 Endangered Species Act, as amended.

This technical assistance letter is submitted in accordance with provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C.661 et seq.), the Endangered Species Act of 1973, as amended, and is consistent with the intent of the National Environmental Policy Act of 1969, and the U.S. Fish and Wildlife Service's Mitigation Policy.

If you have any questions regarding our response or if you need additional information, please contact Karyn Tremper at extension 13.

Sincerely,

  
Mary Knapp, Ph.D.  
Supervisor

cc: ODNR, DOW, SCEA Unit, Columbus, OH

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**APPENDIX 06-2**

**PUBLIC MEETING INFORMATION**



## Hillcrest/Eastwood Transmission Line - Substation and Power Line Construction Project



### OPEN HOUSE

5:00 p.m. – 8:00 p.m.,

Tuesday, December 7, 2004

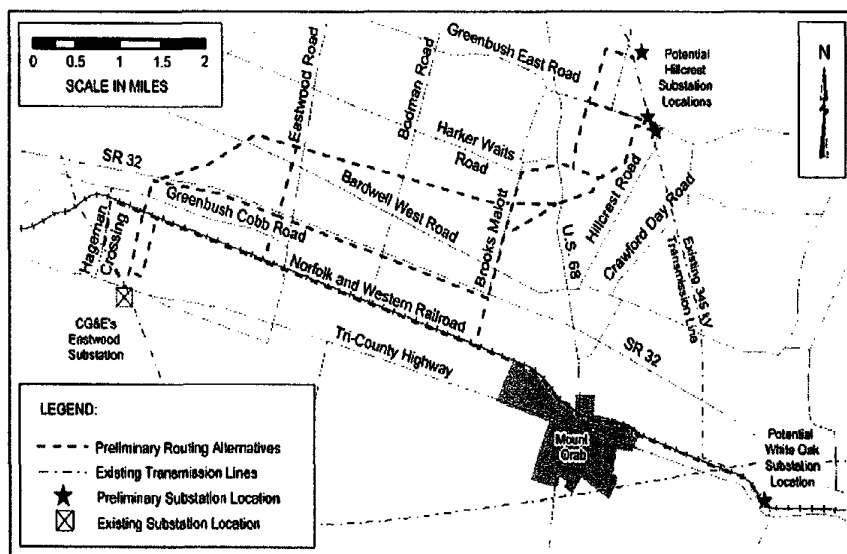
Western Brown High School

476 West Main Street in Mt. Orab

Cincinnati Gas & Electric would like to invite you to an open house to discuss the proposed new substation and electric transmission line in western Brown County and eastern Clermont County. The exact route will not be determined until after this open house because CG&E wants to listen to citizen concerns and questions. Only one of these routes, or some variation of one, may be approved by the Ohio Power Siting Board.

Company representatives will be present throughout the evening to answer questions about transmission line route options, the environmental assessment process, construction schedule, engineering considerations, property easements, and other topics. You can arrive at any time during the open house; there will be no formal presentation.

### Proposed Routes Hillcrest - Eastwood Electric Transmission Line



### History

The proposed substation and transmission line are necessary to maintain reliable service to customers within the eastern part of the CG&E system. Rapid growth of residential developments and businesses is expected to continue, and the demand for electricity will result in reduced reliability if steps are not taken to provide a new source of power. CG&E has made improvements to substations, distribution lines, and other system components over the years, but such efforts can no longer meet the expected demand for electric service in this area.

Computer modeling of the CG&E system shows that the proposed substation and transmission line are the best options for meeting the projected demand.

CG&E and its consultants have assembled information that documents the environmental conditions, cost, engineering feasibility, and other features for the substation and power line routes. This information will be compiled into an application for a construction certificate that will be submitted to the Ohio Power Siting Board in 2005. Construction could begin in late 2006.

## Acquiring Easements

Easements are legal agreements that grant CG&E access to property to construct and maintain power lines within the area called a right-of-way. CG&E will contact property owners where easements are needed and will negotiate with each property owner to reach agreement on the compensation to be paid for granting each easement. Easement fees are negotiated at fair market rates, depending on the acreage and location of the easement.

Property owners maintain ownership of the property, subject to the rights granted to CG&E. CG&E will remove trees and tall shrubs from various widths of the right-of-way, which is a part of the easement signed with the property owner and filed in the appropriate county courthouse.

## Property Restoration

Where construction crews need to cross property, it is likely that a certain amount of grass, agricultural field, and/or landscaping will be damaged to some extent. CG&E will repair such damage at the company's expense before the project is complete. Any property disturbed by construction of the power line will be restored to its original condition or better. A videotape of the power line route will be taken before construction begins and will be used to guide restoration.

After the power line has been constructed, owners can use their property as before, with a few exceptions. Large permanent structures such as homes, garages and swimming pools are not allowed in the easement area because CG&E needs to maintain clear access to this area for vegetation maintenance and any future power line work. Specifics of property restoration will be discussed during easement negotiations.

## Project Schedule

- ▲ **Summer 2004** Substation land purchased
- ▲ **Winter 2004-05** Public Information Open House (Advised in newspapers)
- ▲ **Spring 2005** Certificate application filed with the Ohio Power Siting Board
- ▲ **Summer 2005** Local Public Hearing and Adjudicatory Hearing as part of the Ohio Power Siting Board process (Advised in newspapers)
- ▲ **Fall 2005** Certificate received, detailed surveys and engineering, easements obtained
- ▲ **Winter 2006-07** Construction begins, with land restoration following
- ▲ **Summer 2008** Line in service, final land restoration

## Summary

CG&E is committed to providing its customers with a reliable supply of electricity for home, business, and industrial uses. The Hillcrest-Eastwood Line will preserve the existing system's reliability and meet the needs of additional customers far into the future. This power line is just one of many steps CG&E is taking to make sure the electric transmission system remains safe and dependable. For more information about the Hillcrest-Eastwood electric transmission line project, please contact:

**For easement and land rights questions:**  
Mark Kline at 513-287-4004 or  
[mkline@cinergy.com](mailto:mkline@cinergy.com)

**For engineering or construction questions:**  
Michael Clodfelder at 513-287-1721 or  
[mclodfelder@cinergy.com](mailto:mclodfelder@cinergy.com)

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CG&E

## Hillcrest - Eastwood Transmission Line Substation and Power Line Construction Project



CG&E's Eastwood Substation.

## Project Summary

Population growth and commercial development in CG&E's eastern service territory have led to increased use of electricity. Detailed studies show the company must construct a new electric transmission line and associated substation in Brown County to maintain reliable service in this part of its system. The new transmission line will be named the Hillcrest-Eastwood Line.

The Hillcrest-Eastwood Line will begin at a substation to be built near either the intersection of Greenbush East and Hillcrest Roads, near where the existing transmission line crosses the roads, or near White Oak Station Road, as shown on the map. The new transmission line will end at CG&E's existing Eastwood Substation on Tri-County Highway in Clermont County.

CG&E and its consultants are assembling information that documents the environmental conditions, cost, engineering feasibility, and other features for the substation and power line routes. This information will be compiled into an application for a construction certificate that will be submitted to the Ohio Power Siting Board (OPSB). Assuming timely approval, construction will begin at the end of 2006. The target date for the line to begin service is summer 2008.

### Transmission Line Facts

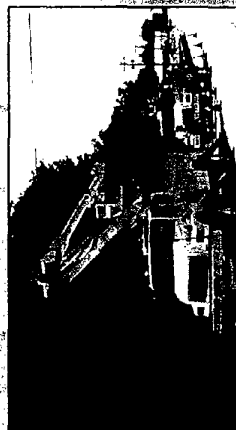
Line Voltage:	138,000 volts
Substation:	7-10 acres
Line Length:	Approx. 7 miles
Support Structures:	Steel and wood poles
Height of Structures:	50-100 feet
Distance between Structures:	100-500 feet

## Power Line Safety

Over the past few decades there has been discussion that exposure to power lines can cause adverse health effects. Power lines create electric and magnetic fields (EMF), which are invisible lines of force that surround electrical devices. Every electrical device, whether household appliance or wiring, industrial motor, or electric line, produces EMF.

Scientists from government agencies and universities in almost every industrialized country have conducted extensive research on this topic and found there is no cause and effect relationship between EMF and diseases. There is a small amount of evidence that exposures may present a leukemia hazard, but this evidence is not strong enough to warrant concern from regulatory agencies. Scientists generally agree that if there is any health risk, it is apparently a very small risk and affects a very small portion of the population. There are no government standards for exposures to EMF because there is so little evidence of any harm.

For more information about EMF, you can visit Cinergy's website at: [www.cinergy.com/environment](http://www.cinergy.com/environment).



Typical CG&E power line tower

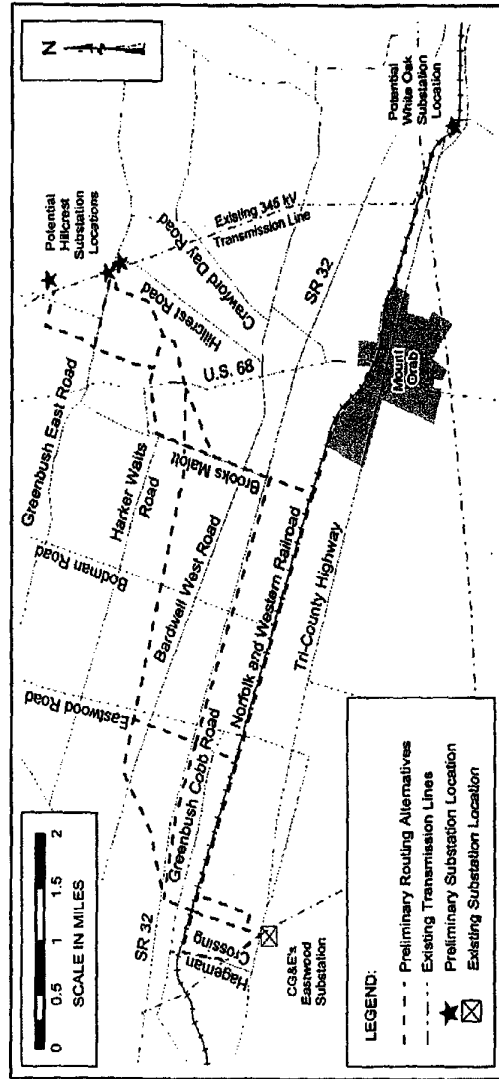
## Construction Sequence

Before any work begins, the new portion of the line must be surveyed. In addition to a land survey, a survey from a helicopter or plane may be performed. Vegetation will be cleared in the easement as necessary to facilitate the land survey.

When construction begins, area residents can expect to see typical power line service trucks in addition to some heavy equipment. Existing access roads and private roads will be used whenever possible. Property owners will be contacted prior to using private roads. Construction will generally follow this sequence:

- ▶ **Clear for Construction:** Once the line route has been marked, the easement will be cleared where needed to facilitate construction and maintain required clearances.
  - ▶ **Construction:** Pole structures and equipment will be delivered to the job site. Holes will be augured into the earth where poles will be set. Then, the hole will be backfilled and compacted. If steel poles/structures are used, foundations may need to be installed. Insulators will be installed on the poles and the conductors (wires) will be pulled onto and clamped to the insulators.
  - ▶ **Energizing Conductors:** CG&E will conduct testing on the line prior to it being placed in service.
  - ▶ **Property Restoration:** CG&E will restore all property disturbed by the construction.
- Once the line is in service, CG&E will regularly inspect the line and provide maintenance as needed. A tree trimming schedule will be established to keep trees from growing up under the line.

## Proposed Routes & Approval Process Hillcrest - Eastwood Electric Transmission Line



CG&E hired independent consultants to study alternative routes, by taking environmental, land use, historic and archeologic, and engineering factors into consideration. More than 60 route combinations and sections were evaluated and scored. The lines on the map indicate the proposed routes under final consideration. Only one of these routes, or some variation of one, may be approved by the Ohio Power Siting Board (OPSB), which is primarily staffed by the Public Utilities Commission of Ohio, and will eventually be built.

The procedure to obtain construction approval requires CG&E to prepare a detailed environmental

analysis, publish newspaper notices about the project, hold a public information meeting, and take various other steps to inform the agency and the public about CG&E's plans. CG&E voluntarily expands upon this process by interviewing public officials, preparing this brochure, and meeting with potential stakeholders well in advance of the requirements. When the time comes, CG&E will also prepare an erosion and sedimentation control plan. CG&E will also obtain approvals from the Ohio Department of Transportation, Brown and Clermont Counties and affected property owners.

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Vo. 7, Issue 49

Dec. 12, 2004

## High wires for Mt. Orab



Rick Hicks, CG&E project manager, discusses the construction of a new substation and transmission line in Brown County during CG&E's open house Dec. 7 at Western Brown High School.

### CG&E to construct substation in area

By WADE LINVILLE  
Staff writer

MT. ORAB - Cincinnati Gas and Electric held an open house at the Western Brown High School in Mt. Orab Tuesday, Dec. 7 to gather public opinion on the construction of a new substation and 138,000 volt transmission line in Brown County.

Due to an increased use of electricity because of commercial and population growth in the Mt. Orab service area, CG&E must construct a new transmission line in Brown County that will connect to an associated substation in order to maintain dependable service to Mt. Orab's section of the electric system.

CG&E evaluated more than 60 different route combinations while planning for the new line. According to Robert McElfresh, CG&E principal environmental scientist, plans for the project started dur-

ing the summer. They have narrowed it down to just a few alternatives. The transmission line is expected to begin at a substation that will be built in a location where it is able to connect to an existing 345,000 volt transmission line.

CG&E plans to choose between one location near White Oak Station Road, or one of three possible locations near the intersection of Hillcrest and Greenbush East roads to construct the new substation.

The new line is expected to end at an existing substation on Tri-County Highway in Clermont County known as the Eastwood Substation. McElfresh seemed to favor the White Oak Station location for the new substation because the new transmission line could then be constructed along the path of the Norfolk and Western Railroad, which passes directly through Mt. Orab.

"We try to find the route that has the

least impact overall," said Alan Hall of URS, who was chosen by CG&E to help evaluate the proposed project. "We're looking at it from a lot of different aspects."

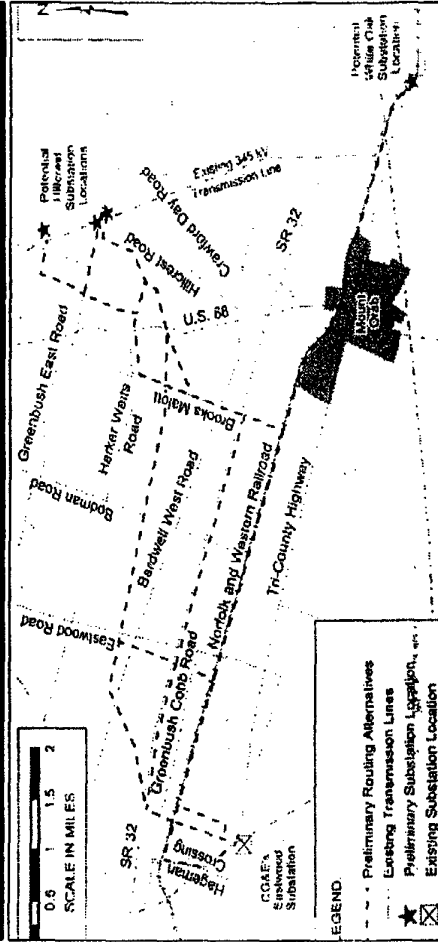
The new line will be approximately seven miles in total length. Support structures for the line will consist of steel and wood poles, and will be placed between 100 to 500 feet apart. The new substation will require approximately seven to 10 acres of land.

Rick Hicks, CG&E project manager, said the cost of the new substation will be around \$5 million and the cost of the line construction will be around \$3.6 million. CG&E must obtain a "right of way" for property that the new line will cross and that could affect its cost for the project, according to Hicks.

One of the routes must be approved by the Ohio Power Siting Board, which is primarily staffed by the Public Utilities Commission of Ohio.

Please see CG&E/ page 3

## Proposed Routes & Approval Process Hillcrest - Eastwood Electric Transmission Line



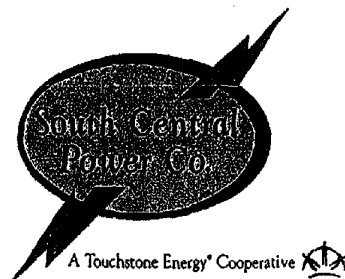
## CG&E: Construction may start 2006

continued from page 1 additional steps to inform the public about their plans.

Construction approval cannot be obtained unless CG&E publishes newspaper notices about the project, holds a public information meeting, prepares a detailed environmental analysis, and takes other

reliability and helps feed the area."

If the project is approved in a timely manner, CG&E plans to start the construction at the end of 2006 and hopes to have the new line in service by the summer of 2008.



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The Power of Human Connections

July 23, 2004

John McNabb  
Staff Engineer – T&D Planning  
Cinergy  
P.O. Box 960  
EM661  
Cincinnati, Ohio 45202

Dear Mr. McNabb,

Thank you for contacting South Central Power (SCP) about your new route proposal for building a 138kV-transmission line to your future Hillcrest substation. SCP has been evaluating the need for a new 69 or 138kV tap for our existing 34.5kV Eastwood substation. This would provide SCP with more reliability to tie its existing distribution to our Duckwall substation. We have reviewed this information and have determined that due to the load center of the distribution facilities that our existing Eastwood substation location is adequate. SCP would prefer that the proposed route be between points B and K (along the Norfolk and Western Railroad) on your proposed maps with the alternative being between points C and I (St. Rt. 32). This would allow the 138kV tap to be at a close proximity to the existing SCP Eastwood substation. If there are any other questions or concerns that I may help you with please feel free to contact me at (740) 689-6123.

Regards,

*Kevin Seesholtz*  
Kevin Seesholtz  
Staff Engineer  
South Central Power Company

Cc: A. Kadakia  
file

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**APPENDIX 06-3**

**EMF INFORMATION**



## Environment

### Environmental Electric and Magnetic Fields

- ▶ [View Figure 1 - The difference in frequencies in the electromagnetic spectrum](#)
- ▶ [View figure 2 -- Magnetic Field Strengths](#)

#### What we know and don't know about EMF

1. [What is EMF?](#)
2. [Where are magnetic fields found?](#)
3. [Can you feel EMF?](#)
4. [What do we know about the health effects of EMF?](#)
5. [What is Cinergy's opinion about EMF?](#)
6. [Should I be concerned about EMF?](#)
7. [What additional research is being conducted?](#)
8. [What is Cinergy doing to minimize EMF exposures to the general public?](#)
9. [Are there any standards for safe exposures to electric lines?](#)
10. [Where can I get additional information?](#)

For several years news coverage has reported a possible association between electric and magnetic fields (EMF) and human health. The following questions and answers have been compiled to help Cinergy customers gain a better understanding of this complex subject and to alleviate some of the concerns. For simplicity, we have limited this to the EMF that we all encounter in our daily lives from typical electric transmission and distribution wires.

#### 1. What Is EMF?

EMF refers to electric and magnetic fields. Electric fields are produced by voltage in a wire or device. Magnetic fields are produced by the electric current as measured by amperes. In the U.S., electricity is transmitted at a frequency of 60-cycles per second, which simply means that the alternating current changes direction 60 times per second. Electric motors, clocks, and other devices operate properly because the electric companies carefully control the frequency and voltage.

The amperage, in power lines, however, changes on a daily or even hourly basis as customers use more or less electricity at different times of the day. As the amperage increases the strength of the magnetic field also increases. The strength of the EMF decreases rapidly as you move away from the electrical source, just as the heat from a campfire decreases with distance.

EMF are a part of a broad spectrum that includes radio, TV, radar, microwaves, radiant heating, visible light, and even X-rays. The frequencies are vastly different. Figure 1 demonstrates the huge difference in frequencies in the electromagnetic spectrum. Sixty-cycle electricity has a very low energy component, regardless of voltage or amperage.

Since most of the EMF health research, and therefore the news coverage, is about magnetic fields, that is the main topic of this discussion. Magnetic fields are commonly measured in units called "milligauss" with the abbreviation mG.

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## 2. Where Are Magnetic Fields Found?

The earth has a natural direct current magnetic field of about 500 mG. This force is what makes a compass needle point north. Power frequency EMF is 60 cycle alternating current, however, which means that the electron flow changes direction 60 times each second. The flow of electrons is what causes the magnetic field according to the laws of physics.

Magnetic fields are found around any type of electrical wire or device that is turned on. This includes household appliances, light bulbs, motors, and of course, electric wires whether on a tower, a pole, or the wiring in your home. The magnetic field stops when the device is turned off. Figure 2 shows the magnetic field caused by several common appliances at distances where people would normally use the appliance.

Magnetic fields at the edges of rights-of-way for Cinergy transmission lines are typically between 4 and 20 mG. This is lower than the fields associated with many appliances, and far below the earth's normal field strength. As you move farther from the wires, the field strength declines. At only 200 to 300 feet away from a right-of-way we cannot measure any magnetic field from the wires.

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## 3. Can You Feel EMF?

People cannot detect magnetic fields at the levels from power lines or in homes. We can sometimes detect electric fields because this is the force that, under the right conditions, makes our hair stand on end. You can create a similar electric field by brushing your hair or walking across a carpet on a day with low humidity.

Most people do not realize that every living organism is an electrochemical "machine." Our muscles contract when stimulated by electric currents transmitted by nerves. We mentioned earlier that the strength of the EMF is highly dependent on distance. Because our nerves, muscles, and all other cells are so close together, the field strengths at the cell walls are much stronger than the fields that can be caused by exposure to power lines or appliances.

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## 4. What Do We Know About the Health Effects Of EMF?

Scientists have been doing intense research on EMF and health since 1979. A wide variety of studies have been conducted and the results of some have found their way into the news media. In response to public interest, two major U.S. government-sponsored programs examined the different studies by looking at the data and reaching general conclusions.

In 1997, the National Academy of Sciences (NAS) issued the results of their six-year study. In the words of the NAS,

The world is becoming more electric and our bodies are responding. A wide range of studies have shown that exposure to electric and magnetic fields can affect the nervous system and the immune system. The results of these studies are consistent with the findings of other studies that have shown that exposure to electric and magnetic fields can affect the nervous system and the immune system. The results of these studies are consistent with the findings of other studies that have shown that exposure to electric and magnetic fields can affect the nervous system and the immune system.

The other project was a five-year cooperative research program between industry, the government, and citizen groups. This was authorized by the U.S. Congress in 1992 and had three tasks:

1. to conduct a health effects research program;
2. to compile information for public outreach; and
3. to evaluate any other potential health hazards from low frequency EMF.

The conclusions of this research are:

- The scientific evidence suggesting that exposure to EMF is a health hazard is weak.
- Other factors may account for the weak evidence that EMF may be a hazard, but no one knows what those factors might be.
- Most of the laboratory research shows no cause and effect relationship between EMF and diseases or changes in biological functions.
- There is a small amount of evidence that exposures may present a leukemia hazard, but this evidence is not strong enough to warrant concern from regulatory agencies.
- General public education programs aimed at ways to reduce exposures should be continued.
- Further research should focus on leukemia, degenerative diseases of the nervous system, and heart rate variability.

The report, completed in 1998, is titled *National Institute of Environmental Health Sciences Report on Health Effects from Exposure to Power-Line Frequency Electric and Magnetic Fields*. It is available from the National Institutes of Health as publication number 99-4493, or at <http://www.niehs.nih.gov/emfrapid/booklet/home.htm>.

In addition to the U.S. studies, foreign research organizations have looked at the evidence. In late 1999 researchers from the United Kingdom published the results of another project. The United Kingdom Childhood Cancer Study found no link between magnetic fields and childhood cancer. The principal investigator for this study is quoted as saying,

"The scientific consensus on EMFs has been under suspicion for some time. In this study, we provide the evidence that exposure to the levels of magnetic fields found in the UK does not increase the risk for childhood cancer." (Sir Richard Peto, United Kingdom Childhood Cancer Study)

This study is reported in the December 1999 issue of *The Lancet* which is a British medical journal.

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#### **5. What Is Cinergy's Opinion About EMF?**

At Cinergy, we believe that it would be irresponsible to state that there is absolutely no risk from exposure to EMF. We can never "prove" a negative conclusion with absolute certainty, although the great majority of research to date does not support any significant link to adverse health effects. We do know that IF there is any danger from electric lines or use of electricity, it is apparently a very small risk that affects a very limited segment of the population. There are research studies from many industrialized countries to support this position, and Cinergy will continue to monitor on-going research results.

We willingly accept many known risks in our everyday lives; from our driving habits, to choices of diet and lifestyle, to choices of household cleaning products and lawn chemicals. To the best of our knowledge, EMF is among the least of any such risks.

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#### **6. Should I Be Concerned About EMF?**

While an absolute answer is impossible, evidence strongly points toward "no". Very few studies have shown a relationship between EMF and disease, and so many studies show no relationship.

Various international health agencies have issued statements on the probability of harm resulting from exposure to EMF. One of the more recent such statements is:

"There is no consistent evidence that exposure to fields experienced in our living environment causes direct damage to biological molecules, including DNA. Results from animal studies conducted so far suggest that ELF (extremely low frequency) fields do not initiate or promote cancer." (World Health Organization Summary, October 2001)

The U.S. National Institute of Environmental Health Sciences reported to Congress in 1999 that:

- The evidence for a risk of cancer and other human disease from the electric and magnetic fields around power lines is "marginal" and "weak".
- EMF exposure "cannot be recognized at this time as entirely safe, because of weak scientific evidence that exposure may pose a leukemia hazard."
- "The NIEHS believes that the probability that EMF exposure is truly a health hazard is currently small."

The ultimate decision comes down to each person's comfort level with the results of the research. There is simply no documented evidence that day-to-day exposure to electricity, outside of the obvious electric shock effects, has resulted in harm to people or the environment.

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#### **7. What Additional Research Is Being Conducted?**

Research into this issue has declined since the late 1990s. The reason is that scientists, and the organizations that provide their funding, want to spend their time and money on more likely threats to public health. There have been hundreds of EMF studies, costing many tens of millions of dollars, which have shown no harmful effects from electric wires and electric usage. There are, however, projects that are looking more deeply into whether EMF might be a factor in breast cancer, leukemia, and certain neurological diseases. It is impossible to predict the outcome of this research, but it seems likely that the results will be similar to past studies.

Cinergy has been a participant in various research projects to determine whether there is any risk to our customers. Our results have been included in the national studies of public exposures and there is no evidence of harmful health effects in our service area.

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#### **8. What Is Cinergy Doing To Minimize EMF Exposures To The General Public?**

All of Cinergy's electric lines, regardless of voltage or amperage, are built in accordance with the National Electric Safety Code (NESC). The NESC is a standard set of criteria that establishes safe distances and construction methods to protect people from electric shock hazards. While the NESC does not specifically address EMF exposures, the distances of the wires above ground and the installations of underground electric lines result in relatively low EMF exposures for people.

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#### **9. Are There Any Standards For Safe Exposures To Electric Lines?**

Only two states (Florida and New York) have set guidelines for the strength of magnetic fields at the edge of the rights-of-way. All of Cinergy's lines are far below those guidelines. Various states, including Ohio, and certain European governments, have looked into whether there should be legally binding standards for exposures. All such governments have concluded that there is too little evidence of harm to warrant regulations.

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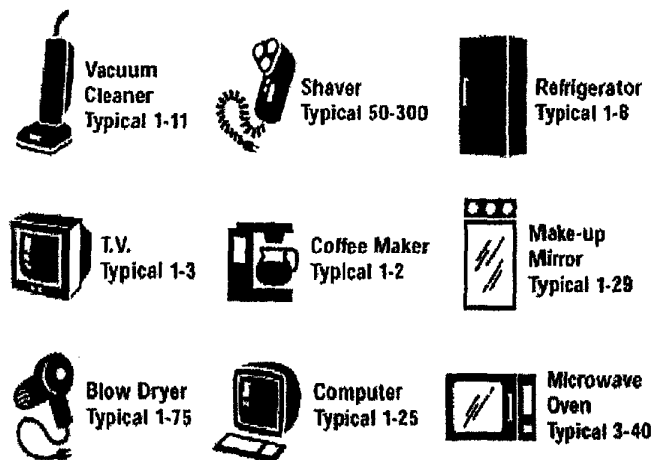
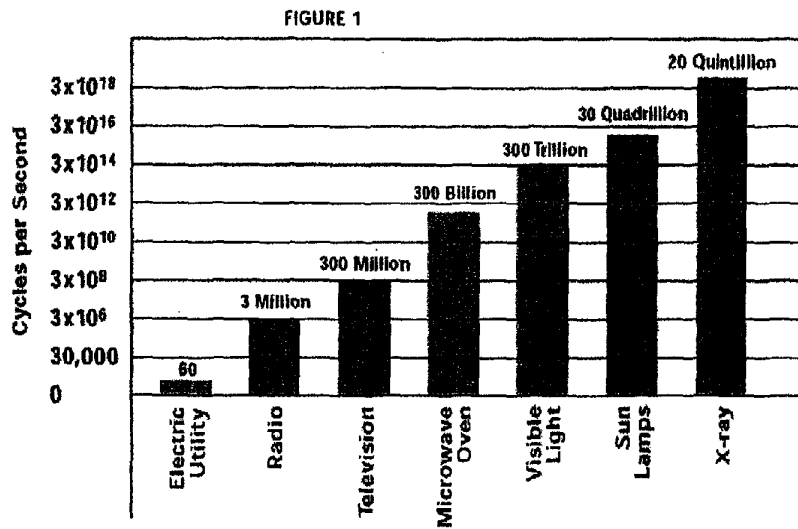
#### **10. Where Can I Get Additional Information?**

You may call Cinergy to talk to an EMF specialist.

**In Indiana:** Please call your local district office. **In Ohio or Kentucky:** Please call (513) 287-3885. This is a toll-free call in the Greater Cincinnati area. If outside this area, you may call 1-800-262-3000 and follow the voice prompts to extension 3885.

There are various publications and Internet web sites with useful information about EMF. One of the better and more objective sources is the web site of the National Institute of Environmental Health and Safety: <http://www.niehs.nih.gov/emfrapid/booklet/emf2002.pdf>. This booklet, released in June 2002, provides answers to frequently asked EMF questions. An extensive and frequently updated web site is maintained by the Medical College of Wisconsin at <http://www.mcw.edu/qcrc/cop/powerlines-cancer-faq/toc.html>. Most public libraries have computers with internet access.

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**Magnetic Field Strengths**  
**FIGURE 2** Measurements in milligauss, taken at normal user distances

**4906-15-07 Ecological impact analysis.**

(A) The applicant shall provide a summary of any studies that have been made by or for the applicant on the natural environment in which the proposed facility will be located. The applicant shall conduct and report the results of a literature search, including map review, for the area within one thousand feet on each side of a transmission line alignment and the area within the immediate vicinity of a substation or compressor station site. On-site investigations shall be conducted within one hundred feet on each side of a transmission line centerline or within one hundred feet of a substation or compressor station site to characterize the potential effects of construction, operation, or maintenance of the proposed facility.

(B) The applicant shall provide for each of the site/route alternatives a map(s) of not less than 1:24,000 scale, including the area one thousand feet on each side of the transmission line alignment and the area within the immediate vicinity of a substation site or compressor station site. The map(s) shall include the following:

- (1) Proposed transmission line alignments.
- (2) Proposed substation or compressor station locations.
- (3) All areas currently not developed for agricultural, residential, commercial, industrial, institutional, or cultural purposes including:
  - (a) Streams and drainage channels.
  - (b) Lakes, ponds, and reservoirs.
  - (c) Marshes, swamps, and other wetlands.
  - (d) Woody and herbaceous vegetation land.
  - (e) Locations of threatened or endangered species.
- (4) Soil associations in the corridor.

(C) The applicant shall provide for each of the site/route alternatives a description of each stream or body of water (and associated characteristics including floodplain) that is present and may be affected by the proposed facility, including but not limited to the following:

- (1) Construction: The applicant shall estimate the probable impact of the construction of the proposed facility on streams and bodies of water. This shall include the impacts from route clearing.
- (2) Operation and maintenance: The applicant shall estimate the probable impact of the operation and maintenance of the proposed facility after construction on streams and bodies of water. This shall include the permanent impacts from route clearing.

(3) Mitigation procedures: The applicant shall describe the mitigation procedures to be used during construction of the proposed facility and during the operation and maintenance of the proposed facility to minimize the impact on streams and bodies of water.

(D) The applicant shall provide for each of the site/route alternatives a description of each wetland that is present and may be affected by the proposed facility. The applicant shall describe the probable impact on these wetlands, including but not limited to the following:

(1) Construction: The applicant shall estimate the probable impact of the construction of the proposed facility on wetlands and wildlife habitat.

(2) Operation and maintenance: The applicant shall estimate the probable impact of the operation and maintenance of the proposed facility after construction on wetlands and wildlife habitat. This would include the permanent impacts from route clearing and any impact to natural nesting areas.

(3) Mitigation procedures: The applicant shall describe the mitigation procedures to be used during construction of the proposed facility and during the operation and maintenance of the proposed facility to minimize the impact on wetlands and wildlife habitat.

(E) The applicant shall provide for each of the site/route alternatives a description of the naturally occurring vegetation that is present and may be affected by the proposed facility. The applicant shall describe the probable impact to the environment from the clearing and disposal of this vegetation, including but not limited to the following:

(1) Construction: The applicant shall estimate the probable impact of the construction of the proposed facility on the vegetation. This would include the impacts from route clearing, types of vegetation waste generated, and the method of disposal or dispersal.

(2) Operation and maintenance: The applicant shall estimate the probable impact of the operation and maintenance of the proposed facility after construction on species described above. This would include the permanent impact from route clearing and any impact to natural nesting areas.

(3) Mitigation procedures: The applicant shall describe the mitigation procedures to be used during construction of the proposed facility and during the operation and maintenance of the proposed facility to minimize the impact on species described above.

(F) The applicant shall provide for each of the site/route alternatives a description of each major species of commercial or recreational value and species designated as endangered or threatened, in accordance with U.S. and Ohio species lists, that is present and may be affected. The applicant shall describe the probable impact to the habitat of the species described above, including but not limited to the following:



(1) Construction: The applicant shall estimate the probable impact of the construction of the proposed facility on commercial, recreational, threatened, or endangered species. This would include the impacts from route clearing and any impact to natural nesting areas.

(2) Operation and maintenance: The applicant shall estimate the probable impact of the operation and maintenance of the proposed facility after construction on species described above. This would include the permanent impact from route clearing and any impact to natural nesting areas.

(3) Mitigation procedures: The applicant shall describe the mitigation procedures to be used during construction of the proposed facility and during the operation and maintenance of the proposed facility to minimize the impact on species described above.

(G) The applicant shall provide for each of the site/route alternatives a description of the areas with slopes and/or highly erodible soils (according to the natural resource conservation service and county soil surveys) that are present and may be affected by the proposed facility. The applicant shall describe the probable impact to these areas, including but not limited to the following:

(1) Construction: The applicant shall provide a description of the measures that will be taken to avoid or minimize erosion and sedimentation during the site clearing, access road construction, facility construction process, and any other temporary grading. If a storm water pollution prevention plan is required for the proposed facility, the applicant shall include the schedule for the preparation of this plan.

(2) Operation and maintenance: The applicant shall describe and estimate the probable impact of the operation and maintenance of the proposed facility after construction on the environment. This would include permanent impacts from sites where grading has taken place.

(3) Mitigation procedures: The applicant shall describe the mitigation procedures to be used during construction of the proposed facility and during operation and maintenance of the proposed facility to minimize the impact on the environment due to erosion from storm water run-off.

(H) The applicant shall provide site-specific information that may be required in this particular case to adequately describe other significant issues of concern that were not addressed above. The applicant shall describe measures that were taken and/or will be taken to avoid or minimize adverse impacts. The applicant shall describe public safety-related equipment and procedures that were and/or will be taken.

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Effective: 12/15/2003

R.C. 119.032 review dates: 09/30/2003 and 09/30/2008

Promulgated Under: 111.15

Statutory Authority: 4906.03

## 4906-15-07 ECOLOGICAL DATA

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### (A) Summary of Ecological Impact Studies

As part of the preparation of this Application, ecological surveys were conducted for the proposed Preferred and Alternate Routes including a field reconnaissance to document the occurrence of wetlands, streams, and vegetation within 100 feet on each side of the proposed transmission centerline. A field reconnaissance was conducted by URS and CG&E ecologists on September 28 and 29, 2004 and on February 9 and March 25, 2005. A pedestrian field reconnaissance was conducted for the entire length of the Preferred Route and selected portions of the Alternate Route, with the remainder of the Alternate Route evaluated from nearby roadways. A pedestrian survey of the entire proposed Alternate Route will be conducted, and the results submitted to the OPSB, if the Alternate Route should be certificated by the OPSB. The results of the ecological field surveys are discussed under the appropriate headings throughout the remainder of this Section.

Ecological information within 1,000 feet of the proposed transmission centerline was supplemented through the review of available aerial photography (USGS DOQQ's), USGS maps, NWI maps, and soil survey maps for Clermont and Brown Counties. Additional information regarding endemic vegetation and wildlife was obtained from the Ohio Department of Natural Resources - Division of Natural Areas and Preserves (ODNR-DNAP), ODNR Division of Real Estate and Land Management (ODNR-DRELM), ODNR Division of Wildlife (ODNR-DOW), and the United States Fish and Wildlife Service (USFWS).

### (B) Ecological Features

Maps at a scale of 1:24,000 illustrating the proposed Preferred and Alternate Routes, including 1,000 feet on each side of the proposed transmission line, are presented as Figures 04-1A and 04-1B. Features within 1,000 feet of the project centerline were

derived from published data and where possible supplemented by the field survey. The focus of the field survey was the 200-foot wide corridor formed by a 100-foot boundary on either side of the project centerline. Note that maximum transmission line right-of-way (ROW) width for the Preferred Route is 35 feet on either side of the transmission line centerline, or a 70-foot wide corridor, along the southern edge of the Norfolk Western rail line. The remainder of the Preferred Route and all of the Alternate Route is likely to be constructed on single wood poles requiring a 25-foot ROW to either side of the project centerline, or a 50-foot wide corridor.

**(1) Route Alignments**

The proposed route alignments, including turning points, are presented for both the Preferred and Alternate Routes on Figures 04-1A and 04-1B and are discussed further in Section 4906-15-04(A)(1)(a) of this Application.

**(2) Substations**

The project will begin at the existing CG&E Eastwood Substation located approximately 1,600 feet west of the intersection of Tri-County Highway and Old State Route 74. The project will end at either the Preferred or Alternate Hillcrest Substation Site, both of which are located directly under the existing CCD 345 kV Stuart-Foster transmission line, and are discussed briefly below. The Hillcrest Substation is discussed fully in a separate filing to the PUCO (case no. 05-360-EL-BSB).

*a) Preferred Site:* The Preferred Substation Site is located on the north side of Greenbush East Road, approximately 1,600 feet northwest of the intersection of Greenbush East and Hillcrest Roads. The site is currently undeveloped agricultural land. The site is currently part of a larger parcel that is developed with two residences located on the southeastern portion of the property. These residences and some surrounding acreage will be divided from the larger parcel, with the landowner retaining ownership of

the homes if the Preferred Site is selected. Access to the site is from Greenbush East Road to the south.

*b) Alternate Site:* The Alternate Substation Site is located at the southwest corner of Hillcrest Road and Greenbush East Road. The southern and western portions of the site are currently owned by CG&E and are dominated by oldfield habitat. Two residential parcels located at the northeast corner of the Alternate Site will be purchased by CG&E if the Alternate Substation Site is selected. Access to the site is from Greenbush East Road to the north and Hillcrest Road to the east.

**(3) All Areas Currently Not Developed For Agricultural, Residential, Commercial, Industrial, Institutional, Or Cultural Purposes, Including:**

*(a) Streams and Drainage Channels:* Surface water features along the proposed Preferred and Alternate Routes, including ponds, perennial and intermittent streams, and ephemeral ditches were noted in the field surveys and are depicted on Figures 07-1A through 07-1H. Ohio EPA Qualitative Habitat Assessment Index (QHEI) data forms were completed for the perennial and intermittent streams and ditches along the Preferred Route and are provided in Appendix 07-1. Note that the Alternate Route, at the same or different locations, crosses the same drainages. If the Alternate Route is selected, QHEI evaluations will be completed for all drainages crossed by the Alternate Route. The locations of the QHEI evaluations are shown on Figures 07-1A through 07-1H. Wetland 10, mapped as an unnamed tributary to Sterling Run on the USGS topographic map of the Mount Orab Quadrangle, met the classification of a wetland according to criteria established by the U.S. Army Corps of Engineers (COE) *Manual for Identifying and Delineation of Jurisdictional Wetlands* (1987) and as such was not assessed under QHEI. Similarly the portion of Indian Camp Run, included as part of Wetland 5, was not assessed under QHEI. These emergent wetlands were qualitatively assessed under the Ohio Rapid Assessment Method (ORAM) for Wetlands v. 5.0, discussed in Section 4906-15-07(B)(3)(c) of this Application, as were all wetlands identified along the Preferred Route.

Surface drainages in the project area discharge to the Little Miami River located approximately 1.2 miles to the west, and Grant Lake located approximately 1.6 miles to the south and southeast. Five surface waters along the Preferred Route were scored using the Ohio EPA QHEI methodology including Indian Camp Run, one tributary to Indian Camp Run and three unnamed tributaries to Sterling Run. For the surface waters assessed, QHEI scores ranged from between 24.5/100 and 57/100. These scores represent low to moderate quality waters. Two of the unnamed tributaries to Sterling Run (Stream 4A & 5A) scored 54/100 and 53.5/100, respectively, due to good channel morphology and moderate stability, a mixed gravel, silt and muck substrate, moderate riparian width, and minimal bank erosion. Indian Camp Run (Stream 2A and 2B) and the unnamed tributary to Indian Camp Run (Stream 1A) scored 54/100 to 57/100. These channels possessed a mixed silt and gravel substrate, with moderate to dense in-stream cover. Channel morphology and development was generally good with this surface drainage. Stream 3, identified as an unnamed tributary to Sterling Run, is located approximately 450 feet north of the intersection of Brooks-Malott and Bardwell West Roads. This stream crossing scored the lowest at 24.5/100, reflecting generally poor in-stream cover, little pool and riffle development, with heavy to severe bank erosion. The substrate in this tributary was predominantly muck and silt.

Indian Camp Run and its tributaries (Stream 1A, 2A and 2B) and the two unnamed tributaries to Sterling Run (Stream 4A & 5A) would likely be classified by the Ohio EPA as Warmwater Habitats (WWH). A WWH designation defines the "typical" warmwater assemblage of aquatic organisms for Ohio rivers and streams. This use represents the principal restoration target for the majority of water resource management efforts in Ohio. In the case of Stream 3, identified as an unnamed tributary to Sterling Run, the QHEI score results in the likely Ohio EPA aquatic use designation of Limited Resource Water (LRW). The LRW use designation applies to small streams (usually less than a three square mile drainage area) and other water courses, which have been irretrievably altered to the extent that no appreciable assemblage of aquatic life can be supported. The MWH designation applies to modified habitats that support the semblance of a warmwater biological community, but where the community falls short of attaining the WWH

biological criteria because of functional and structural alterations of the macro-habitat. Examples include streams that have been channelized, straightened and/or heavily impounded and streams that are experiencing heavy sedimentation. It should be noted that, ultimately, the Ohio EPA decides the aquatic life use designation for a particular surface water.

Construction equipment crossing of stream channels will not be necessary for the project, as other access routes exist along paved roadways. Some vegetation removal where the transmission line ROW crosses these drainages is expected. Best Management Practices and erosion control methods including silt fencing, straw bale barriers, and coconut fiber coir rolls will be used where appropriate and will be included in the SWP3 plan for the project. No significant impacts to surface waters identified in the study area are anticipated as a result of this project. No notification or permit applications under Section 404 and 401 of the Clean Water Act (CWA) will be required for the COE and the Ohio EPA respectively, for the project as proposed.

*(b) Lakes, Ponds, and Reservoirs:* No major lakes or reservoirs were identified within 100 feet of the Preferred and Alternate Routes. One pond was identified within 100 feet east of the Preferred Route centerline. This pond was mapped approximately 1,400 feet northwest of the existing CG&E Eastwood Substation. The boundary of this pond was identified as Wetland 1 because this area met the wetland criteria established by the COE *Manual for Identifying and Delineation of Jurisdictional Wetlands* (1987). One relatively large pond of approximately 13 acres was identified approximately 100 feet south of the Alternate Route centerline to the west of the intersection of SR 32 and Bodman Road. Several ponds were identified within 1,000 feet of the Preferred and Alternate Routes. Two of the ponds were identified on the west side of Hageman Crossing Road, both located within 550 feet of the Preferred Route centerline. Another pond was identified on the south side of Waits Road within 980 feet of the Preferred Route. Best Management Practices will be used as appropriate during construction to minimize potential runoff siltation into these areas. None of these water bodies are

expected to be impacted by the construction, operation, or maintenance of the transmission line along the Preferred or Alternate Route alignments.

(c) ***Marshes, Swamps, and Other Wetlands:*** Wetlands are defined as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of hydrophytic vegetation typically adapted for life in saturated (hydric) soil conditions. Wetlands within 1,000 feet of both routes were evaluated by reviewing the appropriate USFWS National Wetland Inventory (NWI) maps. Wetlands within 100 feet of the entire Preferred Route and selected portions of the Alternate Route were evaluated by conducting a desktop study followed by a field delineation, which included an evaluation of hydrophytic vegetation, hydric soils, and wetland hydrology, in accordance with the COE *Manual for Identifying and Delineation of Jurisdictional Wetlands* (1987). U.S. Department of Agriculture Natural Resource Conservation Service (USDA-NRCS) (formerly the Soil Conservation Services [SCS]) soil survey and hydric soil lists for Clermont and Brown County, Ohio were also reviewed for the Preferred and Alternate Routes. This mapping information and COE guidelines, combined with a windshield survey, was used to determine approximate areas of additional wetlands located along the Alternate Route. Completed COE wetland delineation forms for each of the 13 delineated wetlands along the Preferred Route are provided in Appendix 07-2. Maps showing field delineated and determined wetlands within 100 feet of the Preferred and Alternate Routes are shown at 1:6,000 scale on Figures 07-1A through 07-1H. If the Alternate Route is certificated a wetland delineation and ORAM assessment will be conducted for those areas determined to be wetland along this route so that, in final engineering, such areas will be avoided.

Approximately 3.7 percent of the 200-foot wide Preferred Route study corridor was identified as wetland, including 23 identified wetland areas totaling 8.36 acres. It should be noted the ROW width for this project is 50 feet for the single pole portions or 70 feet, for H-frame sections of the Preferred Route. Approximately 1.6 percent of the Preferred Route ROW has been identified as wetland and includes 18 identified wetland areas

totaling 1.08 acres within the project ROW. The Preferred Route centerline spans 753 feet of delineated wetlands, with individual distances ranging from less than one foot to 265 feet. A summary table of the delineated wetlands that were identified within 100 feet of the Preferred Route centerline is presented on Table 3. Wetland 10, mapped as an unnamed tributary to Sterling Run on the USGS topographic map, was identified as wetland rather than a stream due to the presence of wetland vegetation, inundation or standing water onsite, and mapped and field confirmed hydric soil. Additionally, the boundary of the pond east of Hagemans Crossing Road and north of Tri-County Highway was identified as a wetland (Wetland 1) because this area exhibited hydrophytic vegetation and also met the classification of a wetland according to the soils and hydrology criteria established by the COE *Manual for Identifying and Delineation of Jurisdictional Wetlands* (1987).

Approximately two percent of the 200-foot wide Alternate Route study corridor was determined or delineated as wetland, including 17 wetland areas estimated to total about 4 acres. The ROW for this route is 50 feet wide as the entire route will be constructed using single poles. Approximately 2.6 percent of the Alternate Route ROW has been identified as wetland and includes 12 identified wetland areas totaling 1.38 acres within the project ROW. The Alternate Route centerline spans approximately 1,125 feet, ranging from four to 309 feet, of determined and delineated wetlands.

A qualitative Ohio EPA ORAM version 5.0 for wetlands was completed during the field reconnaissance for each of the 13 delineated wetlands along the Preferred Route, the results of which are presented in Appendix 07-3 and Table 07-3. Wetlands along the Preferred Route were categorized based on detailed field evaluations. The ORAM is designed to evaluate the entire wetland, not just the portion of the wetland within the project area. Therefore, acreages given on the ORAM forms may not match those in Table 07-3 if the wetland continues outside of the 200-foot wide study corridor defined for the Preferred Route. The ORAM scores for the 13 wetlands identified along the preferred transmission line study corridor ranged from a low of 10 (Category 1) to a high of 34.5 (Category 2). The generally low ORAM scores were primarily due to the high



intensity of surrounding land use (row cropping), narrow average buffer widths, and poorly developed vegetation communities. A preliminary field survey to assess the quality of determined wetlands along the Alternate Route conservatively indicated two Category 1 and nine Category 2 wetlands. If the Alternate Route is selected final ORAM scores will be determined for all wetlands crossed by this route. No Category 3, or high quality wetlands, were identified along the Preferred or Alternate Routes. Thus, there are no additional Ohio EPA limitations on activities within, or adjacent to, the wetlands along the entire length of the candidate routes.

Palustrine wetland systems were identified along the Preferred and Alternate Routes and are defined as freshwater, non-tidal wetlands often characterized by the presence of water at or near the ground surface for extended periods during the growing season. Palustrine wetland plant communities observed along the candidate routes included emergent, scrub/shrub, and forested communities. Table 07-1 provides an inventory of the major plant species observed during the field surveys in wetland and upland portions of the candidate routes. A discussion of the emergent and emergent/scrub-shrub/forested wetland types and the dominant plant species observed in these wetland areas along the candidate routes is presented below.

(i) **Emergent Wetlands:** Emergent wetlands typically occur where shallow water stands at depths of less than 1 foot for a portion of the growing season. The plant community is typically made up of both perennial and annual hydrophytic species. This wetland type may exist semi-permanently if the water source is reliable over the long term. Alternatively, the community may be in a transitional phase toward scrub/shrub or forested wetland systems, or to non-wetlands, if recent disturbance has occurred. Emergent wetlands are found in low-lying areas or depressions. Species observed in emergent wetlands within the study corridor included members of the sedge family (*Carex spp.*), narrow leaved cattail (*Typha angustifolia*), whitegrass (*Leersia virginica*), swamp verbenia (*Verbena hastata*), soft rush (*Juncus effuses*), Pennsylvania smartweed (*Polygonum pensylvanicum*), spotted joe-pye-weed (*Eupatorium maculatum*), woolgrass (*Scirpus cyperinus*), and creeping jenny (*Lysimachia nummularia*).

(ii) **Emergent, Scrub/Shrub, Forested Wetlands:** Emergent, scrub-shrub, forested wetlands represent successional stages between these three wetland types and have a highly variable plant community ranging from an herbaceous community similar to that of an emergent wetland to a community dominated by woody species (i.e. shrubs and trees). Dominant herbaceous species included sedges, jewelweed (*Impatiens capensis*), deertongue (*Dichanthelium clandestinum*), and the common boneset (*Eupatorium perfoliatum*). The shrub layer was scattered with patches of spicebush (*Lindera benzoin*), and saplings from the eastern cottonwood (*Populus deltoides*), boxelder (*Acer negundo*), slippery elm (*Ulmus rubra*), red maple (*Acer rubrum*), and green ash (*Fraxinus pennsylvanica*). The tree species that were identified in these wetlands were generally limited to the above-listed, with few individuals above the 10-inch diameter breast height (dbh) size class.

(d) **Woody and Herbaceous Vegetation Land:** The Preferred and Alternate Routes are bordered for portions of their lengths by woodlots, scrub/shrub, old-field, and agricultural cropland. A variety of woody and herbaceous lands, as described below, are present within the 1,000-foot corridor of the Preferred and Alternate Routes. Table 07-1 provides a summary of the woody and herbaceous vegetation along the Preferred and Alternate Routes. Habitat descriptions, applicable to both the Preferred and Alternate Routes, are provided below.

(i) **Agricultural Cropland:** Agricultural cropland along the Preferred and Alternate Routes is used primarily for soybean and corn cultivation. Agricultural cropland was dominant throughout the study corridor, particularly in the central and northeastern portion of the study area. Construction impacts to agricultural cropland are expected to be temporary in nature and limited to vehicle access and temporary laydown activities. As the project is a transmission line with limited excavation at pole locations, no impacts to soil structure or drainage tiles are expected. No agricultural areas are expected to be impacted by the operation of the transmission line along the proposed candidate routes, with the exception of the few square feet occupied by each structure or pole that will not remain in agricultural use.

(ii) **Upland Woodland:** Upland woodlands are relatively scarce along the Preferred and Alternate Routes. These upland woodlots appear to be isolated in nature and are typically limited to narrow strips of land adjacent to wetlands, streams, or agricultural fields. Woody species dominating these areas included red maple, pin oak (*Quercus palustris*), shagbark hickory (*Carya ovata*), and white oak (*Quercus alba*). Shrub communities are relatively sparse in these areas as a result of the high canopy density. The dominant shrub-layer species included viburnums (*Viburnum* spp.), honeysuckle (*Lonicera japonica*) and poison ivy (*Toxicodendron radicans*).

(iii) **Riparian Woodland:** Riparian woodlands are limited to narrow bands along the edges of intermittent and perennial streams draining the study area. Woody species dominating the riparian zone include green ash, red maple, silver maple, and cottonwood. The shrub and herb layer is dominated by multiflora rose (*Rosa multiflora*), honeysuckle, and poison ivy.

(iv) **Scrub/Shrub:** Scrub/shrub habitats represent the successional stage between old-field and second growth forest. This cover type has a highly variable plant community ranging from an herbaceous community similar to that of old field habitat with a few woody species, to a community dominated by forest herbs and woody species. Dominant shrub-layer species observed in the scrub/shrub habitats along the Preferred and Alternate Routes included multiflora rose and poison ivy. Saplings of cottonwood, box elder, and hackberry (*Celtis occidentalis*) were also observed within the scrub/shrub habitats along the Preferred and Alternate Routes. The herbaceous layer resembled the old field habitat discussed below and was dominated by similar species.

(v) **Old Field:** Herbaceous cover exists alongside roads, field borders, and unused agricultural fields within the 1,000-foot corridor of the Preferred and Alternate Routes in the form of successional old field communities. These communities are the earliest stages of recolonization by plants following disturbance. This community type is typically short-lived, giving way progressively to shrub and forest communities unless periodically re-disturbed, in which case they remain as old fields. The old-field areas

within the ROW and adjacent areas are relatively homogeneous in nature and are vegetated by native shade-intolerant species, domestic and agricultural escapees, and species from adjacent shrub and forest communities. These areas are dominated by fleabane daisy (*Erigeron annuus*), Queen Anne's lace (*Daucus carota*), foxtail (*Setaria spp.*), and goldenrods (*Solidago spp.*). Other frequents observed include Canada thistle (*Cirsium arvense*), broom-sedge (*Andropogon virginicus*), chicory (*Cichorium intybus*), and teasel (*Dipsacus sylvestris*).

(e) **Locations of Threatened and Endangered Species:** Correspondence with the USFWS, ODNR-DRELM and ODNR-DOW indicated that the project routes are within the range of a number of species that are on federal and/or state listed threatened or endangered species, or are of high interest.

No state or federal-listed plants were observed during the field survey or are recorded by the ODNR-DRELM or ODNR-DOW as being in or adjacent to the proposed routes. The USFWS reported that a portion of the study area includes Clermont County, which lies within the range of the federally endangered running buffalo clover (*Trifolium stoloniferum*). This perennial species is characteristically found along streams and trails, in partially shaded woodlots, borders, and in mowed or disturbed habitats. This species was not observed during the surveys of the Preferred and Alternate Routes.

Potentially suitable habitat for the following Clermont and Brown County threatened or endangered plant species was observed during the field survey as follows:

- Blue false indigo (*Baptisia australis*): This perennial species is identified on the Ohio Natural Heritage Database as a state-listed endangered species for Clermont County. This Ohio endangered species occurs in rich open woods, alluvial thickets, stream banks, and sandy floodplains. This plant species of concern was not identified during the field survey.

- Missouri gooseberry (*Ribes missouriense*): According to the Ohio Natural Heritage Database, this deciduous shrub is identified as a stated-listed endangered species for Clermont and Brown County. This species characteristically grows in mesic slopes and moist soils. This species of concern was not identified during the field reconnaissance.
- Sparse-lobed grape-fern (*Botrychium biternatum*): This fern is listed on the Ohio Natural Heritage Database as a state-threatened species for Clermont County. This species occurs in a variety of moist, shaded conditions (i.e. low woods, mesic ravines, wooded floodplains, and thickets). This species of concern was not identified during the field survey.
- Southern woodrush (*Luzula bulbosa*): This perennial herb is listed on the ODNR Natural Heritage Database as a state-threatened species for Clermont County. This species of concern was not identified during the field survey.
- Carolina willow (*Salix caroliniana*): The ODNR Natural Heritage Database reported that this species is endangered in both Clermont and Brown County. The Carolina willow is most frequently encountered around ponds, ditches, and wet clearings. This plant species was not identified during the field reconnaissance.
- Spring nettle (*Urtica chamaedryoides*): This annual herb was listed as a state-endangered species for Brown County. This plant species was not identified during the field survey.
- Missouri violet (*Viola missouriensis*): This stemless perennial herb was listed as a stated-endangered species for Brown County. The Missouri violet occurs in a variety of conditions and habitats including arid roadsides, woodland borders, and mesic hillsides. This species of concern was not identified during the field reconnaissance.
- One-sided rush (*Juncus secundus*): The ODNR Natural Heritage Database identified this plant as a state-threatened species for Brown County. This perennial herb occurs in prairies, clearings, and along railroads. This plant species was not identified during the field survey.
- Maypop (*Passiflora incarnata*): This ODNR Natural Heritage Database listed this plant as a state-threatened species for Brown County. Maypop occurs in a variety of conditions and habitats including, open woods, thickets, fields, roadsides, and railroad embankments. This species of concern was not identified during the field survey.

It should be noted that even though potentially suitable habitat exists in the project area for the plant species mentioned above, most of the Preferred and Alternate Routes are within road ROW or areas of agricultural farmland. These areas are regularly disturbed by mowing and row-cropping respectively, providing limited opportunities for species of concern to become established. In addition, the small and isolated pockets of suitable wooded and shrub habitats throughout the project area are not expected to contain viable populations of threatened or endangered plant species. It should also be noted that the wetland areas adjacent to the Norfolk and Western rail lines which may contain suitable habitat for some of the abovementioned species of concern will not be disturbed by the project as proposed. The project ROW will begin at the south edge of the rail ROW, well outside of the linear wetland complexes located along the rail line.

The federal and state threatened or endangered animal species potentially present along the proposed routes during any portion of the year are described below. However, it should be noted that while potentially suitable habitats for some of these species are available along the proposed routes, these habitats are limited and unlikely to represent critical habitat. None of the animal species discussed below was recorded by either the USFWS or the ODNR as inhabiting the proposed routes. A list of animal species observed or expected to occur within the general vicinity of the study area is provided in Table 07-2. The species list was developed based upon the field survey and literature sources.

*i) Mammals:*

**Indiana bat (*Myotis sodalis*):** The Indiana bat is considered to be an endangered species by the federal government and the State of Ohio. This species is a possible inhabitant of both Clermont County and Brown County. The Indiana bat is a migratory species, wintering in a few limestone cave hibernacula principally located in Indiana, Kentucky and Missouri. Summer roosting and foraging areas are typically farther north in the glaciated regions of Indiana, Illinois, and Ohio. Males and gravid females may arrive in northern regions in April and remain until October. The bat typically roosts under the exfoliating (loose) bark of live or dead trees of various rough-barked tree species. The 8-

to 10-inch size classes of several species of hickory (*Carya* spp.), oak (*Quercus* spp.), ash (*Fraxinus* spp.), and elm (*Ulmus* spp.) are utilized in live form. These tree species and many others may be used when dead if there are adequately sized patches of loosely adhering bark or open cavities. The structural configuration of forest stands favored for roosting includes; (1) a mixture of favored loose-barked trees with 60 to 80 percent canopy closure and (2) a low density sub-canopy (less than 30 percent between about 6 feet high and the base canopy).

The suitability of roosting habitat for foraging or the proximity to suitable foraging habitat is critical to the evaluation of a particular tree stand. An open subcanopy zone, under a moderately dense canopy, is important to allow maneuvering while catching insect prey. Proximity to water is critical, because prey density is greater over or near open water. A distance from water to suitable roost trees of less than 0.6 mile is optimal. The relative percent of forest cover on a landscape is also limiting. Maternity colonies have not been documented where tree cover is less than 5 percent.

Along the Preferred Route the wooded parcels within, and adjacent to Wetland 4C, Wetland 5 and Wetland 11 provide low to moderate quality habitat for the Indiana bat. Scattered shagbark hickories of the suitable size class and a few snags were observed within or near these areas. Some additional ROW clearing is expected in these areas. CG&E proposes to overbuild the existing electric distribution line along the east side of Brooks-Malott Road, thus minimizing any potential impacts that may be incurred as a result of ROW clearing activities in Wetland 11. CG&E will conduct all tree cutting so that it is outside of the April 15 to September 15 roosting window of the Indiana bat or will conduct bat surveys if cutting is necessary to avoid any possible impacts to this species.

**ii) Aquatic Species:**

The state protected rayed bean mussel (*Villosa fabalis*) has been recorded in the East Fork of the Little Miami River; located approximately 1.2 miles west of the project area. Neither the Preferred nor Alternate Route spans this water course. The USFWS

identified the project route as being within the range of the rayed bean mussel and sheepnose (*Plethobasus cyphus*). No mussels were observed in the drainages crossed by the Preferred or Alternate Routes.

As this project is a transmission line and will span all streams, this effectively eliminates most potential construction related impacts to aquatic species. Localized removal of riparian vegetation may increase thermal loads in a narrow stretch of stream but these effects are typically restricted to the cleared areas and just downstream. Best Management Practices will be used during construction to minimize potential sedimentation into streams crossed by the selected route, thereby limiting any water quality degradation. Increased stream turbidity resulting from construction activities is unlikely and if it occurs should be of short duration and minor compared to that caused by natural high water flow and sediment runoff from agricultural land uses in the project vicinity.

#### **(4) Soil Associations in The Corridor:**

The soil associations that will be crossed by the Preferred and Alternate Routes include Avonburg-Clermont, Clermont-Avonburg, and Rossmoyne-Bonnell Associations (U.S. Department of Agriculture [USDA], 1976). These associations are discussed in the following sections and represented on Figure 07-2.

##### ***(i) Clermont County***

***Avonburg-Clermont:*** These soils are deep, nearly level to gently sloping, somewhat poorly drained to poorly drained soils. This association is typically found on the uplands in the northern and eastern parts of Clermont County. Avonburg-Clermont Association covers approximately 33 percent of Clermont County. The association consists of approximately 50 percent Avonburg soils and 41 percent Clermont soils. The remaining 9 percent of the soil includes well-drained Rossmoyne soils and poorly drained Blanchester soils.



**(ii) Brown County**

**Clermont-Avonburg:** This soil association, covering approximately 38 percent of Brown County, is the dominant soil association in the central and northern portion of the county. Characteristically, these soils are nearly level to gently sloping soils that formed in loess and glacial till on the Illinoian till plain. Fifty five percent of the soils in this association are Clermont soils, while the remaining 45 percent consists of Avonburg soils (25%) and other less extensive soil types (20%). Three management concerns that are associated with these soils include ponding, seasonal wetness, and restricted permeability.

**Rossmoyne-Bonnell:** These soils are deep, gently sloping to very steep, moderately well drained to well-drained soils. These soils formed in loess and in the underlying glacial till. Rossmoyne-Bonnell Association is commonly found on knolls, low ridges, at the head of drainageways, and on slopes near stream valleys. This association constitutes approximately 44 percent of the county soils and consists of 55 percent Rossmoyne soils, 15 percent Bonnell soils, and 30 percent less extensive soils. This soil association is typically used for the cultivation of crops, or simply left as pasture or woodlands. The slopes for this soil association range from 1 to 60 percent.

None of the soils along the Preferred and Alternate Routes exceed 12 percent slopes except in areas directly adjacent to drainageways and on the slopes of existing transportation berms and grades, specifically along the Norfolk and Western Railroad. Poles (and H-frame structures in the case of the Preferred Route) will be placed only at locations where soil conditions are deemed acceptable.

**(C) Impacts of Alternative Routes on Water Bodies**

**(1) Construction Impact**

Best Management Practices will be employed near stream crossings to avoid soil erosion and sedimentation that could occur as a result of construction activities. A Stormwater

and Pollution Prevention Plan (SWP3) will be developed for the project as per Ohio EPA requirements prior to the start of construction. Erosion potential at these stream crossings should be minimal as a result of the relatively flat topography along the candidate routes, flexibility in structure placement, and the fact that no construction equipment crossing of streams will be necessary. All water bodies along the selected candidate route will be spanned by the transmission line and the new transmission structures will be installed away from any ponds and surface drainageways. Selective clearing is expected to remove woody vegetation within the transmission line ROW along stream banks and within wetlands that have wooded and/or shrub components. Clearing of woody vegetation within wetland areas will be done using equipment staged outside of the wetland supplemented by hand cutting with chain saws or by using other non-mechanized methods. Clearing adjacent to stream channels will only include cutting of those species incompatible with the operation of the transmission line.

Three perennial (unnamed tributary to Indian Camp Run and two crossings of Indian Camp Run) and three intermittent stream crossings (all unnamed tributaries to Sterling Run) have been identified along each of the Preferred and Alternate Routes. These crossings are shown on Figures 07-1A through 07-1H and discussed further in Section 4906-15-07(3) of this Application. The QHEI forms for the stream crossings along the Preferred Route are provided in Appendix 07-1.

## **(2) Operation and Maintenance Impact**

Once the line is in operation, no significant impact to streams or drainage channels along the proposed routes is anticipated. Only periodic selective removal of vegetation that may endanger reliable operation of the transmission line will be required. No major lakes, ponds, or reservoirs should be affected by the operation or maintenance of the Preferred or Alternate Route.

### **(3) Mitigation Procedures**

Impacts to riparian vegetation zones at stream crossings will be minimized during construction. Best Management Practices will be implemented during construction to control erosion. Selective removal of vegetation that might impede construction or interfere with operation of the transmission line is anticipated near stream banks and drainage channels. Areas where soil has been disturbed will be seeded and mulched to prevent soil erosion and sedimentation. Additionally areas adjacent to stream channels will be planted, as required, with low-growing shrub species to aid in streambank stabilization and to maintain in-stream shade cover and thermal protection to aquatic species.

### **(D) Wetlands Impact**

#### **(1) Construction Impact**

Wetlands identified within the ROW of the proposed Preferred and Alternate Routes are comprised of palustrine emergent and palustrine emergent, scrub/shrub, forested types. Four wetland areas constituting 438 linear feet contain a forested component along the Preferred Route and five wetland areas constituting approximately 646 linear feet contain a forested component along the Alternate Route. Clearing of trees and shrubs in wetlands is expected to total 0.563 acre within the Preferred Route ROW and 0.855 acre within the Alternate Route ROW.

Disturbance of soils in wetland areas during construction is not anticipated. Wetlands will be spanned where overhead lines are to be installed and no access routes will cross identified wetlands along either candidate route. Along the Preferred and Alternate Routes, new structures will be installed outside of wetland areas. If the Alternate Route is certificated a wetland delineation will be performed prior to construction activities to clearly identify wetland boundaries in these areas. Final engineering would then be done to avoid impacts to such areas. It is not anticipated that any minor ROW cutting activities

in wetlands would result in erosion or water quality degradation. Where required, woody vegetation in wetlands will be cut from equipment staged outside of the wetland boundaries or be hand-cut by chainsaws, or other non-mechanized techniques. Where appropriate, wetland boundaries will be clearly staked prior to the start of clearing to eliminate any incidental vehicular impacts.

**(2) Operation and Maintenance Impact**

Wetland areas should not be significantly affected by the operation or maintenance of this 138 kV transmission line along either the Preferred or Alternate Route. Vegetation that occurs within wetland areas may require periodic cutting. It is not anticipated that such activities would result in erosion or water quality degradation. The removal of vegetation debris in wetland areas resulting from ROW maintenance will be conducted only at the request of the property owner; otherwise it will be left in place

**(3) Mitigation Procedures**

No wetland impacts are expected, therefore no mitigation procedures are proposed. If any impacts occur, they should be temporary. Natural re-vegetation in any disturbed wetland areas will begin immediately after construction has been completed in the area. No dredge or fill will occur within wetlands identified along either candidate route. No U.S Army Corps of Engineers 404 or Ohio EPA 401 permitting is required with respect to vegetation clearing in wetlands for the project. As a consequence, no permitting requirements for wetland mitigation exist for the project as proposed.

**(E) Vegetation Impact**

**(1) Construction Impact**

The potential impacts on woody and herbaceous vegetation along the Preferred or Alternate Route will be limited to clearing within the proposed new transmission line ROW, where required. Approximately 6.6 acres of woodlot along the Preferred Route or 4.4 acres along the Alternate Route will need to be cleared for the project. Low-growing herbaceous and shrub vegetation within these areas will be allowed to re-establish naturally. The overall impacts to second growth forest and native herbaceous vegetation in the project vicinity is not considered significant.

**(2) Operation and Maintenance Impact**

During operation of the transmission line along either the Preferred or Alternate Route, the impacts on vegetated land should be minor. The undeveloped land not disturbed by construction should retain its current vegetation composition and continue successional development at a normal rate. Periodic mowing or cutting along the transmission line ROW will prevent the establishment of taller tree species but this is not expected to result in a significant environmental impact on nearby vegetation communities. Removal of vegetation that represents an operational concern to the transmission line, e.g., tall tree species, will be removed as needed. Periodic spraying of vegetation in upland areas may be required as part of the ROW maintenance and will be done with U.S. EPA approved herbicides by licensed applicators.

**(3) Mitigation Procedures**

Experience shows that seeding in non-wetland and non-agricultural areas helps to control erosion in areas disturbed by construction activities. Areas that are temporarily disturbed will be re-vegetated as soon as practical within Ohio EPA Permit No. OHC000002

guidelines. These measures will help preserve the aesthetic qualities along the route and prevent erosion and sedimentation.

(F) **Commercial and Threatened/Endangered Species Impact**

(i) **Commercial Species:** The commercially important species along the proposed routes consist of those hunted or trapped for fur or other byproducts, including the following:

**Raccoon (*Procyon lotor*):** This largely nocturnal species is abundant and widespread in Ohio. Raccoons are found principally around aquatic and woodland habitats, with occasional forages into croplands. Tracks of this species were observed immediately west of Stream 1A (unnamed tributary to Indian Camp Run).

**Striped skunk (*Mephitis mephitis*):** The striped skunk prefers a semi-open habitat of mixed woods, brush, farmland, open grassland, and small caves in proximity to water. These mammals are common statewide. This species is expected to inhabit the proposed routes, but was not observed during the field survey because they are largely nocturnal.

**Opossum (*Didelphis virginiana*):** The opossum's preferred habitat is farmland, especially wooded pastures adjacent to woodland streams and ponds. Dead individuals of this nocturnal species were observed along roadways within the vicinity of the project route candidates.

**Long-tailed weasel (*Mustela frenata*):** The long-tailed weasel is found throughout the state of Ohio in areas adjacent to rivers, lakes, streams, or marshes, where they feed on small mammals. This species may inhabit areas along the proposed routes.

(ii) **Recreational Species:** Suitable habitat for recreationally important species is present along the proposed routes. Recreational species include those hunted or fished as game, including the following:

**Cottontail rabbit (*Sylvilagus floridanus*):** The cottontail rabbit is Ohio's number one game species. It is abundant in both rural and urban areas and prefers field borders, brushy areas, and thickets. This species was observed along the proposed routes.

**Woodchuck (*Marmota monax*):** The woodchuck or groundhog is a common ground squirrel found throughout Ohio. It prefers sloped areas at the fringe of wooded and open areas. This species is expected to inhabit the proposed routes, but was not observed.

**Gray, red, and fox squirrels:** These tree squirrel species occur throughout the State of Ohio. The fox squirrel (*Sciurus niger*) is primarily an inhabitant of small, typically isolated woodlots. The gray squirrel (*Sciurus carolinensis*) and red squirrel (*Tamiasurus hudsonicus*) prefer more extensive woodland regions. Gray squirrels were observed along the Preferred and Alternate Routes; the other species are expected to inhabit wooded areas throughout the project area.

**White-tailed deer (*Odocoileus virginianus*):** White-tailed deer are found throughout Ohio. White-tailed deer use woodlots and shrub areas for cover and concealment, and they forage in the croplands periodically. White-tailed deer hoof prints and scat was observed at various places along the route candidates during the field surveys.

**(iii) Game Fish:** Based upon the nature of the surface waters crossed, game fish are not anticipated to inhabit the streams that are crossed by the proposed routes. However, local residents may stock some of the ponds in the project area.

#### **(1) Construction Impact**

**(i) Commercial Species:** The commercially important species along the proposed route include those species that are hunted or trapped for fur or other byproducts. The following commercially important species may be affected by construction.

**Raccoon:** This species is very adaptable to changes in the habitats in which it occurs, and as a result, construction along the proposed routes is anticipated to have negligible impact on the raccoon population. Additionally, similar habitats suitable to this species are readily available throughout the study area.

**Striped skunk:** It is not anticipated that construction of the proposed routes will alter a significant portion of this species' preferred habitat because of the presence of readily available similar habitats in the study area. Therefore, no impact on the striped skunk is anticipated.

**Opossum:** It is not anticipated that construction of the proposed routes will alter a significant portion of this species' preferred habitat because of the presence of readily available similar habitats. Therefore, no impact on the opossum is anticipated.

*(ii) Recreational Species:* Recreational species should experience different levels of impact, depending on the species' habitat and home range requirements.

**Eastern cottontail:** Cottontails will likely migrate from the ROW area during construction and move into adjacent areas that provide adequate cover and needed forage resources. After construction, this species' preferred habitat should be increased along the Preferred or Alternate Route as scrub/shrub and herbaceous growth will increase. Therefore, impacts to this species are expected to be minor.

**Woodchuck:** Any woodchucks present along the selected candidate route will likely travel out of the ROW during construction to seek friable soil material in which to establish burrows. Suitable alternative habitats are available close to the proposed routes. Therefore, impacts to this species are expected to be minor.

**Gray, red, and fox squirrels:** The elimination of minimal quantities of the suitable habitat of these species within the ROW will cause the squirrels to move into nearby woodlands during construction. It is anticipated that additional squirrels can be



assimilated into adjacent habitats without significant competition pressures from or on resident species. The loss of mast-producing trees offering a food source for the squirrels should be low. Thus the impact of construction on the resident squirrels is anticipated to be minor, considering the availability of similar habitat and forage elsewhere.

**White-tailed deer:** White-tailed deer use the wooded portions along the proposed routes for cover and concealment, and they forage in the croplands periodically. Deer normally have a home range of less than 3 square miles. The abundance of similar wooded and cropland habitat surrounding the study area indicates that the impact of construction should be minimal for this species. Additionally, maintaining a ROW in low growth vegetation provides a beneficial "edge habitat" for this species.

(iii) **Game Fish:** Based upon the nature of the surface waters crossed, game fish are not anticipated to inhabit the streams that are crossed by the Preferred or Alternate Routes. Therefore, impacts to game fish as a result of construction activities associated with this project are not anticipated.

(iv) **Protected Species:** Correspondence with the USFWS, ODNR-DRELM and ODNR-DOW indicated that the project routes are within the range of a number of species that are on federal and/or state listed threatened or endangered species, or are of high interest. No federally or state endangered, threatened, or potentially threatened species and no critical habitats were observed on the proposed routes.

**Protected Plants:** No state or federal-listed plants were identified during the field survey or are recorded by the ODNR-DRELM or ODNR-DOW as being in or adjacent to the proposed routes. The USFWS reported that a portion of the study area includes Clermont County, which lies within the range of the federally endangered running buffalo clover (*Trifolium stoloniferum*). This perennial herb species is characteristically found along streams and trails, in partially shaded woodlots, borders, and in mowed or disturbed habitats. Individuals of this species and suitable habitat for this species were not observed during the surveys of the Preferred and Alternate Routes.

**Protected Wildlife:** No wildlife species considered endangered or threatened by the State of Ohio or by the federal government were observed during the ecological survey or reported along the proposed candidate routes. Many of the protected or high interest wildlife species found in Ohio are not expected to inhabit areas along the Preferred or Alternate Routes. The project area either does not provide the appropriate habitat or it is out of the range of such species, the exceptions are discussed below.

**Birds:** Although state protected avian species may have a range to include the ROW of the proposed routes, it is expected that the small size and wide geographic separation of woodlots throughout the study area are poorly suited to these species which typically require larger, more mature areas of continuous forest. Individuals of these species and unique critical habitats for these species were not found within the ROWs of the Preferred or Alternate Route.

**Reptiles and Amphibians:** No federal or state protected reptiles or amphibians were identified as potential inhabitants of the proposed route, therefore impacts to protected reptiles and amphibians as a result of construction are not anticipated.

**Aquatic species:** No federal or state protected fish species were identified as having the potential for occurring in streams and ponds in the vicinity proposed route. The USFWS, however, identified the project route as being within the range of the rayed bean mussel and sheepsnose (*Plethobasus cyphus*). Based on the location of the project and the types of drainage habitats traversed by the project routes, neither of these species are expected to inhabit the project route nor were any mussel observed in drainages crossed by the proposed routes.

**Mammals:** The Indiana bat may occur in the corridors due to project location within the animals' normal ranges as well as the suitable habitat provided as discussed in Section 4906-15-07(B)(3)(e) of this Application.

To avoid direct impacts to Indiana bat roosting and foraging habitat, USFWS typically recommends that mechanized tree clearing be done between September 15 and April 15 or that field data be collected to substantiate that Indiana bats are not using the area for summer roosting and foraging. CG&E proposes to limit tree removal activities to those times outside of the summer roosting months for this species. In the event tree removal must occur between April 15 and September 15, prior to commencing this activity, CG&E will conduct the necessary surveys to establish whether the Indiana bat is present or not.

No other protected and/or high interest animal species that could inhabit the ROW of the candidate routes during any part of the year should be significantly impacted by construction of the project along either the Preferred or Alternate Route. This conclusion takes into account the species' existing distributions, preferred habitats (community types), and the minimal acreages of these community types disturbed by clearing and construction along either of the proposed candidate routes.

## **(2) Operation and Maintenance Impact**

During operation of the transmission line along either of the proposed routes, any impacts on protected wildlife that may be present should be minor. While portions of the ROW will need to be cleared, the undeveloped land not disturbed by construction will retain its current vegetation composition. Periodic maintenance along the ROW is not expected to result in a significant impact to the local wildlife. Operational impact to local wildlife is also expected to be negligible given the quantity of additional comparable habitat throughout the project area.

## **(3) Mitigation Procedures**

The Preferred and Alternate Routes have been examined in the field and reviewed on aerial photographs by experienced biologists and environmental scientists. No significant problem areas that would require the use of special mitigation measures for protected

wildlife have been identified. If, however, such conditions are recognized at a later date, the condition will be mitigated appropriately on an individual basis.

**(G) Slopes and Erodible Soils**

**(1) Construction Impact**

Most slopes in the areas along by the Preferred and Alternate Routes do not exceed 12 percent, with exceptions occurring directly adjacent to drainageways and existing transportation corridors, specifically directly adjacent to the Norfolk and Western railroad. Slope mechanics are not anticipated to present a significant concern to the Preferred or Alternate Routes. The soil associations crossed by the Preferred and Alternate Routes are discussed in Section 4906-15-07(B)(4) of this Application and are shown on Figure 07-2.

**(2) Operation and Maintenance Impact**

Once the transmission line is in place, the area will be returned to its former land use, and no impacts or erosion hazards are expected. Maintenance activities that involve excavation around towers are anticipated to be extremely rare, but in these cases, standard measures will be implemented to prevent soil erosion and run off into any nearby streams and wetlands.

**(3) Mitigation Procedures**

No special mitigation procedures on slopes or easily eroded soils are anticipated. Best Management Practices consisting of silt fence, straw bale barriers, and coconut mesh coir rolls will be used as required when construction takes place adjacent to drainage channels, streams, and wetlands. An Ohio EPA SWP3 will be generated for the project and the requirements of Ohio EPA Permit No. OHC000002 will be followed for erosion and sedimentation control.

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**(H) Other Issues**

No other issues are anticipated.

**TABLE 07-1**  
**MAJOR PLANT SPECIES OBSERVED OR EXPECTED TO OCCUR**  
**IN THE STUDY AREA**

<i>Acer negundo</i>	<i>Lonicera japonica</i>	<i>Xanthium strumarium</i>
<i>Acer rubrum</i>	<i>Lonicera maacki</i>	
<i>Acer saccharinum</i>	<i>Lysimachia nummularia</i>	
<i>Agrostis alba (gigantea)</i>	<i>Mentha spicata</i>	
<i>Allium canadense</i>	<i>Phalaris arundinacea</i>	
<i>Ambrosia artemisiifolia</i>	<i>Phleum pratense</i>	
<i>Ambrosia trifida</i>	<i>Phytolacca spp.</i>	
<i>Andropogon virginicus</i>	<i>Plantago lanceolata</i>	
<i>Asclepias syriaca</i>	<i>Plantago major</i>	
<i>Aster spp.</i>	<i>Plantanus occidentalis</i>	
<i>Bidens frondosa</i>	<i>Poa pratensis</i>	
<i>Brassica rapa</i>	<i>Polygonum amphibium</i>	
<i>Campsis radicans</i>	<i>Polygonum pennsylvanicum</i>	
<i>Carex spp.</i>	<i>Polygonum persicaria</i>	
<i>Carya ovata</i>	<i>Polygonum sagittatum</i>	
<i>Celtis occidentalis</i>	<i>Populus deltoides</i>	
<i>Centaurea maculosa</i>	<i>Prunus serotina</i>	
<i>Cerastium arvense</i>	<i>Quercus alba</i>	
<i>Cercis canadensis</i>	<i>Quercus palustris</i>	
<i>Chrysanthemum leucanthemum</i>	<i>Quercus rubra</i>	
<i>Cichorium intybus</i>	<i>Ranunculus hispidus</i>	
<i>Cirsium spp.</i>	<i>Ranunculus recurvatus</i>	
<i>Cornus stolonifera</i>	<i>Robinia pseudoacacia</i>	
<i>Cyperus esculentus</i>	<i>Rosa multiflora</i>	
<i>Daucus carota</i>	<i>Rubus allegheniensis</i>	
<i>Dicanthelium clandestinum</i>	<i>Rumex crispus</i>	
<i>Dipsacus fullonum</i>	<i>Salix nigra</i>	
<i>Dipsacus sylvestris</i>	<i>Sambucus canadensis</i>	
<i>Elaeagnus spp.</i>	<i>Scirpus cyperinus</i>	
<i>Eleocharis obtuse</i>	<i>Setaria spp.</i>	
<i>Erigeron annuus</i>	<i>Solidago canadensis</i>	
<i>Eupatorium maculatum</i>	<i>Toxicodendron radicans</i>	
<i>Eupatorium perfoliatum</i>	<i>Typha angustifolia</i>	
<i>Fraxinus americana</i>	<i>Typha latifolia</i>	
<i>Fraxinus pennsylvanica</i>	<i>Ulmus rubra</i>	
<i>Glycine max</i>	<i>Verbena hastata</i>	
<i>Impatiens capensis</i>	<i>Verbesina alternifolia</i>	
<i>Juncus effuses</i>	<i>Vernonia gigantea</i>	
<i>Juncus tenuis</i>	<i>Viola papilionacea</i>	
<i>Leersia virginica</i>	<i>Vitis aestivalis</i>	
<i>Lindera benzoin</i>	<i>Vitis riparia</i>	

**TABLE 07-2**  
**ANIMAL SPECIES IDENTIFIED OR LIKELY TO OCCUR IN**  
**THE STUDY AREA**

<b>Birds</b>	<b>Reptiles &amp; Amphibians</b>	<b>Mammals</b>
Brown thrasher	Snapping turtle	Striped skunk
American kestrel	Eastern box turtle	Opossum
Yellow warbler	American toad	Long-tailed weasel
Warbling vireo	Dusky salamander	Eastern cottontail rabbit
Eastern kingbird	Eastern garter snake	Eastern gray squirrel
Red-eyed vireo	Northern spring peeper	Raccoon
Tennessee warbler	Green frog	White-tailed deer
Baltimore oriole	Northern leopard frog	Woodchuck
Wood thrush	Spotted salamander	Deer mouse
Blue jay	Western chorus frog	House mouse
Yellow-rumped warbler		Eastern mole
Black-capped chickadee		Short-tailed shrew
American robin		Meadow vole
Red-tailed hawk		Chipmunk
House finch		Coyote
Hooded merganser		Red fox
Killdeer		Red squirrel
Wild turkey		Fox squirrel
Rock Dove		
Common grackle		
European starling		
Brown-headed cowbird		
Eastern meadowlark		
European Starling		
English house sparrow		
Eastern bluebird		
Northern cardinal		
American robin		
Song sparrow		
Red-winged blackbird		
Mourning dove		
Common flicker		
Common snipe		
Canadian geese		
American crow		
Coopers hawk		

TABLE 07-3  
WETLAND SUMMARY

Wetland Identifier	Figure Key	Photo Number	Wetland Type*	ORAM Score (& Category)	Linear Feet of Wetland Under Transmission Line	Wetland Area within 100 ft of the Preferred Route Centerline (Acreage)	Wetland Area within 25 ft of the Preferred Route Centerline (Acreage)	Estimated Acreage of Entire Wetland	General Comments
W1	07-1A	1	PEM	23 (1)	0	0.025	0	0.1 - < 0.3	Emergent wetland located east of Hageman Crossing Road and northwest of the CG&E's Eastwood Substation. Hydrophytic vegetation accounts for approximately 100% of the dominant plant species. Hydrology criteria was met with areas of inundation, saturation in the upper 12 inches, oxidized root channels in the upper 12 inches, local soil survey data, and a positive FAC-neutral test. Hydric soil exhibited a low chroma and distinct mottling. All three wetland criteria were satisfied.
W2	07-1A	2-4	PEM/PSS/ PFO	34.5 (2)	264,778	1.323	0.359	3 - < 10	Emergent/scrub-shrub/forested wetland located on the southside of the Norfolk and Western Railroad, immediately east of Hageman Crossing Road. Hydrophytic vegetation accounts for approximately 100% of the dominant plant species. Hydrology criteria was met with saturation in the upper 12 inches, sediment deposits, drainage patterns in the wetland, oxidized root channels in the upper 12 inches, water-stained leaves, local soil survey data, and a positive FAC-neutral test. Hydric soil was identified on the local and national hydric soils list, possessed an aquatic moisture regime, and exhibited a low chroma and distinct mottling. All three wetland criteria were satisfied.
W3A-D	07-1A through 07-1C	5-6	PEM	20 (1)	119,343	2.451	0.155	3 - < 10	Emergent wetland complex located on the southside of the Norfolk and Western Railroad, immediately northwest of the South Central Power Eastwood Substation and east of Wetland 2. Hydrophytic vegetation accounts for approximately 95% of the dominant plant species. Hydrology criteria was met with saturation in the upper 12 inches, areas with sediment deposits, drainage pattern in the wetland, oxidized root channels, water-stained leaves, local soil survey data, and a positive FAC-neutral test. Hydric soil was identified on the local and national hydric soils list and exhibited low chroma and distinct mottling. All three wetland criteria were satisfied.
W4A-C	07-1C and 07-1D	8-9	PEM/PSS/ PFO	32 (2)	11,037	0.887	0.057	0.3 - < 3	Emergent/scrub-shrub/forested wetland complex located immediately east of the South Central Power Eastwood Substation. Hydrophytic vegetation accounts for greater than 90% of the dominant plant species. Hydrology criteria was met with saturation in the upper 12 inches, drainage patterns in the wetland, local soil survey data, and a positive FAC-neutral test. Hydric soil was identified on the national and local hydric soils list and exhibited a gleyed or low-chroma color scheme with distinct mottling. All three wetland criteria were satisfied.
W5	07-1D	10-11	PEM/PSS/ PFO	28 (1)	142,297	1.059	0.167	0.3 - < 3	Emergent/scrub-shrub/forested wetland located on the south of the Norfolk and Western Railroad and east of the Wetland 4 complex. Hydrophytic vegetation accounts for greater than 90% of the dominant plant species. Hydrology criteria was met with saturation in the upper 12 inches, drainage patterns in the wetland, oxidized root channels, water-stained leaves, local soil survey data, and a positive FAC-neutral test. Hydric soil exhibited low chroma and distinct mottling and was identified on the local and national hydric soils list. All three wetland criteria were satisfied.

Note \* : PEM-Palustrine Emergent, PSS-Palustrine Scrub/Shrub, PFO-Palustrine Forested



TABLE 7-3 (Continued)

Wetland <sup>1</sup> Identifier	Figure Key	Photo Number	Wetland Type	ORAM Score (d& Category)	Linear Feet of Wetland Under Transmission Line	Wetland Area within 100 ft of Project Centerline (Acreage)	Wetland Area within 25 ft of Project Centerline (Acreage)	Estimated Acreage of Entire Wetland	General Comments
W6	07-ID	12	PEM	13 (1)	12,624	0.274	0.014	< 0.1	Emergent wetland located immediately east of Bodman Road and south of the Norfolk and Western Railroad. Hydrophytic vegetation accounts for greater than 90% of the dominant plant species. Hydrology criteria was met with saturation in the upper 12 inches, drainage patterns in the wetland, oxidized root channels, local soil survey data, and a positive FAC-neutral test. Hydric soil exhibited low chroma and distinct mottling and was identified on the local and national hydric soils list. All three wetland criteria were satisfied.
W7	07-ID and 07-IE	13	PEM	21 (1)	0	1.133	0.001	0.3 - < 3	Emergent wetland located on the south of the Norfolk and Western Railroad and west of Brooks Malott Road. Hydrophytic vegetation accounts for greater than 90% of the dominant plant species. Hydrology criteria was met with saturation in the upper 12 inches, drainage patterns in the wetland, oxidized root channels, local soil survey data, and a positive FAC-neutral test. Hydric soil was identified on the local and national hydric soils list and exhibited a low chroma and distinct mottling. All three wetland criteria were satisfied.
W8	07-IE	14	PEM	18.5 (1)	22,142	0.062	0.035	0.3 - < 3	Emergent wetland located immediately southeast of the Norfolk and Western Railroad - Brooks Malott Crossing. Hydrophytic vegetation accounts for approximately 90% of the dominant plant species. Hydrology criteria was met with drainage patterns in the wetland, local soil survey data, and a positive FAC-neutral test. Hydric soil was identified on the local and national hydric soils list and faint mottling was observed throughout the soil profile. All three wetland criteria were satisfied.
W9A-D	07-IE	15-17	PEM	16.5 (1)	20,002	0.281	0.248	0.3 - < 3	Emergent wetland complex located on the east side of Brooks Malott Crossing, between U.S. 68 and the Norfolk and Western Railroad. Hydrophytic vegetation accounts for approximately 90% of the dominant plant species. Hydrology criteria was met with saturation in the upper 12 inches, drainage patterns in the wetlands, water-stained leaves, local soil survey data, and a positive FAC-neutral test. Hydric soil was identified on the local and national hydric soils list and exhibited a low chroma and distinct mottling. All three wetland criteria were satisfied.
W10	07-IF	19	PEM	32 (2)	72,720	0.172	0.068	0.3 - < 3	Emergent wetland located on the east side of Brooks Malott Road. Hydrophytic vegetation accounts for greater than 90% of the dominant plant species. Hydrology criteria was met with areas of inundation, saturation in the upper 12 inches, water marks, drainage patterns in the wetland, oxidized root channels, and a positive FAC-neutral test. Hydric soil exhibited a low chroma color scheme, reducing conditions, an aquatic moisture regime, and a sulfidic odor. All three wetland criteria were satisfied.
W11	07-IF	20	PEM/PSS/PFO	34.5 (2)	70,711	0.209	0.063	3 - < 10	Emergent/scrub-shrub/forested wetland on the east side of Brooks Malott Road, approximately 600 feet south of the intersection of U.S. 68 and Harker Waits Road. Hydrophytic vegetation accounts for approximately 95% of the dominant plant species. With the exception of sediment deposits, this wetland exhibited all of the primary and secondary wetland hydrology indicators. Hydric soil exhibited a low chroma color scheme with distinct mottling, reducing conditions, an aquatic moisture regime, a sulfidic odor, and was identified on the local and national hydric soils list. All three wetland criteria were satisfied.

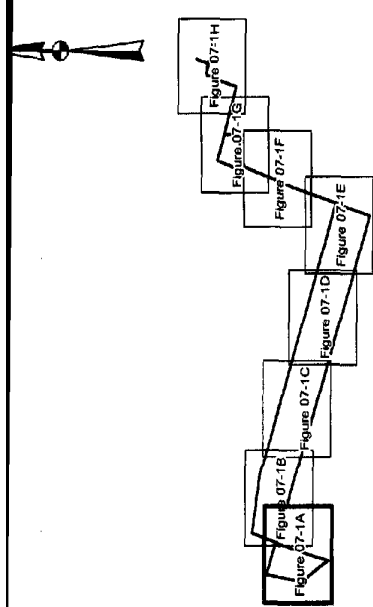
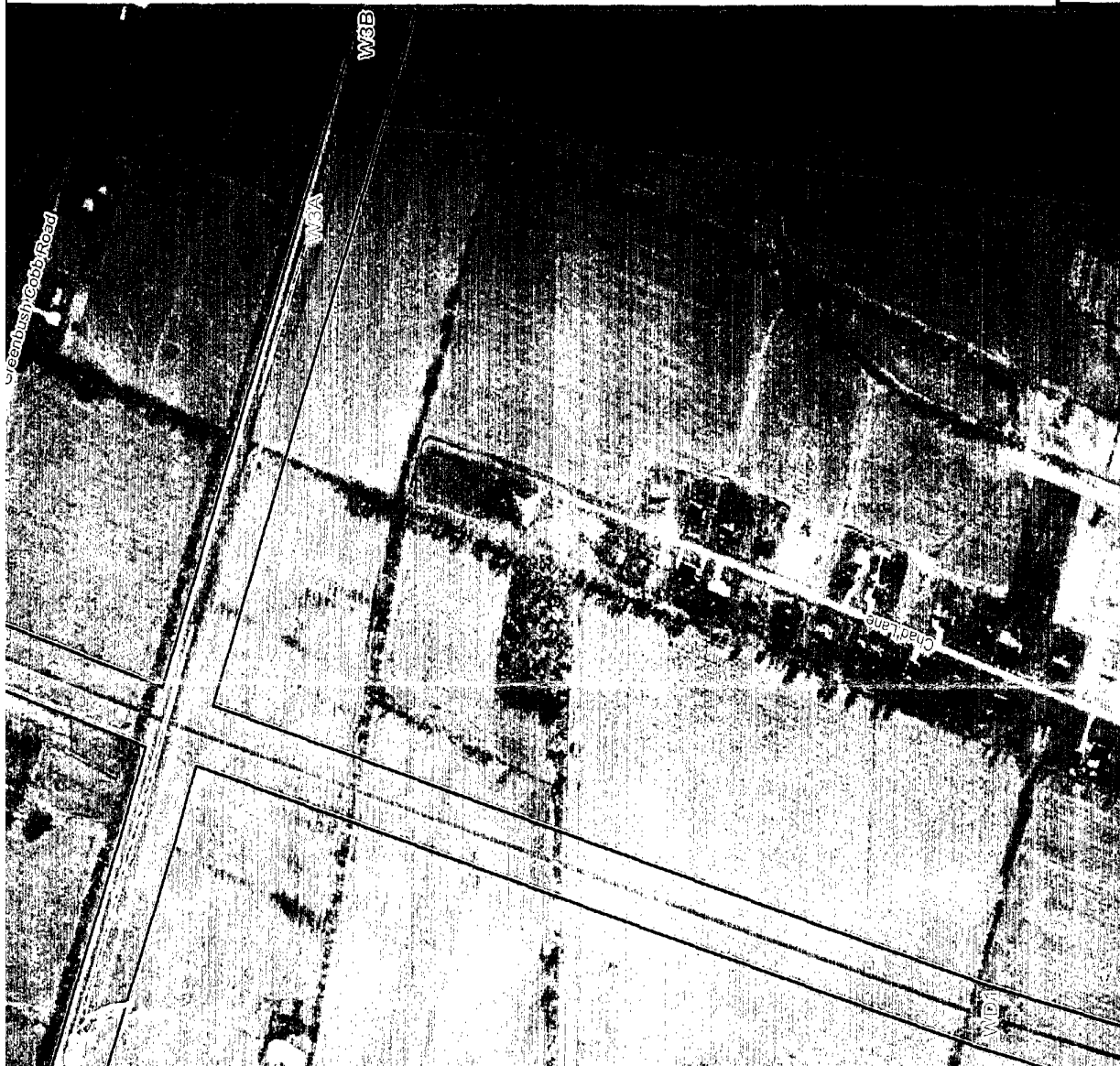
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Hillcrest Eastwood Transmission Line Project

Cincinnati Gas and Electric  
June 2005

TABLE 7-3 (Continued)

Wetland Identifier	Figure Key	Photo Number	Wetland Type	ORAM Score (& Category)	Linear Feet of Wetland Under Transmission Line	Wetland Area within 100 ft of Project Centerline (Acreage)	Wetland Area within 25 ft of Project Centerline (Acreage)	Estimated Acreage of Entire Wetland	General Comments
W12A-B	07-1H	23-24	PEM	10 (I)	10.04	0.049	0.034	<0.1	Emergent wetland complex located on the north side of Greenbush East Road, approximately 400 feet west of the proposed substation location. property. Hydrophytic vegetation accounts for approximately 90% of the dominant plant species. Hydrology criteria was met with drainage patterns in the wetland, oxidized root channels, local soil survey data, and a positive FAC-neutral test. Hydric soil was identified on the local and national hydric soils list and exhibited a low chroma color scheme with faint mottling at and below 6 inches in the soil profile. All three wetland criteria were satisfied.
W13A-B	07-1H	-	PEM	14 (I)	7.067	0.024	0.007	0.1 - <0.3	Emergent wetland complex located on the north and south side of Greenbush East Road, approximately 400 feet east of the Wetland 12A-B complex. Hydrophytic vegetation accounts for approximately 80% of the dominant plant species. Hydrology criteria was met with saturation in the upper 12 inches, drainage patterns in the wetland, oxidized root channels, local soil survey data, and a positive FAC-neutral test. Hydric soils were identified on the local and national hydric soils list and exhibited a low chroma color scheme with distinct mottling throughout the soil profile. All three wetland criteria were satisfied.



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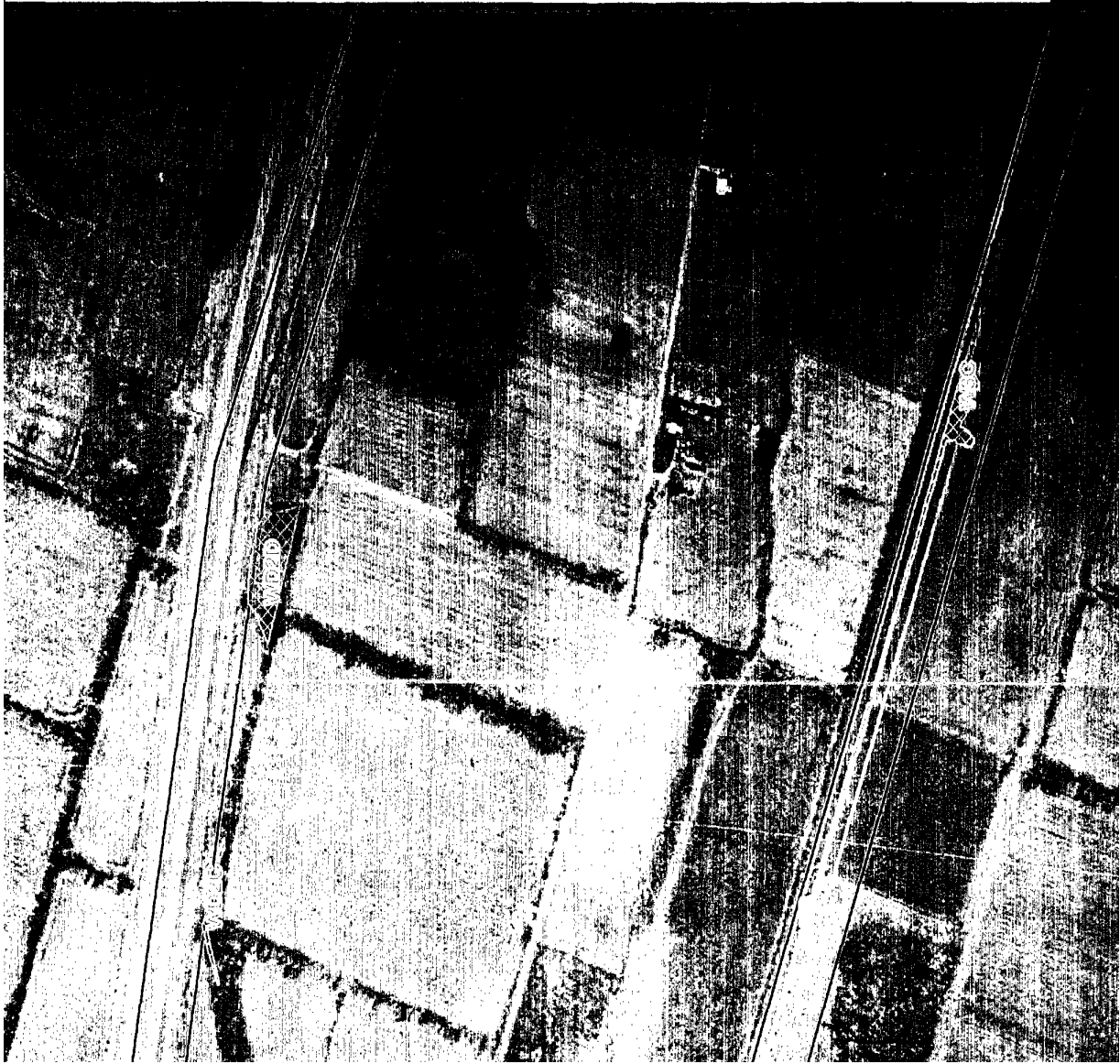
- Preferred Route
- Alternate Route
- Preferred and Alternate Routes
- 200-Foot Route Corridor
- ▨ Delineated Wetland
- ▩ Determined Wetland
- ⊕ QHEI Location
- ▤ Pond
- - - Existing Transmission Lines



Base Map Source: USGS Digital  
Ortho Quarter Quadrangles 1994

**CINERGY.**  
CG&E

Hillcrest-Eastwood 138kV  
Electric Transmission Line



**LEGEND:**

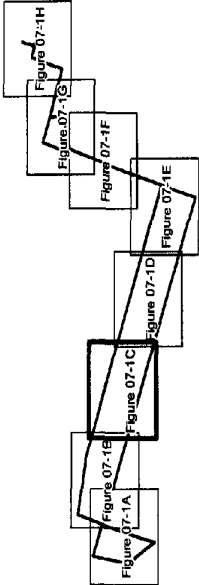
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- Alternate Route
- Preferred and Alternate Routes
- 200-Foot Route Corridor
- ▨ Delineated Wetland
- ▩ Determined Wetland
- ⊕ QHEI Location
- ▤ Pond
- - - Existing Transmission Lines



Base Map Source: USGS Digital  
Ortho Quarter Quadrangles 1994

**CINERGY.**  
CG&E

Hillcrest-Eastwood 138kV  
Electric Transmission Line

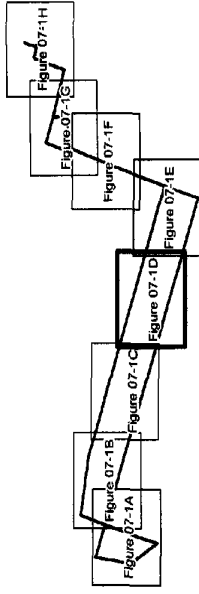
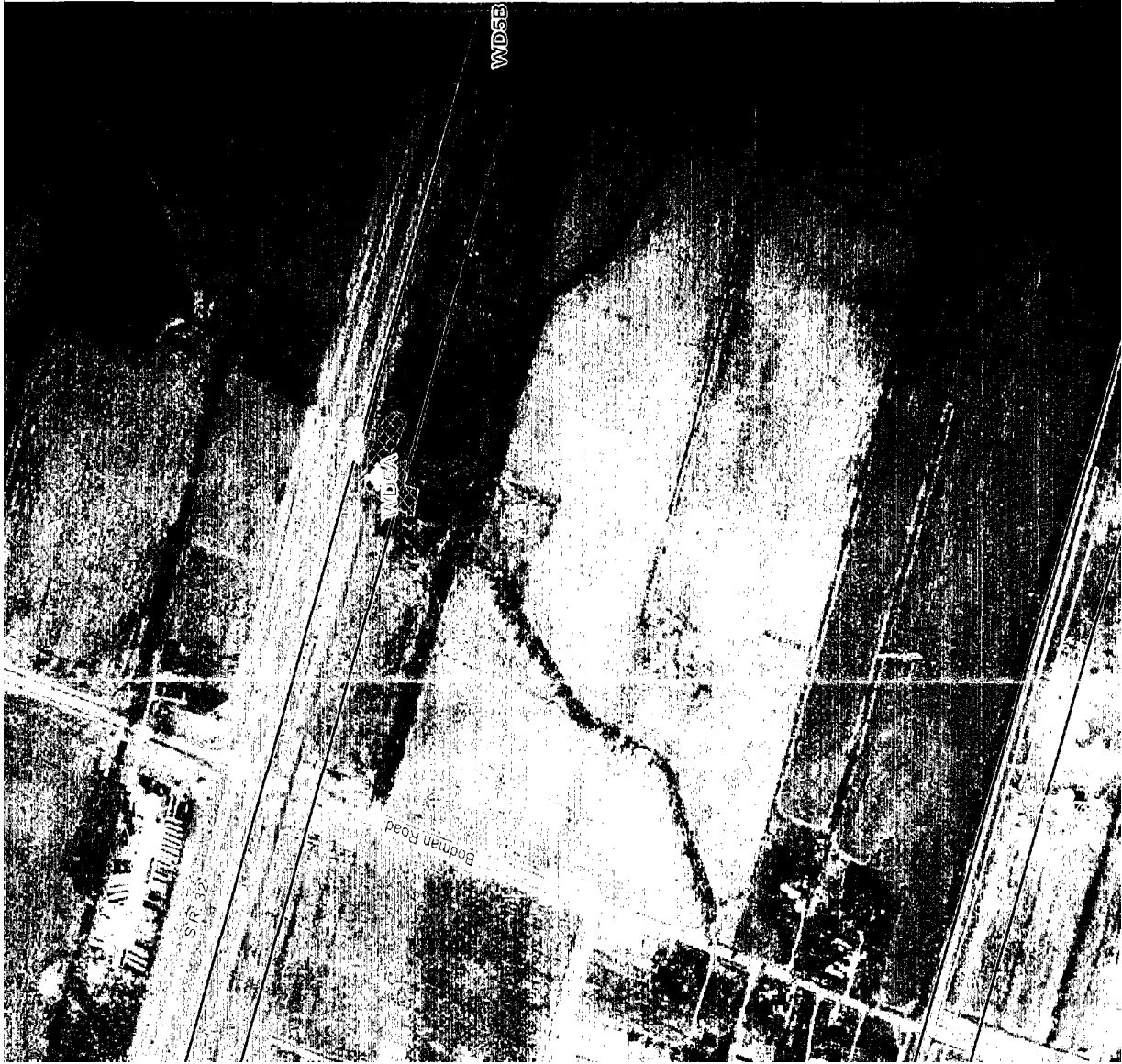


**LEGEND:**

- Preferred Route
- Alternate Route
- Preferred and Alternate Routes
- 200-Foot Route Corridor
- ▨ Delineated Wetland
- ▩ Determined Wetland
- ⊕ QHEI Location
- ▤ Pond
- - - - - Existing Transmission Lines



Base Map Source: USGS Digital  
Ortho Quarter Quadrangles 1994



# LEGEND:

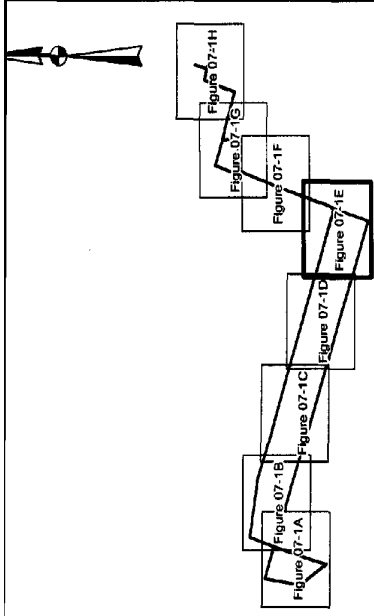
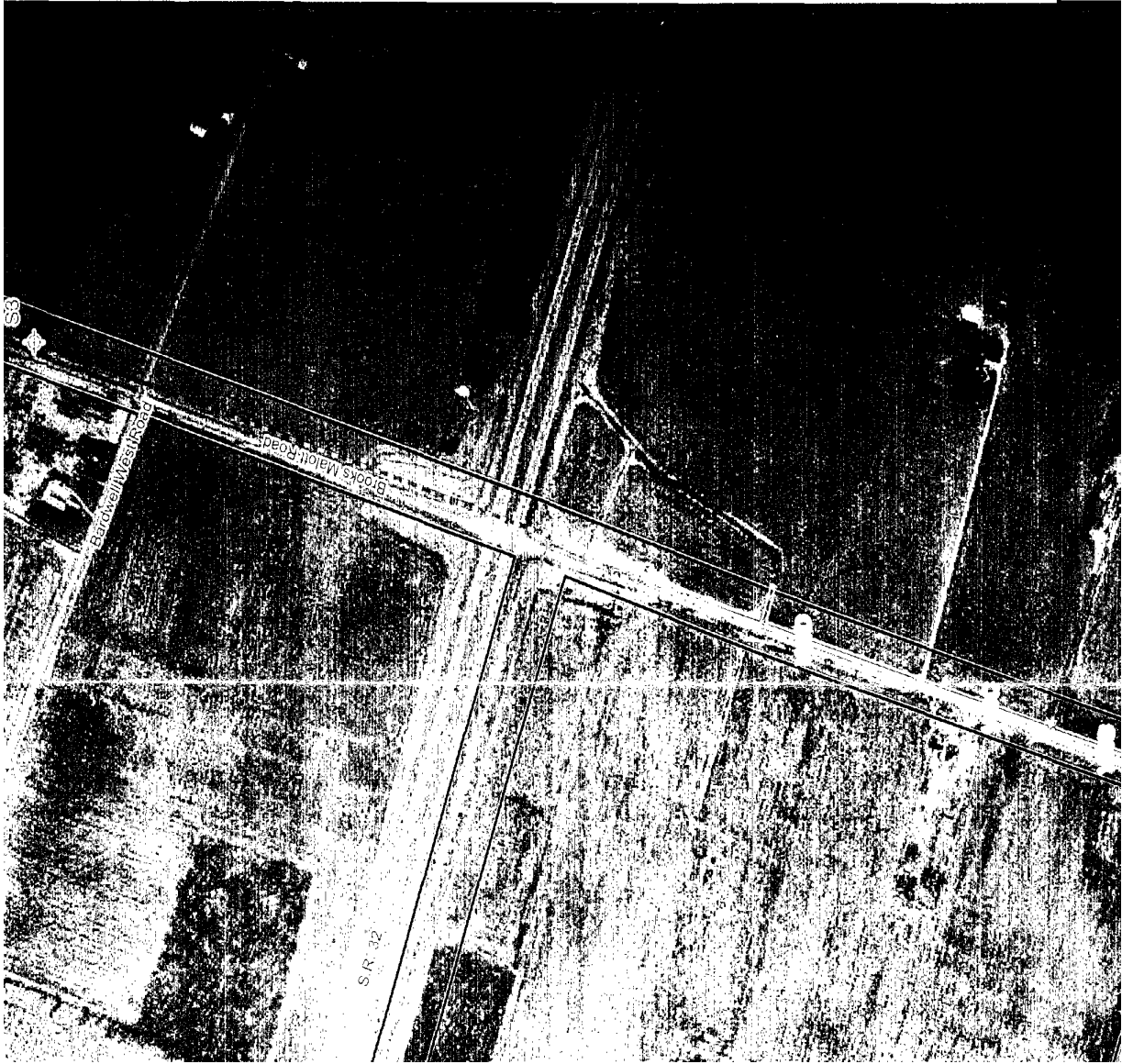
- Preferred Route
- Alternate Route
- Preferred and Alternate Routes
- 200-Foot Route Corridor
- ▨ Delineated Wetland
- ▩ Determined Wetland
- ⊕ QHEI Location
- ▤ Pond
- - - Existing Transmission Lines



Base Map Source: USGS Digital  
Ortho Quarter Quadrangles 1994

**CINERGY.**  
CG&E

Hillcrest-Eastwood 138kV  
Electric Transmission Line



# LEGEND:

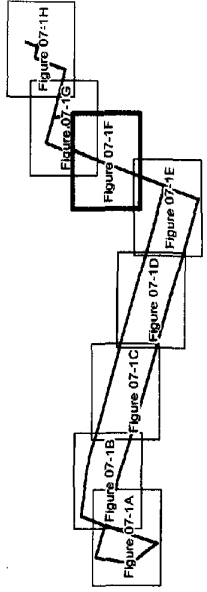
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- Alternate Route
- Preferred and Alternate Routes
- 200-Foot Route Corridor
- Delineated Wetland
- Determined Wetland
- ⊕ QHEI Location
- ▨ Pond
- - - - Existing Transmission Lines



Base Map Source: USGS Digital  
Ortho Quarter Quadrangles 1994

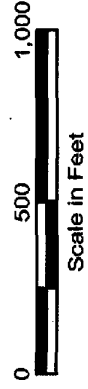
**CINERGY.**  
CG&E

Hillcrest-Eastwood 138kV  
Electric Transmission Line



LEGEND:

- Preferred Route
- Alternate Route
- Preferred and Alternate Routes
- 200-Foot Route Corridor
- ▨ Delineated Wetland
- ▩ Determined Wetland
- ⊕ QHEI Location
- ▤ Pond
- - - - - Existing Transmission Lines

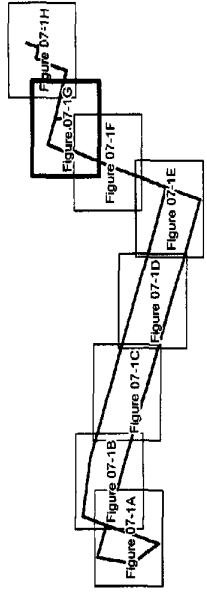


Base Map Source: USGS Digital  
Ortho Quarter Quadrangles 1994

**CINERGY**  
CG&E

Hillcrest-Eastwood 138kV  
Electric Transmission Line





**LEGEND:**

- Preferred Route
- Alternate Route
- Preferred and Alternate Routes
- 200-Foot Route Corridor
- ▨ Delineated Wetland
- ▩ Determined Wetland
- ⊕ QHEI Location
- ▤ Pond
- - - - Existing Transmission Lines



Base Map Source: USGS Digital  
Ortho Quarter Quadrangles 1994

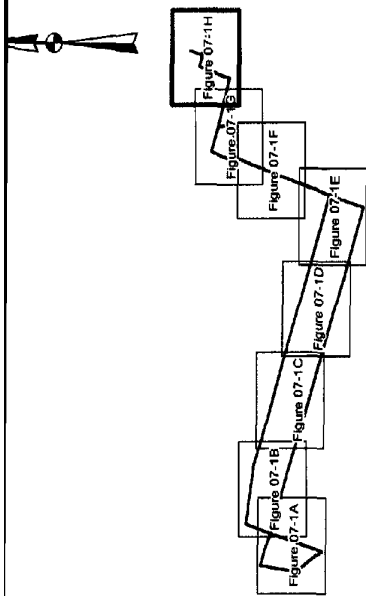
**CINERGY.**  
CG&E

Hillcrest-Eastwood 138kV  
Electric Transmission Line



Preferred Hillcrest-Eastwood Substation Site

Alternate Hillcrest-Eastwood Substation Site

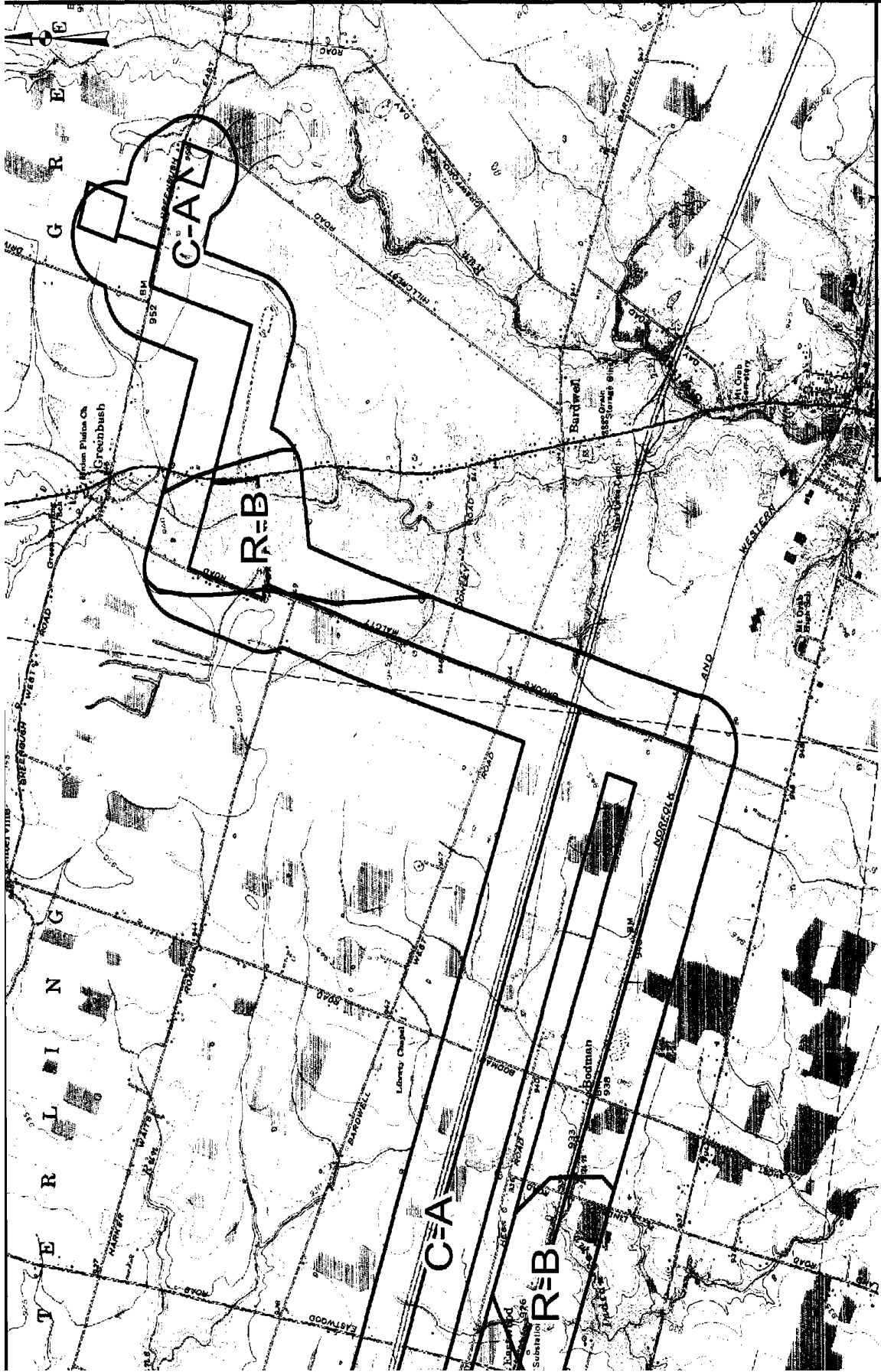


**LEGEND:**

- Preferred Route
- Alternate Route
- Preferred and Alternate Routes
- 200-Foot Route Corridor
- ▨ Delineated Wetland
- ▩ Determined Wetland
- ⊕ QHEI Location
- ▤ Pond
- - - Existing Transmission Lines



Base Map Source: USGS Digital  
Ortho Quarter Quadrangles 1994



Hillcrest-Eastwood 138kV  
Electric Transmission Line

**CINERGY.**  
CG&E

**APPENDIX 07-1**

**OHIO EPA QUALITATIVE HABITAT ASSESSMENT  
INDEX (QHEI) DATA FORMS**

PERENNIAL  
WVH

# Ohio EPA Qualitative Habitat Evaluation Index Field Sheet QHEI Score: 54

River Code: NA RM: NA Stream: SIA-UT to Indian Camp Run  
Date: 09/28/04 Location: Along the South side of Norfolk & Southern RD, ~1000 ft SE of  
Scorer's Full Name: STEVE LANE Affiliation: URS CORPORATION Eastwood Rd.

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

TYPE	POOL RIFFLE	POOL RIFFLE	SUBSTRATE ORIGIN	SUBSTRATE QUALITY
<input type="checkbox"/> BLDR/SBS [10]	<input checked="" type="checkbox"/> GRAVEL [7]	10 40 Check ONE (OR 2 & AVERAGE)	<input checked="" type="checkbox"/> LIMESTONE [1] SILT:	<input type="checkbox"/> SILT HEAVY [-2]
<input type="checkbox"/> BOULDER [9]	<input type="checkbox"/> SAND [6]		<input checked="" type="checkbox"/> TILLS [1]	<input type="checkbox"/> SILT MODERATE [-1]
<input type="checkbox"/> COBBLE [8]	<input type="checkbox"/> BEDROCK [5]		<input type="checkbox"/> WETLANDS [0]	<input checked="" type="checkbox"/> SILT NORMAL [0]
<input type="checkbox"/> HARDPAN [4]	<input type="checkbox"/> DETRITUS [3]		<input type="checkbox"/> HARDPAN [0]	<input type="checkbox"/> SILT FREE [1]
<input type="checkbox"/> MUCK [2]	<input type="checkbox"/> ARTIFICIAL [0]		<input type="checkbox"/> SANDSTONE [0] EMBEDDED	<input type="checkbox"/> EXTENSIVE [-2]
<input checked="" type="checkbox"/> SILT [2]	90 60	NOTE: Ignore Sludge Originating From Point Sources	<input type="checkbox"/> RIP/RAP [0] NESS:	<input type="checkbox"/> MODERATE [-1]
			<input type="checkbox"/> LACUSTRINE [0]	<input checked="" type="checkbox"/> NORMAL [0]
			<input type="checkbox"/> SHALE [-1]	<input type="checkbox"/> NONE [1]
			<input type="checkbox"/> COAL FINES [-2]	

NUMBER OF SUBSTRATE TYPES: ☐ 4 or More [2] ☒ 3 or Less [0]

COMMENTS:

2) INSTREAM COVER (Give each cover type a score of 0 to 3; see back for instructions)

TYPE: Score All That Occur	AMOUNT: (Check ONLY One or check 2 and AVERAGE)
<input type="checkbox"/> UNDERCUT BANKS [1]	<input type="checkbox"/> EXTENSIVE > 75% [11]
<input type="checkbox"/> OVERHANGING VEGETATION [1]	<input checked="" type="checkbox"/> MODERATE 25-75% [7]
<input type="checkbox"/> SHALLOWS (IN SLOW WATER) [1]	<input type="checkbox"/> SPARSE 5-25% [3]
<input type="checkbox"/> ROOTMATS [1]	<input type="checkbox"/> NEARLY ABSENT < 5% [1]

COMMENTS: MOSTLY OVERHANGING VEGETATION

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

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

COMMENTS:

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

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

COMMENTS:

5) POOL/GLIDE AND RIFFLE/RUN QUALITY

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

COMMENTS:

CHECK ONE OR CHECK 2 AND AVERAGE

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

COMMENTS:

6) GRADIENT (ft/mi): ~50 DRAINAGE AREA (sq.mi.): ~.5

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

\* Best areas must be large enough to support a population of 100+ native species

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

LOCATION NOW BEING CLEARED AREA TO NORTH OF THE

RAILWAY, STREAM WOODED ALONG ITS LENGTH TO

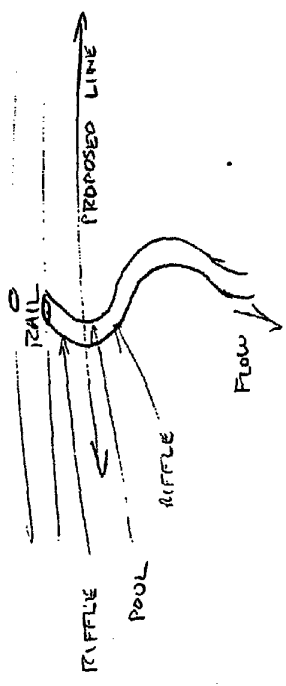
THE SOUTH

Subjective Rating (1-10)	5	Aesthetic Rating (1-10)	5
Gradient	Low	Moderate	High
First Sampling Pass	Gear: Distance: Water Clarity: Water Stage: Canopy % Open		
Average Width	Average Depth	Maximum Depth	Stream Measurements: Bankfull Mean VWD Ratio
Bankfull Width	Bankfull Depth	Bankfull Area	Entrenchment Ratio

Major Suspected Sources of Impacts (Check All That Apply):

None ☐ Industrial ☐ WWTP ☐ Agriculture ☐ Livestock ☐ Silviculture ☐ Construction ☐ Urban Runoff ☐ CSOs ☐ Suburban Impacts ☐ Mining ☐ Channelization ☐ Riparian Removal ☐ Landfills ☐ Natural ☐ Dams ☐ Other Flow Alteration ☐ Other: \_\_\_\_\_

Stream Drawing:



Instructions for scoring the alternate cover metric: Each cover type should receive a score of between 0 and 3. Where: 0 - Cover type absent; 1 - Cover type present in very small amounts or if more common of marginal quality; 2 - Cover type present in moderate amounts, but not of highest quality or in small amounts of highest quality; 3 - Cover type of highest quality in moderate or greater amounts. Examples of highest quality include very large boulders in deep or fast water, large diameter logs that are stable, well developed rootwads in deep/fast water, or deep, well-defined, functional pools.

Yes/No

☒ ☐ Is Stream Ephemeral (no pools, totally dry or only damp spots)?

☐ ☐ Is there water upstream? How Far: \_\_\_\_\_

☐ ☐ Is There Water Close Downstream? How Far: \_\_\_\_\_

☐ ☐ Is Dry Channel Mostly Natural?

51A

PERENNIAL LIKELY WITH

# **Ohio EPA** Qualitative Habitat Evaluation Index Field Sheet QHEI Score: **54**

River Code: NA RM: NA Stream: S2A INDIAN CAMP RUN  
 Date: 03/25/05 Location: 1000' WEST OF LINDSEY ROAD SOUTH OF RAILROAD  
 Scorers Full Name: STEVE LANE Affiliation: CINERGY

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

TYPE	POOL RIFFLE	POOL RIFFLE	SUBSTRATE ORIGIN	SUBSTRATE QUALITY
<input type="checkbox"/> BLDR/SLS [10]	<input type="checkbox"/> GRAVEL [7]	<u>20</u> <u>40</u>	Check ONE (OR 2 & AVERAGE)	Check ONE (OR 2 & AVERAGE)
<input type="checkbox"/> BOULDER [9]	<input type="checkbox"/> SAND [8]	<input checked="" type="checkbox"/> LIMESTONE [1]	SILT:	<input type="checkbox"/> SILT HEAVY [-2]
<input type="checkbox"/> COBBLE [8]	<input type="checkbox"/> BEDROCK [5]	<input checked="" type="checkbox"/> TILLS [1]	<input type="checkbox"/> WETLANDS [0]	<input type="checkbox"/> SILT MODERATE [-1]
<input type="checkbox"/> HARDPAN [4]	<input type="checkbox"/> DETRITUS [3]	<input type="checkbox"/> HARDPAN [0]	<input type="checkbox"/> SANDSTONE [0]	<input checked="" type="checkbox"/> SILT NORMAL [0]
<input type="checkbox"/> MUCK [2]	<input type="checkbox"/> ARTIFICIAL [0]	<input type="checkbox"/> RIP/RAP [0]	EMBEDDED	<input type="checkbox"/> SILT FREE [1]
<input type="checkbox"/> SILT [2]	<u>20</u> <u>60</u>	<input type="checkbox"/> LACUSTRINE [0]	NESS:	<input type="checkbox"/> EXTENSIVE [-2]
			<input type="checkbox"/> SHALE [-1]	<input type="checkbox"/> MODERATE [-1]
			<input type="checkbox"/> COAL FINES [-2]	<input checked="" type="checkbox"/> NORMAL [0]
				<input type="checkbox"/> NONE [1]

NOTE: Ignore Sludge Originating From Point Sources

NUMBER OF SUBSTRATE TYPES: 4 or More [2]  
 (High Quality Only, Score 5 or >) ☐ 3 or Less [0]

COMMENTS: GRAVEL, SILT, MUCK, SAND

Substrate  
Max 20  
**12**

2) INSTREAM COVER (Give each cover type a score of 0 to 3; see back for instructions)

TYPE: Score All That Occur	AMOUNT: (Check ONLY One or check 2 and AVERAGE)
<u>1</u> UNDERCUT BANKS [1]	<input type="checkbox"/> EXTENSIVE > 75% [1]
<u>2</u> OVERHANGING VEGETATION [1]	<input checked="" type="checkbox"/> MODERATE 25-75% [7]
<u>3</u> SHALLOWS (IN SLOW WATER) [1]	<input type="checkbox"/> SPARSE 5-25% [3]
<u>4</u> ROOTWADS [1]	<input type="checkbox"/> NEARLY ABSENT < 5% [1]
<u>5</u> BOULDERS [1]	
<u>6</u> LOGS OR WOODY DEBRIS [1]	
<u>7</u> ROOTMATS [1]	

COMMENTS: CHANNELIZATION INCREASES UPSTREAM

Cover  
Max 20  
**10**

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

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

Channel  
Max 20  
**15**

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

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

COMMENTS: FOREST & RAIL TO NORTH

Riparian  
Max 10  
**5**

5) POOL/GLIDE AND RIFFLE/RUN QUALITY

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

COMMENTS: NO RIFFLE (Metric=0)

Pool/  
Current  
Max 12  
**3**

CHECK ONE OR CHECK 2 AND AVERAGE

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

COMMENTS: NO RIFFLE (Metric=0)

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

6) GRADIENT (ft/mi): > 50 DRAINAGE AREA (sq. mi.): ~1/2

% POOL: <u>40</u>	% GLIDE: <u>10</u>
% RIFFLE: <u>20</u>	% RUN: <u>20</u>

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

Major Suspected Sources of Impacts (Check All That Apply):

None ☐  
 Industrial ☐  
 WWTP ☐  
 Agriculture ☐  
 Livestock ☐  
 Silviculture ☐  
 Construction ☐  
 Urban Runoff ☐  
 CSOs ☐  
 Suburban Impacts ☐  
 Mining ☐  
 Channelization ☐  
 Riparian Removal ☐  
 Landfills ☐  
 Natural ☐  
 Dams ☐  
 Other Flow Alteration ☐  
 Other: \_\_\_\_\_

Is Sampling Reach Representative of the Stream (Y/N) N If Not, Explain: ONLY SECTION OF INDIAN CANYON RUN IN THIS AREA WHICH IS WOODED

First Sampling Pass

Gear: \_\_\_\_\_ Distance: \_\_\_\_\_ Water Clarity: NO SAMPLING Water Stage: \_\_\_\_\_ Canopy - % Open \_\_\_\_\_

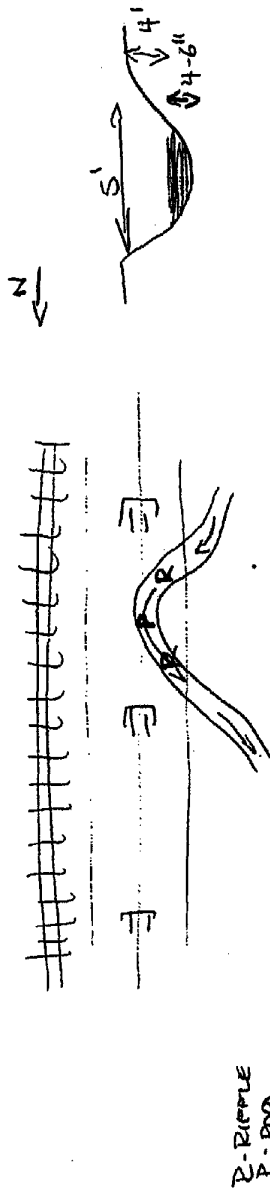
Stream Measurements:

Average Width	Average Depth	Maximum Depth	Bankfull Width	Bankfull Depth	Bankfull Mean Width	Bankfull Mean Depth	Bankfull Max Width	Bankfull Max Depth	Entrenchment Ratio

Subjective Rating (1-10) 5 Aesthetic Rating (1-10) 5

Gradient: ☒ Low ☐ Moderate ☐ High

Stream Drawing:



Yes/No

☒ Is Stream Ephemeral (no pools, totally dry or only damp spots)?

☐ Is there water upstream? How Far: \_\_\_\_\_

☐ Is There Water Close Downstream? How Far: \_\_\_\_\_

☐ Is Dry Channel Mostly Natural?

Instructions for scoring the alternate cover metric: Each cover type should receive a score of between 0 and 3, Where: 0 - Cover type absent; 1 - Cover type present in very small amounts or of marginal quality; 2 - Cover type present in moderate amounts, but not of highest quality or in small amounts of highest quality; 3 - Cover type of highest quality in moderate or greater amounts. Examples of highest quality include very large boulders in deep or fast water, large diameter logs that are stable, well developed rootwads in deep/fast water, or deep, well-defined, functional pools.

22A



PERENNIAL LIKEY  
MWH

# **Ohio EPA** Qualitative Habitat Evaluation Index Field Sheet QHEI Score: **57**

River Code: NA RM: NA Stream: S2B INDIAN CAMP RUN  
 Date: 03/25/05 Location: WEST OF BODWIN ROAD  
 Scorers Full Name: STEVE LANE Affiliation: CINERGY

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

TYPE	POOL RIFFLE	POOL RIFFLE	SUBSTRATE ORIGIN	SUBSTRATE QUALITY
<input type="checkbox"/> BLDG/SLBS [10]	<input checked="" type="checkbox"/> GRAVEL [7] <u>30</u> <u>50</u>	Check ONE (OR 2 & AVERAGE)	Check ONE (OR 2 & AVERAGE)	
<input type="checkbox"/> BOULDER [9]	<input type="checkbox"/> SAND [6]	<input checked="" type="checkbox"/> LIMESTONE [1]	SILT:	<input type="checkbox"/> SILT HEAVY [-2]
<input type="checkbox"/> COBBLE [8]	<input type="checkbox"/> BEDROCK [5]	<input checked="" type="checkbox"/> TILLS [1]		<input type="checkbox"/> SILT MODERATE [-1]
<input type="checkbox"/> HARDPAN [4]	<input type="checkbox"/> DETRITUS [3]	<input type="checkbox"/> WETLANDS [0]		<input type="checkbox"/> SILT NORMAL [0]
<input type="checkbox"/> MUCK [2]	<input type="checkbox"/> ARTIFICIAL [0]	<input type="checkbox"/> HARDPAN [0]		<input type="checkbox"/> SILT FREE [1]
<input checked="" type="checkbox"/> SILT [2] <u>70</u> <u>50</u>	NOTE: Ignore Sludge Originating From Point Sources	<input type="checkbox"/> SANDSTONE [0]	EMBEDDED	<input type="checkbox"/> EXTENSIVE [-2]
		<input type="checkbox"/> RIP/RAP [0]	NESS:	<input type="checkbox"/> MODERATE [-1]
		<input type="checkbox"/> LACUSTRINE [0]		<input checked="" type="checkbox"/> NORMAL [0]
		<input type="checkbox"/> SHALE [-1]		<input type="checkbox"/> NONE [1]
		<input type="checkbox"/> COAL FINES [-2]		

NUMBER OF SUBSTRATE TYPES: ☒ 4 or More [2]  
 (High Quality Only, Score 5 or >) ☐ 3 or Less [0]

COMMENTS: GRAVEL SILT MUCK SAND

2) INSTREAM COVER (Give each cover type a score of 0 to 3; see back for instructions)

TYPE	SCORE	AMOUNT	COVER
UNDERCUT BANKS [1]	<u>POOLS &gt; 70 cm [2]</u>	Check ONE (OR 2 & AVERAGE)	
OVERHANGING VEGETATION [1]	<u>ROOTWADS [1]</u>	<input type="checkbox"/> EXTENSIVE > 75% [11]	<input checked="" type="checkbox"/> MODERATE 25-75% [7]
SHALLOWS (IN SLOW WATER) [1]	<u>BOULDERS [1]</u>	<input type="checkbox"/> SPARSE 5-25% [3]	<input type="checkbox"/> NEARLY ABSENT < 5% [1]
ROOTMATS [1]	COMMENTS:		

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

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

COMMENTS:

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

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

COMMENTS:

5) POOL/GLIDE AND RIFFLE/RUN QUALITY

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

CHECK ONE OR CHECK 2 AND AVERAGE

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

COMMENTS:

6) GRADIENT (ft/mi): 250 DRAINAGE AREA (sq. mi.): 1/2

% POOL: <u>40</u>	% GLIDE: <u>10</u>
% RIFFLE: <u>20</u>	% RUN: <u>20</u>

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

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

Major Suspected Sources of Impacts (Check All That Apply):

None ☐ Industrial ☐ WWTP ☐ Ag ☐ Livestock ☐ Silviculture ☐ Construction ☐ Urban Runoff ☐ CSOs ☐ Mining ☐ Channelization ☐ Riparian Removal ☐ Landfills ☐ Natural ☐ Dams ☐ Other Flow Alteration ☐ Other: \_\_\_\_\_

First Sampling Pass

Gear: \_\_\_\_\_ Distance: \_\_\_\_\_ Water Clarity: \_\_\_\_\_ Water Stage: \_\_\_\_\_ Canopy -% Open \_\_\_\_\_

NO SAMPLING

Stream Measurements:

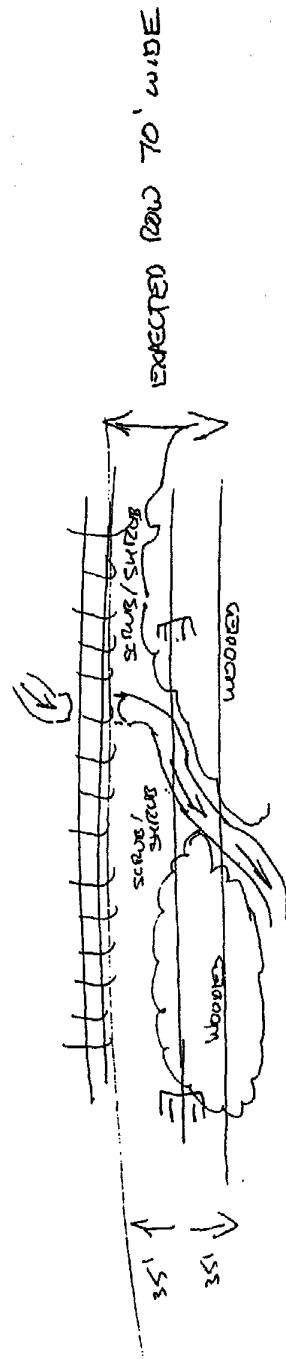
Average Width	Average Depth	Maximum AV Bankfull Width	Bankfull Depth	Bankfull Max Area	Floodprone Area	Entrenchment Ratio

Subjective Rating (1-10) 5

Aesthetic Rating (1-10) 6

Gradient: ☒ - Low, ☒ Moderate, ☐ - High

Stream Drawing:



528

Yes/No

☐ ☒ Is Stream Ephemeral (no pools, totally dry or only damp spots)?

☐ ☐ Is there water upstream? How Far: \_\_\_\_\_

☐ ☐ Is There Water Close Downstream? How Far: \_\_\_\_\_

☐ ☐ Is Dry Channel Mostly Natural?

Instructions for scoring the alternate cover metric: Each cover type should receive a score of between 0 and 3. Where: 0 - Cover type absent; 1 - Cover type present in very small amounts or if more common of marginal quality; 2 - Cover type present in moderate amounts, but not of highest quality or in small amounts of highest quality; 3 - Cover type of highest quality in moderate or greater amounts. Examples of highest quality include very large boulders in deep or fast water, large diameter logs that are stable, well developed rootwads in deep/fast water, or deep, well-defined, functional pools.

EARLY INTERMITTENT

LRW



# Qualitative Habitat Evaluation Index Field Sheet QHEI Score: 24.5

River Code: NA RM: NA Stream: S3 - UT to Sterling Run  
Date: 09/28/04 Location: East side of Brooks Malott Road, ~400ft W of Bardwell West Road  
Scorers Full Name: JAKE LAWE Affiliation: URS CORPORATION

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

TYPE	POOL RIFFLE	POOL RIFFLE	SUBSTRATE ORIGIN	SUBSTRATE QUALITY
<input type="checkbox"/> BLDR (SUBS) [10]	<input type="checkbox"/> GRAVEL [7]	Check ONE (OR 2 & AVERAGE)		Check ONE (OR 2 & AVERAGE)
<input type="checkbox"/> BOULDER [9]	<input type="checkbox"/> SAND [6]	<input type="checkbox"/> LIMESTONE [1]	SILT:	<input type="checkbox"/> SILT HEAVY [-2]
<input type="checkbox"/> COBBLE [8]	<input type="checkbox"/> BEDROCK [5]	<input checked="" type="checkbox"/> TILLS [1]		<input checked="" type="checkbox"/> SILT MODERATE [-1]
<input type="checkbox"/> HARDPAN [4]	<input type="checkbox"/> DETRITUS [3]	<input type="checkbox"/> WETLANDS [0]		<input type="checkbox"/> SILT NORMAL [0]
<input checked="" type="checkbox"/> MUCK [2]	<input type="checkbox"/> ARTIFICIAL [0]	<input type="checkbox"/> HARDPAN [0]		<input type="checkbox"/> SILT FREE [1]
<input checked="" type="checkbox"/> SILT [2]	60 40	<input type="checkbox"/> SANDSTONE [0]	EMBEDDED	<input checked="" type="checkbox"/> EXTENSIVE [-2]
	40 60	<input type="checkbox"/> RIP/RAP [0]	NESS:	<input type="checkbox"/> MODERATE [-1]
	NOTE: Ignore Sludge Originating From Point Sources	<input type="checkbox"/> LACUSTRINE [0]		<input type="checkbox"/> NORMAL [0]
		<input type="checkbox"/> SHALE [-1]		<input type="checkbox"/> NONE [1]
		<input type="checkbox"/> COAL FINES [-2]		

NUMBER OF SUBSTRATE TYPES: ☒ 4 or More [2] ☐ 3 or Less [0]  
(High Quality Only, Score 3 or >)

COMMENTS: LITTLE POOL (RIFFLE DEVELOPMENT)

2) INSTREAM COVER (Give each cover type a score of 0 to 3; see back for instructions)

STRUCTURE	TYPE: Score All That Occur	AMOUNT: (Check ONLY One or check 2 and AVERAGE)
<input checked="" type="checkbox"/> UNDERCUT BANKS [1]	<input type="checkbox"/> POOLS > 70 cm [2]	<input type="checkbox"/> EXTENSIVE > 75% [1]
<input checked="" type="checkbox"/> OVERHANGING VEGETATION [1]	<input type="checkbox"/> ROOTWADS [1]	<input type="checkbox"/> MODERATE 25-75% [7]
<input type="checkbox"/> SHALLOWS (IN SLOW WATER) [1]	<input type="checkbox"/> BOULDERS [1]	<input checked="" type="checkbox"/> SPARSE 5-25% [3]
<input type="checkbox"/> ROOTMATS [1]	COMMENTS:	<input type="checkbox"/> NEARLY ABSENT < 5% [1]

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

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

COMMENTS: SCULPTURED THROUGHOUT CHANNEL

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

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

COMMENTS:

5) POOL/GLIDE AND RIFFLE/RUN QUALITY

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

COMMENTS:

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

COMMENTS: ☐ NO RIFFLE [Metric=0]

6) GRADIENT (ft/mi): ~20 DRAINAGE AREA (sq.mi.): 0

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

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

Is Sampling Reach Representative of the Stream (Y/N) Y If Not, Explain: GENERALLY Ephemeral to West of Brooks-Melott

Major Suspected Sources of Impacts (Check All That Apply):

None	<input type="checkbox"/>
Industrial	<input type="checkbox"/>
WWT	<input type="checkbox"/>
Agriculture	<input type="checkbox"/>
Livestock	<input type="checkbox"/>
Silviculture	<input type="checkbox"/>
Construction	<input type="checkbox"/>
Urban Runoff	<input type="checkbox"/>
CSOs	<input type="checkbox"/>
Suburban Impacts	<input type="checkbox"/>
Mining	<input type="checkbox"/>
Channelization	<input type="checkbox"/>
Riparian Removal	<input type="checkbox"/>
Landfills	<input type="checkbox"/>
Natural	<input type="checkbox"/>
Dams	<input type="checkbox"/>
Other Flow Alteration	<input type="checkbox"/>
Other	<input type="checkbox"/>

First Sampling Pass: NO SAMPLING

Gear: \_\_\_\_\_ Distance: \_\_\_\_\_ Water Clarity: \_\_\_\_\_ Water Stage: \_\_\_\_\_ Canopy: % Open \_\_\_\_\_

Stream Measurements:

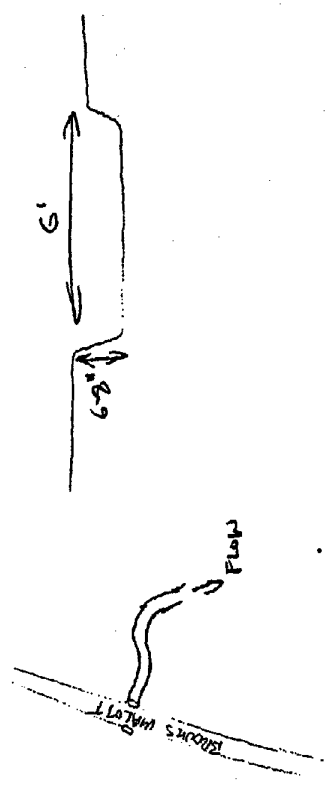
Average Width	Average Depth	Maximum Depth	Bankfull Width	Bankfull Depth	Bankfull Area	Bankfull Max Area	Floodprone Area	Entrenchment Ratio

Subjective Rating (1-10): 3

Aesthetic Rating (1-10): 3

Gradient: ☒ Low, ☐ Moderate, ☐ High

Stream Drawing:



Instructions for scoring the alternate cover metric: Each cover type should receive a score of between 0 and 3. Where: 0 - Cover type absent; 1 - Cover type present in very small amounts or if more common of marginal quality; 2 - Cover type present in moderate amounts, but not of highest quality or in small amounts of highest quality; 3 - Cover type of highest quality in moderate or greater amounts. Examples of highest quality include very large boulders in deep or fast water; large diameter logs that are stable, well developed rootwads in deep/fast water, or deep, well-defined, functional pools.

BORDERLINE EPHEMERAL  
INTERMITTENT

Yes/No

☒ Is Stream Ephemeral (no pools, totally dry or only damp spots)?

☐ Is there water upstream? How Far: \_\_\_\_\_

☐ Is There Water Close Downstream? How Far: \_\_\_\_\_

☐ Is Dry Channel Mostly Natural?

Qualitative Habitat Evaluation Index Field Sheet QHEI Score: **54**

River Code: NA RM: VA Stream: S4A - vt. to Sterling Run  
Date: 04/29/04 Location: South of Wark's Rd. ~ 460 ft. west of U.S. 68  
Scorer's Full Name: STEVE LAKE Affiliation: URS CORPORATION

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

TYPE	POOL RIFFLE	SUBSTRATE ORIGIN	SUBSTRATE QUALITY
<input type="checkbox"/> BLDR/SBLS [10]	<input checked="" type="checkbox"/> GRAVEL [7]	<input checked="" type="checkbox"/> SILT	<input type="checkbox"/> SILT HEAVY [-2]
<input type="checkbox"/> BOULDER [8]	<input type="checkbox"/> SAND [6]	<input type="checkbox"/> LIMESTONE [1]	<input type="checkbox"/> SILT MODERATE [-1]
<input type="checkbox"/> COBBLE [8]	<input type="checkbox"/> BEDROCK [5]	<input checked="" type="checkbox"/> TILLS [1]	<input checked="" type="checkbox"/> SILT NORMAL [0]
<input type="checkbox"/> HARDPAN [4]	<input type="checkbox"/> DETRITUS [3]	<input type="checkbox"/> WETLANDS [0]	<input type="checkbox"/> SILT FREE [1]
<input checked="" type="checkbox"/> MUCK [2]	<input type="checkbox"/> ARTIFICIAL [0]	<input type="checkbox"/> HARDPAN [0]	<input type="checkbox"/> EXTENSIVE [-2]
<input checked="" type="checkbox"/> SILT [2]	<input type="checkbox"/> NOTE: Ignore Sludge Originating From Point Sources	<input type="checkbox"/> SANDSTONE [0]	<input type="checkbox"/> MODERATE [-1]
		<input type="checkbox"/> RIP/RAP [0]	<input type="checkbox"/> NORMAL [0]
		<input type="checkbox"/> LACUSTRINE [0]	<input type="checkbox"/> NONE [1]
		<input type="checkbox"/> SHALE [-1]	
		<input type="checkbox"/> COAL FINES [-2]	

NUMBER OF SUBSTRATE TYPES: 4 or More [2]  
(High Quality Only, Score 5 or >)  
COMMENTS: MUCK, SILT SAND GRAVEL

2) INSTREAM COVER (Give each cover type a score of 0 to 3; see back for instructions)

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

COMMENTS: GOOD INSTREAM COVER

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

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

COMMENTS: HEAVY BANK EROSION

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

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

COMMENTS: HEAVY BANK EROSION

5) POOL/GLIDE AND RIFFLE/RUN QUALITY

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

COMMENTS: NO RIFFLE [Metric=0]

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

COMMENTS: NO RIFFLE [Metric=0]

6) GRADIENT (R/mi): ~30 DRAINAGE AREA (sq.mi.): ~5

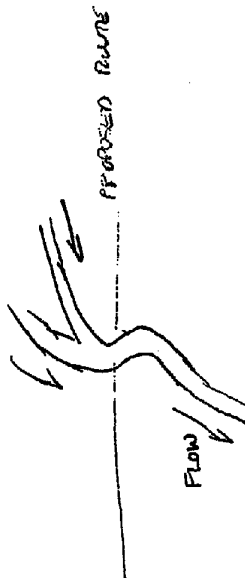
%POOL: 40 %GLIDE: 70  
%RIFFLE: 30 %RUN: 20

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

[illegible]

<div style="border: 1px solid black; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; margin: 5px;">6</div> Subjective Rating (1-10)	<div style="border: 1px solid black; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; margin: 5px;">6</div> Aesthetic Rating (1-10)	First Sampling Pass		Gear:	Distance:	Water Clarity:	Water Stage:	Canopy % Open
		Average Width Average Depth	Maximum Depth Average Width	Bankfull Width Bankfull Depth	Stream Measurements: W/D Ratio Mean Depth	Bankfull Max Depth Floodprone Area Width Entrench Ratio		

Stream Drawing:



Instructions for scoring the alternate cover metric: Each cover type should receive a score of between 0 and 3, where: 0 - Cover type absent; 1 - Cover type present in very small amounts or if more common of marginal quality; 2 - Cover type present in moderate amounts, but not of highest quality or in small amounts of highest quality; 3 - Cover type of highest quality in moderate or greater amounts. Examples of highest quality include very large boulders in deep or fast water, large diameter logs that are stable, well developed rootwads in deep/fast water, or deep, well-defined, functional pools.

Yes/No	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Is Stream Ephemeral (no pools, totally dry or only damp spots)?
	<input type="checkbox"/>	<input type="checkbox"/>	Is there water upstream? How Far _____
	<input type="checkbox"/>	<input type="checkbox"/>	Is There Water Close Downstream? How Far _____
	<input type="checkbox"/>	<input type="checkbox"/>	Is Dry Channel Mostly Natural?

Qualitative Habitat Evaluation Index Field Sheet QHEI Score: 53.5intermittent  
WWH (almost perennial)River Code: NA RM: NA Stream: SSA-UT to Sterling Run  
Date: 2/9/05 Location: South of Warts Rd, ~1300 ft Southwest of U.S. 68Scorer's Full Name: Steve Lane Affiliation: Cinergy

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

TYPE		POOL RIFFLE		SUBSTRATE ORIGIN		SUBSTRATE QUALITY	
<input type="checkbox"/> BLDG/SUBS [10]	<input type="checkbox"/> GRAVEL [7]	<input checked="" type="checkbox"/> SAND [6]	<input type="checkbox"/> LIMESTONE [1]	<input type="checkbox"/> SILT	<input type="checkbox"/> SILT HEAVY [-2]	Substrate <div style="border: 1px solid black; padding: 2px; display: inline-block;">12</div> Max 20	
<input type="checkbox"/> BOULDER [9]	<input type="checkbox"/> BEDROCK [5]	<input type="checkbox"/> TILLS [1]	<input type="checkbox"/> WETLANDS [0]	<input type="checkbox"/> SILT MODERATE [-1]			
<input type="checkbox"/> COBBLE [8]	<input type="checkbox"/> DETRITUS [3]	<input type="checkbox"/> HARDPAN [0]	<input type="checkbox"/> SANDSTONE [0]	<input type="checkbox"/> SILT NORMAL [0]			
<input type="checkbox"/> HARDPAN [4]	<input type="checkbox"/> ARTIFICIAL [0]	<input type="checkbox"/> RIP/RAP [0]	<input type="checkbox"/> EMBEDDED	<input type="checkbox"/> SILT FREE [1]			
<input checked="" type="checkbox"/> MUCK [2]	<input type="checkbox"/> SHALE [-1]	<input type="checkbox"/> COAL FINES [-2]	<input type="checkbox"/> LACUSTRINE [0]	<input type="checkbox"/> EXTENSIVE [-2]			
<input checked="" type="checkbox"/> SILT [2]	<input type="checkbox"/> 4 or More [2]	<input type="checkbox"/> 3 or Less [0]	<input type="checkbox"/> RIP/RAP [0]	<input type="checkbox"/> MODERATE [-1]	<input type="checkbox"/> NORMAL [0]		
NUMBER OF SUBSTRATE TYPES: (High Quality Only, Score 5 or >)		TYPE: Score All That Occur		AMOUNT: (Check ONLY One or check 2 and AVERAGE)		Cover	
COMMENTS: <u>Muck, SILT, SAND, GRAVEL</u>						<div style="border: 1px solid black; padding: 2px; display: inline-block;">11</div> Max 20	

2) INSTREAM COVER (Give each cover type a score of 0 to 3; see back for instructions)

STRUCTURE		TYPE: Score All That Occur		AMOUNT: (Check ONLY One or check 2 and AVERAGE)		Cover	
<input type="checkbox"/> UNDERCUT BANKS [1]	<input type="checkbox"/> POOLS > 70 cm [2]	<input type="checkbox"/> OXBOWS, BACKWATERS [1]	<input type="checkbox"/> EXTENSIVE > 75% [11]	Channel <div style="border: 1px solid black; padding: 2px; display: inline-block;">10</div> Max 20			
<input type="checkbox"/> OVERHANGING VEGETATION [1]	<input type="checkbox"/> ROOTWADS [1]	<input type="checkbox"/> AQUATIC MACROPHYTES [1]	<input type="checkbox"/> MODERATE 25-75% [7]				
<input type="checkbox"/> SHALLOWS (IN SLOW WATER) [1]	<input type="checkbox"/> BOULDERS [1]	<input type="checkbox"/> LOGS OR WOODY DEBRIS [1]	<input type="checkbox"/> SPARSE 5-25% [3]				
<input type="checkbox"/> ROOTMATS [1]	COMMENTS:		<input type="checkbox"/> NEARLY ABSENT < 5% [1]				
3) CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE)							
<b>SINUOSITY</b>	<b>DEVELOPMENT</b>	<b>CHANNELIZATION</b>	<b>STABILITY</b>	<b>MODIFICATIONS/OTHER</b>			
<input type="checkbox"/> HIGH [4]	<input type="checkbox"/> EXCELLENT [7]	<input type="checkbox"/> NONE [6]	<input type="checkbox"/> HIGH [3]	<input type="checkbox"/> SNAGGING	<input type="checkbox"/> IMPOUND.	<div style="border: 1px solid black; padding: 2px; display: inline-block;">10</div> Max 20	
<input type="checkbox"/> MODERATE [3]	<input type="checkbox"/> GOOD [5]	<input type="checkbox"/> RECOVERED [4]	<input type="checkbox"/> MODERATE [2]	<input type="checkbox"/> RELOCATION	<input type="checkbox"/> ISLANDS		
<input checked="" type="checkbox"/> LOW [2]	<input type="checkbox"/> FAIR [3]	<input type="checkbox"/> RECOVERING [3]	<input type="checkbox"/> LOW [1]	<input type="checkbox"/> CANOPY REMOVAL	<input type="checkbox"/> LEVEED		
<input type="checkbox"/> NONE [1]	<input type="checkbox"/> POOR [1]	<input type="checkbox"/> RECENT OR NO RECOVERY [1]	<input type="checkbox"/> DREDGING	<input type="checkbox"/> BANK SHAPING			
				<input type="checkbox"/> ONE SIDE CHANNEL MODIFICATIONS			

COMMENTS:

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

RIPARIAN WIDTH		FLOOD PLAIN QUALITY (PAST 100 Meter RIPARIAN)		BANK EROSION		Riparian	
L R (Per Bank)	L R (Most Predominant Per Bank)	L R	L R (Per Bank)	<div style="border: 1px solid black; padding: 2px; display: inline-block;">6.5</div> Max 10			
<input type="checkbox"/> WIDE > 50m [4]	<input type="checkbox"/> FOREST, SWAMP [3]	<input type="checkbox"/> CONSERVATION TILLAGE [1]	<input checked="" type="checkbox"/> NONE/LITTLE [3]				
<input checked="" type="checkbox"/> MODERATE 10-50m [3]	<input type="checkbox"/> SHRUB OR OLD FIELD [2]	<input type="checkbox"/> URBAN OR INDUSTRIAL [0]	<input type="checkbox"/> MODERATE [2]				
<input checked="" type="checkbox"/> NARROW 5-10 m [2]	<input checked="" type="checkbox"/> RESIDENTIAL, PARK, NEW FIELD [1]	<input type="checkbox"/> OPEN PASTURE, ROWCROP [0]	<input type="checkbox"/> HEAVY/SEVERE [1]				
<input type="checkbox"/> VERY NARROW < 5 m [1]	<input type="checkbox"/> FENCED PASTURE [1]	<input type="checkbox"/> MINING/CONSTRUCTION [0]					
<input type="checkbox"/> NONE [0]							

COMMENTS:

5) POOL/GLIDE AND RIFFLE/RUN QUALITY

MAX. DEPTH		MORPHOLOGY		CURRENT VELOCITY (POOLS & RIFFLES)		Pool/Current	
(Check 1 ONLY)		(Check 1 or 2 & AVERAGE)		(Check All That Apply)		<div style="border: 1px solid black; padding: 2px; display: inline-block;">3</div> Max 12	
<input type="checkbox"/> > 1m [6]	<input type="checkbox"/> POOL WIDTH > RIFFLE WIDTH [2]	<input type="checkbox"/> EDDIES [1]	<input type="checkbox"/> TORRENTIAL [-1]				
<input type="checkbox"/> 0.7-1m [4]	<input checked="" type="checkbox"/> POOL WIDTH = RIFFLE WIDTH [1]	<input type="checkbox"/> FAST [1]	<input type="checkbox"/> INTERSTITIAL [-1]				
<input type="checkbox"/> 0.4-0.7m [2]	<input type="checkbox"/> POOL WIDTH < RIFFLE W. [0]	<input checked="" type="checkbox"/> MODERATE [1]	<input type="checkbox"/> INTERMITTENT [-2]				
<input checked="" type="checkbox"/> 0.2-0.4m [1]		<input type="checkbox"/> SLOW [1]	<input type="checkbox"/> VERY FAST [1]				
<input type="checkbox"/> < 0.2m [POOL=0]	COMMENTS:						

COMMENTS:

CHECK ONE OR CHECK 2 AND AVERAGE				Riffle/Run	
<b>RIFFLE DEPTH</b>	<b>RUN DEPTH</b>	<b>RIFFLE/RUN SUBSTRATE</b>	<b>RIFFLE/RUN EMBEDDEDNESS</b>	<div style="border: 1px solid black; padding: 2px; display: inline-block;">1</div> Max 8 <div style="border: 1px solid black; padding: 2px; display: inline-block;">10</div> Max 10	
<input type="checkbox"/> Best Areas > 10 cm [2]	<input type="checkbox"/> MAX > 50 [2]	<input type="checkbox"/> STABLE (e.g., Cobble, Boulder) [2]	<input type="checkbox"/> NONE [2]		
<input type="checkbox"/> Best Areas 5-10 cm [1]	<input checked="" type="checkbox"/> MAX < 50 [1]	<input type="checkbox"/> MOD. STABLE (e.g., Large Gravel) [1]	<input type="checkbox"/> LOW [1]		
<input checked="" type="checkbox"/> Best Areas < 5 cm [RIFFLE=0]		<input checked="" type="checkbox"/> UNSTABLE (Fine Gravel, Sand) [0]	<input type="checkbox"/> MODERATE [0]		
			<input type="checkbox"/> EXTENSIVE [-1]		
COMMENTS:					

COMMENTS:

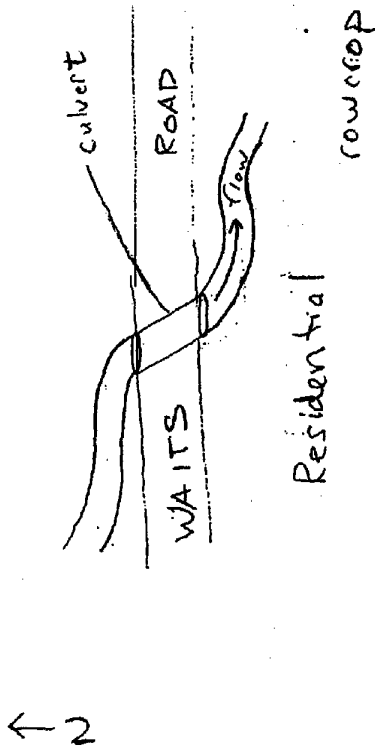
6) GRADIENT (ft/mi): ~30 DRAINAGE AREA (sq. mi.): ~5  
%POOL: 40 %GLIDE: 10  
%RIFFLE: 30 %RUN: 20

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

Major Suspected Sources of Impacts (Check All That Apply):	None	Minor	Major
Industrial	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
WWTP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ag	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Livestock	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Silviculture	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Construction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Urban Runoff	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CSO	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Suburban Impacts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mining	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Channelization	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Riparian Removal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Landfills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Natural	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other Flow Alteration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:	<input type="checkbox"/>		

<input type="checkbox"/>	<input type="checkbox"/>	Gear:	Distance:	Water Clarity:	Water Stage:	Canopy % Open	
		First Sampling Pass	NO SAMPLING				
		Strain Measurements:					
Average Width	Average Depth	Maximum Depth	Ax. Bankfull Width	Bankfull Mean Depth	Bankfull Max. Depth	Floodprone Area	Entrenchment Ratio
Gradient: <input type="checkbox"/> - Low, <input type="checkbox"/> Moderate, <input type="checkbox"/> High							
Subjective Rating (1-10)	Aesthetic Rating (1-10)						

## Stream Drawing:



Instructions for scoring the alternate cover metric: Each cover type should receive a score of between 0 and 3, Where: 0 - Cover type absent; 1 - Cover type present in very small amounts or if more common of marginal quality; 2 - Cover type present in moderate amounts, but not of highest quality or in small amounts of highest quality; 3 - Cover type of highest quality in moderate or greater amounts. Examples of highest quality include very large boulders in deep or fast water, large diameter logs that are stable, well developed rootwads in deep/fast water, or deep, well-defined, functional pools.

Yes/No	<input type="checkbox"/>	<input type="checkbox"/>	Is Stream Ephemeral (no pools, totally dry or only damp spots)?
	<input type="checkbox"/>	<input type="checkbox"/>	Is there water upstream? How Far: _____
	<input type="checkbox"/>	<input type="checkbox"/>	Is There Water Close Downstream? How Far: _____
	<input type="checkbox"/>	<input type="checkbox"/>	Is Dry Channel Mostly Natural?

SSA



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**APPENDIX 07-2**

**U.S. ARMY CORPS OF ENGINEERS  
WETLAND DELINEATION FORMS**

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

Project/Site: <u>HILLCREST - EASTWOOD</u> Applicant/Owner: <u>CENERGY</u> Investigator: <u>STEVE LANE (URS)</u>	Date: <u>09/28/04</u> County: <u>CLERMONT</u> State: <u>OH</u>
Do Normal Circumstances exist on the site? <span style="float: right;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span> Is the site significantly disturbed (Atypical Situation)? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> Is the area a potential Problem Area? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> (If needed, explain on reverse.)	Community ID: <u>PCM</u> Transect ID: <u>---</u> Plot ID: <u>W1</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>TYPHIA ANGSTIFOLIA</u>	<u>H</u>	<u>OBL</u>	9. _____	_____	_____
2. <u>POPULUS DELTOIDES</u>	<u>H</u>	<u>FAC</u>	10. _____	_____	_____
3. <u>SALIX NIGRA</u>	<u>H</u>	<u>FACW</u>	11. _____	_____	_____
4. _____	_____	_____	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

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

Remarks:  
DOMINANT CATTAIL FEW YOUNG HERBACEOUS SAPLINGS WILLOW & COTTONWOOD, WETLAND VEGETATION

HYDROLOGY

<p>Recorded Data (Describe in Remarks):</p> <p><input type="checkbox"/> Stream, Lake, or Tide Gauge</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input type="checkbox"/> No Recorded Data Available</p> <hr/> <p>Field Observations:</p> <p>Depth of Surface Water: <u>0-10</u> (in.)</p> <p>Depth to Free Water in Pit: <u>0-5</u> (in.)</p> <p>Depth to Saturated Soil: <u>0-2</u> (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p><input checked="" type="checkbox"/> Inundated IN PLACES</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 inches</p> <p><input type="checkbox"/> Water Marks</p> <p><input type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 inches</p> <p><input type="checkbox"/> Water-Stained Leaves</p> <p><input checked="" type="checkbox"/> Local Soil Survey Data</p> <p><input checked="" type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
<p>Remarks: <u>WETLAND HYDROLOGY SUPPLIED TO PERIMETER WETLAND BY CONSTRUCTED CENTRAL FARM POND</u></p>	

## SOILS

Map Unit Name (Series and Phase): CT - CLERMONT SILT LOAM Drainage Class: POOR

Taxonomy (Subgroup): TYPIC OCURAQUALFS Field Observations: Confirm Mapped Type? (Yes) No

**Profile Description:**

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-6	A	10YR5/2	7.5YR5/6	COMMON DISTINCT	SILT LOAM
6-18	B	2.5Y5/1	—	—	SILTY CLAY LOAM

**Hydric Soil Indicators:**

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

Remarks: HYDRIC SOIL AS MAPPED

## WETLAND DETERMINATION

WETLAND DETERMINATION		
Hydrophytic Vegetation Present?	<input checked="" type="radio"/> Yes	No (Circle)
Wetland Hydrology Present?	<input checked="" type="radio"/> Yes	No
Hydric Soils Present?	<input checked="" type="radio"/> Yes	No
Is this Sampling Point Within a Wetland?		<input checked="" type="radio"/> Yes No
Remarks: EMERGENT STRIP OF WETLAND SURROUNDING FARM POND		

Approved by HQUSACE 3/92

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

Project/Site: <u>HILLCREST - EASTWOOD</u> Applicant/Owner: <u>C/ENERGY</u> Investigator: <u>STEVE LANE (UCS)</u>	Date: <u>09/28/04</u> County: <u>CLERMONT</u> State: <u>OH</u>
Do Normal Circumstances exist on the site? <span style="float: right;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span> Is the site significantly disturbed (Atypical Situation)? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> Is the area a potential Problem Area? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: <u>UPI</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>POA PRATENSIS</u>	<u>H</u>	<u>FACU</u>	9. _____	_____	_____
2. <u>POPULUS DELTOIDES</u>	<u>H</u>	<u>FAC</u>	10. _____	_____	_____
3. <u>PLANTAGO MAJOR</u>	<u>H</u>	<u>FACU</u>	11. _____	_____	_____
4. <u>SOLIDAGO CANADENSIS</u>	<u>H</u>	<u>FACU</u>	12. _____	_____	_____
5. <u>BRASSICA RAPA</u>	<u>H</u>	<u>NI</u>	13. _____	_____	_____
6. <u>CERASTIUM ARVENSE</u>	<u>H</u>	<u>UPL</u>	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): <10%

Remarks:  
UPLAND MOWED VEGETATION

HYDROLOGY

<p>Recorded Data (Describes in Remarks):</p> <p>___ Stream, Lake, or Tide Gauge</p> <p>___ Aerial Photographs</p> <p>___ Other</p> <p>___ No Recorded Data Available</p> <hr/> <p>Field Observations:</p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;18</u> (in.)</p> <p>Depth to Saturated Soil: <u>&gt;18</u> (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p>___ Inundated</p> <p>___ Saturated in Upper 12 inches</p> <p>___ Water Marks</p> <p>___ Drift Lines</p> <p>___ Sediment Deposits</p> <p>___ Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p>___ Oxidized Root Channels in Upper 12 inches</p> <p>___ Water-Stained Leaves</p> <p><input checked="" type="checkbox"/> Local Soil Survey Data</p> <p>___ FAC-Neutral Test</p> <p>___ Other (Explain in Remarks)</p>
<p>Remarks: <u>UPLAND HYDROLOGY ONLY 1 SECONDARY INDICATOR</u></p>	

UPI

# SOILS

Map Unit Name (Series and Phase):		CL - CLERMONT SILT LOAM		Drainage Class:	POOR
Taxonomy (Subgroup):		TYPIC OCHRAQUALS		Field Observations	Confirm Mapped Type? Yes No

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-10	A	10YR5/2	7.5YR5/4	FEW/FANT	SILT LOAM
10-18	B	10YR5/1	7.5YR5/6	COMMON/DISTINCT	SILT LOAM

Hydric Soil Indicators:

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

Remarks: HYDRIC SOIL

## WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes (No) (Circle)	Is this Sampling Point Within a Wetland? Yes (No) (Circle)
Wetland Hydrology Present?	Yes (No) (Circle)	
Hydric Soils Present?	Yes (No) (Circle)	

Remarks: UPLAND PLOT WITH HYDRIC SOIL

Approved by HQUSACE 3/92

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

Project/Site: <u>HILLCREST - EASTWOOD</u> Applicant/Owner: <u>CINERGY</u> Investigator: <u>STEVE LANE (URS)</u>	Date: <u>09/28/04</u> County: <u>CLERMONT &amp; BROWN</u> State: <u>OH</u>				
Do Normal Circumstances exist on the site? Is the site significantly disturbed (Atypical Situation)? Is the area a potential Problem Area? (If needed, explain on reverse.)	<table border="0" style="width: 100%;"> <tr> <td style="text-align: center;">Yes <input checked="" type="radio"/> No <input type="radio"/></td> <td rowspan="3" style="vertical-align: middle; padding-left: 10px;">         Community ID: <u>PCW/PSS/PFO</u>          Transect ID: _____          Plot ID: <u>W2</u> </td> </tr> <tr> <td style="text-align: center;">Yes <input type="radio"/> No <input checked="" type="radio"/></td> </tr> <tr> <td style="text-align: center;">Yes <input type="radio"/> No <input type="radio"/></td> </tr> </table>	Yes <input checked="" type="radio"/> No <input type="radio"/>	Community ID: <u>PCW/PSS/PFO</u> Transect ID: _____ Plot ID: <u>W2</u>	Yes <input type="radio"/> No <input checked="" type="radio"/>	Yes <input type="radio"/> No <input type="radio"/>
Yes <input checked="" type="radio"/> No <input type="radio"/>	Community ID: <u>PCW/PSS/PFO</u> Transect ID: _____ Plot ID: <u>W2</u>				
Yes <input type="radio"/> No <input checked="" type="radio"/>					
Yes <input type="radio"/> No <input type="radio"/>					

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>TYPHIA AUGUSTIFOLIA</u>	<u>H</u>	<u>OBL</u>	9. <u>EUPATORIUM PERFOOLIATUM</u>	<u>H</u>	<u>FACWt</u>
2. <u>LEERSIA VIRGINICA</u>	<u>H</u>	<u>FACW</u>	10. _____	_____	_____
3. <u>ULMUS RUBRA</u>	<u>T/S</u>	<u>FAC</u>	11. _____	_____	_____
4. <u>ACER RUBRUM</u>	<u>T/S</u>	<u>FACWt</u>	12. _____	_____	_____
5. <u>CAREX SPP.</u>	<u>H</u>	<u>FAC-OBL</u>	13. _____	_____	_____
6. <u>IMPATIENS CAPENSIS</u>	<u>H</u>	<u>FACW</u>	14. _____	_____	_____
7. <u>VERBENA HASTATA</u>	<u>H</u>	<u>FACWt</u>	15. _____	_____	_____
8. <u>RUALAIS ARUNDINACEA</u>	<u>H</u>	<u>FACWt</u>	16. _____	_____	_____

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

Remarks: wetland vegetation

HYDROLOGY

<p>Recorded Data (Describe in Remarks):</p> <p>Stream, Lake, or Tide Gauge _____</p> <p>Aerial Photographs _____</p> <p>Other _____</p> <p>No Recorded Data Available _____</p> <p>Field Observations:</p> <p>Depth of Surface Water: <u>&gt;18</u> (in.)</p> <p>Depth to Free Water in Pit: <u>10-18</u> (in.)</p> <p>Depth to Saturated Soil: <u>6-12</u> (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p>Inundated _____</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 Inches</p> <p>Water Marks _____</p> <p>Drift Lines _____</p> <p><input checked="" type="checkbox"/> Sediment Deposits</p> <p><input checked="" type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water-Stained Leaves</p> <p><input checked="" type="checkbox"/> Local Soil Survey Data</p> <p><input checked="" type="checkbox"/> FAC-Neutral Test</p> <p>Other (Explain in Remarks) _____</p>
Remarks: <u>WETLAND HYDROLOGY</u>	

W2

# SOILS

Map Unit Name (Series and Phase):		BC - BLANCHESTER SILT LOAM		Drainage Class:	POOR
Taxonomy (Subgroup):		TYPIC OCHRAQUALES		Field Observations Confirm Mapped Type?	Yes No
Profile Description:					
Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-10	A	10YR4/2	7.5YR5/5	COMMON/DISTINCT	SILTY CLAY LOAM
10-18	B	10YR4/1			CLAY LOAM
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input checked="" type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors			<input type="checkbox"/> Concretions <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input checked="" type="checkbox"/> Listed on Local Hydric Soils List <input checked="" type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks)		
Remarks: HYDRIC SOILS AS MAPPED					

## WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="radio"/> Yes <input type="radio"/> No (Circle)	Is this Sampling Point Within a Wetland?	<input checked="" type="radio"/> Yes <input type="radio"/> No
Wetland Hydrology Present?	<input checked="" type="radio"/> Yes <input type="radio"/> No		<input checked="" type="radio"/> Yes <input type="radio"/> No
Hydric Soils Present?	<input checked="" type="radio"/> Yes <input type="radio"/> No		<input checked="" type="radio"/> Yes <input type="radio"/> No
Remarks: WETLAND AREA ALONG DRAINAGE PATHWAY SOUTH AND ADJACENT TO RAIL LINE			

Approved by HQUSACE 3/92

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

Project/Site: <u>HILLCREST-EASTWOOD</u> Applicant/Owner: <u>CINERGY</u> Investigator: <u>STEVE LANE (URS)</u>	Date: <u>04/28/04</u> County: <u>CLERMONT &amp; BROWN</u> State: <u>OH</u>
Do Normal Circumstances exist on the site? <span style="margin-left: 20px;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span> Is the site significantly disturbed (Atypical Situation)? <span style="margin-left: 20px;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> Is the area a potential Problem Area? <span style="margin-left: 20px;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: <u>UP2</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>LONICERA MAACKI</u>	<u>S</u>	<u>NI</u>	9. <u>SOLIDAGO CANADENSIS</u>	<u>H</u>	<u>FACU</u>
2. <u>DIPSACUS SYLVESTRIS</u>	<u>H</u>	<u>NI</u>	10. <u>LONICERA JAPONICA</u>	<u>H</u>	<u>FAC-</u>
3. <u>PLANTAGO MAJOR</u>	<u>H</u>	<u>FACU</u>	11. _____	_____	_____
4. <u>PLANTAGO LANCEOLATA</u>	<u>H</u>	<u>UPL</u>	12. _____	_____	_____
5. <u>ULMUS RUBRA</u>	<u>TK</u>	<u>FAC</u>	13. _____	_____	_____
6. <u>CIRSILUM ARVENSE</u>	<u>H</u>	<u>FACU</u>	14. _____	_____	_____
7. <u>CERTIS OCCIDENTALIS</u>	<u>T/S</u>	<u>FACU</u>	15. _____	_____	_____
8. <u>AMBROSIA TRIFIDA</u>	<u>H</u>	<u>FAC</u>	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC): < 10%

Remarks: UPLAND VEGETATION

HYDROLOGY

<p>Recorded Data (Describe in Remarks):</p> <p><input type="checkbox"/> Stream, Lake, or Tide Gauge</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input type="checkbox"/> No Recorded Data Available</p> <hr/> <p>Field Observations:</p> <p>Depth of Surface Water: <u>&gt;18</u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;18</u> (in.)</p> <p>Depth to Saturated Soil: <u>&gt;18</u> (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p><input type="checkbox"/> Inundated</p> <p><input type="checkbox"/> Saturated in Upper 12 Inches</p> <p><input type="checkbox"/> Water Marks</p> <p><input type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p><input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p><input type="checkbox"/> Water-Stained Leaves</p> <p><input checked="" type="checkbox"/> Local Soil Survey Data</p> <p><input type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
<p>Remarks: <u>UPLAND HYDROLOGY ONLY 1 SECONDARY INDICATOR</u></p>	



UP2

## SOILS

Map Unit Name (Series and Phase):		BC-BLANCHESIER SILT LOAM		Drainage Class:	POOR
Taxonomy (Subgroup):		TYPIC OCTHAQUALFS		Field Observations	
				Confirm Mapped Type?	Yes <input checked="" type="radio"/> No <input type="radio"/>

Profile Description:					
Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-8	A	10YR4/2	7.5YR4/4	FEW/FAINT	SILT LOAM
8-18	B	10YR4/2	7.5YR4/5	COMMON/FAINT	SILT LOAM

Hydric Soil Indicators:

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

HYDRIC SOIL AS MAPPED

## WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> (Circle) Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soils Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is this Sampling Point Within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/> (Circle)
Remarks:  <p style="text-align: center;">UPLAND PLOT WITH HYDRIC SOILS</p>	

Approved by HQUSACE 3/92

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

Project/Site: <u>HILLCREST - EASTWOOD</u>	Date: <u>09/28/04</u>
Applicant/Owner: <u>CINERGY</u>	County: <u>BROWN</u>
Investigator: <u>SRL (URS)</u>	State: <u>OH</u>
Do Normal Circumstances exist on the site? <span style="float: right;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span>	Community ID: <u>PEM</u>
Is the site significantly disturbed (Atypical Situation)? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span>	Transect ID: <u>      </u>
Is the area a potential Problem Area? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span>	Plot ID: <u>W3A, B, C, D</u>
(If needed, explain on reverse.)	

WETLAND COMPLEX 3

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>PHALARIS ARUNDINACEA</u>	<u>H</u>	<u>FACW+</u>	9. <u>POLYGONUM</u>		
2. <u>LEERSIA VIRGINICA</u>	<u>H</u>	<u>FACW</u>	10. <u>PENSYLVANICUM</u>	<u>H</u>	<u>FACW</u>
3. <u>JUNCUS EFFUSUS</u>	<u>H</u>	<u>FACW+</u>	11. <u>      </u>		
4. <u>JUNCUS TENUIS</u>	<u>H</u>	<u>FAC-</u>	12. <u>      </u>		
5. <u>XANTHIUM STRUMARIUM</u>	<u>H</u>	<u>FAC</u>	13. <u>      </u>		
6. <u>DICANTHELLUM</u>			14. <u>      </u>		
7. <u>CLANDESTINIUM</u>	<u>H</u>	<u>FAC+</u>	15. <u>      </u>		
8. <u>VERNONIA GIGANTEA</u>	<u>H</u>	<u>FAC</u>	16. <u>      </u>		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): ~95%

Remarks:  
WETLAND VEGETATION, LARGELY CONFINED TO DRAINAGEWAY, ALONG RAILWAY (EXCEPTION PART OF W3C)

HYDROLOGY

<p>Recorded Data (Describe in Remarks):</p> <p><input type="checkbox"/> Stream, Lake, or Tide Gauges</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input type="checkbox"/> No Recorded Data Available</p> <hr/> <p>Field Observations:</p> <p>Depth of Surface Water: <u>      </u> (in.)</p> <p>Depth to Free Water in Pit: <u>8-18</u> (in.)</p> <p>Depth to Saturated Soil: <u>0</u> (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p><input type="checkbox"/> Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 Inches</p> <p><input type="checkbox"/> Water Marks</p> <p><input type="checkbox"/> Drift Lines</p> <p><input checked="" type="checkbox"/> Sediment Deposits <u>IN PLACES</u></p> <p><input checked="" type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water-Stained Leaves</p> <p><input checked="" type="checkbox"/> Local Soil Survey Data</p> <p><input checked="" type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
<p>Remarks: <u>WETLAND HYDROLOGY</u></p>	

## SOILS

## WETLAND DETERMINATION

Approved by HQUSACE 3/92

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

Project/Site: <u>HILLCREST-EASTWOOD</u>	Date: <u>09/18/04</u>
Applicant/Owner: <u>CINERGY</u>	County: <u>BROWN</u>
Investigator: <u>STEVE LANE (VCS)</u>	State: <u>OH</u>
Do Normal Circumstances exist on the site? <span style="float: right;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span>	Community ID: <u>  </u>
Is the site significantly disturbed (Atypical Situation)? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span>	Transect ID: <u>  </u>
Is the area a potential Problem Area? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span>	Plot ID: <u>DP3</u>
(If needed, explain on reverse.)	

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>GLYCINE MAX</u>	<u>H</u>	<u>NI</u>	9. <u>DIKANTHELIUM</u>		
2. <u>LONCERA MAACKI</u>	<u>S</u>	<u>NI</u>	10. <u>CLAUDESTINUM</u>	<u>H</u>	<u>FAC+</u>
3. <u>ROSA MULTIFLORA</u>	<u>W/S</u>	<u>FACU</u>	11. <u>  </u>		
4. <u>TOXICODENDRON</u>			12. <u>  </u>		
5. <u>RADICANS</u>	<u>W/S</u>	<u>FAC</u>	13. <u>  </u>		
6. <u>SOLIDAGO</u>			14. <u>  </u>		
7. <u>CANADENSIS</u>	<u>H</u>	<u>FACU</u>	15. <u>  </u>		
8. <u>DIPSACUS SYLVESTRIS</u>	<u>H</u>	<u>NI</u>	16. <u>  </u>		
Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): <u>20%</u>					
Remarks: <u>MOSTLY BORDERED BY SOYBEAN FIELDS OR AMUR HONEYSUCKLE</u>					

HYDROLOGY

<p>Recorded Data (Describe in Remarks):</p> <p><input type="checkbox"/> Stream, Lake, or Tide Gauge</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input type="checkbox"/> No Recorded Data Available</p> <hr/> <p>Field Observations:</p> <p>Depth of Surface Water: <u>  </u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;18</u> (in.)</p> <p>Depth to Saturated Soil: <u>&gt;18</u> (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p><input type="checkbox"/> Inundated</p> <p><input type="checkbox"/> Saturated in Upper 12 Inches</p> <p><input type="checkbox"/> Water Marks</p> <p><input type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p><input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p><input type="checkbox"/> Water-Stained Leaves</p> <p><input checked="" type="checkbox"/> Local Soil Survey Data</p> <p><input type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
<p>Remarks:</p> <p><u>UPLAND HYDROLOGY ONLY MAPPED HYDRIC SOILS AS 1 SECONDARY INDICATOR</u></p>	

## SOILS

Map Unit Name  
(Series and Phase): CE - CLERMONT SILT LOAM

Drainage Class: POOR

Taxonomy (Subgroup): Typic Glossaqualfs

Field Observations  
Confirm Mapped Type? Yes No

**Profile Description:**

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-6	A	2.5Y5/2	7.5YR5/4	com/015/INCL	SILT LOAM -
6-18	B	2.5Y6/2	7.5YR5/6	com/015/INCL	SILTY CLAY LOAM

**Hydric Soil Indicators:**

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

Remarks: HYDRIC SOIL AS MAPPED

## WETLAND DETERMINATION

WETLAND DETERMINATION		
Hydrophytic Vegetation Present?	Yes <input checked="" type="radio"/> (Circle)	(Circle)
Wetland Hydrology Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>	
Hydric Soils Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>	
Is this Sampling Point Within a Wetland?		Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: upland plot with hydric soil		

Approved by HQUSACE 3/92

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

Project/Site: <u>Millcrest - Eastwood</u> Applicant/Owner: <u>Cinergy</u> Investigator: <u>Steve Kane (URS)</u>	Date: <u>09/28/04</u> County: <u>Brown</u> State: <u>OH</u>
Do Normal Circumstances exist on the site? <span style="float: right;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span> Is the site significantly disturbed (Atypical Situation)? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> Is the area a potential Problem Area? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> (If needed, explain on reverse.)	Community ID: <u>PRO/PSS/PEN</u> Transect ID: _____ Plot ID: <u>WHA, B, C</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Phalaris arundinacea</u>	<u>H</u>	<u>FACW+</u>	9. _____	_____	_____
2. <u>Dichanthium clandestinum</u>	<u>H</u>	<u>FAC+</u>	10. _____	_____	_____
3. <u>CAREX SPP.</u>	<u>H</u>	<u>FAC-OBL</u>	11. _____	_____	_____
4. <u>IMPATIENS CAPENSIS</u>	<u>H</u>	<u>FACW</u>	12. _____	_____	_____
5. <u>VERONICA GIGANTEA</u>	<u>H</u>	<u>FAC</u>	13. _____	_____	_____
6. <u>ACER RUBRUM</u>	<u>T/S</u>	<u>FACW+</u>	14. _____	_____	_____
7. <u>Fraxinus pennsylvanica</u>	<u>T/S</u>	<u>FACW</u>	15. _____	_____	_____
8. <u>Populus deltoides</u>	<u>T/S</u>	<u>FAC</u>	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC+): > 90%

Remarks: wetland vegetation

HYDROLOGY

<p>___ Recorded Data (Describe in Remarks):          ___ Stream, Lake, or Tide Gauge          ___ Aerial Photographs          ___ Other          ___ No Recorded Data Available</p> <p>Field Observations:</p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: <u>718</u> (in.)</p> <p>Depth to Saturated Soil: <u>0-6</u> (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p>___ Inundated  <input checked="" type="checkbox"/> Saturated in Upper 12 Inches          ___ Water Marks          ___ Drift Lines          ___ Sediment Deposits  <input checked="" type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p>___ Oxidized Root Channels in Upper 12 Inches          ___ Water-Stained Leaves  <input checked="" type="checkbox"/> Local Soil Survey Data (G)  <input checked="" type="checkbox"/> FAC-Neutral Test          ___ Other (Explain in Remarks)</p>
Remarks: <u>wetland hydrology</u>	

W4A;B, & C

# SOILS

Map Unit Name		Ct - Clermont Silt Loam		Ct - Pool	
(Series and Phase):		AvA - Avonburg Silt Loam, 0-2% slope		Drainage Class: AvA - somewhat poor	
Taxonomy (Subgroup):		AvA - Aric fragiaqualis		Field Observations	
				Confirm Mapped Type? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Profile Description:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-7	A	2.5Y4/1	10YR4/4	CM/DISTINCT	SILTY CLAY LOAM
7-18	B	2.5Y6/2	10YR5/6	CM/DISTINCT	SILTY CLAY LOAM
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors			<input type="checkbox"/> Concretions <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input checked="" type="checkbox"/> Listed on Local Hydric Soils List <input checked="" type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks)		
Remarks:					
HYDRIC SOIL AS MAPPED (CT). Soil profile most closely reflects Ct soil type with AvA incursions.					

## WETLAND DETERMINATION

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

Approved by HQUSACE 3/82

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

Project/Site: <u>Hillcrest - Eastwood</u> Applicant/Owner: <u>Cinergy</u> Investigator: <u>Steve Lane (URS)</u>	Date: <u>04/23/04</u> County: <u>Brown</u> State: <u>OH</u>
Do Normal Circumstances exist on the site? <span style="float: right;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span> Is the site significantly disturbed (Atypical Situation)? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> Is the area a potential Problem Area? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> (If needed, explain on reverse.)	Community ID: <u>      </u> Transect ID: <u>      </u> Plot ID: <u>UP4</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Acer rubrum</u>	<u>T/S</u>	<u>FACW+</u>	9. <u>      </u>	<u>      </u>	<u>      </u>
2. <u>Solidago canadensis</u>	<u>H</u>	<u>FACU</u>	10. <u>      </u>	<u>      </u>	<u>      </u>
3. <u>Rubus allegheniensis</u>	<u>S</u>	<u>FACU</u>	11. <u>      </u>	<u>      </u>	<u>      </u>
4. <u>Urtica riparia</u>	<u>S</u>	<u>FACW</u>	12. <u>      </u>	<u>      </u>	<u>      </u>
5. <u>Urtica aestivalis</u>	<u>S</u>	<u>FACU</u>	13. <u>      </u>	<u>      </u>	<u>      </u>
6. <u>Celtis occidentalis</u>	<u>T/S</u>	<u>FACU</u>	14. <u>      </u>	<u>      </u>	<u>      </u>
7. <u>Tonicodendron radicans</u>	<u>H</u>	<u>FAC</u>	15. <u>      </u>	<u>      </u>	<u>      </u>
8. <u>      </u>	<u>      </u>	<u>      </u>	16. <u>      </u>	<u>      </u>	<u>      </u>

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 230%

Remarks: UPLAND VEGETATION

HYDROLOGY

<p><u>      </u> Recorded Data (Describe in Remarks):</p> <p style="margin-left: 20px;"><u>      </u> Stream, Lake, or Tide Gauge</p> <p style="margin-left: 20px;"><u>      </u> Aerial Photographs</p> <p style="margin-left: 20px;"><u>      </u> Other</p> <p><u>      </u> No Recorded Data Available</p> <hr/> <p>Field Observations:</p> <p>Depth of Surface Water: <u>      </u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;18</u> (in.)</p> <p>Depth to Saturated Soil: <u>&gt;18</u> (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p><u>      </u> Inundated</p> <p><u>      </u> Saturated in Upper 12 Inches</p> <p><u>      </u> Water Marks</p> <p><u>      </u> Drift Lines</p> <p><u>      </u> Sediment Deposits</p> <p><u>      </u> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p><u>      </u> Oxidized Root Channels in Upper 12 Inches</p> <p><u>      </u> Water-Soaked Leaves</p> <p><u>X</u> Local Soil Survey Data (C+)</p> <p><u>      </u> FAC-Neutral Test</p> <p><u>      </u> Other (Explain in Remarks)</p>
<p>Remarks: <u>UPLAND HYDROLOGY (ONLY 1 SECONDARY INDICATOR)</u></p>	



UP 4

# SOILS

Map Unit Name: <u>Cl-Clermont Silt Loam</u>		Cl-PoA	
(Series and Phase): <u>AVA-Avonburg Silt Loam 0-2% slope</u>		Drainage Class: <u>AVA-Somewhat poor</u>	
Taxonomy (Subgroup): <u>AVA-Aeric Fragiaqualfs</u>		Field Observations: <u>GENERAL</u>	
Confirm Mapped Type? <u>(Yes) No</u>			

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-10	A	2.5Y4/2	10YR4/4	FEW/FAINT	SILT LOAM
10-18	B	2.5Y5/2	10YR5/6	FEW/FAINT	SILT LOAM

Hydric Soil Indicators:

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

Remarks:

HYDRIC SOIL AS MAPPED. Soil profile most closely reflects Cl soil type with AVA inclusions.

## WETLAND DETERMINATION

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

Remarks:

UPLAND PLOT WITH HYDRIC SOILS

Approved by HQUSACE 3/92

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

Project/Site: <u>Hillcrest - Eastwood</u> Applicant/Owner: <u>Cinergy</u> Investigator: <u>Steve Lake (VRS)</u>	Date: <u>9/28/04</u> County: <u>Brown</u> State: <u>OH</u>
Do Normal Circumstances exist on the site? <span style="float: right;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span> Is the site significantly disturbed (Atypical Situation)? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> Is the area a potential Problem Area? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> (If needed, explain on reverse.)	Community ID: <u>PD/SS/PCM</u> Transect ID: <u>—</u> Plot ID: <u>WS</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>PHALARIS ACUTINACEA</u>	<u>H</u>	<u>FACW+</u>	9. <u>TOXICODENDRON RADICIS</u>	<u>H</u>	<u>FAC</u>
2. <u>Dichanthelium clandestinum</u>	<u>H</u>	<u>FAC+</u>	10. <u>—</u>	<u>—</u>	<u>—</u>
3. <u>Fraxinus pennsylvanica</u>	<u>T</u>	<u>FACW</u>	11. <u>—</u>	<u>—</u>	<u>—</u>
4. <u>ACER RUBRUM</u>	<u>TS</u>	<u>FACW+</u>	12. <u>—</u>	<u>—</u>	<u>—</u>
5. <u>Populus Deltoidea</u>	<u>TS</u>	<u>FAC</u>	13. <u>—</u>	<u>—</u>	<u>—</u>
6. <u>VERNONIA GIGANTEA</u>	<u>H</u>	<u>FACU</u>	14. <u>—</u>	<u>—</u>	<u>—</u>
7. <u>Eupatorium maculatum</u>	<u>H</u>	<u>FACW</u>	15. <u>—</u>	<u>—</u>	<u>—</u>
8. <u>EUPATORIUM PERFORIATUM</u>	<u>H</u>	<u>FACW+</u>	16. <u>—</u>	<u>—</u>	<u>—</u>

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): >90%

Remarks: wetland vegetation

HYDROLOGY

<p>Recorded Data (Describe in Remarks):</p> <p><input type="checkbox"/> Stream, Lake, or Tide Gauge</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input type="checkbox"/> No Recorded Data Available</p> <hr/> <p>Field Observations:</p> <p>Depth of Surface Water: <u>—</u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;18</u> (in.)</p> <p>Depth to Saturated Soil: <u>0-12</u> (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p><input type="checkbox"/> Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 Inches</p> <p><input type="checkbox"/> Water Marks</p> <p><input type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input checked="" type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water-Stained Leaves</p> <p><input checked="" type="checkbox"/> Local Soil Survey Data</p> <p><input checked="" type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
<p>Remarks: <u>wetland hydrology</u></p>	

W5

SOILS

Map Unit Name: <u>AwB2 - Avonburg-Atlas complex, 2-6% slope</u>		AwB2 - Somewhat poor	
(Series and Phase): <u>Et - clermont silt loam</u>		Drainage Class: <u>Et - Poor</u>	
Taxonomy (Subgroup): <u>AwB2 - Aeric Fragiaqualfs</u>		Field Observations	
<u>Et - Typic Glosaqualfs</u>		Confirm Mapped Type? <u>Yes</u> No	

Profile Description:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-6	A	2.5Y4/1	10YR4/4	CM/DISTINCT	SILTY CLAY LOAM
6-14	B	10YR5/2	7.5YR5/6	CM/DISTINCT	SILTY CLAY LOAM

Hydric Soil Indicators:

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

WETLAND DETERMINATION

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

Approved by HQUSACE 3/92

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

Project/Site: <u>Hillcrest - Eastwood</u> Applicant/Owner: <u>Cinergy</u> Investigator: <u>Steve Love (URS)</u>	Date: <u>9/28/04</u> County: <u>Brown</u> State: <u>OH</u>
Do Normal Circumstances exist on the site? <span style="float: right;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span> Is the site significantly disturbed (Atypical Situation)? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> Is the area a potential Problem Area? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: <u>UPS</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>DIPSACUS SYLVESTRIS</u>	<u>H</u>	<u>NI</u>	9. _____	_____	_____
2. <u>Elaeagnus species</u>	<u>S</u>	<u>FACU</u>	10. _____	_____	_____
3. <u>SOLIDAGO CANADENSIS</u>	<u>H</u>	<u>FACU</u>	11. _____	_____	_____
4. <u>PLATAGO MAJOR</u>	<u>H</u>	<u>FACU</u>	12. _____	_____	_____
5. <u>PLATAGO LANCEOLATA</u>	<u>H</u>	<u>UPL</u>	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-I): 15%

Remarks: UPLAND PLOT

**HYDROLOGY**

<p>Recorded Data (Describe in Remarks):</p> <p>___ Stream, Lake, or Tide Gauges</p> <p>___ Aerial Photographs</p> <p>___ Other</p> <p>___ No Recorded Data Available</p> <p>Field Observations:</p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: <u>218</u> (in.)</p> <p>Depth to Saturated Soil: <u>218</u> (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p>___ Inundated</p> <p>___ Saturated in Upper 12 Inches</p> <p>___ Water Marks</p> <p>___ Drift Lines</p> <p>___ Sediment Deposits</p> <p>___ Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p>___ Oxidized Root Channels in Upper 12 Inches</p> <p>___ Water-Stained Leaves</p> <p><input checked="" type="checkbox"/> Local Soil Survey Data</p> <p>___ FAC-Neutral Test</p> <p>___ Other (Explain in Remarks)</p>
Remarks: <u>UPLAND HYDROLOGY (ONLY 1 SECONDARY INDICATOR)</u>	

## SOILS

## WETLAND DETERMINATION

WETLAND DETERMINATION			
Hydrophytic Vegetation Present?	Yes <input checked="" type="radio"/> No <input type="radio"/> (Circle)	(Circle)	
Wetland Hydrology Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>		
Hydric Soils Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>	Is this Sampling Point Within a Wetland?	Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: UPLAND PLOT WITH HYDRIC SOILS			

Approved by HQUSACE 3/92

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

Project/Site: <u>Hillcrest - Eastwood</u> Applicant/Owner: <u>Cinergy</u> Investigator: <u>Steve Lane (URS)</u>	Date: <u>9/28/04</u> County: <u>Brown</u> State: <u>OH</u>
Do Normal Circumstances exist on the site? <span style="float: right;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span> Is the site significantly disturbed (Atypical Situation)? <span style="float: right;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span> Is the area a potential Problem Area? <span style="float: right;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span> (If needed, explain on reverse.)	Community ID: <u>PCW</u> Transect ID: <u>—</u> Plot ID: <u>W6</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>SCIRPUS CUPERINUS</u>	<u>H</u>	<u>FACW+</u>	9. _____	_____	_____
2. <u>PHALARIS ARUNDINACEA</u>	<u>H</u>	<u>FACW+</u>	10. _____	_____	_____
3. <u>CAREX</u> spp.	<u>H</u>	<u>FAC-OBL</u>	11. _____	_____	_____
4. <u>JUNCUS EFFUSUS</u>	<u>H</u>	<u>FACW+</u>	12. _____	_____	_____
5. <u>JUNCUS tenuis</u>	<u>H</u>	<u>FAC-</u>	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): >90%

Remarks: WETLAND VEGETATION

HYDROLOGY

<p>Recorded Date (Describe in Remarks):          _____ Stream, Lake, or Tide Gauge          _____ Aerial Photographs          _____ Other          _____ No Recorded Date Available</p> <p>Field Observations:</p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;18</u> (in.)</p> <p>Depth to Saturated Soil: <u>6</u> (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p><input type="checkbox"/> Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 Inches</p> <p><input type="checkbox"/> Water Marks</p> <p><input type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input checked="" type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p><input type="checkbox"/> Water-Stained Leaves</p> <p><input type="checkbox"/> Local Soil Survey Data</p> <p><input checked="" type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
Remarks: <u>WETLAND HYDROLOGY</u>	

## SOILS

Map Unit Name  
(Series and Phase): Ct - clermont SILT LOAM

Drainage Class: POOR

Taxonomy (Subgroup): Typic Glossaqualfs

Field Observations  
Confirm Mapped Type? Yes No

GENERALLY

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-4	A	2.5Y4/1	7.5YR5/4	FGW/DISTINCT	SILTY CLAY LOAM
4-10	B	2.5Y4/2	7.5YR5/8	CM/DISTINCT	SILTY CLAY LOAM

Hydric Soil Indicators:

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

Remarks:

HYDRIC SOIL AS MAPPED

## WETLAND DETERMINATION

WETLAND DETERMINATION		(Circle)	
Hydrophytic Vegetation Present?	<u>Yes</u> No (Circle)		
Wetland Hydrology Present?	<u>Yes</u> No		
Hydric Soils Present?	<u>Yes</u> No	Is this Sampling Point Within a Wetland?	<u>Yes</u> No
Remarks: WETLAND AREA			

Approved by HQUSACE 3/92

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

Project/Site: <u>Hillcrest - EAST WOOD</u> Applicant/Owner: <u>CINERCHY</u> Investigator: <u>Steve Lane (URS)</u>	Date: <u>9/28/04</u> County: <u>Blount</u> State: <u>OH</u>		
Do Normal Circumstances exist on the site? Is the site significantly disturbed (Atypical Situation)? Is the area a potential Problem Area? (If needed, explain on reverse.)	<table style="width: 100%;"> <tr> <td style="text-align: center;"> <input checked="" type="radio"/> Yes   <input type="radio"/> No  <input type="radio"/> Yes   <input checked="" type="radio"/> No  <input type="radio"/> Yes   <input checked="" type="radio"/> No         </td> <td style="vertical-align: top;">           Community ID: _____            Transect ID: _____            Plot ID: <u>VP6</u> </td> </tr> </table>	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Yes <input checked="" type="radio"/> No	Community ID: _____ Transect ID: _____ Plot ID: <u>VP6</u>
<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Yes <input checked="" type="radio"/> No	Community ID: _____ Transect ID: _____ Plot ID: <u>VP6</u>		

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>GLYCINE MAX</u>	<u>H</u>	<u>N1</u>	9. _____		
2. <u>JUNUS TENNIS</u>	<u>H</u>	<u>FAC-</u>	10. _____		
3. <u>PLANTAGO MAJOR</u>	<u>H</u>	<u>FACU</u>	11. _____		
4. <u>RUMEX CRISPUS</u>	<u>H</u>	<u>FACU</u>	12. _____		
5. _____			13. _____		
6. _____			14. _____		
7. _____			15. _____		
8. _____			16. _____		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): < 20%

Remarks: MOSTLY UPLAND VEGETATION DOMINATED BY SOYBEANS AT PLOT LOCATION

**HYDROLOGY**

<p>Recorded Data (Describe in Remarks):</p> <p> <input type="checkbox"/> Stream, Lake, or Tide Gauge  <input type="checkbox"/> Aerial Photographs  <input type="checkbox"/> Other  <input type="checkbox"/> No Recorded Data Available         </p> <hr/> <p>Field Observations:</p> <p>           Depth of Surface Water: _____ (in.)            Depth to Free Water in Pit: <u>&gt; 18</u> (in.)            Depth to Saturated Soil: <u>&gt; 18</u> (in.)         </p>	<p>Wetland Hydrology Indicators:</p> <p><b>Primary Indicators:</b></p> <p> <input type="checkbox"/> Inundated  <input type="checkbox"/> Saturated in Upper 12 Inches  <input type="checkbox"/> Water Marks  <input type="checkbox"/> Drift Lines  <input type="checkbox"/> Sediment Deposits  <input type="checkbox"/> Drainage Patterns in Wetlands         </p> <p><b>Secondary Indicators (2 or more required):</b></p> <p> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches  <input type="checkbox"/> Water-Stained Leaves  <input checked="" type="checkbox"/> Local Soil Survey Data  <input type="checkbox"/> FAC-Neutral Test  <input type="checkbox"/> Other (Explain in Remarks)         </p>
<p>Remarks: <u>UPLAND HYDROLOGY (ONLY 1 SECONDARY INDICATOR)</u></p>	



## SOILS

Map Unit Name  
(Series and Phase): Ct - Clermont SILT LOAM Drainage Class: POOR

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

**Profile Description:**

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-8	A	10YR4/2	10YR4/4	Few/pistachio	SILT LOAM -
8-18	B	10YR4/2	7.5YR4/6	Few/discrete	SILT LOAM

**Hydric Soil Indicators:**

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

Remarks: HYDRIC SOIL AS MAPPED

## WETLAND DETERMINATION

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

Approved by HQUSACE 3192

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

Project/Site: <u>Hillcrest-Eastwood</u> Applicant/Owner: <u>Sinergy</u> Investigator: <u>Steve Lane (URS)</u>	Date: <u>04/23/01</u> County: <u>Brown</u> State: <u>OH</u>
Do Normal Circumstances exist on the site? <span style="float: right;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span> Is the site significantly disturbed (Atypical Situation)? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> Is the area a potential Problem Area? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> (If needed, explain on reverse.)	Community ID: <u>Pen</u> Transect ID: <u>      </u> Plot ID: <u>WT</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>PHALARIS ARUNDINACEA</u>	<u>H</u>	<u>FACW+</u>	9. _____	_____	_____
2. <u>SCIRPUS CYPERINUS</u>	<u>H</u>	<u>FACW+</u>	10. _____	_____	_____
3. <u>JUNCUS EFFUSUS</u>	<u>H</u>	<u>FACW+</u>	11. _____	_____	_____
4. <u>CAREX SPA</u>	<u>H</u>	<u>FAC-OBL</u>	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): >90%

Remarks:  
WETLAND VEGETATION (FEW SPECIES)

**HYDROLOGY**

<p>Recorded Data (Describe in Remarks):</p> <p>___ Stream, Lake, or Tide Gaugs</p> <p>___ Aerial Photographs</p> <p>___ Other</p> <p>___ No Recorded Data Available</p> <p>Field Observations:</p> <p>Depth of Surface Water: <u>      </u> (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;18</u> (in.)</p> <p>Depth to Saturated Soil: <u>10</u> (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p>___ Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 Inches</p> <p>___ Water Marks</p> <p>___ Drift Lines</p> <p>___ Sediment Deposits</p> <p><input checked="" type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p>___ Water-Stained Leaves</p> <p><input checked="" type="checkbox"/> Local Soil Survey Data <u>BC &amp; C+</u></p> <p><input checked="" type="checkbox"/> FAC-Neutral Test</p> <p>___ Other (Explain in Remarks)</p>
Remarks: <u>WETLAND HYDROLOGY</u>	

SOILS

W7

Map Unit Name: <u>CE-Clermont silt LoAM</u>		Drainage Class: <u>ct - poor</u>	
(Series and Phase): <u>BC-Blanchester silt LoAM</u>		Field Observations: <u>BL - poor</u>	
Taxonomy (Subgroup): <u>ct - Typic Glossaqualls</u>		Confirm Mapped Type? <input checked="" type="radio"/> Yes <input type="radio"/> No	
Taxonomy (Subgroup): <u>BC-Typic Ochraqualls</u>			

Profile Description:		Matrix Color	Mottle Colors	Mottle	Texture, Concretions,
Depth	Horizon	(Munsell Moist)	(Munsell Moist)	Abundance/Contrast	Structure, etc.
0-6	A	10YR4/1	10YR4/4	CM/DISTINCT	SILTY CLAY LOAM
6-18	B	10YR4/1	7.5YR4/5	FEW/DISTINCT	SILTY CLAY LOAM

Hydric Soil Indicators:

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

Remarks: HYDRIC SOIL AS MAPPED

WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No (Circle) Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Hydric Soils Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	Is this Sampling Point Within a Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No (Circle)
Remarks: <u>WETLAND IN DRAINAGE ALONG RAIL LINE</u>	

Approved by HQUSACE 3/82

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

Project/Site: <u>Hillcrest - EASTWOOD</u> Applicant/Owner: <u>Cinergy</u> Investigator: <u>Steve Lane (URS)</u>	Date: <u>9/28/04</u> County: <u>BROWN</u> State: <u>OH</u>
Do Normal Circumstances exist on the site? <span style="float: right;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span> Is the site significantly disturbed (Atypical Situation)? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> Is the area a potential Problem Area? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: <u>VP7</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>LONGERA JAPONICA</u>	<u>H</u>	<u>FAC-</u>	9. _____	_____	_____
2. <u>UETIS ACSTIVALIS</u>	<u>S</u>	<u>FACU</u>	10. _____	_____	_____
3. <u>ROSA MULTIFLORA</u>	<u>S</u>	<u>FACU</u>	11. _____	_____	_____
4. <u>Phytolacca sp.</u>	<u>H</u>	<u>FACU</u>	12. _____	_____	_____
5. <u>LONGERA MADAGASCARIENSIS</u>	<u>S</u>	<u>NI</u>	13. _____	_____	_____
6. <u>SOLIDAGO CANADENSIS</u>	<u>H</u>	<u>FACU</u>	14. _____	_____	_____
7. <u>SETARIA GLAUCA</u>	<u>H</u>	<u>FAC</u>	15. _____	_____	_____
8. <u>GLYCINE MAX</u>	<u>H</u>	<u>NI</u>	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): < 10%

Remarks: UPLAND VEGETATION

**HYDROLOGY**

<p>Recorded Data (Describe in Remarks):</p> <p>___ Stream, Lake, or Tide Gauge</p> <p>___ Aerial Photographs</p> <p>___ Other</p> <p>___ No Recorded Data Available</p> <hr/> <p>Field Observations:</p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: <u>&gt; 18</u> (in.)</p> <p>Depth to Saturated Soil: <u>&gt; 18</u> (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p>___ Inundated</p> <p>___ Saturated in Upper 12 Inches</p> <p>___ Water Marks</p> <p>___ Drift Lines</p> <p>___ Sediment Deposits</p> <p>___ Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p>___ Oxidized Root Channels in Upper 12 Inches</p> <p>___ Water-Stained Leaves</p> <p>___ Local Soil Survey Data</p> <p><input checked="" type="checkbox"/> FAC-Neutral Test <u>BC act</u></p> <p>___ Other (Explain in Remarks)</p>
<p>Remarks: <u>UPLAND HYDROLOGY (ONLY 1 SECONDARY INDICATOR)</u></p>	

UP 7

## SOILS

Map Unit Name: <u>ct - Clermont Silt Loam</u>		Drainage Class: <u>ct - Poor</u>			
(Series and Phase): <u>BC - Blanchester Silt Loam</u>		Field Observations: <u>BC - Poor</u>			
Taxonomy (Subgroup): <u>ct - Typic Glossaqualfs</u> <u>BC - Typic Ochraqualfs</u>		Confirm Mapped Type? (Yes) <u>No</u>			
<b>Profile Description:</b>					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-7	A	2.5Y5/2	7.5YR5/5	few/FATWT	SILT LOAM
7-18	B	2.5Y6/2	10YR5/6	LM/DISTINCT	SILT LOAM
<b>Hydric Soil Indicators:</b>					
<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Concretions <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input checked="" type="checkbox"/> Listed on Local Hydric Soils List <input checked="" type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks)			
Remarks: <u>HYDRIC SOIL AS MAPPED</u>					

## WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <input checked="" type="radio"/> No <input type="radio"/> (Circle)	Is this Sampling Point Within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/> (Circle)
Wetland Hydrology Present?	Yes <input checked="" type="radio"/> No <input type="radio"/> (Circle)	
Hydric Soils Present?	Yes <input checked="" type="radio"/> No <input type="radio"/> (Circle)	
Remarks: <u>WETLAND NOT WITH HYDRIC SOILS</u>		

Approved by HQUSACE 3/92

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

Project/Site: <u>Hillcrest - EASTWOOD</u> Applicant/Owner: <u>Cinergy</u> Investigator: <u>Steve Lane (URS)</u>	Date: <u>9/29/04</u> County: <u>Brown</u> State: <u>OH</u>
Do Normal Circumstances exist on the site? <span style="float: right;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span> Is the site significantly disturbed (Atypical Situation)? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> Is the area a potential Problem Area? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> (If needed, explain on reverse.)	Community ID: <u>PSM</u> Transect ID: <u>    </u> Plot ID: <u>08</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>JUNCUS TENUIS</u>	<u>H</u>	<u>FAC</u>	9. <u>    </u>	<u>    </u>	<u>    </u>
2. <u>PHALARIS ARUNDINACEA</u>	<u>H</u>	<u>FACW</u>	10. <u>    </u>	<u>    </u>	<u>    </u>
3. <u>TYPHA ANGUSTIFOLIA</u>	<u>H</u>	<u>OBL</u>	11. <u>    </u>	<u>    </u>	<u>    </u>
4. <u>LYSIMACHIA</u>	<u>    </u>	<u>    </u>	12. <u>    </u>	<u>    </u>	<u>    </u>
5. <u>Nymphaea</u>	<u>H</u>	<u>OBL</u>	13. <u>    </u>	<u>    </u>	<u>    </u>
6. <u>    </u>	<u>    </u>	<u>    </u>	14. <u>    </u>	<u>    </u>	<u>    </u>
7. <u>    </u>	<u>    </u>	<u>    </u>	15. <u>    </u>	<u>    </u>	<u>    </u>
8. <u>    </u>	<u>    </u>	<u>    </u>	16. <u>    </u>	<u>    </u>	<u>    </u>

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 90%

Remarks: WETLAND VEGETATION

**HYDROLOGY**

<p>Recorded Data (Describe in Remarks):</p> <p><input type="checkbox"/> Stream, Lake, or Tide Gauge</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input type="checkbox"/> No Recorded Data Available</p> <hr/> <p>Field Observations:</p> <p>Depth of Surface Water: <u>    </u> (in.)</p> <p>Depth to Free Water in Pit: <u>718</u> (in.)</p> <p>Depth to Saturated Soil: <u>14</u> (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p><b>Primary Indicators:</b></p> <p><input type="checkbox"/> Inundated</p> <p><input type="checkbox"/> Saturated in Upper 12 Inches</p> <p><input type="checkbox"/> Water Marks</p> <p><input type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input checked="" type="checkbox"/> Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p><input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p><input type="checkbox"/> Water-Stained Leaves</p> <p><input checked="" type="checkbox"/> Local Soil Survey Data</p> <p><input checked="" type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
Remarks: <u>WETLAND HYDROLOGY</u>	

W8

## WETLAND DETERMINATION

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

Approved by HQUSACE 3/92

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

Project/Site: <u>Hillcrest - East Wood</u> Applicant/Owner: <u>Cinergy</u> Investigator: <u>Steve Lane (URS)</u>	Date: <u>9/29/04</u> County: <u>Brown</u> State: <u>OH</u>
Do Normal Circumstances exist on the site? <span style="float: right;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span> Is the site significantly disturbed (Atypical Situation)? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> Is the area a potential Problem Area? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: <u>URS</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>POA PRATENSIS</u>	<u>H</u>	<u>FACU</u>	9. _____	_____	_____
2. <u>SOLIDAGO CANADENSIS</u>	<u>H</u>	<u>FACU</u>	10. _____	_____	_____
3. <u>IPSACUS SYLVESTRIS</u>	<u>H</u>	<u>NI</u>	11. _____	_____	_____
4. <u>Daucus carota</u>	<u>H</u>	<u>NI</u>	12. _____	_____	_____
5. <u>SETARIA GLAUCA</u>	<u>H</u>	<u>FAC</u>	13. _____	_____	_____
6. <u>ANDROPOGON</u>	_____	_____	14. _____	_____	_____
7. <u>VIRGINICUS</u>	<u>H</u>	<u>FACU</u>	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 25%

Remarks: UPLAND VEGETATION

**HYDROLOGY**

<p>___ Recorded Data (Describe in Remarks):          ___ Stream, Lake, or Tide Gauge          ___ Aerial Photographs          ___ Other          ___ No Recorded Data Available</p> <p>Field Observations:</p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: <u>718</u> (in.)</p> <p>Depth to Saturated Soil: <u>718</u> (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p>___ Inundated</p> <p>___ Saturated in Upper 12 Inches</p> <p>___ Water Marks</p> <p>___ Drift Lines</p> <p>___ Sediment Deposits</p> <p>___ Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p>___ Oxidized Root Channels in Upper 12 Inches</p> <p>___ Water-Stained Leaves</p> <p><u>X</u> Local Soil Survey Data <u>ct</u></p> <p>___ FAC-Neutral Test</p> <p>___ Other (Explain in Remarks)</p>
Remarks: <u>UPLAND HYDROLOGY</u>	



## SOILS

UP-8

Map Unit Name (Series and Phase):		Ct - Clermont SILT LOAM		Drainage Class:	POOR
Taxonomy (Subgroup):		Typic Glossaqualfs		Field Observations	
				Confirm Mapped Type?	<input checked="" type="radio"/> Yes <input type="radio"/> No
Profile Description:					
Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-4	A	2.5Y4/3	10YR4/4	FEW/FAINT	SILT LOAM
4-18	B	2.5Y4/2	10YR4/4	FEW/FAINT	SILT LOAM
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input type="checkbox"/> Gleyed or Low-Chroma Colors			<input type="checkbox"/> Concretions <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input checked="" type="checkbox"/> Listed on Local Hydric Soils List <input checked="" type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks)		
Remarks: HYDRIC SOIL AS MAPPED					

## WETLAND DETERMINATION

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

Approved by HQUSACE 3/92

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

Project/Site: <u>Hillcrest - Eastwood</u> Applicant/Owner: <u>Cinergy</u> Investigator: <u>Steward Lane (URS)</u>	Date: <u>09/27/04</u> County: <u>Brown</u> State: <u>OH</u>
Do Normal Circumstances exist on the site? <span style="float: right;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span> Is the site significantly disturbed (Atypical Situation)? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> Is the area a potential Problem Area? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> (If needed, explain on reverse.)	Community ID: <u>PEM</u> Transect ID: <u>-</u> Plot ID: <u>W9A, B, C, D</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>SCIRPUS CYPERINUS</u>	<u>H</u>	<u>FACW+</u>	9. _____	_____	_____
2. <u>PHALARIS ARUNDINACEA</u>	<u>H</u>	<u>FACW+</u>	10. _____	_____	_____
3. <u>DOXYCODENDRON</u>	_____	_____	11. _____	_____	_____
4. <u>RADICANS</u>	<u>H</u>	<u>FAC</u>	12. _____	_____	_____
5. <u>TYPHA ANGUSTIFOLIA</u>	<u>H</u>	<u>OBL</u>	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 90%

Remarks: WETLAND VEGETATION

HYDROLOGY

<p>Recorded Data (Describe in Remarks):</p> <p>___ Stream, Lake, or Tide Gauge</p> <p>___ Aerial Photographs</p> <p>___ Other</p> <p>___ No Recorded Data Available</p> <hr/> <p>Field Observations:</p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: <u>718</u> (in.)</p> <p>Depth to Saturated Soil: <u>10</u> (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p>___ Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 Inches</p> <p>___ Water Marks</p> <p>___ Drift Lines</p> <p>___ Sediment Deposits</p> <p><input checked="" type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p>___ Oxidized Root Channels in Upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water-Stained Leaves</p> <p><input checked="" type="checkbox"/> Local Soil Survey Data <u>C</u></p> <p><input checked="" type="checkbox"/> FAC-Neutral Test</p> <p>___ Other (Explain in Remarks)</p>
<p>Remarks: <u>WETLAND HYDROLOGY</u></p>	

SOILS

W9A, B, C, & D

Map Unit Name: <u>CF - Clermont Silt Loam</u>		BC, CT - Poor													
(Series and Phase): <u>AVA - Avenburg Silt Loam</u>		Drainage Class: <u>AJA - somewhat poor</u>													
Taxonomy (Subgroup): <u>CF - Typic Gypsaqualfs</u>		Field Observations: <u>Confirm Mapped Type? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</u>													
Profile Description: <u>AVA - Aerie Fragiqualfs</u> <span style="float: right;">GENERALLY</span>															
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)												
0-7	A	2.5Y4/1	7.5YR4/4												
7-18	B	2.5Y5/1	7.5YR5/4												
<p>Hydric Soil Indicators:</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Histosol</td> <td><input type="checkbox"/> Concretions</td> </tr> <tr> <td><input type="checkbox"/> Histic Epipedon</td> <td><input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils</td> </tr> <tr> <td><input type="checkbox"/> Sulfidic Odor</td> <td><input type="checkbox"/> Organic Streaking in Sandy Soils</td> </tr> <tr> <td><input type="checkbox"/> Aquic Moisture Regime</td> <td><input checked="" type="checkbox"/> Listed on Local Hydric Soils List</td> </tr> <tr> <td><input type="checkbox"/> Reducing Conditions</td> <td><input checked="" type="checkbox"/> Listed on National Hydric Soils List</td> </tr> <tr> <td><input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> </table>				<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions	<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils	<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils	<input type="checkbox"/> Aquic Moisture Regime	<input checked="" type="checkbox"/> Listed on Local Hydric Soils List	<input type="checkbox"/> Reducing Conditions	<input checked="" type="checkbox"/> Listed on National Hydric Soils List	<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions														
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils														
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils														
<input type="checkbox"/> Aquic Moisture Regime	<input checked="" type="checkbox"/> Listed on Local Hydric Soils List														
<input type="checkbox"/> Reducing Conditions	<input checked="" type="checkbox"/> Listed on National Hydric Soils List														
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)														
<p>Remarks: <u>HYDRIC SOIL AS MAPPED</u></p>															

WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (Circle)	Is this Sampling Point Within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Hydric Soils Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
<p>Remarks:</p> <p style="text-align: center;">WETLAND PLOT</p>	

Approved by HQUSACE 3/92

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

Project/Site: <u>Hillcrest-Eastwood</u> Applicant/Owner: <u>Cinergy</u> Investigator: <u>Steve Dine (URS)</u>	Date: <u>09/29/04</u> County: <u>Brown</u> State: <u>OH</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: <u>VP9</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>LYNCHERIA-JAPONICA</u>	<u>H/S</u>	<u>FAC</u>	9. _____	_____	_____
2. <u>LYNCHERIA-MARCKII</u>	<u>S</u>	<u>NI</u>	10. _____	_____	_____
3. <u>Rubus</u>	_____	_____	11. _____	_____	_____
4. <u>ALLEGHENIENSIS</u>	<u>S</u>	<u>FACU</u>	12. _____	_____	_____
5. <u>CAMPYLOS RADICANS</u>	<u>H/S</u>	<u>FAC</u>	13. _____	_____	_____
6. <u>SOLIDAGO CANADENSIS</u>	<u>H</u>	<u>FACU</u>	14. _____	_____	_____
7. <u>DAUCUS CAROTA</u>	<u>H</u>	<u>NI</u>	15. _____	_____	_____
8. <u>Erigeron annuus</u>	<u>H</u>	<u>FACU</u>	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 25%

Remarks: UPLAND VEGETATION

**HYDROLOGY**

<p>Recorded Data (Describe in Remarks):</p> <p>Stream, Lake, or Tide Gauge _____</p> <p>Aerial Photographs _____</p> <p>Other _____</p> <p>No Recorded Data Available _____</p> <p>Field Observations:</p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: <u>718</u> (in.)</p> <p>Depth to Saturated Soil: <u>718</u> (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p>Inundated _____</p> <p>Saturated in Upper 12 Inches _____</p> <p>Water Marks _____</p> <p>Drift Lines _____</p> <p>Sediment Deposits _____</p> <p>Drainage Patterns in Wetlands _____</p> <p>Secondary Indicators (2 or more required):</p> <p>Oxidized Root Channels in Upper 12 Inches _____</p> <p>Water-Soaked Leaves _____</p> <p>Local Soil Survey Data _____</p> <p><input checked="" type="checkbox"/> FAC-Neutral Test <u>CT</u></p> <p>Other (Explain in Remarks) _____</p>
Remarks: <u>UPLAND HYDROLOGY (ONLY 1 SECONDARY INDICATOR)</u>	

UP 9

## WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes <u>No</u> (Circle) Wetland Hydrology Present? Yes <u>No</u> Hydric Soils Present? <u>Yes</u> No		Is this Sampling Point Within a Wetland? Yes <u>No</u> (Circle)
Remarks: UPLAND PLOT WITH HYDRIC SOILS		

Approved by HQUSACE 3/92

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

Project/Site: <u>Hillcrest - EAST WOOD</u> Applicant/Owner: <u>Cincray</u> Investigator: <u>Steve Dane (CURS)</u>	Date: <u>9/22/04</u> County: <u>Brown</u> State: <u>OH</u>
Do Normal Circumstances exist on the site? <span style="margin-left: 20px;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span> Is the site significantly disturbed (Atypical Situation)? <span style="margin-left: 20px;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> Is the area a potential Problem Area? <span style="margin-left: 20px;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> (If needed, explain on reverse.)	Community ID: <u>PCM</u> Transect ID: <u>      </u> Plot ID: <u>W10</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>LEPTOCYBE VIRGINICA</u>	<u>H</u>	<u>FACW</u>	9. <u>      </u>	<u>      </u>	<u>      </u>
2. <u>RANUNCULUS</u>	<u>      </u>	<u>      </u>	10. <u>      </u>	<u>      </u>	<u>      </u>
3. <u>RECURVATUS</u>	<u>H</u>	<u>FAC+</u>	11. <u>      </u>	<u>      </u>	<u>      </u>
4. <u>RANUNCULUS</u>	<u>      </u>	<u>      </u>	12. <u>      </u>	<u>      </u>	<u>      </u>
5. <u>LUPIDIS</u>	<u>H</u>	<u>FAC</u>	13. <u>      </u>	<u>      </u>	<u>      </u>
6. <u>CAREX HYSTERICINA</u>	<u>M</u>	<u>OBL</u>	14. <u>      </u>	<u>      </u>	<u>      </u>
7. <u>PHALARIS ARUNDINACEA</u>	<u>H</u>	<u>FACW+</u>	15. <u>      </u>	<u>      </u>	<u>      </u>
8. <u>ELEOCHARIS OBUSA</u>	<u>H</u>	<u>OBL</u>	16. <u>      </u>	<u>      </u>	<u>      </u>

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC+): > 90%

Remarks: WETLAND VEGETATION

**HYDROLOGY**

<p>Recorded Data (Describe in Remarks):</p> <p><input type="checkbox"/> Stream, Lake, or Tide Gauges</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input type="checkbox"/> No Recorded Data Available</p> <hr/> <p>Field Observations:</p> <p>Depth of Surface Water: <u>0-12"</u> (in.)</p> <p>Depth to Free Water in Pit: <u>0-6"</u> (in.)</p> <p>Depth to Saturated Soil: <u>0</u> (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p><input checked="" type="checkbox"/> Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water Marks</p> <p><input type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input checked="" type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p><input type="checkbox"/> Water-Stained Leaves</p> <p><input type="checkbox"/> Local Soil Survey Data</p> <p><input checked="" type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
<p>Remarks: <u>WETLAND HYDROLOGY</u></p>	

## W10

## WETLAND DETERMINATION

WETLAND DETERMINATION			
Hydrophytic Vegetation Present?	<u>Yes</u>	No (Circle)	(Circle)
Wetland Hydrology Present?	<u>Yes</u>	No	
Hydric Soils Present?	<u>Yes</u>	No	
Is this Sampling Point Within a Wetland?			<u>Yes</u> No
Remarks: WETLAND PLOT ALONG FORMER STREAM			

Approved by HQUSACE 3/92

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

Project/Site: <u>Hillcrest - Eastwood</u> Applicant/Owner: <u>Cinergy</u> Investigator: <u>Steve Lane (URS)</u>	Date: <u>09/28/04</u> County: <u>Brown</u> State: <u>OH</u>
Do Normal Circumstances exist on the site? <span style="margin-left: 100px;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span> Is the site significantly disturbed (Atypical Situation)? <span style="margin-left: 100px;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> Is the area a potential Problem Area? <span style="margin-left: 100px;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: <u>UPL6</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>POA PRATENSIS</u>	<u>H</u>	<u>FACU</u>	9. _____	_____	_____
2. <u>TYLOSIS TENNIS</u>	<u>H</u>	<u>FAC-</u>	10. _____	_____	_____
3. <u>PLANTAGO MAJOR</u>	<u>H</u>	<u>FACU</u>	11. _____	_____	_____
4. <u>PLANTAGO LANCEOLATA</u>	<u>H</u>	<u>UPL</u>	12. _____	_____	_____
5. <u>PHALARIS</u>	_____	_____	13. _____	_____	_____
6. <u>ARUNDINACEA</u>	<u>H</u>	<u>FACW+</u>	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): < 30%

Remarks: UPLAND VEGETATION WITH SOME REED CANARY GRASS

HYDROLOGY

<p>Recorded Data (Describe in Remarks):</p> <p>___ Stream, Lake, or Tide Gauge</p> <p>___ Aerial Photographs</p> <p>___ Other</p> <p>___ No Recorded Data Available</p> <hr/> <p>Field Observations:</p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: <u>&gt; 18</u> (in.)</p> <p>Depth to Saturated Soil: <u>&gt; 18</u> (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p>___ Inundated</p> <p>___ Saturated in Upper 12 Inches</p> <p>___ Water Marks</p> <p>___ Drift Lines</p> <p>___ Sediment Deposits</p> <p>___ Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p>___ Oxidized Root Channels in Upper 12 Inches</p> <p>___ Water-Stained Leaves</p> <p>___ Local Soil Survey Data</p> <p>___ FAC-Neutral Test</p> <p>___ Other (Explain in Remarks)</p>
<p>Remarks: <u>UPLAND HYDROLOGY</u></p>	



UP 10

## WETLAND DETERMINATION

WETLAND DETERMINATION	
Hydrophytic Vegetation Present?	Yes <input checked="" type="radio"/> (Circle) No <input type="radio"/> (Circle)
Wetland Hydrology Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soils Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>
Is this Sampling Point Within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Remarks: UPLAND PLOT WITH HYDRIC SOILS	

Approved by HQUSACE 3/92

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

Project/Site: <u>Hillcrest-Eastwood</u> Applicant/Owner: <u>Energ</u> Investigator: <u>Steve Lane (URS)</u>	Date: <u>9/29/04</u> County: <u>Brown</u> State: <u>OH</u>
Do Normal Circumstances exist on the site? <span style="float: right;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span> Is the site significantly disturbed (Atypical Situation)? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> Is the area a potential Problem Area? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> (If needed, explain on reverse.)	Community ID: <u>Pro/PS/Per</u> Transect ID: <u>    </u> Plot ID: <u>W11</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>FRAXINUS PENNSYLVANICA</u>	<u>T</u>	<u>FACW</u>	9. <u>PHALARIS ARUNDINACEA</u>	<u>H</u>	<u>FACW+</u>
2. <u>ACER RUBRUM</u>	<u>T/S</u>	<u>FACW+</u>	10. <u>JUNCUS EFFUSUS</u>	<u>H</u>	<u>FACW+</u>
3. <u>POPULUS DELTOIDES</u>	<u>S</u>	<u>FAC</u>	11. <u>CLEOCYRTIS OBUSA</u>	<u>H</u>	<u>OBL</u>
4. <u>ACER NEGUNDO</u>	<u>S</u>	<u>FAC+</u>	12. <u>POLYGONUM</u>		
5. <u>IMPATIENS CAPENSIS</u>	<u>H</u>	<u>FACW</u>	13. <u>PENNSYLVANICUM</u>	<u>H</u>	<u>FACW</u>
6. <u>SCIRPUS CYPERINUS</u>	<u>H</u>	<u>FACW+</u>	14. <u>Polygonum amphibium</u>	<u>H</u>	<u>OBL</u>
7. <u>MENTHA SPICATA</u>	<u>H</u>	<u>FACW+</u>	15. <u>LYNCHIA BENTONIN</u>	<u>S</u>	<u>FACW</u>
8. <u>TYPHA LATIFOLIA</u>	<u>H</u>	<u>OBL</u>	16. <u>    </u>		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC+): 95%

Remarks: WETLAND VEGETATION

**HYDROLOGY**

<p><u>    </u> Recorded Data (Describe in Remarks):</p> <p style="margin-left: 20px;"><u>    </u> Stream, Lake, or Tide Gauges</p> <p style="margin-left: 20px;"><u>    </u> Aerial Photographs</p> <p style="margin-left: 20px;"><u>    </u> Other</p> <p><u>    </u> No Recorded Data Available</p> <hr/> <p>Field Observations:</p> <p>Depth of Surface Water: <u>0-6</u> (in.)</p> <p>Depth to Free Water in Pitt: <u>0-12</u> (in.)</p> <p>Depth to Saturated Soil: <u>0</u> (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p><input checked="" type="checkbox"/> Inundated <u>IN PLACES</u></p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water Marks</p> <p><input checked="" type="checkbox"/> Drift Lines</p> <p><input checked="" type="checkbox"/> Sediment Deposits</p> <p><input checked="" type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water-Stained Leaves</p> <p><input checked="" type="checkbox"/> Local Soil Survey Data</p> <p><input checked="" type="checkbox"/> FAC-Neutral Test</p> <p><input checked="" type="checkbox"/> Other (Explain in Remarks): <u>CRIMPED CHIMNEYS</u></p>
<p>Remarks: <u>STRONG WETLAND HYDROLOGY</u></p>	

Will

## WETLAND DETERMINATION

Approved by HQUSACE 3/92

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

Project/Site: <u>Hillcrest - Eastwood</u> Applicant/Owner: <u>Cinergy</u> Investigator: <u>Steve Lamb (URS)</u>	Date: <u>09/21/04</u> County: <u>Brown</u> State: <u>OH</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: <u>UP11</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>ACER RUBRUM</u>	<u>T</u>	<u>FACW</u>	9. _____	_____	_____
2. <u>SALICAGO CANADENSIS</u>	<u>H</u>	<u>FACU</u>	10. _____	_____	_____
3. <u>Populus deltoides</u>	<u>S</u>	<u>FAC</u>	11. _____	_____	_____
4. <u>Celtis occidentalis</u>	<u>T</u>	<u>FACU</u>	12. _____	_____	_____
5. <u>Prunus serotina</u>	<u>T</u>	<u>FACU</u>	13. _____	_____	_____
6. <u>Quercus alba</u>	<u>T</u>	<u>FACU</u>	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 240%

Remarks: UPLAND VEGETATION WITH SOME WET SPECIES

**HYDROLOGY**

<p>___ Recorded Data (Describe in Remarks):          ___ Stream, Lake, or Tide Gauges          ___ Aerial Photographs          ___ Other          ___ No Recorded Data Available</p> <hr/> <p>Field Observations:</p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: <u>218</u> (in.)</p> <p>Depth to Saturated Soil: <u>218</u> (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p>___ Inundated          ___ Saturated in Upper 12 Inches          ___ Water Marks          ___ Drift Lines          ___ Sediment Deposits          ___ Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p>___ Oxidized Root Channels in Upper 12 Inches          ___ Water-Stained Leaves          ___ Local Soil Survey Data  <input checked="" type="checkbox"/> FAC-Neutral Test          ___ Other (Explain in Remarks)</p>
<p>Remarks: <u>UPLAND HYDROLOGY</u></p>	

## VP 11

WETLAND DETERMINATION			
Hydrophytic Vegetation Present?	Yes	No (Circle)	(Circle)
Wetland Hydrology Present?	Yes	No	
Hydric Soils Present?	Yes	No	
Is this Sampling Point Within a Wetland?			Yes (No)
Remarks: UPLAND PLAT WITH HYDRIC SOILS			

Approved by HQUSACE 3/92

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

Project/Site: <u>Hillcrest - Eastwood</u> Applicant/Owner: <u>Cinergy</u> Investigator: <u>Steve Lane (URS)</u>	Date: <u>9/19/04</u> County: <u>Brown</u> State: <u>OH</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: <u>DEM</u> Transect ID: _____ Plot ID: <u>VIAAEB</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>JUNCUS TENUIS</u>	<u>H</u>	<u>FAC-</u>	9. _____	_____	_____
2. <u>JUNCUS EFFUSUS</u>	<u>H</u>	<u>FACW+</u>	10. _____	_____	_____
3. <u>CAREX SPP.</u>	<u>H</u>	<u>FAC-OBL</u>	11. _____	_____	_____
4. <u>PHALARIS</u>	_____	_____	12. _____	_____	_____
5. <u>ARUNDINACEA</u>	<u>H</u>	<u>FACW+</u>	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 90%

Remarks:  
WETLANDS VEGETATION

HYDROLOGY

<p>Recorded Data (Describe in Remarks):</p> <p>___ Stream, Lake, or Tide Gauges</p> <p>___ Aerial Photographs</p> <p>___ Other</p> <p>___ No Recorded Data Available</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p>___ Inundated</p> <p>___ Saturated in Upper 12 Inches</p> <p>___ Water Marks</p> <p>___ Drift Lines</p> <p>___ Sediment Deposits</p> <p><input checked="" type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p>___ Water-Stained Leaves</p> <p><input checked="" type="checkbox"/> Local Soil Survey Date</p> <p><input checked="" type="checkbox"/> FAC-Natural Test</p> <p>___ Other (Explain in Remarks)</p>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>      </u> (in.)</p> <p>Depth to Free Water in Pit: <u>718</u> (in.)</p> <p>Depth to Saturated Soil: <u>718</u> (in.)</p>	<p>Remarks: <u>WETLAND HYDROLOGY</u></p>

## SOILS

W12A7B

Map Unit Name (Series and Phase):		Ct-clermont silt LOAM		Drainage Class:	POOR
Taxonomy (Subgroup):		Typic Glossaqualfs		Field Observations	Confirm Mapped Type? <input checked="" type="radio"/> Yes <input type="radio"/> No
Profile Description: <span style="float: right;">GENERALLY</span>					
Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-6	A	2.5Y5/2	—	—	SILT LOAM
6-18	B	2.5Y6/2	10YR2/4	FEW/FAINT	SILT LOAM

Hydric Soil Indicators:

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

Remarks: HYDRIC SOIL AS MAPPED

## WETLAND DETERMINATION

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

Approved by HQUSACE 3/92

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

Project/Site: <u>Hillcrest-Eastwood</u> Applicant/Owner: <u>CINERGY</u> Investigator: <u>Steve Lane (UPB)</u>	Date: <u>9/29/04</u> County: <u>Brown</u> State: <u>OH</u>		
Do Normal Circumstances exist on the site? Is the site significantly disturbed (Atypical Situation)? Is the area a potential Problem Area? (If needed, explain on reverse.)	<table style="width: 100%;"> <tr> <td style="text-align: center;"> <input checked="" type="radio"/> Yes  <input type="radio"/> No         </td> <td style="text-align: center;"> <input type="radio"/> Yes  <input checked="" type="radio"/> No         </td> </tr> </table> Community ID: _____ Transect ID: _____ Plot ID: <u>UP12</u>	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Yes <input checked="" type="radio"/> No
<input checked="" type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Yes <input checked="" type="radio"/> No		

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>GLYCINE MAX</u>	<u>H</u>	<u>NI</u>	9. _____	_____	_____
2. _____	_____	_____	10. _____	_____	_____
3. <u>SOYBEAN FIELD</u>	_____	_____	11. _____	_____	_____
4. _____	_____	_____	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

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

Remarks: UPLAND VEGETATION (SOYBEANS)

**HYDROLOGY**

<p>Recorded Data (Describe in Remarks):</p> <p>Stream, Lake, or Tide Gauge _____</p> <p>Aerial Photographs _____</p> <p>Other _____</p> <p>No Recorded Data Available _____</p> <p>Field Observations:</p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;18</u> (in.)</p> <p>Depth to Saturated Soil: <u>&gt;18</u> (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p>Inundated _____</p> <p>Saturated in Upper 12 Inches _____</p> <p>Water Marks _____</p> <p>Drift Lines _____</p> <p>Sediment Deposits _____</p> <p>Drainage Patterns in Wetlands _____</p> <p>Secondary Indicators (2 or more required):</p> <p>Oxidized Root Channels in Upper 12 Inches _____</p> <p>Water-Stained Leaves _____</p> <p>Local Soil Survey Data <input checked="" type="checkbox"/></p> <p>FAC-Neutral Test _____</p> <p>Other (Explain in Remarks) _____</p>
Remarks: <u>UPLAND HYDROLOGY</u>	



## SOILS

UP 12

Map Unit Name (Series and Phase): <u>Ct-Clermont Silt Loam</u>		Drainage Class: <u>POOR</u>	
Taxonomy (Subgroup): <u>Typic Glossaqualfs</u>		Field Observations Confirm Mapped Type? <u>Yes</u> No	

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-9	A	2.5Y5/2	10YR4/4	FEW/FAINT	SILT LOAM
9-18	B	2.5Y6/2	10YR5/6	FEW/FAINT	SILT LOAM

Hydric Soil Indicators:

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

## WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes <u>No</u> (Circle)	Is this Sampling Point Within a Wetland? Yes <u>No</u> (Circle)
Wetland Hydrology Present?	Yes <u>No</u>	
Hydric Soils Present?	<u>Yes</u> No	

Remarks:  
UPLAND PLOT WITH HYDRIC SOILS

Approved by HQUSACE 3/92

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

Project/Site: <u>Hillcrest-Eastwood</u> Applicant/Owner: <u>Cinergy</u> Investigator: <u>Steve Lane (URS)</u>	Date: <u>9/24/04</u> County: <u>Brown</u> State: <u>OH</u>
Do Normal Circumstances exist on the site? <span style="float: right;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span> Is the site significantly disturbed (Atypical Situation)? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> Is the area a potential Problem Area? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> (If needed, explain on reverse.)	Community ID: <u>FCM</u> Transect ID: _____ Plot ID: <u>W13A1B</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>PHALARIS ARUNDINACEA</u>	<u>H</u>	<u>FACW+</u>	9. _____	_____	_____
2. <u>CUNILUS EFFUSUS</u>	<u>H</u>	<u>FACW+</u>	10. _____	_____	_____
3. <u>CAREX SPA</u>	<u>H</u>	<u>FAC-OBL</u>	11. _____	_____	_____
4. _____	_____	_____	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 90%

Remarks: WETLAND VEGETATION

**HYDROLOGY**

<p><u>Recorded Data (Describe in Remarks):</u></p> <p>___ Stream, Lake, or Tide Gauge</p> <p>___ Aerial Photographs</p> <p>___ Other</p> <p>___ No Recorded Data Available</p> <p><b>Field Observations:</b></p> <p>Depth of Surface Water: <u>      </u> (in.)</p> <p>Depth to Free Water in Pit: <u>718</u> (in.)</p> <p>Depth to Saturated Soil: <u>6</u> (in.)</p>	<p><b>Wetland Hydrology Indicators:</b></p> <p><b>Primary Indicators:</b></p> <p>___ Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 Inches</p> <p>___ Water Marks</p> <p>___ Drift Lines</p> <p>___ Sediment Deposits</p> <p><input checked="" type="checkbox"/> Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators (2 or more required):</b></p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p>___ Water-Stained Leaves</p> <p><input checked="" type="checkbox"/> Local Soil Survey Data</p> <p><input checked="" type="checkbox"/> FAC-Neutral Test</p> <p>___ Other (Explain in Remarks)</p>
Remarks: <u>WETLAND HYDROLOGY</u>	

## SOILS

W13A &amp; B

Map Unit Name		BC-Blanchester Silt Loam		BC-Poor	
(Series and Phase):		Ct-clermont Silt Loam		Ct-Poor	
Taxonomy (Subgroup):		BC-Typic Ochraqualfs		Field Observations	
		Ct-Typic Glossaqualfs		Confirm Mapped Type? (Yes) No	

Profile Description:					
Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-8	A	2.5Y4/2	10YR4/5	CM/DISTINCT	SILTY CLAY LOAM
8-18	B	2.5Y5/2	10YR4/6	FEW/DISTINCT	SILT LOAM

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

Remarks:	HYDRIC SOIL AS MAPPED
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## WETLAND DETERMINATION

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

Approved by HQUSACE 3/92

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

Project/Site: <u>Hillcrest - Eastwood</u> Applicant/Owner: <u>Cinergy</u> Investigator: <u>Steve Lane (VRS)</u>	Date: <u>9/29/04</u> County: <u>Brown</u> State: <u>OH</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: <u>UP13</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>GLYCINE MAX</u>	<u>1A</u>	<u>NI</u>	9. _____	_____	_____
2. _____	_____	_____	10. _____	_____	_____
3. _____	_____	_____	11. _____	_____	_____
4. _____	_____	_____	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

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

Remarks: SOYBEAN FIELD, UPLAND VEGETATION

HYDROLOGY

<p>Recorded Data (Describe in Remarks):</p> <p>___ Stream, Lake, or Tide Gauges</p> <p>___ Aerial Photographs</p> <p>___ Other</p> <p>___ No Recorded Data Available</p> <hr/> <p>Field Observations:</p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: <u>&gt;18</u> (in.)</p> <p>Depth to Saturated Soil: <u>&gt;18</u> (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p>___ Inundated</p> <p>___ Saturated in Upper 12 Inches</p> <p>___ Water Marks</p> <p>___ Drift Lines</p> <p>___ Sediment Deposits</p> <p>___ Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p>___ Oxidized Root Channels in Upper 12 Inches</p> <p>___ Water-Stained Leaves</p> <p><input checked="" type="checkbox"/> Local Soil Survey Data</p> <p>___ FAC-Neutral Test</p> <p>___ Other (Explain in Remarks)</p>
<p>Remarks: <u>UPLAND HYDROLOGY</u></p>	

UP 13

### WETLAND DETERMINATION

WETLAND DETERMINATION		
Hydrophytic Vegetation Present?	Yes <u>No</u> (Circle)	(Circle)
Wetland Hydrology Present?	Yes <u>No</u>	
Hydric Soils Present?	Yes <u>No</u>	
		Is this Sampling Point Within a Wetland? <u>Yes</u> No
Remarks:  UPLAND PLOT WITH HYDRIC SOILS		

Approved by HQUSACE 3/92

**APPENDIX 07-3**

**OHIO EPA  
OHIO RAPID ASSESSMENT METHOD (ORAM) FOR  
WETLANDS V5.0 FORMS**

Site: W1 Rater(s): SKL LRS Date: 09/28/04

1	1
max 6 pts.	subtotal

### Metric 1. Wetland Area (size).

- Select one size class and assign score.
- ☐ >50 acres (>20.2ha) (6 pts)
  - ☐ 25 to <50 acres (10.1 to <20.2ha) (5 pts)
  - ☐ 10 to <25 acres (4 to <10.1ha) (4 pts)
  - ☐ 3 to <10 acres (1.2 to <4ha) (3 pts)
  - ☐ 0.3 to <3 acres (0.12 to <1.2ha) (2 pts)
  - ☒ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
  - ☐ <0.1 acres (0.04ha) (0 pts)

6	7
max 14 pts.	subtotal

### Metric 2. Upland buffers and surrounding land use.

- 2a. Calculate average buffer width. Select only one and assign score. Do not double check.
- ☐ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
  - ☐ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
  - ☒ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
  - ☐ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)
- 2b. Intensity of surrounding land use. Select one or double check and average.
- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
  - ☒ LOW. Old field (>10 years), 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	21
max 30 pts.	subtotal

### Metric 3. Hydrology.

- 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) **POND**
- 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 one and assign score.
- ☐ >0.7 (27.6in) (3)
  - ☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
  - ☒ <0.4m (<15.7in) (1)
- 3d. Duration inundation/saturation. Score one or dbl check.
- ☒ 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. Score one or double check and average.
- ☐ None or none apparent (12)
  - ☐ Recovered (7)
  - ☒ Recovering (3)
  - ☐ Recent or no recovery (1)
- Check all disturbances observed
- ☐ ditch
  - ☐ tile
  - ☐ dike
  - ☐ weir
  - ☐ stormwater input
  - ☐ point source (nonstormwater)
  - ☐ filling/grading
  - ☐ road bed/RR track
  - ☐ dredging
  - ☒ other **POND**

4	25
max 20 pts.	subtotal

### Metric 4. Habitat Alteration and Development.

- 4a. Substrate disturbance. Score one or double check and average.
- ☐ None or none apparent (4)
  - ☐ Recovered (3)
  - ☒ Recovering (2)
  - ☐ Recent or no recovery (1)
- 4b. Habitat development. Select only one and assign score.
- ☐ Excellent (7)
  - ☐ Very good (6)
  - ☐ Good (5)
  - ☐ Moderately good (4)
  - ☐ Fair (3)
  - ☐ Poor to fair (2)
  - ☒ Poor (1)
- 4c. Habitat alteration. Score one or double check and average.
- ☐ None or none apparent (9)
  - ☐ Recovered (6)
  - ☐ Recovering (3)
  - ☒ Recent or no recovery (1)
- Check all disturbances observed
- ☒ mowing
  - ☐ grazing
  - ☐ clearcutting
  - ☐ selective cutting
  - ☒ woody debris removal
  - ☐ toxic pollutants
  - ☒ shrub/sapling removal
  - ☐ herbaceous/aquatic bed removal
  - ☐ sedimentation
  - ☒ dredging **LIKELY**
  - ☐ farming
  - ☐ nutrient enrichment

25
subtotal this page

Site: W1 Rater(s): SRLCUTS Date: 09/28/04

25

subtotal first page

0 25

max 10 pts.

subtotal

### Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

-2 23

max 20 pts.

subtotal

### Metric 6. Plant communities, interspersions, microtopography.

#### 6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

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

#### 6b. horizontal (plan view) Interspersion.

Select only one.

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

#### 6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

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

#### 6d. Microtopography.

Score all present using 0 to 3 scale.

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

#### Vegetation Community Cover Scale

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

#### Narrative Description of Vegetation Quality

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

#### Mudflat and Open Water Class Quality

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

#### Microtopography Cover Scale

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

23 GRAND TOTAL (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: <http://www.epa.state.oh.us/dsw/48U401.html>  
last revised 1 February 2001 jlm

CATEGORY 1



Site: W2 Rater(s): SRL (URS) Date: 09/28/04

**3 3 Metric 1. Wetland Area (size).**

- max 6 pts. subtotal
- Select one size class and assign score.
- ☐ >50 acres (>20.2ha) (6 pts)
  - ☐ 25 to <50 acres (10.1 to <20.2ha) (5 pts)
  - ☐ 10 to <25 acres (4 to <10.1ha) (4 pts)
  - ☒ 3 to <10 acres (1.2 to <4ha) (3 pts)
  - ☐ 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
  - ☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
  - ☐ <0.1 acres (0.04ha) (0 pts)

**5 8 Metric 2. Upland buffers and surrounding land use.**

- max 14 pts. subtotal
- 2a. Calculate average buffer width. Select only one and assign score. Do not double check.
- ☐ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
  - ☐ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
  - ☒ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
  - ☐ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)
- 2b. Intensity of surrounding land use. Select one or double check and average.
- ☒ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
  - ☒ LOW. Old field (>10 years), shrubland, young second growth forest. (5)
  - ☒ MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
  - ☐ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

**13 21 Metric 3. Hydrology.**

- max 30 pts. subtotal
- 3a. Sources of Water. Score all that apply.
- ☐ High pH groundwater (5)
  - ☐ Other groundwater (3)
  - ☒ Precipitation (1)
  - ☒ Seasonal/intermittent surface water (3)
  - ☐ Perennial surface water (lake or stream) (5)
- 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 one and assign score.
- ☐ >0.7 (27.6in) (3)
  - ☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
  - ☒ <0.4m (<15.7in) (1)
- 3d. Duration inundation/saturation. Score one or double check and 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. Score one or double check and average.
- ☐ None or none apparent (12)
  - ☒ Recovered (7)
  - ☒ Recovering (3)
  - ☐ Recent or no recovery (1)
- Check all disturbances observed
- ☒ ditch
  - ☐ tile
  - ☐ dike
  - ☐ weir
  - ☐ stormwater input
  - ☐ point source (nonstormwater)
  - ☐ filling/grading
  - ☒ road bed/RR track
  - ☐ dredging
  - ☐ other

**8.5 29.5 Metric 4. Habitat Alteration and Development.**

- max 20 pts. subtotal
- 4a. Substrate disturbance. Score one or double check and average.
- ☐ None or none apparent (4)
  - ☒ Recovered (3)
  - ☒ Recovering (2)
  - ☐ Recent or no recovery (1)
- 4b. Habitat development. Select only one and assign score.
- ☐ Excellent (7)
  - ☐ Very good (6)
  - ☐ Good (5)
  - ☒ Moderately good (4)
  - ☐ Fair (3)
  - ☐ Poor to fair (2)
  - ☐ Poor (1)
- 4c. Habitat alteration. Score one or double check and average.
- ☐ None or none apparent (9)
  - ☒ Recovered (6)
  - ☐ Recovering (3)
  - ☐ Recent or no recovery (1)
- Check all disturbances observed
- ☐ mowing
  - ☐ grazing
  - ☐ clearcutting
  - ☐ selective cutting
  - ☒ woody debris removal
  - ☐ toxic pollutants
  - ☐ shrub/sapling removal
  - ☐ herbaceous/aquatic bed removal
  - ☐ sedimentation
  - ☒ dredging
  - ☐ farming
  - ☐ nutrient enrichment

Site: W2 Rater(s): STEVE LANE (URS) Date: 09/28/04

29.5

subtotal first page

0 29.5

max 10 pts.

subtotal

### Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

3 34.5

max 20 pts.

subtotal

### Metric 6. Plant communities, interspersions, microtopography.

#### 6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

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

3

#### 6b. horizontal (plan view) Interspersion.

Select only one.

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

2

#### 6c. Coverage of Invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

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

REED CANARY GRASS AND NARROW LEAF CATTAIL -1

#### 6d. Microtopography.

Score all present using 0 to 3 scale.

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

1

#### Vegetation Community Cover Scale

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

#### Narrative Description of Vegetation Quality

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

#### Mudflat and Open Water Class Quality

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

#### Microtopography Cover Scale

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

34.5 GRAND TOTAL (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: <http://www.epa.state.oh.us/dsw/401401.html>  
last revised 1 February 2001 jlm

CATEGORY 2

Site: WSA, B, C, & D Rater(s): SELUCS Date: 09/28/04

**3 3 Metric 1. Wetland Area (size).**

- max 6 pts. subtotal
- Select one size class and assign score.
- ☐ >50 acres (>20.2ha) (6 pts)
  - ☐ 25 to <50 acres (10.1 to <20.2ha) (5 pts)
  - ☐ 10 to <25 acres (4 to <10.1ha) (4 pts)
  - ☒ 3 to <10 acres (1.2 to <4ha) (3 pts)
  - ☐ 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
  - ☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
  - ☐ <0.1 acres (0.04ha) (0 pts)

**1 4 Metric 2. Upland buffers and surrounding land use.**

- max 14 pts. subtotal
- 2a. Calculate average buffer width. Select only one and assign score. Do not double check.
- ☐ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
  - ☐ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
  - ☐ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
  - ☒ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)
- 2b. Intensity of surrounding land use. Select one or double check and average.
- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
  - ☐ LOW. Old field (>10 years), 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) AG. FIELD & RAILWAY

**10 14 Metric 3. Hydrology.**

- max 30 pts. subtotal
- 3a. Sources of Water. Score all that apply.
- ☐ High pH groundwater (5)
  - ☐ Other groundwater (3)
  - ☒ Precipitation (1)
  - ☒ Seasonal/intermittent surface water (3)
  - ☐ Perennial surface water (lake or stream) (5)
- 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 one and assign score.
- ☐ >0.7 (27.6in) (3)
  - ☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
  - ☒ <0.4m (<15.7in) (1)
- 3d. Duration inundation/saturation. Score one or dbl check.
- ☐ 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. Score one or double check and average.
- ☐ None or none apparent (12)
  - ☐ Recovered (7)
  - ☒ Recovering (3)
  - ☐ Recent or no recovery (1)
- Check all disturbances observed
- ☐ ditch
  - ☐ tile
  - ☐ dike
  - ☐ weir
  - ☐ stormwater input
  - ☐ point source (nonstormwater)
  - ☐ filling/grading
  - ☒ road bed/RR track
  - ☐ dredging
  - ☐ other

**7 21 Metric 4. Habitat Alteration and Development.**

- max 20 pts. subtotal
- 4a. Substrate disturbance. Score one or double check and average.
- ☐ None or none apparent (4)
  - ☐ Recovered (3)
  - ☒ Recovering (2)
  - ☐ Recent or no recovery (1)
- 4b. Habitat development. Select only one and assign score.
- ☐ Excellent (7)
  - ☐ Very good (6)
  - ☐ Good (5)
  - ☐ Moderately good (4)
  - ☐ Fair (3)
  - ☒ Poor to fair (2)
  - ☐ Poor (1)
- 4c. Habitat alteration. Score one or double check and average.
- ☐ None or none apparent (9)
  - ☐ Recovered (6)
  - ☒ Recovering (3)
  - ☐ Recent or no recovery (1)
- Check all disturbances observed
- ☐ mowing
  - ☐ grazing
  - ☐ clearcutting
  - ☒ selective cutting
  - ☐ woody debris removal
  - ☐ toxic pollutants
  - ☒ shrub/sapling removal
  - ☐ herbaceous/aquatic bed removal
  - ☐ sedimentation
  - ☒ dredging
  - ☒ farming IN PLACES
  - ☐ nutrient enrichment
- 21  
subtotal this page

Site: W3A, B, C, & D Rater(s): SRL (URS) Date: 9/28/04

21

subtotal first page

0 21

max 10 pts.

subtotal

### Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

-1 20

max 20 pts.

subtotal

### Metric 6. Plant communities, interspersions, microtopography.

#### 6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

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

#### 6b. Horizontal (plan view) Interspersion.

Select only one.

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

#### 6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

REED CANARY GRASS

-3

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

#### 6d. Microtopography.

Score all present using 0 to 3 scale.

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

#### Vegetation Community Cover Scale

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

#### Narrative Description of Vegetation Quality

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

#### Mudflat and Open Water Class Quality

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

#### Microtopography Cover Scale

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

20

GRAND TOTAL (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: <http://www.epa.state.nh.us/dsw/401/401.html>  
last revised 1 February 2001/jjm

CATEGORY 1

Site: WYA, B 7C	Rater(s): SRL (ULS)	Date: 9/28/04
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2	2
max 6 pts.	subtotal

### Metric 1. Wetland Area (size).

- Select one size class and assign score.
- ☐ >50 acres (>20.2ha) (6 pts)
  - ☐ 25 to <50 acres (10.1 to <20.2ha) (5 pts)
  - ☐ 10 to <25 acres (4 to <10.1ha) (4 pts)
  - ☐ 3 to <10 acres (1.2 to <4ha) (3 pts)
  - ☒ 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	6
max 14 pts.	subtotal

### Metric 2. Upland buffers and surrounding land use.

- 2a. Calculate average buffer width. Select only one and assign score. Do not double check.
- ☐ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
  - ☐ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
  - ☒ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
  - ☐ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)
- 2b. Intensity of surrounding land use. Select one or double check and average.
- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
  - ☒ LOW. Old field (>10 years), 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)

11	17
max 30 pts.	subtotal

### Metric 3. Hydrology.

- 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) W4B
  - ☐ Part of riparian or upland corridor (1)
- 3c. Maximum water depth. Select only one and assign score.
- ☐ >0.7 (27.6in) (3)
  - ☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
  - ☒ <0.4m (<15.7in) (1)
- 3d. Duration inundation/saturation. Score one or dbl check.
- ☐ 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. Score one or double check and average.
- |   |   |   |
|---|---|---|
| <input type="checkbox"/> None or none apparent (12)<br><input type="checkbox"/> Recovered (7)<br><input checked="" type="checkbox"/> Recovering (3)<br><input type="checkbox"/> Recent or no recovery (1) | Check all disturbances observed<br><input type="checkbox"/> ditch<br><input type="checkbox"/> tile<br><input type="checkbox"/> dike<br><input type="checkbox"/> weir<br><input type="checkbox"/> stormwater input | <input type="checkbox"/> point source (nonstormwater)<br><input type="checkbox"/> filling/grading<br><input checked="" type="checkbox"/> road bed/RR track<br><input type="checkbox"/> dredging<br><input type="checkbox"/> other |
|---|---|---|

10	27
max 20 pts.	subtotal

### Metric 4. Habitat Alteration and Development.

- 4a. Substrate disturbance. Score one or double check and average.
- ☐ None or none apparent (4)
  - ☒ Recovered (3)
  - ☐ Recovering (2)
  - ☐ Recent or no recovery (1)
- 4b. Habitat development. Select only one and assign score.
- ☐ Excellent (7)
  - ☐ Very good (6)
  - ☐ Good (5)
  - ☐ Moderately good (4)
  - ☒ Fair (3)
  - ☐ Poor to fair (2)
  - ☐ Poor (1)
- 4c. Habitat alteration. Score one or double check and average.
- |   |   |   |
|---|---|---|
| <input type="checkbox"/> None or none apparent (9)<br><input checked="" type="checkbox"/> Recovered (6)<br><input checked="" type="checkbox"/> Recovering (3)<br><input type="checkbox"/> Recent or no recovery (1) | Check all disturbances observed<br><input type="checkbox"/> mowing<br><input type="checkbox"/> grazing<br><input type="checkbox"/> clearcutting<br><input checked="" type="checkbox"/> selective cutting<br><input checked="" type="checkbox"/> woody debris removal<br><input type="checkbox"/> toxic pollutants | <input checked="" type="checkbox"/> shrub/sapling removal<br><input type="checkbox"/> herbaceous/aquatic bed removal<br><input type="checkbox"/> sedimentation<br><input checked="" type="checkbox"/> dredging<br><input checked="" type="checkbox"/> farming IN PLACES<br><input type="checkbox"/> nutrient enrichment |
|---|---|---|

27
subtotal this page

Site: W4A, B, & C Rater(s): SRL (URS) Date: 9/28/04

27

subtotal first page

0 27

max 10 pts.

subtotal

### Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

5 32

max 20 pts.

subtotal

### Metric 6. Plant communities, interspersions, microtopography.

#### 6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- ☐ Aquatic bed
- ☐ Emergent
- ☐ Shrub
- ☒ Forest W4C
- ☐ Mudflats
- ☐ Open water
- ☐ Other

#### 6b. Horizontal (plan view) Interspersion.

Select only one.

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

#### 6c. Coverage of Invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

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

#### 6d. Microtopography.

Score all present using 0 to 3 scale.

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

#### Vegetation Community Cover Scale

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

#### Narrative Description of Vegetation Quality

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

#### Mudflat and Open Water Class Quality

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

#### Microtopography Cover Scale

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

32 GRAND TOTAL (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: <http://www.epa.state.oh.us/dsw/401/401.html>  
last revised 1 February 2001 jjm

CATEGORY 2

Site: W5 Rater(s): SRL(LRS) Date: 9/28/04

2 2  
max 6 pts. subtotal

### Metric 1. Wetland Area (size).

- Select one size class and assign score.
- ☐ >50 acres (>20.2ha) (6 pts)
  - ☐ 25 to <50 acres (10.1 to <20.2ha) (5 pts)
  - ☐ 10 to <25 acres (4 to <10.1ha) (4 pts)
  - ☐ 3 to <10 acres (1.2 to <4ha) (3 pts)
  - ☒ 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 6  
max 14 pts. subtotal

### Metric 2. Upland buffers and surrounding land use.

- 2a. Calculate average buffer width. Select only one and assign score. Do not double check.
- ☐ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
  - ☐ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
  - ☒ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
  - ☐ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)
- 2b. Intensity of surrounding land use. Select one or double check and average.
- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
  - ☒ LOW. Old field (>10 years), 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)

10 16  
max 30 pts. subtotal

### Metric 3. Hydrology.

- 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 one and assign score.
- ☐ >0.7 (27.6in) (3)
  - ☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
  - ☒ <0.4m (<15.7in) (1)
- 3d. Duration inundation/saturation. Score one or dbl check.
- ☐ 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. Score one or double check and average.
- ☐ None or none apparent (12)
  - ☐ Recovered (7)
  - ☒ Recovering (3)
  - ☐ Recent or no recovery (1)
- Check all disturbances observed
- ☐ ditch
  - ☐ tile
  - ☐ dike
  - ☐ weir
  - ☐ stormwater input
  - ☐ point source (nonstormwater)
  - ☐ filling/grading
  - ☒ road bed/RR track
  - ☐ dredging
  - ☐ other

8 24  
max 30 pts. subtotal

### Metric 4. Habitat Alteration and Development.

- 4a. Substrate disturbance. Score one or double check and average.
- ☐ None or none apparent (4)
  - ☐ Recovered (3)
  - ☒ Recovering (2)
  - ☐ Recent or no recovery (1)
- 4b. Habitat development. Select only one and assign score.
- ☐ Excellent (7)
  - ☐ Very good (6)
  - ☐ Good (5)
  - ☐ Moderately good (4)
  - ☒ Fair (3)
  - ☐ Poor to fair (2)
  - ☐ Poor (1)
- 4c. Habitat alteration. Score one or double check and average.
- ☐ None or none apparent (9)
  - ☐ Recovered (6)
  - ☒ Recovering (3)
  - ☐ Recent or no recovery (1)
- Check all disturbances observed
- ☐ mowing
  - ☐ grazing
  - ☐ clearcutting
  - ☐ selective cutting
  - ☒ woody debris removal
  - ☐ toxic pollutants
  - ☒ shrub/sapling removal
  - ☐ herbaceous/aquatic bed removal
  - ☐ sedimentation
  - ☒ dredging
  - ☒ farming IN PLACES
  - ☐ nutrient enrichment

24  
subtotal this page

Site: W5 Rater(s): SRL (URS) Date: 9/28/04

24

subtotal first page

0 24

max 10 pts.

subtotal

### Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

4 28

max 20 pts.

subtotal

### Metric 6. Plant communities, Interspersion, microtopography.

#### 6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

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

2

#### 6b. horizontal (plan view) Interspersion.

Select only one.

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

2

#### 6c. Coverage of Invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

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

REED CANARY GRASS -1

#### 6d. Microtopography.

Score all present using 0 to 3 scale.

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

1

#### Vegetation Community Cover Scale

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

#### Narrative Description of Vegetation Quality

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

#### Mudflat and Open Water Class Quality

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

#### Microtopography Cover Scale

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

28 GRAND TOTAL (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: <http://www.sps.state.oh.us/dsw/401401.html>  
last revised 1 February 2001 jjm

CATEGORY 1



Site: <b>W6</b>	Rater(s): <b>SRL (URS)</b>	Date: <b>9/28/04</b>
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**Metric 1. Wetland Area (size).**

max 6 pts. subtotal **0**

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)

**Metric 2. Upland buffers and surrounding land use.**

max 14 pts. subtotal **1**

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

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

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

- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- ☐ LOW. Old field (>10 years), 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)

**Metric 3. Hydrology.**

max 30 pts. subtotal **5**

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

- ☐ High pH groundwater (5)
- ☐ Other groundwater (3)
- ☒ Precipitation (1) **FLOW STARTS EAST HERE**
- ☐ 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 one and assign score.

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

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

- ☐ 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. Score one or double check and average.

<input type="checkbox"/> None or none apparent (12) <input type="checkbox"/> Recovered (7) <input checked="" type="checkbox"/> Recovering (3) <input checked="" type="checkbox"/> Recent or no recovery (1)	Check all disturbances observed <input type="checkbox"/> ditch <input type="checkbox"/> tile <input type="checkbox"/> dike <input type="checkbox"/> weir <input type="checkbox"/> stormwater input <input type="checkbox"/> point source (nonstormwater) <input type="checkbox"/> filling/grading <input checked="" type="checkbox"/> road bed/RR track <input type="checkbox"/> dredging <input type="checkbox"/> other
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**Metric 4. Habitat Alteration and Development.**

max 20 pts. subtotal **6**

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

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

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

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

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

<input type="checkbox"/> None or none apparent (9) <input type="checkbox"/> Recovered (6) <input checked="" type="checkbox"/> Recovering (3) <input type="checkbox"/> Recent or no recovery (1)	Check all disturbances observed <input type="checkbox"/> mowing <input type="checkbox"/> grazing <input type="checkbox"/> clearcutting <input type="checkbox"/> selective cutting <input checked="" type="checkbox"/> woody debris removal <input type="checkbox"/> toxic pollutants <input checked="" type="checkbox"/> shrub/sapling removal <input type="checkbox"/> herbaceous/aquatic bed removal <input type="checkbox"/> sedimentation <input checked="" type="checkbox"/> dredging <input checked="" type="checkbox"/> farming <b>IN PLACES</b> <input type="checkbox"/> nutrient enrichment
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12

Site: W6 Rater(s): SRL CURS Date: 9/28/04

12

subtotal first page

0 12

max 10 pts.

subtotal

### Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

1 13

max 20 pts.

subtotal

### Metric 6. Plant communities, interspersions, microtopography.

#### 6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

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

#### 6b. horizontal (plan view) Interspersion.

Select only one.

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

#### 6c. Coverage of Invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

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

#### 6d. Microtopography.

Score all present using 0 to 3 scale.

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

#### Vegetation Community Cover Scale

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

#### Narrative Description of Vegetation Quality

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

#### Mudflat and Open Water Class Quality

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

#### Microtopography Cover Scale

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

REED CANARY -1

13 GRAND TOTAL (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: <http://www.epa.state.nh.us/dew/401/401.html>  
last revised 1 February 2001 jim

CATEGORY 1

Site: <b>w7</b>	Rater(s): <b>SRL/VBS</b>	Date: <b>9/28/01</b>
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**2 2 Metric 1. Wetland Area (size).**

max 6 pts. subtotal

Select one size class and assign score.

2

- ☐ >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)

**1 3 Metric 2. Upland buffers and surrounding land use.**

max 14 pts. subtotal

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

Ø

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

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

1

- ☐ 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, fescue pasture, park, conservation tillage, new fallow field. (3)
- ☒ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

**10 13 Metric 3. Hydrology.**

max 30 pts. subtotal

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

4

- ☐ 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.

Ø

- ☐ 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 one and assign score.

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. Score one or double check.

2

- ☐ 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. Score one or double check and average.

3

<ul style="list-style-type: none"> <li><input type="checkbox"/> None or none apparent (12)</li> <li><input type="checkbox"/> Recovered (7)</li> <li><input checked="" type="checkbox"/> Recovering (3)</li> <li><input type="checkbox"/> Recent or no recovery (1)</li> </ul>	<p>Check all disturbances observed</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> ditch</li> <li><input type="checkbox"/> tile</li> <li><input type="checkbox"/> dike</li> <li><input type="checkbox"/> weir</li> <li><input type="checkbox"/> stormwater input</li> <li><input type="checkbox"/> point source (nonstormwater)</li> <li><input type="checkbox"/> filling/grading</li> <li><input checked="" type="checkbox"/> road bed/RR track</li> <li><input type="checkbox"/> dredging</li> <li><input type="checkbox"/> other</li> </ul>
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**7 20 Metric 4. Habitat Alteration and Development.**

max 20 pts. subtotal

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

2

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

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

2

- ☐ 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.

3

<ul style="list-style-type: none"> <li><input type="checkbox"/> None or none apparent (9)</li> <li><input type="checkbox"/> Recovered (6)</li> <li><input checked="" type="checkbox"/> Recovering (3)</li> <li><input type="checkbox"/> Recent or no recovery (1)</li> </ul>	<p>Check all disturbances observed</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> mowing</li> <li><input type="checkbox"/> grazing</li> <li><input type="checkbox"/> clearcutting</li> <li><input type="checkbox"/> selective cutting</li> <li><input checked="" type="checkbox"/> woody debris removal</li> <li><input type="checkbox"/> toxic pollutants</li> <li><input checked="" type="checkbox"/> shrub/sapling removal</li> <li><input type="checkbox"/> herbaceous/aquatic bed removal</li> <li><input type="checkbox"/> sedimentation</li> <li><input checked="" type="checkbox"/> dredging</li> <li><input checked="" type="checkbox"/> farming</li> <li><input type="checkbox"/> nutrient enrichment</li> </ul>
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20

subtotal this page

Site: W7 Rater(s): SRL (URS) Date: 9/28/04

20

subtotal first page

0 20

max 10 pts. subtotal

### Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

1 21

max 20 pts. subtotal

### Metric 6. Plant communities, interspersions, microtopography.

#### 6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

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

#### 6b. horizontal (plan view) Interspersion.

Select only one.

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

#### 6c. Coverage of Invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

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

#### 6d. Microtopography.

Score all present using 0 to 3 scale.

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

#### Vegetation Community Cover Scale

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

#### Narrative Description of Vegetation Quality

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

#### Mudflat and Open Water Class Quality

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

#### Microtopography Cover Scale

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

21

GRAND TOTAL (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: <http://www.spa.state.oh.us/dew/40/1401.html>  
last revised 1 February 2001 jlm

CATEGORY 1

Site: W8 Rater(s): SR LURS Date: 9/29/04

2 2  
max 6 pts. subtotal

### Metric 1. Wetland Area (size).

Select one size class and assign score.

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

3 5  
max 14 pts. subtotal

### Metric 2. Upland buffers and surrounding land use.

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

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

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

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

9 14  
max 30 pts. subtotal

### Metric 3. Hydrology.

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

- ☐ High pH groundwater (5)
- ☐ Other groundwater (3)
- ☒ Precipitation (1)
- ☐ Seasonal/intermittent surface water (3)
- ☐ Perennial surface water (lake or stream) (5)

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

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

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

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

3b. Connectivity. Score all that apply.

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

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

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

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

5.5 19.5  
max 20 pts. subtotal

### Metric 4. Habitat Alteration and Development.

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

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

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

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

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

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

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

19.5  
subtotal this page

Site: W8 Rater(s): SRL (URS) Date: 9/29/04

19.5

subtotal first page

19.5 19.5

max 10 pts. subtotal

### Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

-1 18.5

max 20 pts. subtotal

### Metric 6. Plant communities, interspersions, microtopography.

#### 6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

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

#### 6b. horizontal (plan view) interspersions.

- Select only one.
- ☐ High (5)
  - ☐ Moderately high (4)
  - ☒ Moderate (3)
  - ☐ Moderately low (2)
  - ☐ Low (1)
  - ☐ None (0)

#### 6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

REED CANARY GRASS

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

#### 6d. Microtopography.

Score all present using 0 to 3 scale.

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

#### Vegetation Community Cover Scale

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

#### Narrative Description of Vegetation Quality

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

#### Mudflat and Open Water Class Quality

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

#### Microtopography Cover Scale

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

18.5 GRAND TOTAL (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: <http://www.epa.state.oh.us/dsw/401/401.html>  
last revised 1 February 2001 jjm

CATEGORY 1

Site: W9A, B, C, D	Rater(s): SRL/URS	Date: 9/29/04
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2	2
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### Metric 1. Wetland Area (size).

max 6 pts. subtotal

Select one size class and assign score.

2

- ☐ >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)

CONTINUES AT W9D

1	3
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### Metric 2. Upland buffers and surrounding land use.

max 14 pts. subtotal

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

Ø

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

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

1

- ☐ 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 pastures, park, conservation tillage, new fallow field. (3)
- ☒ HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

10	13
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### Metric 3. Hydrology.

max 30 pts. subtotal

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

4

- ☐ 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.

Ø

- ☐ 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 one and assign score.

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. Score one or double check.

2

- ☐ 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. Score one or double check and average.

3

- ☐ 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"/> tile	<input type="checkbox"/> filling/grading
<input type="checkbox"/> dike	<input type="checkbox"/> road bed/RR track
<input type="checkbox"/> weir	<input checked="" type="checkbox"/> dredging IN W9D
<input type="checkbox"/> stormwater input	<input type="checkbox"/> other

4.5	17.5
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### Metric 4. Habitat Alteration and Development.

max 20 pts. subtotal

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

1.5

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

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

1

- ☐ 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.

2

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

Check all disturbances observed

<input checked="" type="checkbox"/> mowing	<input type="checkbox"/> shrub/sapling removal
<input type="checkbox"/> grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input type="checkbox"/> clearcutting	<input type="checkbox"/> sedimentation
<input checked="" type="checkbox"/> selective cutting	<input type="checkbox"/> dredging
<input checked="" type="checkbox"/> woody debris removal	<input checked="" type="checkbox"/> farming AT PORTAL ENDS OF WETLAND COMPLEX
<input type="checkbox"/> toxic pollutants	<input type="checkbox"/> nutrient enrichment

subtotal this page

Site: W1A, B, C, & D Rater(s): SRL (URS) Date: 9/29/04

17.5

subtotal first page

0 17.5

max 10 pts.

subtotal

### Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- ☐ Bog (10)
- ☐ Fan (10)
- ☐ Old growth forest (10)
- ☐ Mature forested wetland (5)
- ☒ Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- ☐ Lake Erie coastal/tributary wetland-restricted hydrology (5)
- ☐ Lake Plain Sand Prairies (Oak Openings) (10)
- ☐ Relict Wet Prairies (10)
- ☐ Known occurrence state/federal threatened or endangered species (10)
- ☐ Significant migratory songbird/water fowl habitat or usage (10)
- ☐ Category 1 Wetland. See Question 1 Qualitative Rating (-10)

-1 16.5

max 20 pts.

subtotal

### Metric 6. Plant communities, interspersions, microtopography.

#### 6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

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

#### 6b. horizontal (plan view) interspersions.

Select only one.

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

#### 6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

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

REED CANARY GRASS  
TYPHIA ANGUSTIFOLIA

-3

#### 6d. Microtopography.

Score all present using 0 to 3 scale.

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

#### Vegetation Community Cover Scale

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

#### Narrative Description of Vegetation Quality

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

#### Mudflat and Open Water Class Quality

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

#### Microtopography Cover Scale

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

16.5 GRAND TOTAL (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: <http://www.epa.state.nh.us/dew/401/401.html>  
last revised 1 February 2001 fjm

CATEGORY 1



Site: <u>W10</u>	Rater(s): <u>STCL/LRS</u>	Date: <u>9/29/04</u>
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**Metric 1. Wetland Area (size).**

max 6 pts. subtotal 2

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)

**Metric 2. Upland buffers and surrounding land use.**

max 14 pts. subtotal 3

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

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

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

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

**Metric 3. Hydrology.**

max 30 pts. subtotal 16

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 one and assign score.

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

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

- ☐ 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. Score one or double check and average.

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

Check all disturbances observed

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

**Metric 4. Habitat Alteration and Development.**

max 20 pts. subtotal 7

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

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

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

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

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

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

Check all disturbances observed

<input type="checkbox"/> mowing	<input checked="" type="checkbox"/> shrub/sapling removal
<input checked="" type="checkbox"/> grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input type="checkbox"/> clearcutting	<input type="checkbox"/> sedimentation
<input type="checkbox"/> selective cutting	<input type="checkbox"/> dredging
<input checked="" type="checkbox"/> woody debris removal	<input type="checkbox"/> farming
<input type="checkbox"/> toxic pollutants	<input checked="" type="checkbox"/> nutrient enrichment <u>SOME FROM UPSTREAM</u>

28

Site: W10 Rater(s): SRL/CURS Date: 7/29/04

28

subtotal first page

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max 10 pts. subtotal

### Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

432

max 20 pts. subtotal

### Metric 6. Plant communities, interspersions, microtopography.

#### 6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

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

#### 6b. horizontal (plan view) Interspersion.

Select only one.

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

#### 6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

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

#### 6d. Microtopography.

Score all present using 0 to 3 scale.

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

#### Vegetation Community Cover Scale

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

#### Narrative Description of Vegetation Quality

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

#### Mudflat and Open Water Class Quality

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

#### Microtopography Cover Scale

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

SOME REED CANARY GRASS

32 GRAND TOTAL (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: <http://www.sps.state.oh.us/dew/401A01.html>  
last revised 1 February 2001 jfm

CATEGORY 2

Site: <u>W11</u>	Rater(s): <u>SRL (URS)</u>	Date: <u>9/29/04</u>
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3	3
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### Metric 1. Wetland Area (size).

- max 6 pts. subtotal
- Select one size class and assign score.
- ☐ >50 acres (>20.2ha) (6 pts)
  - ☐ 25 to <50 acres (10.1 to <20.2ha) (5 pts)
  - ☐ 10 to <25 acres (4 to <10.1ha) (4 pts)
  - ☒ 3 to <10 acres (1.2 to <4ha) (3 pts)
  - ☐ 0.3 to <3 acres (0.12 to <1.2ha) (2 pts)
  - ☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
  - ☐ <0.1 acres (0.04ha) (0 pts)

1	4
---	---

### Metric 2. Upland buffers and surrounding land use.

- max 14 pts. subtotal
- 2a. Calculate average buffer width. Select only one and assign score. Do not double check.
- ☐ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
  - ☐ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
  - ☒ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
  - ☐ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)
- 2b. Intensity of surrounding land use. Select one or double check and average.
- ☒ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7) IMMEDIATE EDGE
  - ☐ LOW. Old field (>40 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) BEYOND

10	14
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### Metric 3. Hydrology.

- max 30 pts. subtotal
- 3a. Sources of Water. Score all that apply.
- ☐ High pH groundwater (5)
  - ☐ Other groundwater (3)
  - ☒ Precipitation (1)
  - ☐ Seasonal/intermittent surface water (3)
  - ☐ Perennial surface water (lake or stream) (5)
- 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 one and assign score.
- ☐ >0.7 (27.6in) (3)
  - ☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
  - ☒ <0.4m (<15.7in) (1)
- 3d. Duration inundation/saturation. Score one or dbl check.
- ☐ 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. Score one or double check and average.
- ☐ None or none apparent (12)
  - ☒ Recovered (7)
  - ☒ Recovering (3)
  - ☐ Recent or no recovery (1)
- Check all disturbances observed
- |   |   |
|---|---|
| <input type="checkbox"/> ditch            | <input type="checkbox"/> point source (nonstormwater) |
| <input type="checkbox"/> tile             | <input type="checkbox"/> filling/grading              |
| <input type="checkbox"/> dike             | <input type="checkbox"/> road bed/RR track            |
| <input type="checkbox"/> weir             | <input type="checkbox"/> dredging                     |
| <input type="checkbox"/> stormwater input | <input type="checkbox"/> other                        |

11.5	25.5
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### Metric 4. Habitat Alteration and Development.

- max 20 pts. subtotal
- 4a. Substrate disturbance. Score one or double check and average.
- ☐ None or none apparent (4)
  - ☒ Recovered (3)
  - ☐ Recovering (2)
  - ☐ Recent or no recovery (1)
- 4b. Habitat development. Select only one and assign score.
- ☐ Excellent (7)
  - ☐ Very good (6)
  - ☐ Good (5)
  - ☒ Moderately good (4)
  - ☐ Fair (3)
  - ☐ Poor to fair (2)
  - ☐ Poor (1)
- 4c. Habitat alteration. Score one or double check and average.
- ☐ None or none apparent (9)
  - ☒ Recovered (6)
  - ☒ Recovering (3)
  - ☐ Recent or no recovery (1)
- Check all disturbances observed
- |  |   |
|--|---|
| <input type="checkbox"/> mowing                          | <input checked="" type="checkbox"/> shrub/sapling removal |
| <input type="checkbox"/> grazing                         | <input type="checkbox"/> herbaceous/aquatic bed removal   |
| <input type="checkbox"/> clearcutting                    | <input type="checkbox"/> sedimentation                    |
| <input checked="" type="checkbox"/> selective cutting    | <input type="checkbox"/> dredging                         |
| <input checked="" type="checkbox"/> woody debris removal | <input type="checkbox"/> farming                          |
| <input type="checkbox"/> toxic pollutants                | <input type="checkbox"/> nutrient enrichment              |

25.5
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Site: W11 Rater(s): SPL (VRS) Date: 9/29/04

25.5  
subtotal first page  
0 25.5  
max 10 pts. subtotal

### Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

9 34.5  
max 20 pts. subtotal

### Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.  
Score all present using 0 to 3 scale.

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

6b. horizontal (plan view) Interspersion.  
Select only one.

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

6c. Coverage of Invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

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

6d. Microtopography.

Score all present using 0 to 3 scale.

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

#### Vegetation Community Cover Scale

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

#### Narrative Description of Vegetation Quality

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

#### Mudflat and Open Water Class Quality

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

#### Microtopography Cover Scale

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

REED CANARY GRASS

34.5 GRAND TOTAL (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: <http://www.apa.state.oh.us/osw/401401.html>  
last revised 1 February 2001 jim

CATEGORY 2

Site: <u>W12 A+B</u>	Rater(s): <u>SR/LURS</u>	Date: <u>9/29/04</u>
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0	0
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### Metric 1. Wetland Area (size).

- max 6 pts. subtotal
- Select one size class and assign score.
- ☐ >50 acres (>20.2ha) (6 pts)
  - ☐ 25 to <50 acres (10.1 to <20.2ha) (5 pts)
  - ☐ 10 to <25 acres (4 to <10.1ha) (4 pts)
  - ☐ 3 to <10 acres (1.2 to <4ha) (3 pts)
  - ☐ 0.3 to <3 acres (0.12 to <1.2ha) (2 pts)
  - ☐ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
  - ☒ <0.1 acres (0.04ha) (0 pts)

1	1
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### Metric 2. Upland buffers and surrounding land use.

- max 14 pts. subtotal
- 2a. Calculate average buffer width. Select only one and assign score. Do not double check.
- ☐ WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
  - ☐ MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
  - ☐ NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
  - ☒ VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)
- 2b. Intensity of surrounding land use. Select one or double check and average.
- ☐ VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
  - ☐ LOW. Old field (>10 years), 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)

4	5
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### Metric 3. Hydrology.

- max 30 pts. subtotal
- 3a. Sources of Water. Score all that apply.
- ☐ High pH groundwater (5)
  - ☐ Other groundwater (3)
  - ☒ Precipitation (1)
  - ☐ Seasonal/intermittent surface water (3)
  - ☐ Perennial surface water (lake or stream) (5)
- 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 one and assign score.
- ☐ >0.7 (27.6in) (3)
  - ☐ 0.4 to 0.7m (15.7 to 27.6in) (2)
  - ☒ <0.4m (<15.7in) (1)
- 3d. Duration inundation/saturation. Score one or dbl check.
- ☐ 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. Score one or double check and average.
- ☐ None or none apparent (12)
  - ☐ Recovered (7)
  - ☐ Recovering (3)
  - ☒ Recent or no recovery (1)
- Check all disturbances observed
- |   |   |
|---|---|
| <input type="checkbox"/> ditch            | <input type="checkbox"/> point source (nonstormwater) |
| <input type="checkbox"/> tile             | <input type="checkbox"/> filling/grading              |
| <input type="checkbox"/> dike             | <input checked="" type="checkbox"/> road bed/RR track |
| <input type="checkbox"/> weir             | <input type="checkbox"/> dredging                     |
| <input type="checkbox"/> stormwater input | <input type="checkbox"/> other                        |

3	8
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### Metric 4. Habitat Alteration and Development.

- max 20 pts. subtotal
- 4a. Substrate disturbance. Score one or double check and average.
- ☐ None or none apparent (4)
  - ☐ Recovered (3)
  - ☐ Recovering (2)
  - ☒ Recent or no recovery (1)
- 4b. Habitat development. Select only one and assign score.
- ☐ Excellent (7)
  - ☐ Very good (6)
  - ☐ Good (5)
  - ☐ Moderately good (4)
  - ☐ Fair (3)
  - ☐ Poor to fair (2)
  - ☒ Poor (1)
- 4c. Habitat alteration. Score one or double check and average.
- ☐ None or none apparent (8)
  - ☐ Recovered (6)
  - ☐ Recovering (3)
  - ☒ Recent or no recovery (1)
- Check all disturbances observed
- |  |   |
|--|---|
| <input checked="" type="checkbox"/> mowing               | <input checked="" type="checkbox"/> shrub/sapling removal |
| <input type="checkbox"/> grazing                         | <input type="checkbox"/> herbaceous/aquatic bed removal   |
| <input type="checkbox"/> clearcutting                    | <input type="checkbox"/> sedimentation                    |
| <input type="checkbox"/> selective cutting               | <input type="checkbox"/> dredging                         |
| <input checked="" type="checkbox"/> woody debris removal | <input type="checkbox"/> farming                          |
| <input type="checkbox"/> toxic pollutants                | <input type="checkbox"/> nutrient enrichment              |

8
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Site: W12A2B Rater(s): SRL (URS) Date: 9/29/07

8

subtotal first page

0 8

max 10 pts.

subtotal

### Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

2 10

max 20 pts.

subtotal

### Metric 6. Plant communities, interspersions, microtopography.

#### 6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

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

#### 6b. horizontal (plan view) Interspersion.

Select only one.

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

#### 6c. Coverage of Invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

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

#### 6d. Microtopography.

Score all present using 0 to 3 scale.

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

#### Vegetation Community Cover Scale

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

#### Narrative Description of Vegetation Quality

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

#### Mudflat and Open Water Class Quality

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

#### Microtopography Cover Scale

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

10 GRAND TOTAL (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: <http://www.epa.state.nh.us/denw/401401.htm>  
last revised 1 February 2001 jfm

CATEGORY 1

Site: <u>W3A15</u>	Rater(s): <u>SRL/URS</u>	Date: <u>09/29/04</u>
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**1 1 Metric 1. Wetland Area (size).**

max 6 pts. subtotal

Select one size class and assign score.

1

☐ >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) (2 pts)  
☒ 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)  
☐ <0.1 acres (0.04ha) (0 pts)

**2 2 Metric 2. Upland buffers and surrounding land use.**

max 14 pts. subtotal

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

0

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

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

1

☐ 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)

**9 11 Metric 3. Hydrology.**

max 30 pts. subtotal

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

4

☐ High pH groundwater (5)  
☐ Other groundwater (3)  
☒ Precipitation (1)  
☒ Seasonal/intermittent surface water (3)  
☐ Perennial surface water (lake or stream) (5)

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

1

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

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

2

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

3b. Connectivity. Score all that apply.

0

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

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

2

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

Check all disturbances observed

☐ ditch  
☐ levee  
☐ dike  
☐ weir  
☐ stormwater input

☐ point source (nonstormwater)  
☒ filling/grading  
☒ road bed/AR track AT ROAD  
☐ dredging  
☐ other

**2 13 Metric 4. Habitat Alteration and Development.**

max 20 pts. subtotal

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

1

☐ None or none apparent (4)  
☐ Recovered (3)  
☐ Recovering (2)  
☒ Recent or no recovery (1)

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

1

☐ 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.

3

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

Check all disturbances observed

☒ mowing AT EDGES  
☐ grazing  
☐ clearcutting  
☒ selective cutting  
☒ woody debris removal  
☐ toxic pollutants

☒ shrub/sapling removal  
☒ herbaceous/aquatic bed removal  
☒ sedimentation SOME  
☐ dredging  
☒ farming EDGES  
☐ nutrient enrichment

Site: V13 A2 B Rater(s): SRL (URS) Date: 9/29/04

13

subtotal first page

0 13

max 10 pts.

subtotal

### Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

1 14

max 20 pts.

subtotal

### Metric 6. Plant communities, interspersions, microtopography.

#### 6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

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

#### 6b. horizontal (plan view) Interspersion.

Select only one.

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

#### 6c. Coverage of Invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

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

#### 6d. Microtopography.

Score all present using 0 to 3 scale.

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

#### Vegetation Community Cover Scale

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

#### Narrative Description of Vegetation Quality

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

#### Mudflat and Open Water Class Quality

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

#### Microtopography Cover Scale

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

REED CANARY GRASS

-1

14

GRAND TOTAL (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: <http://www.epa.state.oh.us/dsw/401401.html>  
last revised 1 February 2001 jjm

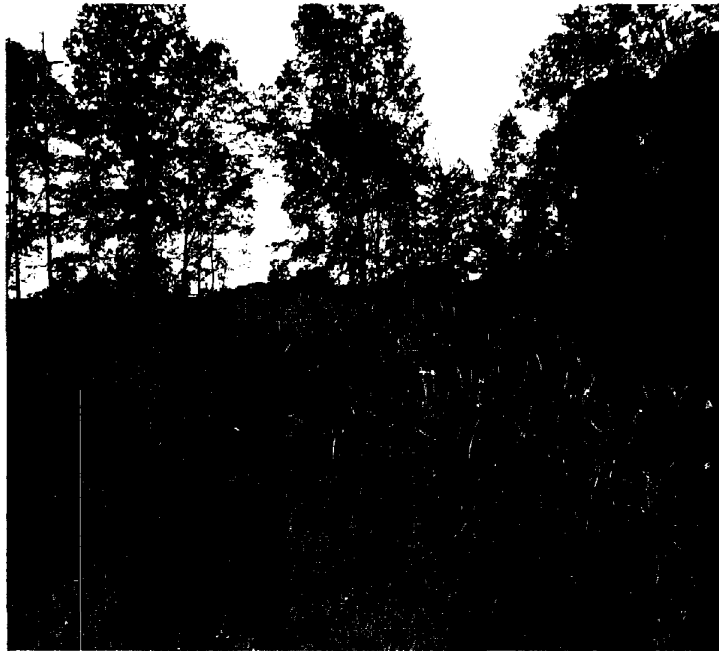
CATEGORY 1



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**APPENDIX 07-4**

**SELECTED PHOTOGRAPHS**



Photograph 1: View of Wetland 1 from the east.



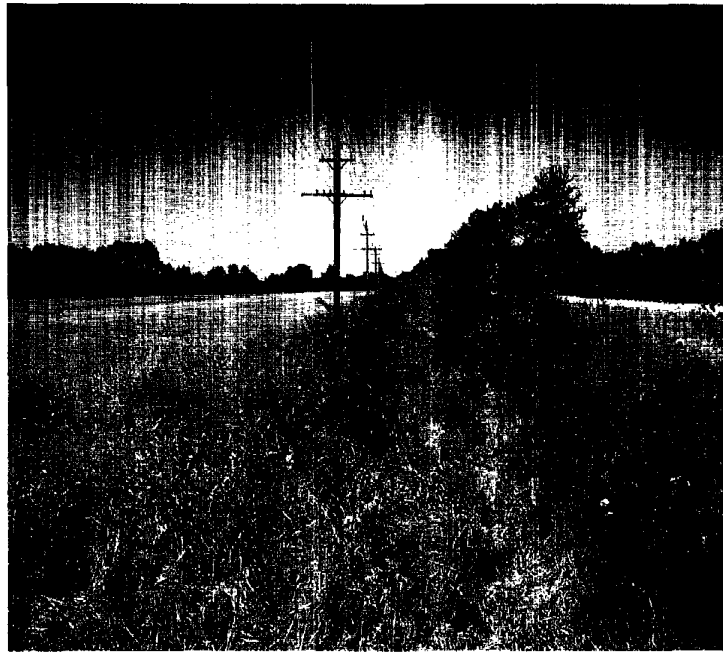
Photograph 2: View of Wetland 2 facing east-southeast.



Photograph 3: View of Wetland 2 from the east. This location is immediately south of the Norfolk and Western Railroad.



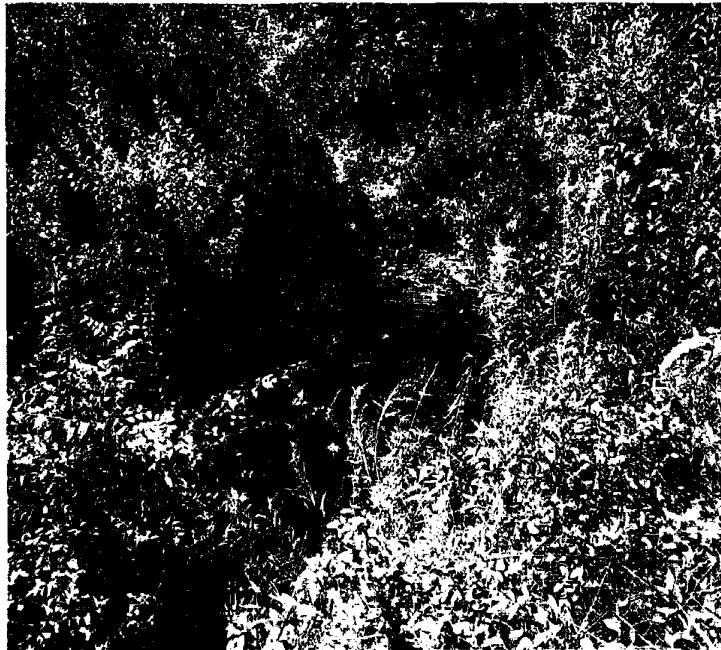
Photograph 4: Another view of Wetland 2 facing west. This photograph was taken from a location east of Photograph 3.



Photograph 5: View of Wetland 3A facing west-northwest.



Photograph 6: View of Wetland 3B facing east.



Photograph 7: View of Stream 1A from the north (UT to Indian Camp Run).



Photograph 8: View of Wetland 4B facing east.



Photograph 9: View of Wetland 4C from the Norfolk and Western Railroad, facing south.



Photograph 10: View of Wetland 5 facing east.



Photograph 11: View of Wetland 5 from the north.



Photograph 12: View of Wetland 6 from a generally west direction.



Photograph 13: View of Wetland 7 from a generally east direction.



Photograph 14: View of Wetland 8 facing south-southeast.





Photograph 15: View of Wetland 9A from the southwest.



Photograph 16: View of Wetland 9B facing north-northeast.



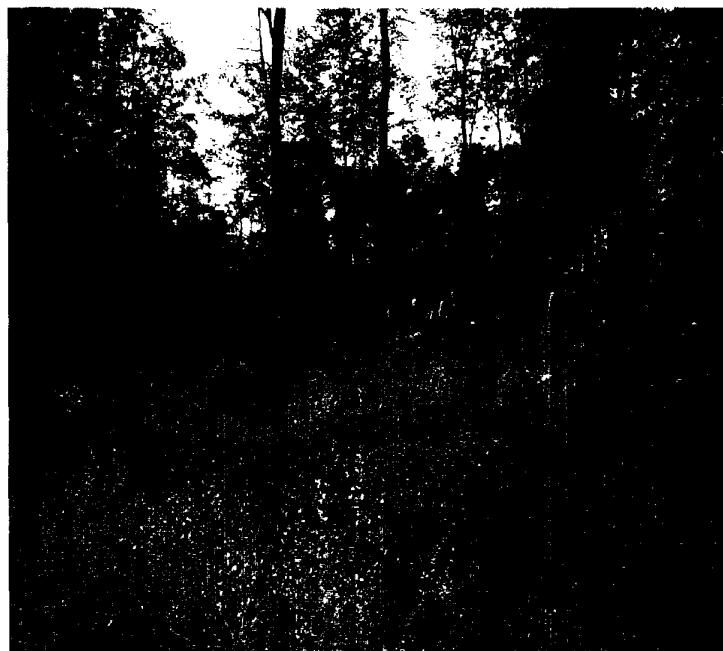
Photograph 17: View of Wetland 9C from the south-southwest.



Photograph 18: View of Stream 3 (UT to Sterling Run) from the southeast.



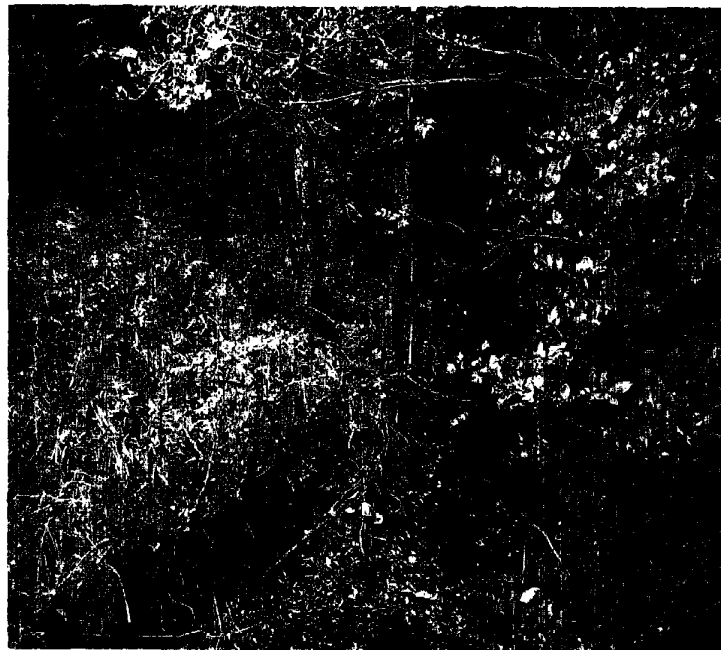
Photograph 19: View of Wetland 10 from the southeast.



Photograph 20: View of Wetland 11 facing east.



Photograph 21: View of Stream 4A (UT to Sterling Run) facing east-northeast, along the south side of Waits Road.



Photograph 22: View of Stream 5A (UT to Sterling Run) facing southeast.



Photograph 23: View of Wetland 12A from a generally east direction.



Photograph 24: View of Wetland 12B facing north.