Large Filing Separator Sheet

Case Number: 10-2661-GA-BLN

File Date: 11/16/20019

Section: 2 of 2

Number of Pages: 106

Description of Document: Letter of Notification

APPENDIX D

Site Drawing Checklist

D-1 SITE DRAWING CHECKLIST **

- **Location of solid waste dumpsters**
- **Location designated for waste drums of oil soaked absorbent pads/rags; solids, sludge, or oil collected from pipeline**
- **Locations of sanitary facilities such as Port-a-Jons (update these locations on drawings as project progresses)**
- **Locations of diesel and gasoline storage tanks (secondary containment provided)**
- **Locations of pipe and equipment storage yards**
- **Locations of cement truck washout**

** ***These locations can be hand drawn on the site drawings.***

ATTACHMENT G

AGENCY CORRESPONDENCE

PIR-006

Sam S Mathew/Services/6/Dom
03/25/2009 05:00 PM

To Judith Box/Services/6/Dom@VANCPOWER
cc
bcc
Subject Fw: 09-0066; DEOG PIR Segment L#234, Mohican Transmission Phase I

FYI - Please forward.

Sam

---- Forwarded by Sam S Mathew/Services/6/Dom on 03/25/2009 05:00 PM ----

"Mitch, Brian" <Brian.Mitch@dnr.state.oh.us>
03/25/2009 04:12 PM

To <sam.s.mathew@dom.com>
cc <terry.l.glidden@dom.com>
Subject 09-0066; DEOG PIR Segment L#234, Mohican Transmission Phase I

ODNR COMMENTS TO Sam Mathew, Manger Environmental, 320 Springside Drive, Suite 320, Akron Ohio 44333

Location: The site is located 1 mile north of the junction of County Route 53 and County Route 97, Norton Township, Summit County, Akron West Quadrangle.

Project: The project involves the replacement of approximately 1.95 miles 16" and 20" high pressure pipeline that traverses Summit County.

The Ohio Department of Natural Resources (ODNR) has completed a review of the above referenced project. These comments were generated by an inter-disciplinary review within the Department. These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), the National Environmental Policy Act, the Coastal Zone Management Act, Ohio Revised Code and other applicable laws and regulations. These comments are also based on ODNR's experience as the state natural resource management agency and do not supersede or replace the regulatory authority of any local, state or federal agency nor relieve the applicant of the obligation to comply with any local, state or federal laws or regulations.

Rare and Endangered Species: The ODNR, Division of Natural Areas and Preserves, Natural Heritage Database contains records of rare species near the proposed project. The map I have included with this message displays the locations of the records and corresponds to the attached list.

There are no state nature preserves, state parks, wildlife areas, or scenic rivers in the vicinity of the sites.

Our inventory program has not completely surveyed Ohio and relies on information supplied by many individuals and organizations. Therefore, a lack of records for any particular area is not a statement that rare species or unique features are absent from that area.

Fish and Wildlife: The ODNR, Division of Wildlife (DOW) has the following comments.

The project is within the range of the Indiana bat (*Myotis sodalis*), a state and federally endangered species. The following species of trees have relatively high value as potential Indiana bat roost trees: Shagbark hickory (*Carya ovata*), Shellbark hickory (*Carya laciniosa*), Bittermut hickory (*Carya cordiformis*), Black ash (*Fraxinus nigra*), Green ash (*Fraxinus pennsylvanica*), White ash (*Fraxinus americana*), Shingle oak (*Quercus imbricaria*), Northern red oak (*Quercus rubra*), Slippery elm (*Ulmus rubra*), American elm (*Ulmus americana*), Eastern cottonwood (Populus deltoides), Silver maple (*Acer saccharinum*), Sassafras (*Sassafras albidum*), Post oak (*Quercus stellata*), and White oak (*Quercus alba*). Indiana bat habitat consists of suitable trees that include dead and dying trees of the species listed above with exfoliating bark, crevices, or cavities in upland areas or riparian corridors and living trees of the species listed above with exfoliating bark, cavities, or hollow areas formed from broken branches or tops. If suitable trees occur within the project area, these trees must be conserved. If suitable habitat occurs on the project area and trees must be cut, cutting must occur between September 30 and April 1. If suitable trees must be cut during the summer months of April 2 to September 29, a net survey must be conducted in May or June prior to cutting. Net surveys shall incorporate either two net sites per square kilometer of project area with each net site containing a minimum of two nets used for two consecutive nights, or one net site per kilometer of stream within the project limits with each net site containing a minimum of two nets used for two consecutive nights. If no tree removal is proposed, the project is not likely to impact this species.

The project is within the range of the bald eagle (*Haliaeetus leucocephalus*), a state threatened species. The location of bald eagle activity frequently changes. Therefore, closer to the actual date of construction, the applicant must obtain an updated status of bald eagle activity in the area. To obtain any changes in status, contact Andrea Tibbels or Dave Sherman at the Ohio Department of Natural Resources, Division of Wildlife, Crane Creek Wildlife Research Station, for current information on the presence of bald eagles in the area. Andrea can be reached at (419) 898-0960 extension 25 and Dave at extension 24. If a nest is located within ½ mile of the project site, coordination with the DOW is required.

The project is within the range of the elfin skimmer (*Nannothemis bella*), a state endangered dragonfly, the

racket-tailed emerald (*Dorocordulia libera*), a state endangered dragonfly, the chalk-fronted corporal (*Ladona julia*), a state endangered dragonfly. Due to the mobility of these species, the project is not likely to impact these species.

The project is within the range of the black bear (*Ursus americanus*), a state endangered species, and the bobcat (*Lynx rufus*), a state endangered species. Due to the mobility of these species, the project is not likely to have an impact on these species.

The project is within the range of the golden-winged warbler (*Vermivora chrysoptera*), a state endangered bird. Due to the habitat provided by the project area, the DOW believes the project is not likely to impact this species.

The Natural Heritage Database has records near the project area for the spotted turtle (*Clemmys guttata*), a state threatened species, and the Virginia rail (*Rallus limicola*), a state species of concern. Due to the status of these species and the date of the records, the DOW believes the project is not likely to impact these species.

Geological Survey: The ODNR, Division of Geological Survey has the following comments.

Although there are no known mines within the limits of this project, it should be noted that there are some within the vicinity. It is estimated that the mines we have located only represent about 67% of the abandoned underground mines in the state. Other than that, the Geological Survey could not find any geology-related concerns with the project

ODNR appreciates the opportunity to provide these comments. Please contact Brian Mitch at (614) 265-6378 if you have questions about these comments or need additional information.

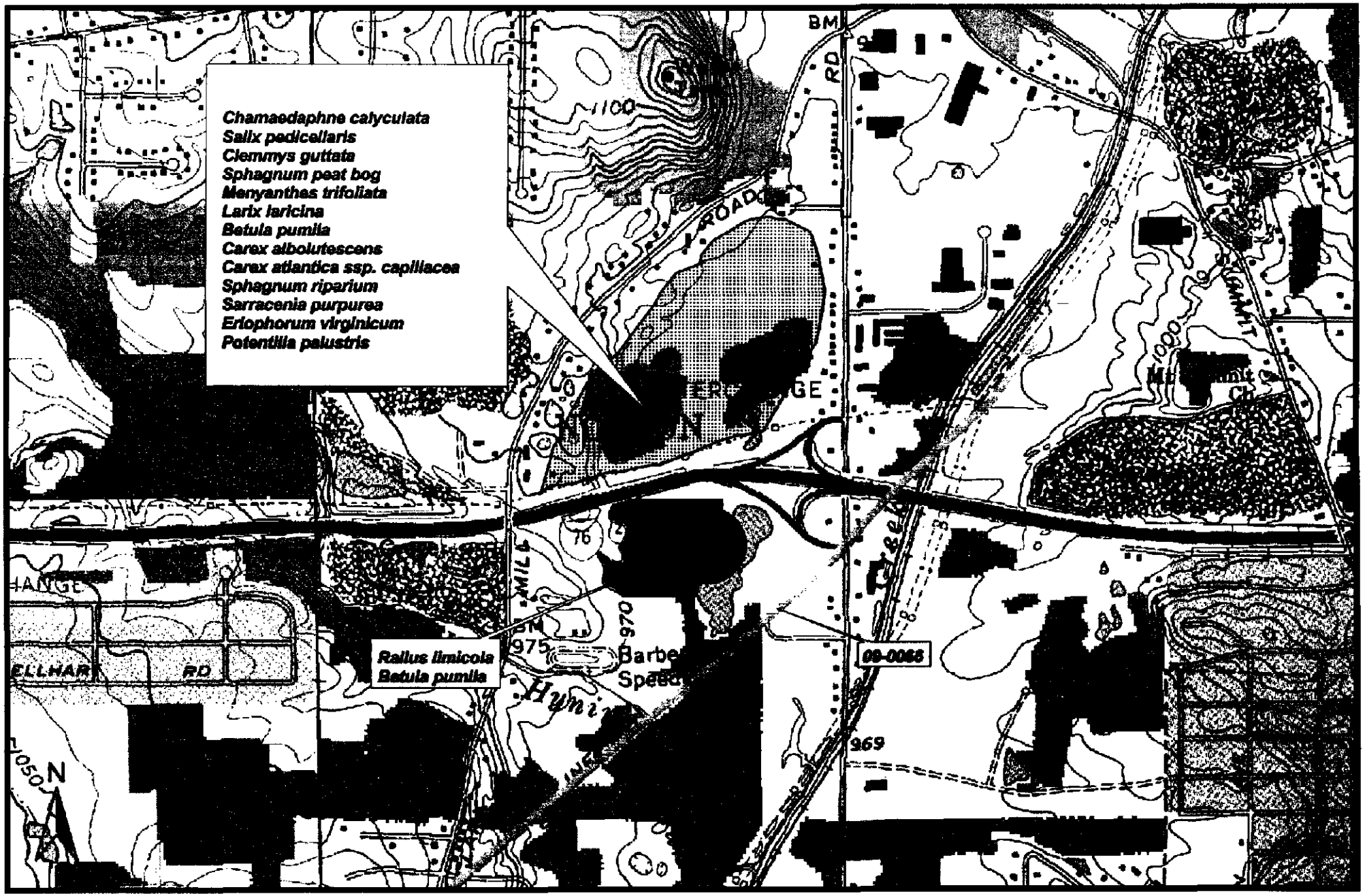
Brian Mitch, Environmental Review Manager
Ohio Department of Natural Resources
Environmental Services Section
2045 Morse Road, Building D-3
Columbus, Ohio 43229-6693
Office: (614) 265-6378
FAX: (614) 267-4764
brian.mitch@dnr.state.oh.us

oledata.mso 09-0066_list.pdf 09-0066_map.pdf

Scientific Name	Common Name	State Status	Federal Status	Last Observed
Betula pumila	Swamp Birch	T		1998-07-20
Betula pumila	Swamp Birch	T		1978-06
Carex albolutescens	Pale Straw Sedge	T		1979-06
Carex atlantica ssp. capillacea	Howe's Sedge	P		1998-07-20
Chamaedaphne calyculata	Leather-leaf	P		1998-07-20
Clemmys guttata	Spotted Turtle	T		1978-05-13
Eriophorum virginicum	Tawny Cotton-grass	P		1978-08
Larix laricina	Tamarack	P		1998-07-20
Menyanthes trifoliata	Buckbean	T		1990-05
Potentilla palustris	Marsh Five-finger	P		1998-07-20
Rallus limicola	Virginia Rail	SC		1983-06
Salix pedicellaris	Bog Willow	E		1990-05
Sarracenia purpurea	Pitcher-plant	P		1978-08
Sphagnum peat bog				1980-09-16
Sphagnum riparium	Shore-growing Peat Moss	E		1985-11-14

E=Endangered
FE=Federally Endangered
FT=Federally Threatened
P=Potentially Threatened
SC=Special Concern
SI=Special Interest
T=Threatened

09-0066



DNAP Natural Heritage Program
Data Services
Butch Grieszmer

0 1

Gregory K Eastridge (Services - 6)

From: Judith Box (Services - 6)
Sent: Monday, October 18, 2010 11:42 AM
To: Leighton C McCoy (Energy - 5); Christina Lovins; Gregory K Eastridge (Services - 6)
Subject: FW: PIR 006 consultation

FYI

From: David_Henry@fws.gov [mailto:David_Henry@fws.gov]
Sent: Monday, October 18, 2010 11:39 AM
To: Judith Box (Services - 6)
Subject: PIR 006 consultation

Dear Ms. Box,

This e-mail is in response to your October 13, 2010 letter requesting consultation concerning PIR 006 (formerly PIR 016-Mohican Transmission L#234 Phase I Project). You have indicated that no changes have been made to the project components since your original February 9, 2009 request for assistance. No new issues concerning federally listed threatened and endangered species have arisen in the project area since our April 30, 2009 response. For these reasons, the statements and conditions contained in our April 30, 2009 letter remain valid for this project. If you have any questions, please do not hesitate to contact me.

Sincerely,

David C. Henry
Wildlife Biologist
US Fish & Wildlife Service
Ohio Ecological Services Field Office
4625 Morse Road, Suite 104
Columbus, OH 43230
Phone: 614-416-8993 ext: 27
Fax: 614-416-8994
E-mail: david_henry@fws.gov

PIR 006

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
4625 Morse Road, Suite 104
Columbus, Ohio 43230
(614) 416-8993 / FAX (614) 416-8994
April 30, 2009

RECEIVED
MAY 11 2009
DOMINION GAS
ENVIRONMENTAL SERVICES

TAILS: 2009-TA-0355
2009-FA-0167

Sam Mathew
Manager Environmental
320 Springside Drive, Suite 320
Akron, OH 44333

Re: East Ohio Gas Company, Pipeline Infrastructure Replacement Program Mohican Transmission L#234 Phase I, Wayne and Summit Counties, Ohio

Dear Mr. Mathew:

This is in response to your February 9, 2009 letter requesting information regarding federally threatened and endangered species at the above-referenced project sites. The proposed project involves the replacement of approximately 1.95 miles of L#234 Phase I bare steel pipe under EOG's Pipeline Infrastructure Replacement (PIR) program. We understand that the proposed project involves pipe replacement in Sherbondy and Norton Townships, Summit County. We understand that a 60' survey corridor was observed centered on the existing ROW, in which upland deciduous woodlots, urban residential development, stream, and wetland habitats were documented. According to your letter, tree clearing is anticipated within the 60' ROW corridor. We understand that 8 streams and 6 wetlands are crossed or encountered within the proposed alignment.

There are no Federal wildlife refuges, wilderness areas, or Critical Habitat within the vicinity of this site.

We recommend that proposed developments avoid and minimize water quality impacts and impacts to high quality fish and wildlife habitat, such as forests, streams, and wetlands. We encourage your efforts to protect sensitive wetland areas through directional drilling, particularly within the streams and wetlands within the forested portion of the project between Barber Road and Clark Mill Road. While directional drilling will generally result in less aquatic impacts than open cutting through a waterbody, the Service is concerned with the potential for frac outs which could negatively impact water quality and wildlife habitat. To avoid such a situation, we recommend that soil data be carefully examined prior to finalizing drilling plans to ensure that frac outs are not likely. Furthermore, test drilling should be completed ahead of time if soils are questionable. Finally, a contingency plan should be put in place to immediately quarantine frac out areas and remediate them.

Best construction techniques should be used to minimize erosion, particularly on slopes. Additionally, natural buffers around streams and wetlands should be preserved to enhance beneficial functions. In addition, we support and recommend mitigation activities that reduce the likelihood of invasive plant spread and encourage native plant colonization. Prevention of non-

native, invasive plant establishment is critical in maintaining high quality habitats. All disturbed areas in the project vicinity should be mulched and revegetated with native plant species. Staging areas should be kept well away from streams and wetlands, and construction areas should be quickly replanted with native vegetation following construction.

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. During winter, Indiana bats hibernate in caves and abandoned mines. 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.

According to your letter, the proposed project area includes wooded locations and tree clearing will be required for this project. You indicated that one potential roost tree was located within the survey area. Because of the potential for suitable Indiana bat habitat, we recommend that habitat and surrounding trees be saved wherever possible. If trees cannot be avoided, they should only be cut **between September 30 and April 1.** Due to the small area of impact, the linear nature of the project, and the limited amount of potential roosting habitat, we believe that implementation of the seasonal tree clearing guidelines is sufficient to avoid and minimize any potential effects to the Indiana bat. If the seasonal tree clearing guidelines cannot be implemented, 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.

This project lies within the range of **northern monkshood** (*Aconitum noveboracense*), a federally listed threatened species. The plant is found on cool, moist, talus slopes or shaded cliff faces in wooded ravines. It appears that no suitable habitat is present within the project area. Therefore, the project, as proposed, should not impact this species or its habitat.

MIGRATORY BIRD COMMENTS: The proposed project lies within the range of the **bald eagle** (*Haliaeetus leucocephalus*), a species protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. The nearest known nest is several miles from the project area. Therefore, due to the project type, size, and location, the project, as proposed, should not impact this species or its habitat. This precludes the need for further action on this project as required by the Migratory Bird Treaty Act, and the Bald and Golden Eagle Protection Act.

Should additional information on listed or proposed species or their critical habitat become available or if new information reveals effects of the action that were not previously considered, our comments and recommendations may be reconsidered. These comments have been prepared under the authority 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 (ESA), as amended, and are consistent with the intent of the National Environmental Policy Act of 1969 and the U. S. Fish and Wildlife Service's Mitigation Policy. This letter provides technical assistance only and does not serve as a completed section 7 consultation document.

We appreciate the opportunity to provide these comments. If you have questions, or if we may be of further assistance in this matter, please contact Jennifer Smith-Castro at extension 14 in this office or by email at Jennifer_Smith-Castro@fws.gov.

Sincerely,

Angela L. Boyer

for Mary Knapp, Ph.D.
Field Supervisor

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

ATTACHMENT H

ENVIRONMENT & ARCHEOLOGY, LLC WETLAND DELINEATION REPORT

WETLAND DELINEATION REPORT

East Ohio Gas Company (EOG)
Pipeline Infrastructure Replacement Program (PIR)

PIR 006 - Mohican Transmission Phase I (L#234)
10,300-feet
16- and 20-Inch Diameter Transmission Pipeline

Summit County, Ohio

Prepared for:

Terry L. Glidden
Dominion East Ohio
320 Springside Drive
Akron, Ohio 44333

Prepared by:

Environment & Archaeology, LLC
7736 Highway 42, Suite D3/D5
Florence, Kentucky 41042

December 2009

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1.0 INTRODUCTION

In conjunction with the East Ohio Gas Company (EOG) Pipeline Infrastructure Replacement Program (PIR), EOG has proposed the replacement of approximately 10,300-feet (1.9-mile) of transmission pipeline L#234, designated as the PIR 006 - Mohican Transmission Phase I (L#234) project. The L#234 pipeline consists of 16- and 20-inch diameter bare (uncoated) steel pipeline sections interspersed with existing coated steel pipeline sections, in Summit County in northeast Ohio (Appendix A: Figures 1a-1b). Pipeline replacement activities will occur within the existing L#234 right-of-way (ROW). The proposed project components are listed in Table 1, below.

EOG retained *Environment & Archaeology, LLC* to perform a wetland delineation survey of the proposed construction corridor (project area) for the Project. The survey area associated with the project consisted of a 60-foot wide corridor matching the existing transmission line easement limits, in addition to sections of existing coated steel pipeline outside of the project area and secondary roads and/or driveways which may be utilized for construction equipment access (survey area greater than project area). This report does not include information regarding staging areas, pipeyards, or other additional temporary work spaces.

Field surveys were conducted December 17 and 18, 2008 by *Environment & Archaeology, LLC* personnel, designed to identify waterbody and wetland encroachments within the survey area in accordance with current state and federal regulations. The field survey identified eight (8) stream crossing sites of eight (8) different stream channels, and seven (7) wetland crossing sites of 6 different wetland features along the survey area (Appendix A: Figures 1a-1b). This report details the methodology used during the survey and describes the survey findings.

2.0 METHODOLOGY

Environment & Archaeology, LLC utilized the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) to perform wetland delineations for this project. This methodology calls for a step-by-step approach to the delineation which identifies the presence or absence of three factors: hydrophytic vegetation, hydric soils, and wetland hydrology. Each factor must be present if a location is to be considered a wetland. Prior to visiting the site, relevant resource information on the proposed project area was reviewed to determine the potential presence of wetlands, including: U.S. Geological Survey 7.5' topographic maps, U.S.Department of Agriculture, Natural Resource Conservation Service (USDA, NRCS) soil surveys, National Wetlands Inventory Maps, and Ohio Wetland Inventory Maps.

Table 1.
Proposed Project Components
Proposed PIR 006 Mohican Transmission Phase I (L#234)
Summit County, Ohio

Project Facilities	Construction Dimensions					Survey I		
	Diameter (in)	Length (ft)	Width (ft)	Disturbance (acres)	Comments for Acres Disturbed/Land Use	Length (ft)	Width (ft)	Acres Surveyed
PIPELINE REPLACEMENT WITHIN EXISTING ROW EASEMENT								
L#234	16"	7,000	50	9.64	Existing pipeline easement; line will be parallel to existing pipelines at some locations. Land use included urban/industrial turf (residential), upland deciduous forest, bottomland deciduous forest, palustrine emergent wetland, palustrine emergent scrub/shrub wetland, and palustrine emergent forested wetland complex.	8,600	60	11.84
L#234	20"	3,300	50	4.55	Existing pipeline easement; line will be parallel to existing pipeline at some locations. Land use included urban/industrial turf (residential, commercial and light industrial), old field, agricultural row crop, upland scrub shrub, upland deciduous forest, palustrine emergent wetland, palustrine emergent scrub/shrub wetland,.	8,700	60	11.99
SUBTOTAL		**10,300**	**50**	**14.19**	---	**17,300**	**60**	**23.83**

After a review of the agency resource information, *Environment & Archaeology, LLC* conducted a field delineation of the survey area, utilizing the routine on-site method for delineation. Representative plots were taken within the survey area wherever a change in the vegetation, soils, or hydrology became apparent. During sampling, a determination was made as to whether the plot was a wetland or upland site. If an area was determined to be a wetland site, additional sampling of vegetation, soils and hydrology was performed to determine the boundaries of the wetland area. Dominant vegetation was determined by estimating percent areal coverage for the most prevalent species which cumulatively totaled 50 percent of the areal coverage along with any other single species accounting for at least 20 percent coverage within a plot. Each dominant species identified was assigned its pertinent wetland indicator status (Reed 1988).

If a wetland site was identified during the field survey, the wetland/upland boundary of each wetland was marked with pink flagging tape. A handheld GPS unit possessing sub-meter accuracy was used to mark each flag location. Each wetland area was photo-documented, then described in accordance with characteristics assigned by Cowardin, et al. (1979), and assessed utilizing the Ohio Rapid Assessment Method for Wetlands, v5 (ORAM v.5) Field Form. Total size of each identified wetland area was estimated based on ArcGIS mapping measurements.

3.0 AGENCY RESOURCE INFORMATION

Prior to initiation of the field survey, available agency resource information was reviewed to determine the likelihood of streams and wetlands being present within the proposed survey area.

3.1 U.S. Geological Survey (USGS) Maps

The survey area associated with the project is located on the following USGS 7.5-minute topographic maps: Wadsworth and Akron West, Ohio (Appendix A: Figures 1a-1b). The project alignment occurs within a pipeline easement that traverses Summit County in a primarily northeast-southwest alignment. The proposed L#234 project initiates in the north at the Barnes Road Station, just east of Collier Road and north of Wadsworth Road in the city of Akron, then continues to the southwest approximately 17,000-feet (3.2-miles), and terminates at the Wilbur Station south of Wilbur Avenue in Norton. The elevations associated with the project area range from approximately 970 feet to 1,080 feet above mean sea level (AMSL) and the terrain is comprised of predominantly suburban/residential areas that also includes a mix of agricultural, open lands and forest cover across level to occasional areas of moderately steep slope aspects.

The entire proposed PIR 006 - Mohican Transmission Phase I (L#234) project area is located within the Tuscarawas River Basin (HUC-8: 05040001). The following USGS-identified stream features are mapped within the survey area:

- 2 crossings of 2 USGS perennial named (Wolf Creek and Van Hyning Run)
- 2 crossings of 1 USGS perennial unnamed tributary
  - 1 unnamed tributary to Wolf Creek

- 1 crossing of 1 USGS intermittent unnamed tributary
  1 unnamed tributary to Wolf Creek

3.2 National Wetland Inventory (NWI) Map

Review of the corresponding National Wetland Inventory Maps, prepared by the United States Fish and Wildlife Service, for the survey area are summarized below. The absence of NWI-identified wetlands within a portion of the project area, however, does not preclude the possible existence of wetlands in the area. NWI maps utilize high altitude, stereoscopic, aerial photography, and is partially dependent on the conditions at the time of the photograph. In many cases, small wetlands may not be identified. The determination of the presence of wetlands is based on vegetation, hydrology, and topography.

The survey area associated with the L#234 project in Summit County is located on the Wadsworth and Akron West NWI Maps (Appendix B: Figures 2a-2b), which identify three (3) surface water complexes in the survey area vicinity, including:

R2OWZ - Wetland complex including a riverine, lower-perennial, open-water wetland system with an unknown/unspecified substrate material and having an intermittently exposed/permanent water regime. One (1) NWI-identified R2OWZ wetland occurs within the L#234 project area, which is associated with the USGS perennial mapped surface water feature of Wolf Creek.

P[FO/SS]1Y - Wetland complex including a palustrine, forested and scrub/shrub wetland system with broad-leaved deciduous vegetation and having a saturated/semi-permanent/seasonal water regime. One (1) NWI-identified P[FO/SS]1Y wetland occurs in the vicinity of the L#234 project area, which is associated with low-lying area situated between two USGS perennial mapped surface water features, namely Wolf Creek and Van Hyning Run.

PEMY - Wetland complex including a palustrine, emergent wetland system having a saturated/semi-permanent/seasonal water regime. One (1) NWI-identified PEMY wetland occurs within the L#234 project area, which is associated with low-lying area situated adjacent to a USGS perennial mapped surface water feature, namely Van Hyning Run.

3.3 Ohio Wetland Inventory Maps

Ohio Wetlands Inventory Maps, prepared by the Ohio Department of Natural Resources, have been published for Summit County, Ohio, and were downloaded for GIS mapping (ODNR 2008). The survey area associated with the proposed project is indicated on Figures 3a-b (Appendix C). The OWI maps identified the following potential wetland types in the survey area vicinity:

woods on hydric soils, shrub/scrub, shallow marsh, and wet meadow.

The Ohio Wetlands Inventory is based on analysis of satellite data and is intended solely as an indicator of wetland sites for which field review should be conducted. The satellite data reflects conditions during the specific year and season the data was acquired and all wetlands may not be indicated. The Ohio Wetlands Inventory for Summit County was produced with April 1987 Landsat Thematic mapper data using ERDAS Image processing software.

3.4 Natural Resource Conservation Service (NRCS) Soil Surveys

The U.S. Department of Agriculture publishes Soil Surveys for almost every county in the United States. The information in the surveys is used by planners and agrarians to determine the appropriate uses and limitations of a particular soil. Soil Surveys identify prime farmlands, slopes, waterways and hydric soils within the county. Hydric soils are soils which formed under saturated conditions.

Table 2.
Soil Types Crossed
Proposed PIR 006 Mohican Transmission Phase I (L#234)
Summit County, Ohio

Component	County	Soil Type	Symbol	Hydric Status
L#234	Summit	Canfield silt loam, 2 to 6 percent slopes	CdB	Non Hydric
		Canfield Urban land complex, undulating	CfB	Non Hydric
		Carlisle muck	Cg	Hydric
		Chili loam, 0 to 2 percent slopes	CnA	Non Hydric
		Chili loam, 2 to 6 percent slopes	CnB	Non Hydric
		Chili gravelly loam, 6 to 12 percent slopes, moderately eroded	CoC2	Non Hydric
		Chili silt loam, 2 to 6 percent slopes	CpB	Non Hydric
		Chili silt loam, 6 to 12 percent slopes	CpC	Non Hydric
		Chili Urban land complex, rolling	CuC	Non Hydric
		Conotton Oshtemo complex, 18 to 25 percent slopes	CyE	Non Hydric
		Fitchville silt loam, 0 to 2 percent slopes	FcA	Hydric
		Loudonville silt loam, 2 to 6 percent slopes	LoB	Non Hydric
		Luray silt loam	Ly	Hydric
		Oshtemo sandy loam, 2 to 6 percent slopes	OsB	Non Hydric
		Ravenna silt loam, 0 to 2 percent slopes	ReA	Non Hydric
		Sebring silt loam	Sb	Hydric

The presence of hydric soils on a site indicates the historical presence of conditions which would favor the development of wetlands. The presence of hydric soil types on a site, however, does not

guarantee the presence of wetlands. Due to changes in vegetation patterns, hydrology, and hydrophytic vegetation, wetlands may no longer be present within the area.

Review of the online Web Soil Survey for Summit County, Ohio (Soil Survey Staff 2008) provided descriptions of soil types present within the survey area, as well as the presence of potential surface waters, wetlands, and hydric soils. A brief description of each soil type located within the survey area, as well as its hydric status is located in Table 2, and Figures 4a-4b (Appendix D) illustrate the location of the survey area in reference to soil survey mapping.

The entire project area is located in Summit County. The print version of the Soil Survey for Summit County, Ohio is no longer available, and the Web Soil Survey does not provide mapping or descriptions of soil associations.

4.0 SITE DESCRIPTION

The proposed L#234 project initiates in the north at the Barnes Road Station, just east of Collier Road and north of Wadsworth Road in the city of Akron, then continues to the southwest approximately 17,300-feet (3.3-miles), and terminates at the Wilbur Station south of Wilbur Avenue in Norton. Of this 17,300-foot distance, approximately 10,300-feet is defined as the project area (construction corridor), with the remaining distance included as additional survey area for potential equipment access routes. The survey width extended 30 feet to each side of the pipeline centerline, for a maximum width of 60 feet, which also comprises the existing permanent easement limits of the L#234 right-of-way. The field survey routes followed the existing pipeline right-of-way easements having varied levels of clearing maintenance, in addition to covering adjacent properties which may be utilized as access routes for construction equipment to the L#234 right-of-way. The 60-foot width of the survey area has been projected to be the necessary construction width to allow successful installation of the replacement pipeline.

Nine (9) land use types were identified within and adjacent to the survey area associated with the project: 1) urban/industrial turf, 2) agricultural - row crop, 3) old field, 4) upland scrub-shrub, 5) upland deciduous forest, 6) bottomland deciduous forest, 7) palustrine emergent wetland, 8) palustrine emergent-scrub/shrub wetland, and 9) palustrine emergent-forested wetland. A brief description of each vegetation community is provided below.

Urban/industrial turf: Major portions of the survey area occur within developed and residential locations, from light industrial and commercial facilities to suburban subdivisions containing a matrix of connector roads and cul-de-sacs. Urban/industrial turf within the survey area was comprised of impervious and semi-pervious surfaces such as existing paved and/or gravel roadways and residential driveways. The proposed project will cross numerous township, county and state maintained roadways.

In addition to the impervious and semi-pervious surfaces, urban/industrial turf also includes maintained lawn vegetation and landscaping along roadways, surrounding residential properties, and within the existing pipeline ROW.

Agricultural - row crop: Agricultural land use occurs in limited extent within the survey area, comprised exclusively of a single row-crop field which had been planted in corn. Vegetation present in untilled sections of row-crop field were dominated by fescue grasses (*Festuca* spp.) and raspberry shrub (*Rubus* sp.).

Old field: Old field vegetation was identified in idle lands adjacent to and within the survey area. Dominant vegetation within these areas include fescue (*Festuca* spp.), ironweed (*Vernonia* sp.), Queen Anne's lace (*Daucus carota*), goldenrod (*Solidago* spp.), red clover (*Trifolium pratense*), white clover (*Trifolium repens*), dandelion (*Taraxacum officinale*), English plantain (*Plantago lanceolata*), field garlic (*Allium vineale*), field thistle (*Cirsium discolor*), and pokeweed (*Phytolacca americana*).

Upland scrub-shrub: Upland scrub-shrub vegetation was located adjacent to and within small portions of the survey area. Dominant vegetation within these areas include the following species: staghorn sumac (*Rhus typhina*), multiflora rose (*Rosa multiflora*), brambles (*Rubus* spp.), teasel (*Dipsacus sylvestris*), goldenrod (*Solidago* spp.), greenbrier (*Smilax* spp.), garlic mustard (*Allaria petiolata*), and wild grape (*Vitis* spp.).

Upland deciduous forest: Upland deciduous forest areas adjacent to the L#234 right-of-way, including wooded fence rows, consist of sugar maple (*Acer saccharum*), mixed oak species (*Quercus* sp.), black cherry (*Prunus serotina*) and ash (*Fraxinus* sp.). The herbaceous and shrub understory mix included garlic mustard, violet, (*Viola* spp.), multiflora rose and poison ivy (*Toxicodendron radicans*).

Bottomland deciduous forest: Bottomland deciduous forest areas adjacent to the L#234 right-of-way were located in low-lying, floodplain locations which were outside of wetland complexes. These areas were dominated by red maple (*Acer rubrum*) and ash, with very limited understory growth present.

Palustrine emergent wetland: Emergent growth in wetland areas consisted of the following species: canary grass (*Phalaris arundinacea*), common reed (*Phragmites australis*), soft rush (*Juncus effusus*), common cattail (*Typha latifolia*), bulrush (*Scirpus* sp.), narrow-leaf cattail (*Typha angustifolia*), and goldenrod.

Palustrine emergent-scrub/shrub wetland: Complexes of palustrine emergent-scrub/shrub wetlands possessed a wider diversity of hydrophytic vegetation, with the herbaceous species dominated by canary grass, common cattail, soft rush, bulrush and goldenrod, and woody species dominated by red-osier dogwood (*Cornus stolonifera*), grey dogwood (*Cornus racemosa*), loosestrife (*Lythrum salicaria*), and buttonbush (*Cephalanthus occidentalis*).

Palustrine emergent-forested wetland complex: Palustrine forested components adjacent to the L#234 right-of-way consisted predominantly of red maple, green ash (*Fraxinus pensylvanicum*), and pin oak (*Quercus palustris*), while associated emergent components were dominated by canary grass, soft rush and common cattail.

5.0 DELINEATION RESULTS

The field delineation of the survey area identified eight (8) stream crossing sites of eight (8) different stream channels, and seven (7) wetland crossing sites of six (6) different wetland features along the survey area. A photolog including each surface water and wetland site is included in Appendix E.

5.1 Surface Waters within the Survey Area

The survey area associated with the project area includes eight (8) stream crossing sites of eight (8) different stream channels. Three stream sites occur within right-of-way access survey areas, while five stream sites occur within proposed pipeline replacement installation areas.

Stream sites crossed only by right-of-way access survey areas include:

- two (2) crossings of two (2) Non-USGS intermittent streams (Sites S2 and S5), and
- one (1) crossing of one (1) Non-USGS ephemeral stream (Site S1).

Stream sites crossed by proposed pipeline replacement installation areas consist of:

- two (2) crossings of two (2) USGS named perennial streams (Sites S4 and S6),
- one (1) crossing of one (1) USGS un-named intermittent stream (Site S3), and
- two (2) crossings of two (2) Non-USGS intermittent streams (Sites S7 and S8).

A detail of each stream crossing and the identified stream channel is provided in Table 3; locations of each stream crossing are identified on the Wadsworth and Akron West, Ohio topographic maps in Appendix A, and photo-documentation is provided in the photolog of Appendix E. Appropriate Ohio EPA stream data forms (HHEI or QHEI) for each stream site are included in Appendix H.

5.2 Palustrine Wetlands within the Survey Area

During field surveys, a total of seven wetland crossing sites were identified within six different wetland features along the survey area. Two wetland sites (two separate wetlands) occur exclusively within right-of-way access survey areas, while four wetland sites (three separate wetlands) occur exclusively within proposed pipeline replacement installation areas. One wetland site extends across both right-of-way access survey areas and proposed pipeline replacement installation areas.

Wetland delineation boundary areas and acreage calculations were determined based on field investigation, GIS data collection and ArcGIS mapping measurements (Table 3). The common vegetation identified within each wetland type is addressed in Section 4.0; species-specific information for each wetland, in addition to soil colors/textures data and hydrology criteria can be

found on the Routine Wetland Determination Data Forms in Appendix F. The Ohio Rapid Assessment Method for Wetlands was completed for each wetland identified during the field survey, and ORAM v.5.0 Field Forms are included in Appendix G.

Wetland sites crossed only by right-of-way access survey areas include:

- two (2) palustrine emergent wetlands (W1 and W3);

Wetland sites crossed by proposed pipeline replacement installation areas include:

- two (2) palustrine emergent wetlands (W2a and W6), and
- two (2) palustrine emergent/scrub-shrub wetlands (W2b and W5);

Wetland sites that extend across both right-of-way access survey areas and proposed pipeline replacement installation areas include:

- one (1) palustrine emergent wetland (W4).

Table 3.
Waterbodies Summary Table
Proposed PIR 006 Mohican Transmission Phase I (L#234)
Pipeline Infrastructure Replacement Project
Summit County, Ohio

Environment & Archaeology, LLC Waterbody #	*Waterbody Type*	*NWI/ ORAM Category or USGS identified*	*Isolated Status*	*Bank Dimensions (feet)*	*Water Dimensions (feet)*	*ROW Width Surveyed/ Construction Width (feet)*	*Length of Wetland Crossing (feet)*
ROW ACCESS SURVEY AREAS							
S1 Unnamed tributary 1 to Pigeon Creek	Ephemeral	Non USGS	Non isolated	1.5 2 wide 1.2 1.8 deep	Dry	60/50	
S2 Unnamed tributary 2 to Pigeon Creek	Intermittent	Non USGS	Non isolated	1 5 wide 1.1 deep	0.9 2.7 wide 0.1 1.1 deep	60/50	
W1	PEM	None/ Cat 1	Non isolated			60/50	97
PROPOSED PIPELINE REPLACEMENT INSTALLATION							
W2a	PEM	None/ Cat 1 or 2	Non isolated			60/50	37
W2b	PEM/PSS		Non isolated			60/50	370
S3 Unnamed tributary 3 to Wolf Creek	Intermittent	USGS Perennial	Non isolated	7 wide 3 deep	5 wide 0.5 deep	60/50	
S4 Wolf Creek	Perennial	USGS Perennial	Non isolated	25 30 wide 4 deep	20 25 wide 3 deep	60/50	
ROW ACCESS SURVEY AREAS							
W3	PEM	None/ Cat 1	Non isolated			60/50	
S5 Unnamed tributary 4 to Wolf Creek	Intermittent	Non USGS	Non isolated	0.5 3 wide 1 3 deep	0.5 2 wide 0.5 deep	60/50	

Table 3.
Waterbodies Summary Table
Proposed PIR 006 Mohican Transmission Phase I (L#234)
Pipeline Infrastructure Replacement Project
Summit County, Ohio

Environment & Archaeology, LLC Waterbody #	*Waterbody Type*	*NWI/ ORAM Category or USGS identified*	*Isolated Status*	*Bank Dimensions (feet)*	*Water Dimensions (feet)*	*ROW Width Surveyed/ Construction Width (feet)*	*Length of Wetland Crossing (feet)*
W4	PEM	P[FO/SS]1Y/ Cat Modified 2	Non isolated			60/50	408
PROPOSED PIPELINE REPLACEMENT INSTALLATION							
W4	PEM	P[FO/SS]1Y/ Cat Modified 2	Non isolated			60/50	135
S6 Van Hyning Run	Perennial	USGS Perennial	Non isolated	6 10 wide 6 deep	5 8 wide 1 3 deep	60/50	
W5	PEM/PSS	PEMY/ Cat Modified 2	Non isolated			60/50	579
W6	PEM	None/ Cat 1	Non isolated			60/50	90
S7 Unnamed tributary 5 to Van Hyning Run	Intermittent	Non USGS	Non isolated	0.6 1.5 wide 0.5 deep	0.6 1.5 wide 0.1 deep	60/50	
S8 Unnamed tributary 6 to Van Hyning Run	Intermittent	Non USGS	Non isolated	0.6 1.5 wide 0.5 deep	0.6 1.5 wide 0.1 deep	60/50	
TOTAL		**Linear feet of wetland crossing:**		**Construction =**	**1,211**	**Linear feet of stream**	
				Survey =	**505**		
				TOTAL =	**1,716**		
		Cumulative Wetland Area:		**Construction =**	**1.114 acre**	**Cumulative Stream**	
				Survey =	**0.49 acre**		
				TOTAL =	**1.604 acre**		

6.0 CONCLUSIONS

In conjunction with the Dominion East Ohio Gas Pipeline Infrastructure Replacement Project, EOG has proposed the replacement of approximately 10,300 feet of the 16- and 20-inch diameter L#234 transmission pipeline located in Summit County in northeast Ohio. *Environment & Archaeology, LLC* has completed a wetland delineation of the survey area that follows the existing L#234 pipeline easement, conducted on December 17 and 18, 2008, having a total length of approximately 17,300-feet. The field investigation identified eight (8) stream crossing sites of eight (8) different stream channels, and seven (7) wetland crossing sites of six (6) different wetland features along the survey area.

Successful construction of this project may require the coordination and clearance with the following agencies:

- Clearance from the Ohio Department of Natural Resources (ODNR);
- Clearance from the United States Fish and Wildlife Service;
- Clearance from the Ohio Historical Society;
- Clearance from the US Army Corp of Engineers, Huntington District, under Nationwide Permit 3 for a lift and lay replacement *or* NWP 12 if a new trench will be excavated;
- 401 Water Quality Certification from the Ohio Environmental Protection Agency (OEPA) (see below).

OEPA has issued conditional 401 Water Quality Certification. General and Special Conditions applicable to the proposed project include (this is not a comprehensive list, but includes those most relevant to the project):

- The length of any buried utility line within any single waterbody shall not exceed twice the width of that waterbody at the location of the crossing;
- This Certification shall not authorize the installation of buried utility lines in more than five hundred (500) total linear feet (cumulative for the entire project) of forested wetlands (woody vegetation 6 meters or taller);
- Buried utility line stream crossings shall not exceed a total of three (3) per stream mile per stream;
- The total width of any mechanized land clearing or grading for buried utility lines shall not exceed twenty five (25) feet on either side of a utility line, or for a total width of fifty (50) feet on both sides of the utility line;
- All hydric topsoil removed from a trench shall be separated and saved for later placement as the topmost backfill layer when the trench is refilled;
- New buried utility lines crossing more than 1,500 feet (cumulative for the entire project) of surface waters (including isolated and non-isolated wetlands, and ephemeral, intermittent, and perennial streams [measured bank-to-bank]) and with impacts located in three (or more than two) Ohio EPA 8-digit hydrologic units are not certified.

- Temporary or permanent wetland impacts to Category 1 or 2 wetlands for any single and complete project are limited to a maximum total of 0.5 acre.

Based on the final condition listed above, it appears that the proposed project, dependent upon the cumulative construction impacts, could require, at a minimum, a Pre-Construction Notification, and an Individual 401 Water Quality Certification. Note that the amount of wetland impact would need to be confirmed based on final construction drawings.

7.0 REFERENCES

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APPENDIX A
Figures 1a-1b USGS Topographic Maps

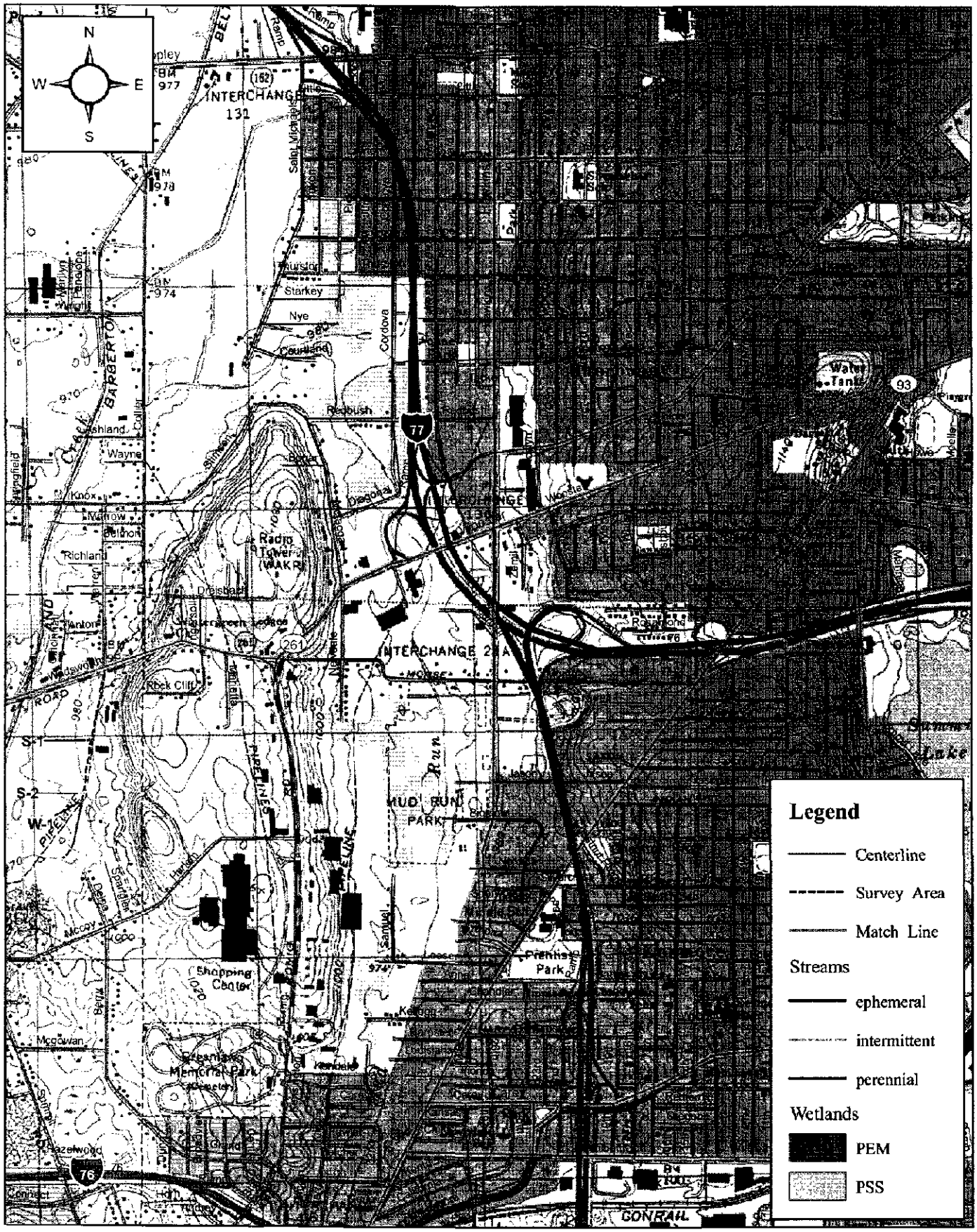


Figure 1a	East Ohio Gas Company Mohican Transmission Phase I Replacement Project Project Location Summit County, Ohio	USGS 7.5' Topographic Map Wadsworth and Akron West, Ohio Quadrangles 1:24,000 *Environment and Archaeology, LLC*

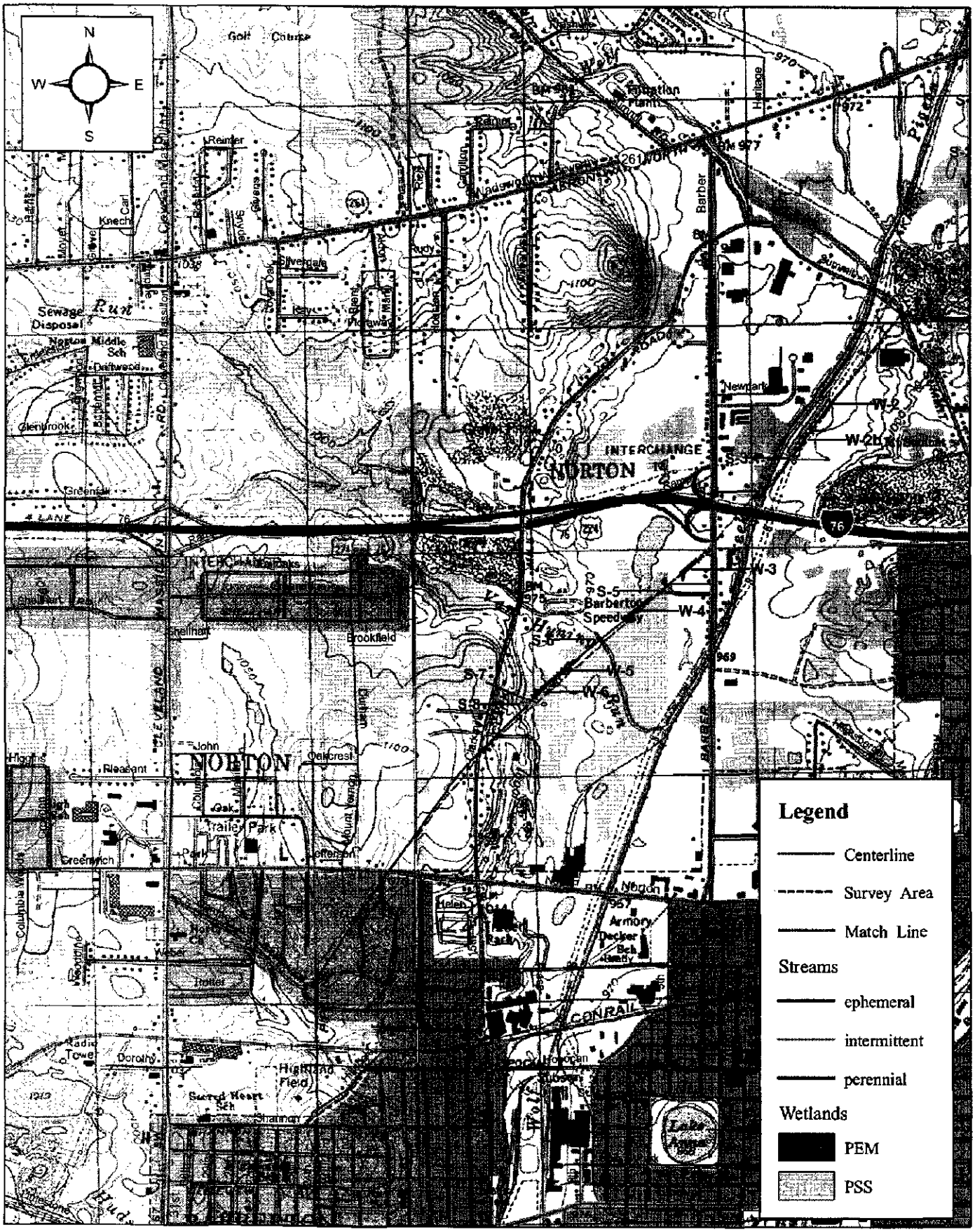


Figure 1b	East Ohio Gas Company Mohican Transmission Phase I Replacement Project Project Location Summit County, Ohio	USGS 7.5' Topographic Map Wadsworth and Akron West, Ohio Quadrangles 1:24,000 *Environment and Archaeology, LLC*

APPENDIX B
Figures 2a-2b National Wetlands Inventory Maps

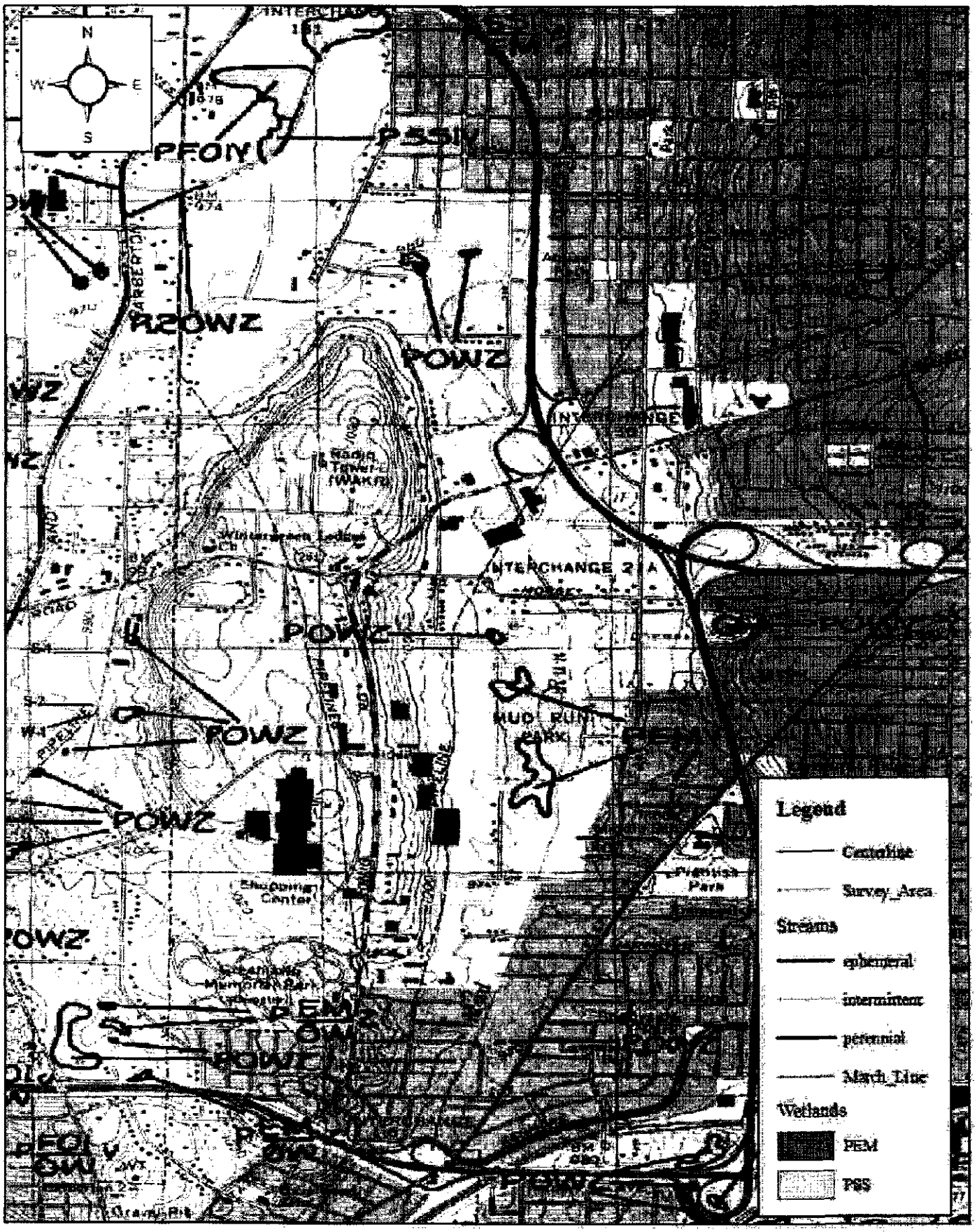


Figure 2a	East Ohio Gas Company Mohican Transmission Phase I Replacement Project Project Location Summit County, Ohio	USGS 7.5' Topographic Map with NWI Overlay Wadsworth and Akron West, Ohio Quadrangles 1:24,000 *Environment and Archaeology, LLC*

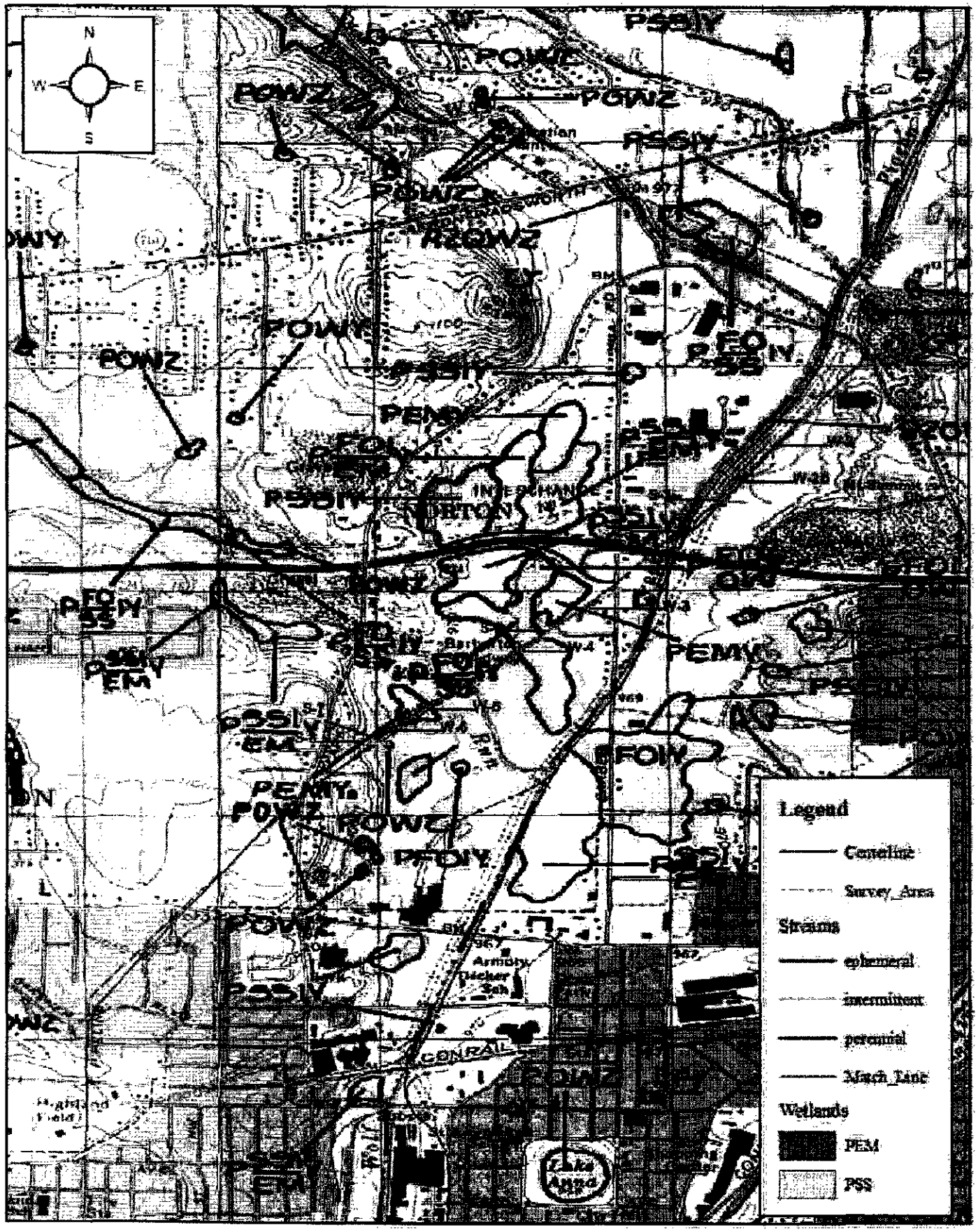


Figure 2b	East Ohio Gas Company Mohican Transmission Phase I Replacement Project Project Location Summit County, Ohio	USGS 7.5' Topographic Map with NWI Overlay Wadsworth and Akron West, Ohio Quadrangles 1:24,000 *Environment and Archaeology, LLC*

APPENDIX C
Figures 3a-3b Ohio Wetlands Inventory Maps

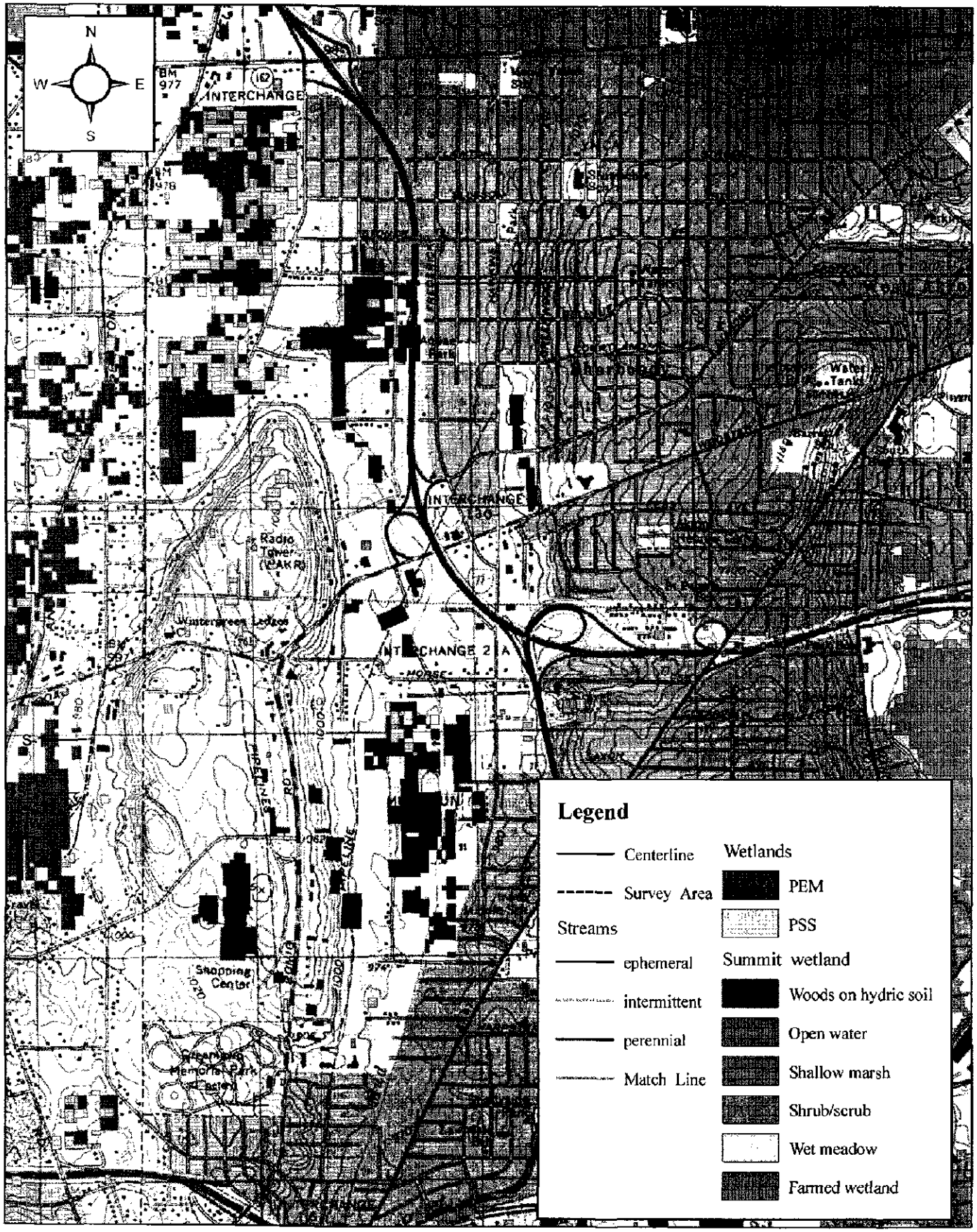


Figure 3a	East Ohio Gas Company Mohican Transmission Phase I Replacement Project Project Location Summit County, Ohio	USGS 7.5' Topographic Map with OWI Overlay Wadsworth and Akron West, Ohio Quadrangles 1:24,000 *Environment and Archaeology, LLC*

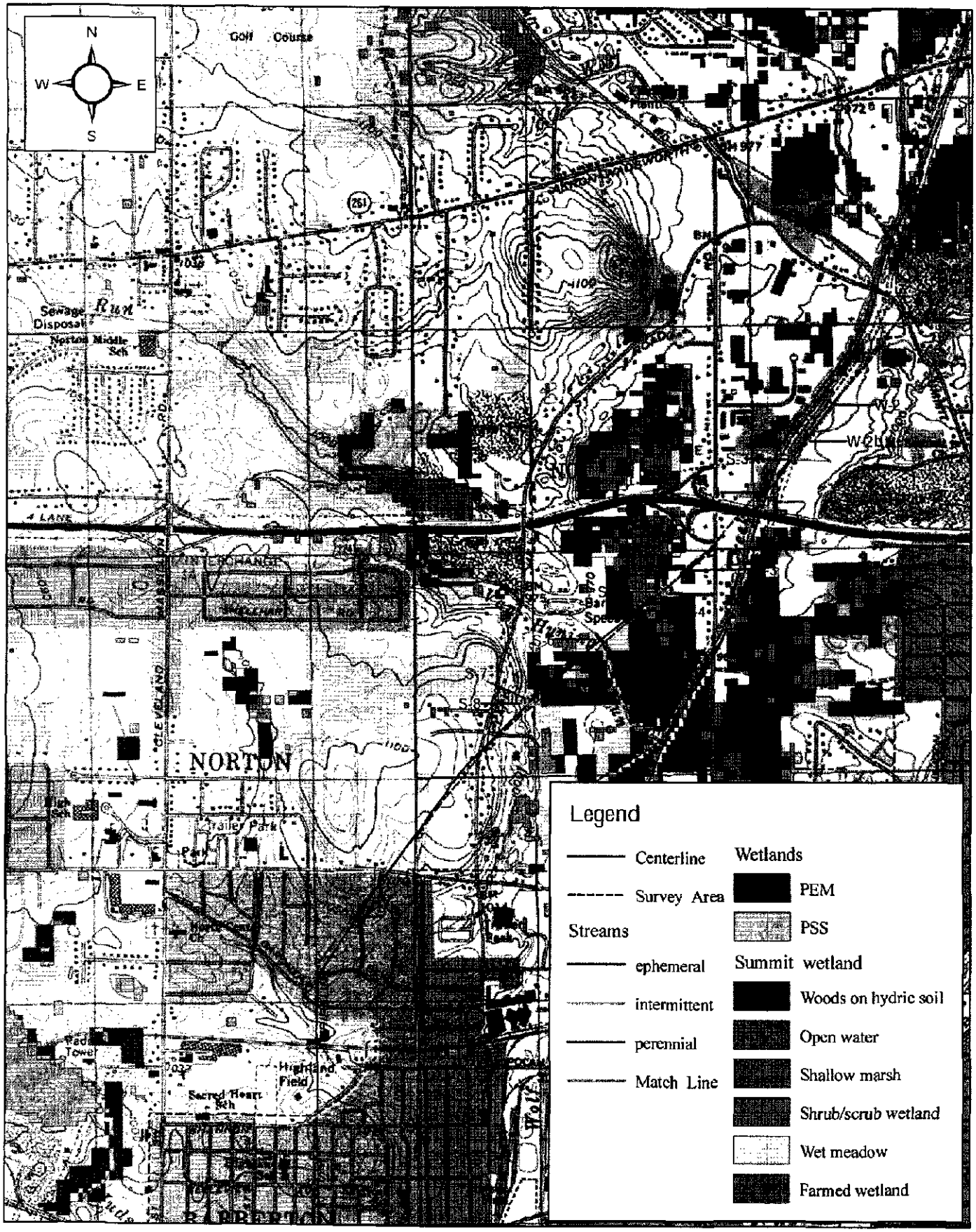


Figure 3b	East Ohio Gas Company Mohican Transmission Phase I Replacement Project Project Location Summit County, Ohio	USGS 7.5' Topographic Map with OWI Wetlands Wadsworth and Akron West, Ohio Quadrangles 1:24,000 *Environment and Archaeology, LLC*

APPENDIX D
Figures 4a-4b USDA Soil Maps

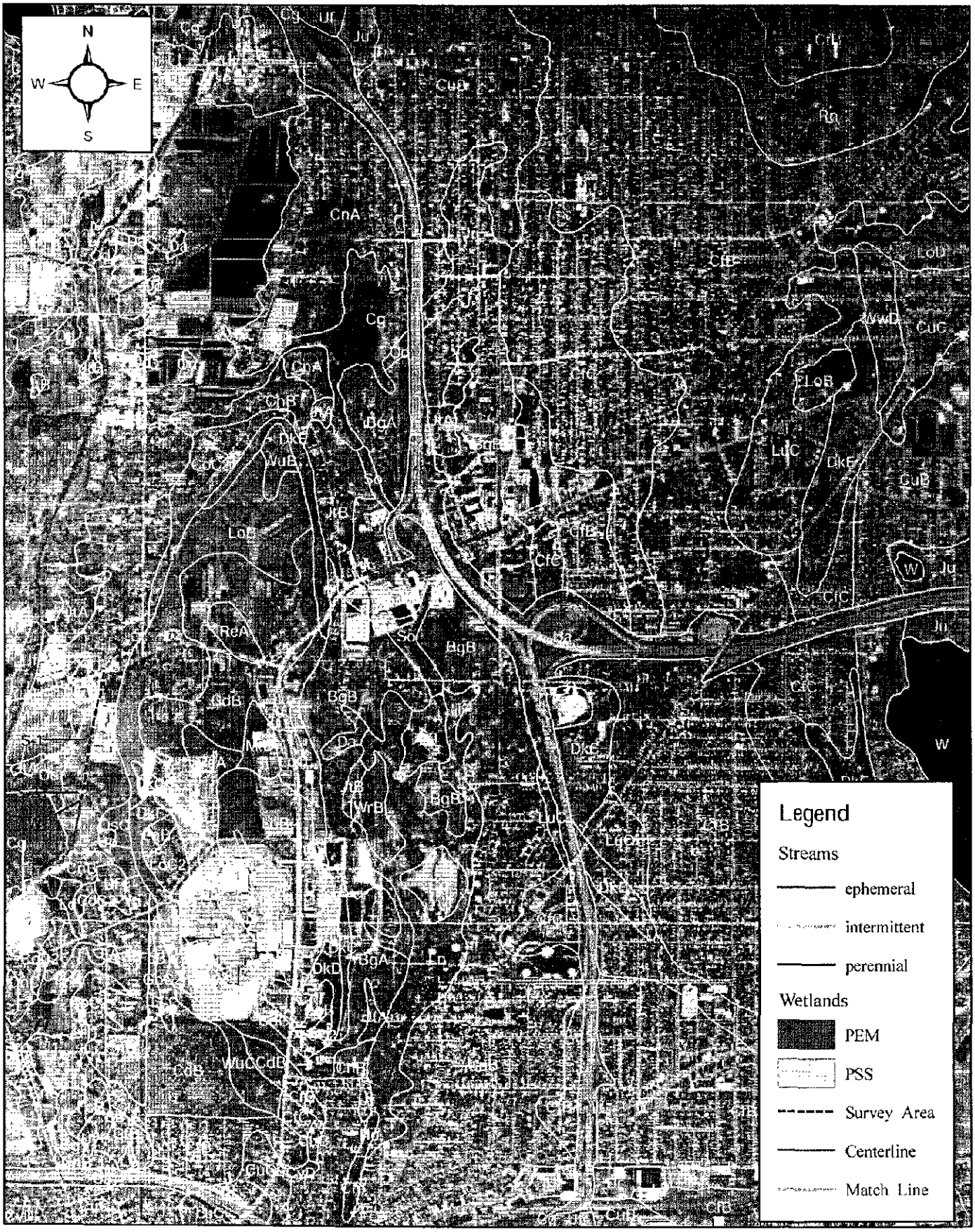


Figure 4a	East Ohio Gas Company Mohican Transmission Phase I Replacement Project Project Location Summit County, Ohio	2006 Aerial Map with USDA Soil Overlay 1:24,000 *Environment and Archaeology, LLC*

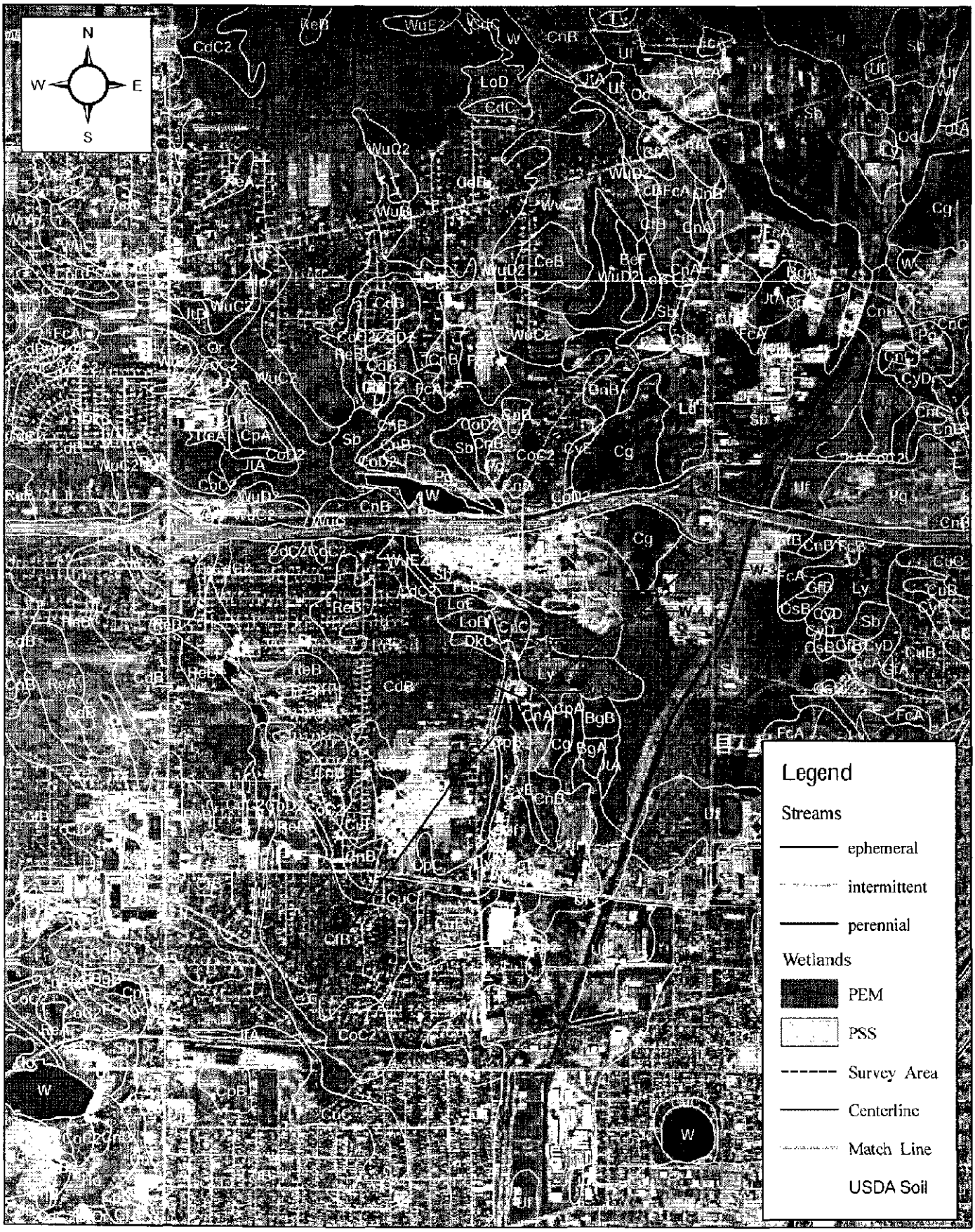
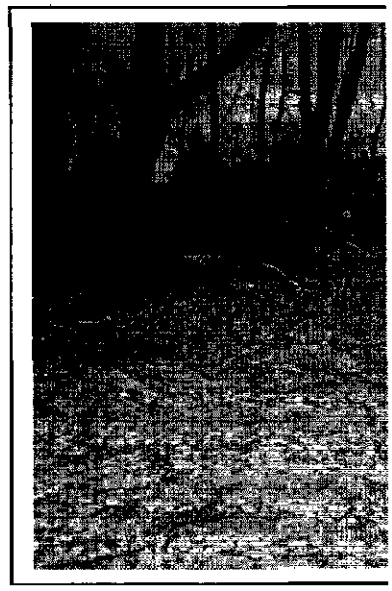


Figure 4b	East Ohio Gas Company Mohican Transmission Phase I Replacement Project Project Location Summit County, Ohio	2006 Aerial Map with USDA Soil Overlay 1:24,000 *Environment and Archaeology, LLC*

APPENDIX E
Photolog

PHOTO#: 1 **DIRECTION:** N **DATE:** 12-17-08
COMMENTS: View of Mohican Phase I kick-off location within urban/industrial turf.



PHOTO#: 2 **DIRECT**
COMMENTS: View of existing ROW with

PHOTO#: 3 **DIRECTION:** E **DATE:** 12-17-08
COMMENTS: View of Stream 1 (Unnamed, unmapped tributary to Pigeon Creek).

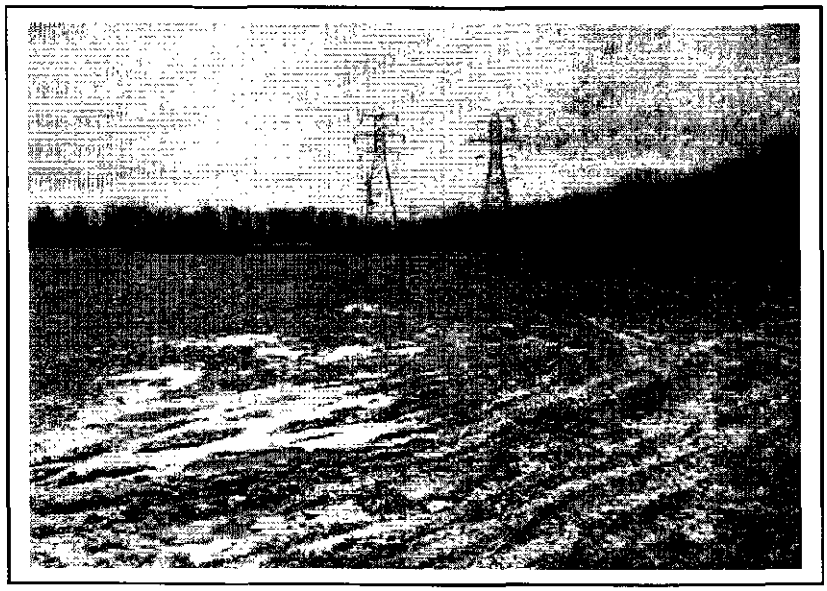
PHOTO#: 4 **DIRECT**
COMMENTS: View of existing ROW w

PHOTO#: 5 **DIRECTION:** E **DATE:** 12-17-08
COMMENTS: View of Stream 2 (Unnamed, unmapped tributary to Pigeon Creek).

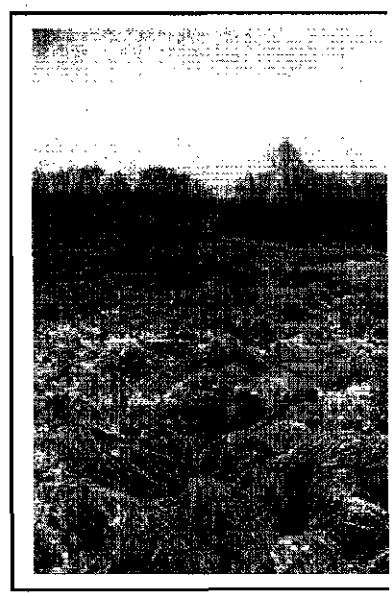
PHOTO#: 6 **DIREC**
COMMENTS: View of We

PHOTO#: 7 **DIRECTION:** N **DATE:** 12-17-08
COMMENTS: View of existing ROW located within urban/industrial turf.

PHOTO#: 8 **DIRECTI**
COMMENTS: View of

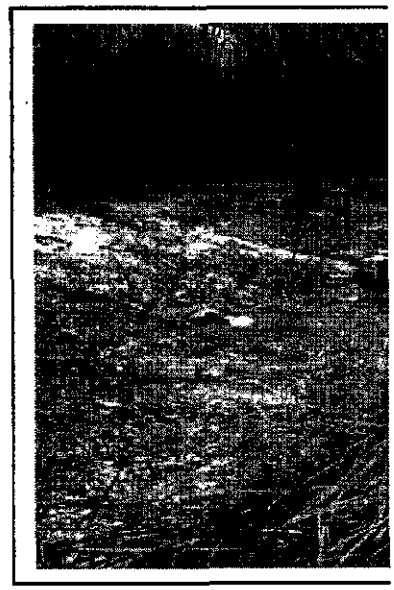


PHOTO#: 9 **DIRECTION:** SSW **DATE:** 12-17-08
COMMENTS: View of existing ROW located within agricultural fields.



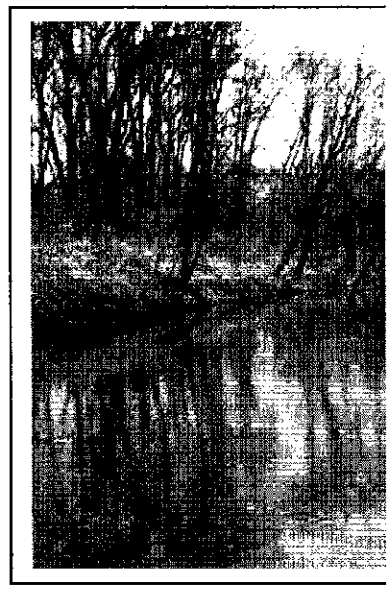
PHOTO#: 10 **DIRECT**
COMMENTS: View of Wetland 2

PHOTO#: 11 **DIRECTION:** E **DATE:** 12-17-08
COMMENTS: Easterly view of Wetland 2 (Palustrine Emergent-Scrub/Shrub).



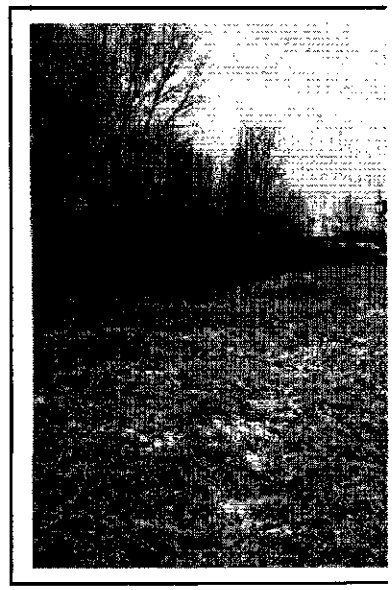
PHOTO#: 12 **DIREC**
COMMENTS: View of Stream 3 (Unnar

PHOTO#: 13 **DIRECTION:** SW **DATE:** 12-17-08
COMMENTS: View of large ponded area within the existing ROW, a result of recent excavation/fill activities.



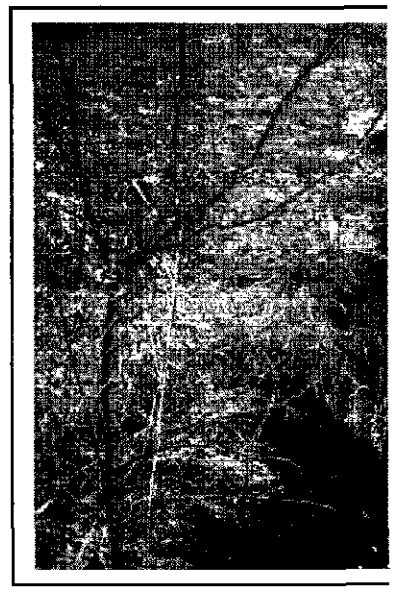
PHOTO#: 14 **DIREC**
COMMENTS: View c

PHOTO#: 15 **DIRECTION:** NE **DATE:** 12-17-08
COMMENTS: View of existing ROW within urban/industrial turf southwest of Barber Road.



PHOTO#: 16 **DIREC**
COMMENTS: View of W

PHOTO#: 17 **DIRECTION:** E **DATE:** 12-17-08
COMMENTS: View of existing access to the ROW.

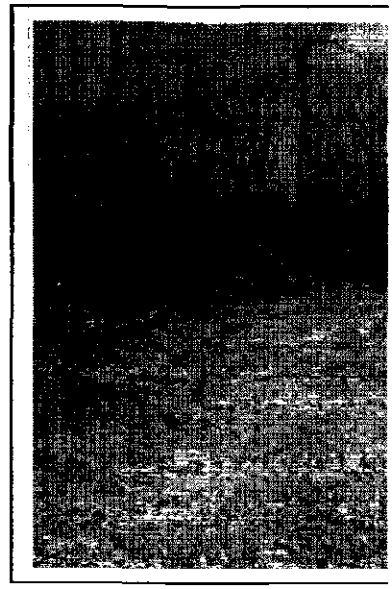


PHOTO#: 18 **DIREC**
COMMENTS: View of Stream 5 (Unn

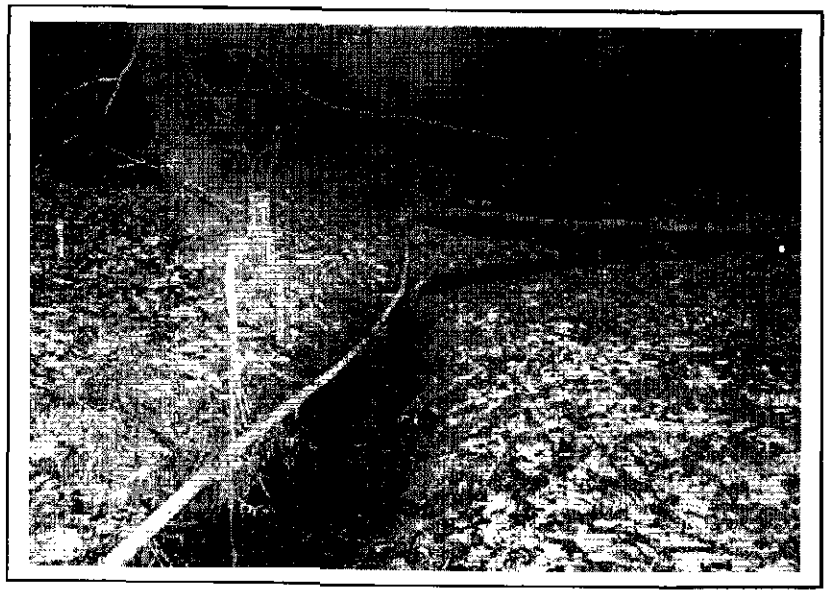
PHOTO#: 19 **DIRECTION:** NE **DATE:** 12-17-08
COMMENTS: View of Wetland 4 (Palustrine Emergent/Forested).

PHOTO#: 20 **DIREC**
COMMENTS: View of

PHOTO#: 21 **DIRECTION:** NE **DATE:** 12-17-08
COMMENTS: View of Wetland 5 (Palustrine Emergent-Scrub/Shrub).



PHOTO#: 22 **DIREC**
COMMENTS: View of Wetland 6

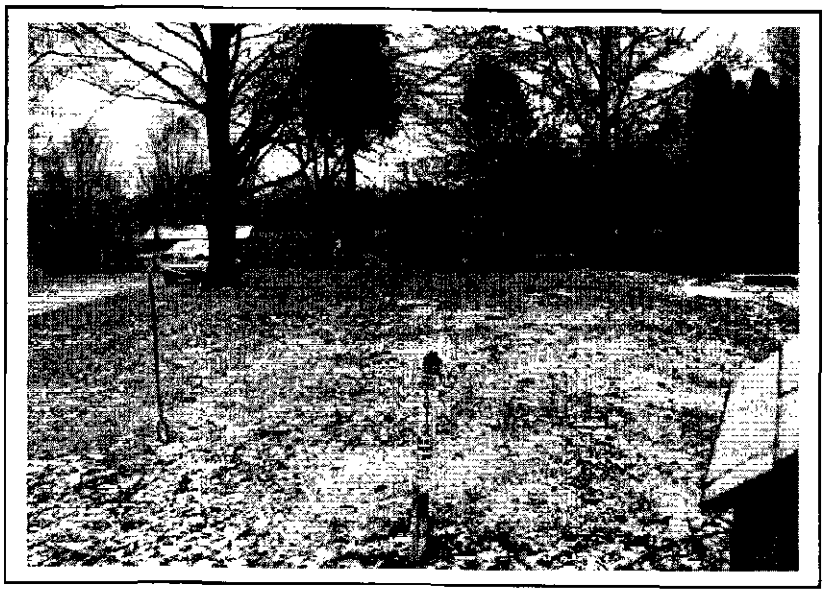


PHOTO#: 23 **DIRECTION:** SE **DATE:** 12-17-08
COMMENTS: View of Stream 7 (Unnamed, unmapped tributary to Wolf Creek).
Representative view of Stream 8 (Unnamed, unmapped tributary to Wolf Creek).

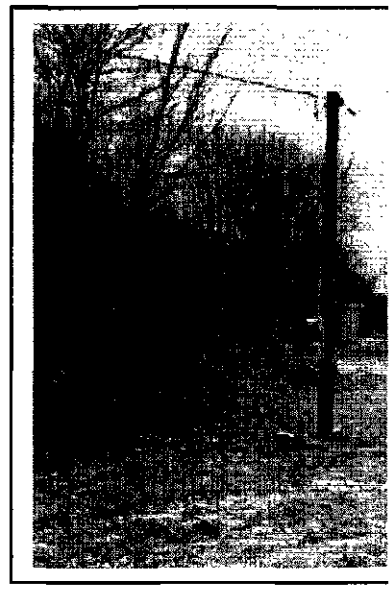
PHOTO#: 24 **DIREC**
COMMENTS: View

PHOTO#: 25 **DIRECTION:** SW **DATE:** 12-18-08
COMMENTS: View of existing ROW within residential land use.

PHOTO#: 26 **DIREC**
COMMENTS: View of existing ROW l



PHOTO#: 27 **DIRECTION:** S **DATE:** 12-18-08
COMMENTS: View of Mohican Phase I end point.



PHOTO#: 28 **DIREC**
COMMENTS: View of botto
of ex

APPENDIX F
Routine Wetland Determination Data Forms

(Note: These forms only provide information on wetland characteristics within the construction corridor/existing easement width of 60-foot)

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

Project/Site:	EOG, PIR-Mohican Transmission Phase I	Date:	12-17-08
Applicant/Owner:	Dominion EOG	County:	Summit
Investigators:	BL, LM	State:	OH

Do Normal Circumstances exist on the site?	X	Yes		No	Plot ID:	W1-in
Is the site significantly disturbed (Atypical Situation)?		Yes	X	No	Transect ID:	---
Is the area a potential Problem Area? (If needed, explain on reverse)		Yes	X	No	Community ID:	Palustrine emergent

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Cornus amomum*	S	FACW	9.		
2. *Lythrum salicaria*	S	FACW+	10.		
3. *Phalaris arundinacea*	H	FACW+	11.		
4. *Phragmites australis*	H	FACW	12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

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

Remarks: *Phragmites* + *Phalaris* + *Lythrum* = 85% aerial cover

HYDROLOGY

___ Recorded Date (Describe in Remarks):	Wetland Hydrology Indicators
Stream, Lake, or Tide Group	Primary Indicators:
Aerial Photographs	X Inundated
Other	X Saturated in Upper 12 inches
X No Recorded Data Available	Water Marks
Field Observations:	Drift Lines
	Sediment Deposits
Depth to Free Water in Pit: 4 (in.)	X Drainage Patterns in Wetlands
	Secondary Indicators (2 or more required):
Depth to Saturated Soil: 2 (in.)	X Oxidized Root Channels in Upper 12 inches
	Water-Stained Leaves
Depth of Surface Water: 0-2 (in.)	Local Soil Survey Data
	X FAC- Neutral Test
	Other (Explain in Remarks)

Remarks: W1 within drainage swale

Project/Site:	EOG, PIR -Mohican Transmission Phase I	Date:	12-17-08
Plot ID:	W1-in	Community ID:	Palustrine emergent

SOILS

Map Unit Name (Series and Phase):	OsB - Oshtemo sandy loam, 2 to 6 percent slopes	Drainage Class:	well drained
Taxonomy (Subgroup):	Typic Hapludalfs	Field Observations Confirm Mapped Type?	Yes **X** No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, Etc.
0-3	---	10YR 3/3	---	---	sandy
3-16	---	10YR 4/2	10YR 5/6	10YR 6/6	sandy

Hydric Soil Indicators:

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

Remarks: Low-chroma with mottles in upper 12 inches

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	X	Yes	No				
Wetland Hydrology Present?	X	Yes	No	Is this Sampling Point a Wetland?	X	Yes	No
Hydric Soils Present?	X	Yes	No				

Remarks: vegetation mowed within most of wetland area (pipeline maintenance); photo #6

Approved by HQUSACE 3/92

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

Project/Site:	EOG, PIR-Mohican Transmission Phase I				Date:	12-17-08
Applicant/Owner:	Dominion EOG				County:	Summit
Investigators:	BL, LM				State:	OH
Do Normal Circumstances exist on the site?	X	Yes		No	Plot ID:	W1-upl
Is the site significantly disturbed (Atypical Situation)?		Yes	X	No	Transect ID:	---
Is the area a potential Problem Area? (If needed, explain on reverse)		Yes	X	No	Community ID:	upland

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Andropogon sp.*	H	FAC	9.		
2. *Quercus alba*	S	FACU-	10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

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

Remarks: Andropogon sp. assumed to be FAC; hydrophytic vegetation criteria not met

HYDROLOGY

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

Remarks: W1-upl point approx. 20' south of W1, within ROW; hydrology criteria not met

Project/Site:	EOG, PIR-Mohican Transmission Phase I	Date:	12-17-08
Plot ID:	W1-upl	Community ID:	upland

SOILS

Map Unit Name (Series and Phase):	OsB - Oshtemo sandy loam, 2 to 6 percent slopes	Drainage Class:	well drained
Taxonomy (Subgroup):	Typic Hapludalfs	Field Observations Confirm Mapped Type?	Yes X No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, Etc.
0-5	---	7.5YR 4/6	---	---	sandy
5-12	---	7.5YR 4/6	7.5YR 6/8	---	sandy

Hydric Soil Indicators:

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

Remarks: hydric soil criteria not met

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	X	No	Is this Sampling Point a Wetland?	Yes	X	No
Wetland Hydrology Present?	Yes	X	No				
Hydric Soils Present?	Yes	X	No				

Remarks: not a wetland point

Approved by HQUSACE 3/92

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

Project/Site:	EOG, PIR-Mohican Transmission Phase I	Date:	12-17-08
Applicant/Owner:	Dominion EOG	County:	Summit
Investigators:	BL, LM	State:	OH

Do Normal Circumstances exist on the site?	X	Yes		No	Plot ID:	W2-in
Is the site significantly disturbed (Atypical Situation)?		Yes	X	No	Transect ID:	---
Is the area a potential Problem Area? (If needed, explain on reverse)		Yes	X	No	Community ID:	Palustrine emergent/ scrub-shrub

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Cephalanthus occidentalis*	S	OBL	9.		
2. *Juncus effuses*	H	FACW+	10.		
3. *Phalaris arundinacea*	H	FACW+	11.		
4. *Scirpus* sp.	H	FACW	12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

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

Remarks: *Scirpus* sp. assumed minimum FACW indicator status; hydrophytic vegetation present

HYDROLOGY

X Recorded Date (Describe in Remarks):
Stream, Lake, or Tide Group
Aerial Photographs
X Other
No Recorded Data Available

Field Observations:

Depth to Free Water in Pit:	2	(in.)
Depth to Saturated Soil:	0	(in.)
Depth of Surface Water:	0-8	(in.)

Wetland Hydrology Indicators
Primary Indicators:
X Inundated
X Saturated in Upper 12 inches
Water Marks
Drift Lines
Sediment Deposits
X Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
Oxidized Root Channels in Upper 12 inches
Water-Stained Leaves
Local Soil Survey Data
X FAC- Neutral Test
Other (Explain in Remarks)

Remarks: W2 exists in channel of USGS topo quad mapped intermittent feature; hydrology indicators present

Project/Site:	EOG, PIR-Mohican Transmission Phase I	Date:	12-17-08
Plot ID:	W2-in	Community ID:	Palustrine emergent/scrub-shrub

SOILS

Map Unit Name (Series and Phase):	Sb – Sebring silt loam	Drainage Class:	poorly drained
Taxonomy (Subgroup):	Typic Ochraqualfs	Field Observations Confirm Mapped Type?	Yes **X** No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, Etc.
0-4	---	10YR 4/4	---	---	loam
4-12	---	10YR 4/1	10YR 6/8	---	loam

Hydric Soil Indicators:

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

Remarks: hydric soil indicators present

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	**X**	Yes	No				
Wetland Hydrology Present?	**X**	Yes	No	Is this Sampling Point a Wetland?	**X**	Yes	No
Hydric Soils Present?	**X**	Yes	No				

Remarks: W2 is a wetland, predominantly emergent vegetation within maintained ROW areas and scrub-shrub vegetation outside of maintained ROW areas; cross CL several times; terminates to south at stream site S3; photos #10 and 11

Approved by HQUSACE 3/92

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

Project/Site:	EOG, PIR-Mohican Transmission Phase I				Date:	12-17-08
Applicant/Owner:	Dominion EOG				County:	Summit
Investigators:	BL, LM				State:	OH
Do Normal Circumstances exist on the site?	X	Yes		No	Plot ID:	W2-upl
Is the site significantly disturbed (Atypical Situation)?		Yes	X	No	Transect ID:	---
Is the area a potential Problem Area? (If needed, explain on reverse)		Yes	X	No	Community ID:	upland

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Festuca* sp.	H	FACU	9.		
2. *Rubus strigosus*	S	NI	10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

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

Remarks: hydrophytic vegetation not present

HYDROLOGY

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

Remarks: W2-upl is40' southwest of upper section of W2, adjacent to powerline towers; hydrology indicators not present

Project/Site:	EOG, PIR-Mohican Transmission Phase I	Date:	12-17-08
Plot ID:	W2-upl	Community ID:	upland

SOILS

Map Unit Name (Series and Phase):	Sb – Sebring silt loam	Drainage Class:	poorly drained
Taxonomy (Subgroup):	Typic Ochraqualfs	Field Observations Confirm Mapped Type?	Yes **X** No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, Etc.
0-12	---	10YR 4/4	---	---	loam

Hydric Soil Indicators:

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

Remarks: hydric soil indicators present; soil profile does not indicate hydric conditions at W2-upl point location

WETLAND DETERMINATION

Hydrophytic Vegetation Present?		Yes	**X**	No			
Wetland Hydrology Present?		Yes	**X**	No	Is this Sampling Point a Wetland?	Yes	**X** No
Hydric Soils Present?	**X**	Yes		No			

Remarks: not a wetland point

Approved by HQUSACE 3/92

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

Project/Site:	EOG, PIR-Mohican Transmission Phase I				Date:	12-17-08
Applicant/Owner:	Dominion EOG				County:	Summit
Investigators:	BL, LM				State:	OH
Do Normal Circumstances exist on the site?	X	Yes		No	Plot ID:	W3-in
Is the site significantly disturbed (Atypical Situation)?		Yes	X	No	Transect ID:	---
Is the area a potential Problem Area? (If needed, explain on reverse)		Yes	X	No	Community ID:	Palustrine emergent

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Phalaris arundinacea*	H	FACW+	9.		
2.			10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

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

Remarks: *Phalaris* = 100% vegetation cover w/in ROW; forested component present outside ROW; hydrophytic vegetation present

HYDROLOGY

___ Recorded Date (Describe in Remarks):
Stream, Lake, or Tide Group
Aerial Photographs
Other
X No Recorded Data Available

Field Observations:

Depth to Free Water in Pit: 5 (in.)

Depth to Saturated Soil: 0 (in.)

Depth of Surface Water: 1 (in.)

Wetland Hydrology Indicators
Primary Indicators:
X Inundated
X Saturated in Upper 12 inches
Water Marks
Drift Lines
Sediment Deposits
Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
Oxidized Root Channels in Upper 12 inches
Water-Stained Leaves
Local Soil Survey Data
FAC- Neutral Test
Other (Explain in Remarks)

Remarks: hydrology indicators present

Project/Site:	EOG, PIR-Mohican Transmission Phase I	Date:	12-17-08
Plot ID:	W3-in	Community ID:	Palustrine emergent

SOILS

Map Unit Name (Series and Phase):	Sb – Sebring silt loam	Drainage Class:	poorly drained
Taxonomy (Subgroup):	Typic Ochraqualfs	Field Observations Confirm Mapped Type?	Yes **X** No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, Etc.
0-16	---	10YR 4/1	10YR 6/8	---	loam

Hydric Soil Indicators:

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

Remarks: hydric soil indicators present

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	**X**	Yes	No				
Wetland Hydrology Present?	**X**	Yes	No	Is this Sampling Point a Wetland?	**X**	Yes	No
Hydric Soils Present?	**X**	Yes	No				

Remarks: W3 is a wetland point, emergent vegetation w/in ROW area; photo #16

Approved by HQUSACE 3/92

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

Project/Site:	EOG, PIR-Mohican Transmission Phase I	Date:	12-17-08
Applicant/Owner:	Dominion EOG	County:	Summit
Investigators:	BL, LM	State:	OH

Do Normal Circumstances exist on the site?	X	Yes		No	Plot ID:	W3-upl
Is the site significantly disturbed (Atypical Situation)?		Yes	X	No	Transect ID:	---
Is the area a potential Problem Area? (If needed, explain on reverse)		Yes	X	No	Community ID:	upland

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Festuca* sp.	H	FACU	9.		
2. *Plantago major*	H	FACU	10.		
3. *Trifolium repens*	H	FACU-	11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

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

Remarks: *Festuca* sp. assumed as FACU minimum; hydrophytic vegetation not present

HYDROLOGY

___ Recorded Date (Describe in Remarks):
Stream, Lake, or Tide Group
Aerial Photographs
Other
X No Recorded Data Available

Field Observations:

Depth to Free Water in Pit: N/A (in.)

Depth to Saturated Soil: N/A (in.)

Depth of Surface Water: N/A (in.)

Wetland Hydrology Indicators
Primary Indicators:
Inundated
Saturated in Upper 12 inches
Water Marks
Drift Lines
Sediment Deposits
Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
Oxidized Root Channels in Upper 12 inches
Water-Stained Leaves
Local Soil Survey Data
FAC- Neutral Test
Other (Explain in Remarks)

Remarks: hydrology indicators not present

Project/Site:	EOG, PIR-Mohican Transmission Phase I	Date:	12-17-08
Plot ID:	W3-upl	Community ID:	upland

SOILS

Map Unit Name (Series and Phase):	Sb – Sebring silt loam	Drainage Class:	poorly drained
Taxonomy (Subgroup):	Typic Ochraqualfs	Field Observations Confirm Mapped Type?	Yes **X** No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, Etc.
0-5	---	10YR 4/3	---	---	loam
5-16	---	mixed fill	---	---	gravel/sand

Hydric Soil Indicators:

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

Remarks: hydric soil indicators present; soil profile does not indicate hydric soil conditions at W4-upl point

WETLAND DETERMINATION

Hydrophytic Vegetation Present?		Yes	**X**	No			
Wetland Hydrology Present?		Yes	**X**	No	Is this Sampling Point a Wetland?	Yes	**X** No
Hydric Soils Present?	**X**	Yes		No			

Remarks: W3-upl is 40' south of W3; not a wetland point

Approved by HQUSACE 3/92

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

Project/Site:	EOG, PIR-Mohican Transmission Phase I	Date:	12-17-08
Applicant/Owner:	Dominion EOG	County:	Summit
Investigators:	BL, LM	State:	OH

Do Normal Circumstances exist on the site?	X	Yes		No	Plot ID:	W4-in
Is the site significantly disturbed (Atypical Situation)?		Yes	X	No	Transect ID:	---
Is the area a potential Problem Area? (If needed, explain on reverse)		Yes	X	No	Community ID:	Palustrine emergent/ forested

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Juncus effusus*	H	FACW+	9.		
2. *Phalaris arundinacea*	H	FACW+	10.		
3. *Typha latifolia*	H	OBL	11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

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

Remarks: W4 vegetation all emergent within maintained ROW; forested vegetation present beyond ROW areas; hydrophytic vegetation present

HYDROLOGY

___ Recorded Date (Describe in Remarks):	Wetland Hydrology Indicators
Stream, Lake, or Tide Group	Primary Indicators:
Aerial Photographs	X Inundated
X Other	X Saturated in Upper 12 inches
No Recorded Data Available	Water Marks
Field Observations:	Drift Lines
	Sediment Deposits
Depth to Free Water in Pit: N/A (in.)	Drainage Patterns in Wetlands
	Secondary Indicators (2 or more required):
Depth to Saturated Soil: 1 (in.)	Oxidized Root Channels in Upper 12 inches
	Water-Stained Leaves
Depth of Surface Water: 0-2 (in.)	Local Soil Survey Data
	FAC- Neutral Test
	Other (Explain in Remarks)

Remarks: hydrology indicators present; partially mapped as NWI - P(FO/SS)1Y

Project/Site:	EOG, PIR-Mohican Transmission Phase I	Date:	12-17-08
Plot ID:	W4-in	Community ID:	Palustrine emergent

SOILS

Map Unit Name (Series and Phase):	Sb – Sebring silt loam	Drainage Class:	poorly drained
Taxonomy (Subgroup):	Typic Ochraqualfs	Field Observations Confirm Mapped Type?	Yes X No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, Etc.
0-16	---	10YR 3/1	10YR 5/2	10YR 5/6	---

Hydric Soil Indicators:

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

Remarks: hydric soil indicators present

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	X	Yes	No				
Wetland Hydrology Present?	X	Yes	No	Is this Sampling Point a Wetland?	X	Yes	No
Hydric Soils Present?	X	Yes	No				

Remarks: W4 is a wetland point; extends to west of ROW with forested components; photo #19

Approved by HQUSACE 3/92

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

Project/Site:	EOG, PIR-Mohican Transmission Phase I				Date:	12-17-08
Applicant/Owner:	Dominion EOG				County:	Summit
Investigators:	BL, LM				State:	OH
Do Normal Circumstances exist on the site?	X	Yes		No	Plot ID:	W4-upl
Is the site significantly disturbed (Atypical Situation)?		Yes	X	No	Transect ID:	---
Is the area a potential Problem Area? (If needed, explain on reverse)		Yes	X	No	Community ID:	upland

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Dichanthelium* sp.	H	FAC	9.		
2. *Phalaris arundinacea*	H	FACW+	10.		
3. *Quercus alba*	T	FACU-	11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW, FAC (excluding FAC-): 66

Remarks: Dicanthelium species assumed FAC or drier status; hydrophytic vegetation present

HYDROLOGY

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

Remarks: hydrology indicators not present

Project/Site:	EOG, PIR-Mohican Transmission Phase I	Date:	12-17-08
Plot ID:	W4-upl	Community ID:	upland

SOILS

Map Unit Name (Series and Phase):	FcA – Fitchville silt loam, 0 to 2 percent slopes	Drainage Class:	somewhat poorly drained
Taxonomy (Subgroup):	Aeric Ochraqualfs	Field Observations Confirm Mapped Type?	Yes X No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, Etc.
0-16	---	10YR 3/3	---	---	---

Hydric Soil Indicators:

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

Remarks: hydric soil indicators present; soil profile does not indicate hydric soil conditions at point W4-upl

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	X	Yes		No			
Wetland Hydrology Present?		Yes	X	No	Is this Sampling Point a Wetland?	Yes	X No
Hydric Soils Present?	X	Yes		No			

Remarks: W4-upl is 30' south of W4; not a wetland point

Approved by HQUSACE 3/92

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

Project/Site:	EOG, PIR-Mohican Transmission Phase I	Date:	12-17-08
Applicant/Owner:	Dominion EOG	County:	Summit
Investigators:	BL, LM	State:	OH

Do Normal Circumstances exist on the site?	X	Yes		No	Plot ID:	W5-in
Is the site significantly disturbed (Atypical Situation)?		Yes	X	No	Transect ID:	---
Is the area a potential Problem Area? (If needed, explain on reverse)		Yes	X	No	Community ID:	Palustrine emergent/ scrub-shrub

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Cornus racemosa*	S	NI	9.		
2. *Lythrum salicaria*	S	FACW+	10.		
3. *Phalaris arundinacea*	H	FACW+	11.		
4. *Quercus palustris*	T	FACW	12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

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

Remarks: hydrophytic vegetation present

HYDROLOGY

___ Recorded Date (Describe in Remarks):
Stream, Lake, or Tide Group
Aerial Photographs
X Other
No Recorded Data Available

Field Observations:

Depth to Free Water in Pit: N/A (in.)

Depth to Saturated Soil: 0 (in.)

Depth of Surface Water: 0-3 (in.)

Wetland Hydrology Indicators
Primary Indicators:
X Inundated
X Saturated in Upper 12 inches
Water Marks
Drift Lines
Sediment Deposits
Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
Oxidized Root Channels in Upper 12 inches
Water-Stained Leaves
Local Soil Survey Data
FAC- Neutral Test
Other (Explain in Remarks)

Remarks: hydrology indicators present; mapped as NWI PEMY

Project/Site:	EOG, PIR-Mohican Transmission Phase I	Date:	12-17-08
Plot ID:	W5-in	*Community* ID:	Palustrine emergent/scrub-shrub

SOILS

Map Unit Name (Series and Phase):	Ly – Luray silt loam	Drainage Class:	very poorly drained
Taxonomy (Subgroup):	Typic Argiaquolls	Field Observations Confirm Mapped Type?	Yes **X** No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, Etc.
0-12	---	N 5/1	7.5YR 4/4	---	---

Hydric Soil Indicators:

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

Remarks: hydric soil indicators present; black histic soils found at alternate location within W5

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	**X**	Yes	No	Is this Sampling Point a Wetland?	**X**	Yes	No
Wetland Hydrology Present?	**X**	Yes	No				
Hydric Soils Present?	**X**	Yes	No				

Remarks: W5 is a wetland point; photo #21

Approved by HQUSACE 3/92

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

Project/Site:	EOG, PIR-Mohican Transmission Phase I				Date:	12-17-08
Applicant/Owner:	Dominion EOG				County:	Summit
Investigators:	BL, LM				State:	OH
Do Normal Circumstances exist on the site?	X	Yes		No	Plot ID:	W5-upl
Is the site significantly disturbed (Atypical Situation)?		Yes	X	No	Transect ID:	---
Is the area a potential Problem Area? (If needed, explain on reverse)		Yes	X	No	Community ID:	upland

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Dichanthelium* sp.	H	FAC	9.		
2. *Phalaris arundinacea*	H	FACW+	10.		
3. *Quercus alba*	T	FACU-	11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW, FAC (excluding FAC-): 66

Remarks: *Dicanthelium* species assumed FAC or drier status; hydrophytic vegetation present

HYDROLOGY

___ Recorded Date (Describe in Remarks):
Stream, Lake, or Tide Group
Aerial Photographs
Other
X No Recorded Data Available

Field Observations:

Depth to Free Water in Pit: N/A (in.)

Depth to Saturated Soil: N/A (in.)

Depth of Surface Water: N/A (in.)

Wetland Hydrology Indicators
Primary Indicators:
Inundated
Saturated in Upper 12 inches
Water Marks
Drift Lines
Sediment Deposits
Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
Oxidized Root Channels in Upper 12 inches
Water-Stained Leaves
Local Soil Survey Data
FAC- Neutral Test
Other (Explain in Remarks)

Remarks: hydrology indicators not present

Project/Site:	EOG, PIR-Mohican Transmission Phase I	Date:	12-17-08
Plot ID:	W5-upl	Community ID:	upland

SOILS

Map Unit Name (Series and Phase):	FcA – Fitchville silt loam, 0 to 2 percent slopes	Drainage Class:	somewhat poorly drained
Taxonomy (Subgroup):	Aeric Ochraqualfs	Field Observations Confirm Mapped Type?	Yes **X** No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, Etc.
0-16	---	10YR 3/3	---	---	---

Hydric Soil Indicators:

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

Remarks: hydric soil indicators present; soil profile does not indicate hydric soil conditions at point W5-upl

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	**X**	Yes		No				
Wetland Hydrology Present?		Yes	**X**	No	Is this Sampling Point a Wetland?	Yes	**X**	No
Hydric Soils Present?	**X**	Yes		No				

Remarks: W5-upl is 50' north of W5; not a wetland point

Approved by HQUSACE 3/92

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

Project/Site:	EOG, PIR-Mohican Transmission Phase I					Date:	12-17-08
Applicant/Owner:	Dominion EOG					County:	Summit
Investigators:	BL, LM					State:	OH
Do Normal Circumstances exist on the site?		X	Yes		No	Plot ID:	W6-in
Is the site significantly disturbed (Atypical Situation)?			Yes	X	No	Transect ID:	---
Is the area a potential Problem Area? (If needed, explain on reverse)			Yes	X	No	Community ID:	Palustrine emergent/ scrub-shrub

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Cornus stolonifera*	S	FACW+	9.		
2. *Phalaris arundinacea*	H	FACW+	10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

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

Remarks: hydrophytic vegetation present; vegetation mowed (pipeline maintenance)

HYDROLOGY

___	Recorded Date (Describe in Remarks):		Wetland Hydrology Indicators
	Stream, Lake, or Tide Group		Primary Indicators:
	Aerial Photographs		Inundated
	Other		X Saturated in Upper 12 inches
X	No Recorded Data Available		Water Marks
	Field Observations:		Drift Lines
			Sediment Deposits
	Depth to Free Water in Pit:	N/A (in.)	Drainage Patterns in Wetlands
			Secondary Indicators (2 or more required):
	Depth to Saturated Soil:	1 (in.)	Oxidized Root Channels in Upper 12 inches
			Water-Stained Leaves
	Depth of Surface Water:	0 (in.)	Local Soil Survey Data
			FAC- Neutral Test
			Other (Explain in Remarks)

Remarks: hydrology indicators present

Project/Site:	EOG, PIR-Mohican Transmission Phase I	Date:	12-17-08
Plot ID:	W6-in	Community ID:	Palustrine emergent/scrub-shrub

SOILS

Map Unit Name (Series and Phase):	Ly – Luray silt loam	Drainage Class:	very poorly drained
Taxonomy (Subgroup):	Typic Argiaquolls	Field Observations Confirm Mapped Type?	Yes **X** No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, Etc.
0-12	---	7.5YR 3/1	7.5YR 4/6	---	---

Hydric Soil Indicators:

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

Remarks: hydric soil indicators present

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	**X**	Yes	No	Is this Sampling Point a Wetland?	**X**	Yes	No
Wetland Hydrology Present?	**X**	Yes	No				
Hydric Soils Present?	**X**	Yes	No				

Remarks: W6 is a wetland point; photo #22

Approved by HQUSACE 3/92

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

Project/Site:	EOG, PIR-Mohican Transmission Phase I			Date:	12-17-08
Applicant/Owner:	Dominion EOG			County:	Summit
Investigators:	BL, LM			State:	OH
Do Normal Circumstances exist on the site?	X Yes		No	Plot ID:	W6-upl
Is the site significantly disturbed (Atypical Situation)?	Yes	X	No	Transect ID:	---
Is the area a potential Problem Area? (If needed, explain on reverse)	Yes	X	No	Community ID:	upland

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Dichanthelium* sp.	H	FAC	9.		
2. *Phalaris arundinacea*	H	FACW+	10.		
3. *Quercus alba*	T	FACU-	11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW, FAC (excluding FAC-): 66

Remarks: *Dicanthelium* species assumed FAC or drier status; hydrophytic vegetation present

HYDROLOGY

___ Recorded Date (Describe in Remarks):
Stream, Lake, or Tide Group
Aerial Photographs
Other
X No Recorded Data Available

Field Observations:

Depth to Free Water in Pit: N/A (in.)

Depth to Saturated Soil: N/A (in.)

Depth of Surface Water: N/A (in.)

Wetland Hydrology Indicators
Primary Indicators:
Inundated
Saturated in Upper 12 inches
Water Marks
Drift Lines
Sediment Deposits
Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
Oxidized Root Channels in Upper 12 inches
Water-Stained Leaves
Local Soil Survey Data
FAC- Neutral Test
Other (Explain in Remarks)

Remarks: hydrology indicators not present

Project/Site:	EOG, PIR-Mohican Transmission Phase I	Date:	12-17-08
Plot ID:	W6-upl	Community ID:	upland

SOILS

Map Unit Name (Series and Phase):	CnA – Chili loam, 0 to 2 percent slopes	Drainage Class:	well drained
Taxonomy (Subgroup):	Typic Hapludalfs	Field Observations Confirm Mapped Type?	Yes **X** No

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, Etc.
0-16	---	10YR 3/3	---	---	---

Hydric Soil Indicators:

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

Remarks: hydric soil indicators not present

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	**X**	Yes		No	
Wetland Hydrology Present?		Yes	**X**	No	Is this Sampling Point a Wetland? Yes **X** No
Hydric Soils Present?		Yes	**X**	No	

Remarks: W6-upl is 20' south of W6; not a wetland point

Approved by HQUSACE 3/92

APPENDIX G
Ohio Rapid Assessment Method (ORAM v.5.0) Field Forms

Site: W1; EOG, PIR - Mohican Trans I	Rater(s): BL, LM	Date: 12-17-08

0	0
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)
- [X] <0.1 acres (0.04ha) (0 pts)

7	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)
- [X] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [ ] NARROW. Buffers average 10m to <25m (32 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)
- [X] LOW. Old field (>10 years), shrubland, young second growth forest (5)
- [ ] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field (3)
- [X] HIGH. Urban, Industrial, open pasture, row cropping, mining, construction (1)

10	17
max 30 pts.	subtotal

Metric 3. Hydrology.

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

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [X] 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.

- [ ] >0.7m (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [X] <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)
- [X] 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)
- [X] Recovered (7)
- [ ] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed.

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (non stormwater)
- [X] filling/grading
- [X] road bed/RR track
- [ ] dredging
- [ ] other

4	21
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)
- [X] 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)
- [X] Poor (1)

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

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

Check all disturbances observed.

- [X] mowing
- [ ] grazing
- [ ] clear cutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [X] shrub/sapling removal
- [X] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

21
subtotal this page

Site: W1; EOG, PIR - Mohican Trans I	Rater(s): BL, LM	Date: 12-17-08

21

subtotal previous 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/waterfowl habitat or usage (10)**
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (10)

-4	17
max 20 pts.	subtotal

Metric 6. Plant communities, interspersion, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [0] 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)
- [X] None (0)

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

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

6d. Microtopography.

Score all present using 0 to 3 scale.

- [ ] 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 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale.

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

17 GRAND TOTAL (max 100 pts)

Category 1

Refer to the most recent ORAM Score Calibration Report to the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.htm

Site: W2; EOG, PIR - Mohican Trans I	Rater(s): BL, LM	Date: 12-17-08

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)
- [X] 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	3
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 (32 to <82ft) around wetland perimeter (1)
- [X] 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)
- [X] HIGH. Urban, industrial, open pasture, row cropping, mining, construction (1)

14	17
max 30 pts.	subtotal

Metric 3. Hydrology.

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

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

3b. Connectivity. Score all that apply.

- [X] 100 year floodplain (1)
- [X] 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.

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

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

- [ ] Semi- to permanently inundated/saturated (4)
- [X] 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)
- [X] Recovered (7)
- [ ] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed.

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (non stormwater)
- [X] filling/grading
- [X] road bed/RR track
- [ ] dredging
- [ ] 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)
- [X] Recovered (3)
- [X] 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)
- [X] Fair (3)
- [ ] Poor to fair (2)
- [ ] Poor (1)

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

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

Check all disturbances observed.

- [X] mowing
- [ ] grazing
- [ ] clear cutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [X] shrub/sapling removal
- [X] herbaceous/aquatic bed removal
- [X] sedimentation
- [ ] dredging
- [ ] farming
- [X] nutrient enrichment

27
subtotal this page

Site: W2; EOG, PIR - Mohican Trans I	Rater(s): BL, LM	Date: 12-17-08

27

subtotal previous 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/waterfowl habitat or usage (10)**
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (10)

4	31
max 20 pts.	subtotal

Metric 6. Plant communities, interspersion, microtopography.

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [2] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other

6b. Horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high (4)
- [ ] Moderate (3)
- [X] 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)
- [X] Moderate 25 75% cover (3)
- [ ] Sparse 5 25% cover (1)
- [ ] Nearly absent <5% cover (0)
- [ ] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [1] Vegetated hummocks/tussocks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [1] 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 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale.

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

31 GRAND TOTAL (max 100 pts)

Category 1 or 2

Refer to the most recent ORAM Score Calibration Report to the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.htm

Site: W3; EOG, PIR - Mohican Trans I	Rater(s): BL, LM	Date: 12-17-08

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)
- [X] 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)

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 (32 to <82ft) around wetland perimeter (1)
- [X] 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)
- [X] LOW. Old field (>10 years), shrubland, young second growth forest (5)
- [ ] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field (3)
- [X] HIGH. Urban, industrial, open pasture, row cropping, mining, construction (1)

8	13
max 30 pts.	subtotal

Metric 3. Hydrology.

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

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

3b. Connectivity. Score all that apply.

- [ ] 100 year floodplain (1)
- [X] Between stream/lake and other human use (1)
- [X] 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.

- [ ] >0.7m (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [X] <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)
- [X] 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)
- [X] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed.

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (non stormwater)
- [X] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [ ] other

6.5	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)
- [X] Recovered (3)
- [X] 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)
- [X] Poor (1)

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

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

Check all disturbances observed.

- [X] mowing
- [ ] grazing
- [ ] clear cutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [X] shrub/sapling removal
- [X] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

19.5
subtotal this page

Site: W3; EOG, PIR - Mohican Trans I	Rater(s): BL, LM	Date: 12-17-08

19.5
subtotal previous page

0	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/waterfowl habitat or usage (10)**
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (10)

-4	15.5
max 20 pts.	subtotal

Metric 6. Plant communities, interspersion, microtopography.

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [ ] Shrub
- [0] 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)
- [X] None (0)

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

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

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] 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 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale.

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

15.5 GRAND TOTAL (max 100 pts)

Category 1

Refer to the most recent ORAM Score Calibration Report to the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.htm

Site: W4; EOG, PIR - Mohican Trans I	Rater(s): BL, LM	Date: 12-17-08

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)
- [X] 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)

8	10
max 14 pts.	subtotal

Metric 2. Upland buffers and surrounding land use.

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

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

- [X] 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)
- [X] HIGH. Urban, industrial, open pasture, row cropping, mining, construction (1)

14	24
max 30 pts.	subtotal

Metric 3. Hydrology.

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

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

3b. Connectivity. Score all that apply.

- [ ] 100 year floodplain (1)
- [X] Between stream/lake and other human use (1)
- [X] 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.

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

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

- [ ] Semi- to permanently inundated/saturated (4)
- [X] 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)
- [X] Recovered (7)
- [ ] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed.

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (non stormwater)
- [X] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [ ] other

12	36
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)
- [X] 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)
- [X] Fair (3)
- [ ] Poor to fair (2)
- [ ] Poor (1)

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

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

Check all disturbances observed.

- [X] mowing
- [ ] grazing
- [ ] clear cutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [X] shrub/sapling removal
- [X] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

36
subtotal this page

Site: W4; EOG, PIR - Mohican Trans I	Rater(s): BL, LM	Date: 12-17-08

36
subtotal previous page

0	36
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/waterfowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (10)

2	38
max 20 pts.	subtotal

Metric 6. Plant communities, interspersion, microtopography.

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [ ] Shrub
- [2] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other

6b. Horizontal (plan view) Interspersion.
Select only one.

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

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

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

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummocks/tussocks
- [1] 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 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale.

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

38 GRAND TOTAL (max 100 pts)

Category modified 2

Refer to the most recent ORAM Score Calibration Report to the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.htm

Site: W5; EOG, PIR - Mohican Trans I	Rater(s): BL, LM	Date: 12-17-08

3	3
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)
- [X] 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)

8	11
max 14 pts.	subtotal

Metric 2. Upland buffers and surrounding land use.

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

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

- [X] 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)
- [X] HIGH. Urban, industrial, open pasture, row cropping, mining, construction (1)

14	25
max 30 pts.	subtotal

Metric 3. Hydrology.

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

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

3b. Connectivity. Score all that apply.

- [ ] 100 year floodplain (1)
- [X] Between stream/lake and other human use (1)
- [X] 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.

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

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

- [ ] Semi- to permanently inundated/saturated (4)
- [X] 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)
- [X] Recovered (7)
- [ ] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed.

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (non stormwater)
- [X] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [ ] other

13	38
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)
- [X] 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)
- [X] 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)
- [X] Recovered (6)
- [ ] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed.

- [X] mowing
- [ ] grazing
- [ ] clear cutting
- [X] selective cutting
- [X] woody debris removal
- [ ] toxic pollutants
- [X] shrub/sapling removal
- [X] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

38
subtotal this page

Site: W5; EOG, PIR - Mohican Trans I	Rater(s): BL, LM	Date: 12-17-08

38

subtotal previous page

0	38
max 10 pts.	subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

2	40
max 20 pts.	subtotal

Metric 6. Plant communities, interspersion, microtopography.

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [1] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other

6b. Horizontal (plan view) Interspersion.
Select only one.

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

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

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

6d. Microtopography.
Score all present using 0 to 3 scale.

- [1] Vegetated hummocks/tussocks
- [1] 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 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale.

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

40 GRAND TOTAL (max 100 pts)

Category modified 2

Refer to the most recent ORAM Score Calibration Report to the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.htm

Site: W6; EOG, PIR - Mohican Trans I	Rater(s): BL, LM	Date: 12-17-08

0	0
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)
- [X] <0.1 acres (0.04ha) (0 pts)

8	8
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)
- [X] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [ ] NARROW. Buffers average 10m to <25m (32 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.

- [X] 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)
- [X] HIGH. Urban, industrial, open pasture, row cropping, mining, construction (1)

12	20
max 30 pts.	subtotal

Metric 3. Hydrology.

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

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

3b. Connectivity. Score all that apply.

- [ ] 100 year floodplain (1)
- [X] Between stream/lake and other human use (1)
- [X] 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.

- [ ] >0.7m (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [X] <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)
- [X] 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)
- [X] Recovered (7)
- [ ] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed.

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (non stormwater)
- [X] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [ ] other

7	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)
- [X] 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)
- [X] Poor (1)

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

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

Check all disturbances observed.

- [X] mowing
- [ ] grazing
- [ ] clear cutting
- [X] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [X] shrub/sapling removal
- [X] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

27
subtotal this page

Site: W6; EOG, PIR - Mohican Trans I	Rater(s): BL, LM	Date: 12-17-08

27

subtotal previous 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/waterfowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (10)

-1	26
max 20 pts.	subtotal

Metric 6. Plant communities, interspersion, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [0] 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)
- [X] None (0)

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

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

6d. Microtopography.

Score all present using 0 to 3 scale.

- [ ] Vegetated hummocks/tussocks
- [1] 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 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale.

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

26 GRAND TOTAL (max 100 pts)

Category 1

Refer to the most recent ORAM Score Calibration Report to the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.htm

APPENDIX H
Ohio EPA Stream Data Forms (HHEI and QHEI)

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : **16**

SITE NAME/LOCATION: UT1 to Pigeon Creek/Domion EOG, Bare Steel-Mohican Transmission Phase I

SITE NUMBER: S1 RIVER BASIN: 05040001-Tuscara DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 200 LAT. 41.05647 LONG. -81.59161 RIVER CODE: RIVER MILE: 0.24

DATE: 12/17/08 SCORER: BL, LM COMMENTS: in survey area-non bare steel section

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

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

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

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☑	SILT [3 pt]	30%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65 256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2 64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☑ ☐	SAND (<2 mm) [6 pts]	70%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A) Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 2

HHEI Metric Points — Substrate Max = 40: **11** (A + B)

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

☐ > 30 centimeters [20 pts]
☐ > 22.5 30 cm [30 pts]
☐ > 10 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts]
☐ < 5 cm [5 pts]
☑ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: dry channel, no potential pools present MAXIMUM POOL DEPTH (centimeters): 0

Pool Depth Max = 30: **0**

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

☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: narrow channel, high erosion action AVERAGE BANKFULL WIDTH (meters): 0.40

Bankfull Width Max=30: **5**

This information must also be completed

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

RIPARIAN WIDTH L	R	(Per Bank)	FLOODPLAIN QUALITY L	R	(Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5 10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☑	☑	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: riparian veg. herbaceous w/in cleared ROW, young woody adjacent to ROW

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

☐ Stream Flowing
☐ Subsurface flow with isolated pools (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☑ Dry channel, no water (Ephemeral)

COMMENTS:

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

☐ None ☑ 1.0 ☐ 2.0 ☐ 3.0
☐ 0.5 ☐ 1.5 ☐ 2.5 ☐ >3

STREAM GRADIENT ESTIMATE

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

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

QHEI PERFORMED? [ ] Yes [✓] No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

[✓] WWH Name: Pigeon Creek (MWH) Distance from Evaluated Stream 0.24

[ ] CWH Name: _____ Distance from Evaluated Stream _____

[ ] EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: Wadsworth NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Summit Township / City: Norton

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 12/15/08 Quantity: 0.19

Photograph Information: photo 3 upstream

Elevated Turbidity? (Y/N): N Canopy (% open): 80%

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

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

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

Additional comments/description of pollution impacts:

drainage from industrial warehouse location; disturbed area due to pipeline maintenance

BIOTIC EVALUATION

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

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

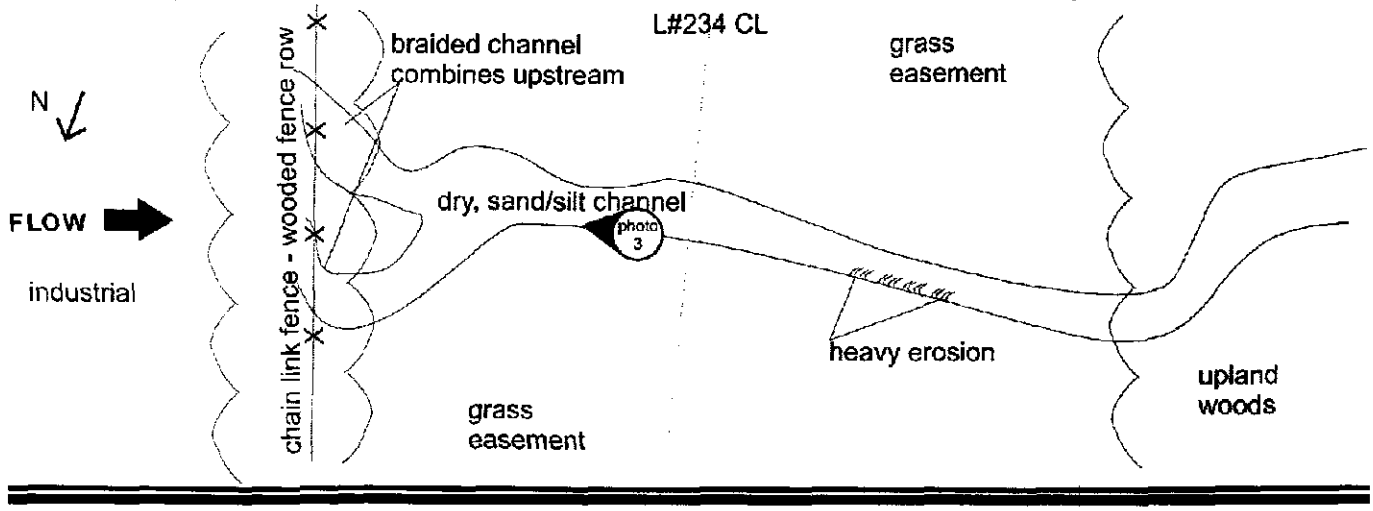
Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology:

stream reach dry

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

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



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OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : **47**

SITE NAME/LOCATION UT2 to Pigeon Creek/Domion EOG, Bare Steel-Mohican Transmission Phase I

SITE NUMBER S2 RIVER BASIN 05040001-Tuscara DRAINAGE AREA (mi²) 0.01

LENGTH OF STREAM REACH (ft) 200 LAT. 41.05421 LONG. -81.59202 RIVER CODE RIVER MILE 0.25

DATE 12/17/08 SCORER BL, LM COMMENTS in survey area-non bare steel section

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

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

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

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☑	SILT [3 pt]	30%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65 256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2 64 mm) [9 pts]	10%	☐ ☐	MUCK [0 pts]	0%
☑ ☐	SAND (<2 mm) [6 pts]	60%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0.00% (A) Substrate Total 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 3

HHEI Metric Points — Substrate Max = 40: **12** (A + B)

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

☐ > 30 centimeters [20 pts]
☑ > 22.5 30 cm [30 pts]
☐ > 10 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts]
☐ < 5 cm [5 pts]
☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS pools deepest due to tire ruts through channel MAXIMUM POOL DEPTH (centimeters): 29

Pool Depth Max = 30: **30**

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

☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS short portions impacted by tire tracks AVERAGE BANKFULL WIDTH (meters): 0.90

Bankfull Width Max=30: **5**

This information must also be completed

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

RIPARIAN WIDTH L	R	(Per Bank)	FLOODPLAIN QUALITY L	R	(Most Predominant per Bank)	L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5 10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☑	☑	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS riparian veg, herbaceous w/in cleared ROW, young or established woody adjacent to R

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

☑ Stream Flowing
☐ Subsurface flow with isolated pools (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)

COMMENTS flow 3 to 6 cm depth and 8 to 20 cm wide in riffle/run areas

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

☐ None ☑ 1.0 ☐ 2.0 ☐ 3.0
☐ 0.5 ☐ 1.5 ☐ 2.5 ☐ >3

STREAM GRADIENT ESTIMATE

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

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

QHEI PERFORMED? ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Pigeon Creek (MWH) Distance from Evaluated Stream 0.25
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: Wadsworth NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Summit Township / City: Norton

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 12/15/08 Quantity: 0.19

Photograph Information: photo 5 downstream

Elevated Turbidity? (Y/N): N Canopy (% open): 90%

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

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

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

most of stream not impacted by pipeline ROW maintenance activities, wooded riparian corridor

Additional comments/description of pollution impacts:

periodic disturbance due to pipeline ROW maintenance and vehicle access activities

BIOTIC EVALUATION

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

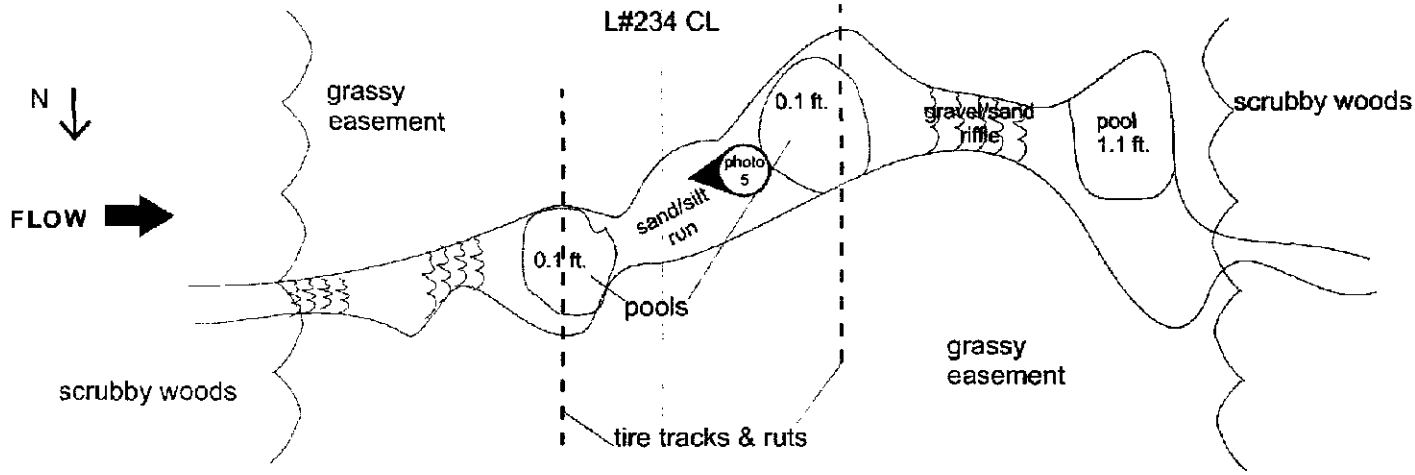
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N
Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology:

none observed; very limited habitat within reach

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

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



October 24, 2002 Revision

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : **56**

SITE NAME/LOCATION: UT3 to Wolf Creek/Domion EOG, Bare Steel-Mohican Transmission Phase I

SITE NUMBER: S3 RIVER BASIN: 05040001-Tuscara DRAINAGE AREA (mi²): 0.07

LENGTH OF STREAM REACH (ft): 200 LAT. 41.04219 LONG. -81.60447 RIVER CODE: RIVER MILE: 0.05

DATE: 12/17/08 SCORER: BL, LM COMMENTS: begins at downstream end of W2 in ag field

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

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

1. SUBSTRATE

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

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☑	SILT [3 pt]	80%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65 256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2 64 mm) [9 pts]	0%	☐ ☐	MUCK [0 pts]	0%
☑ ☐	SAND (<2 mm) [6 pts]	20%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A) Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 2

HHEI Metric Points — Substrate Max = 40: **11** (A + B)

2. Maximum Pool Depth

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

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 30 cm [30 pts]
- ☑ > 10 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: pools deepest due to tire ruts through channel MAXIMUM POOL DEPTH (centimeters): 13

Pool Depth Max = 30: **25**

3. BANK FULL WIDTH

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

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☑ > 1.5 m - 3.0 m (> 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: portions impacted by tire tracks and grading AVERAGE BANKFULL WIDTH (meters): 1.80

Bankfull Width Max=30: **20**

This information must also be completed

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

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☐	☐	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5 10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☑	☑	Open Pasture, Row Crop
☑	☑	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: riparian veg. removed along both banks due to row-crop ag field plowing

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

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS: flow 6 - 13 cm depth and 30 cm to 1.3 m wide in riffle/run areas

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

☑ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >3

STREAM GRADIENT ESTIMATE

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

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

QHEI PERFORMED? ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Wolf Creek (MWH) Distance from Evaluated Stream 0.05
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: Wadsworth NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Summit Township / City: Norton

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 12/15/08 Quantity: 0.19

Photograph Information: photo 12 downstream

Elevated Turbidity? (Y/N): N Canopy (% open): 100%

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

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

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

Additional comments/description of pollution impacts:

entire stream/reach downstream of W2 has been impacted in recent past due to farming and/or pipeline maintenance activities

BIOTIC EVALUATION

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

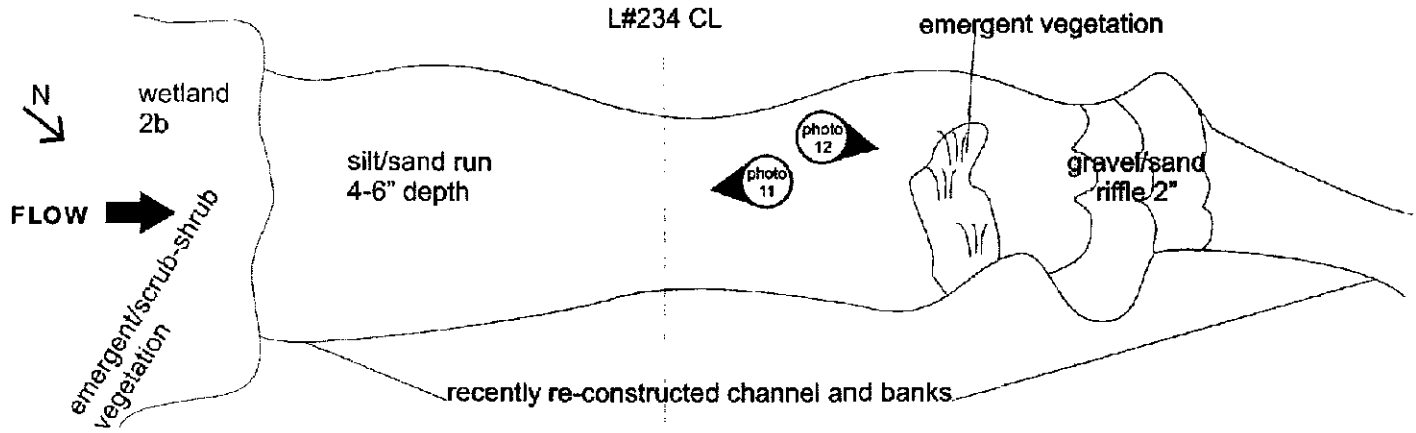
Fish Observed? (Y/N): N Voucher? (Y/N): N Salamanders Observed? (Y/N): N Voucher? (Y/N): N
Frogs or Tadpoles Observed? (Y/N): N Voucher? (Y/N): N Aquatic Macroinvertebrates Observed? (Y/N): N Voucher? (Y/N): N

Comments Regarding Biology:

none observed; very limited habitat within reach; very short stream segment between W2 and culvert downstream leading to Wolf C

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

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



October 24, 2002 Revision

OhioEPA Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 39.8

Stream & Location: Site S4, Wolf Creek *RM:* 3.3 *Date:* 12 / 17 / 08

Dominion EOG, Bare Steel Mohican Transmission Phase I *Scorers Full Name & Affiliation:* Bill Leopold, Environment & Archaeology, LLC

River Code: __ - __ - __ *STORET #:* ____ *Lat./Long.:* (NAD 83 - decimal °) 41.0422 / 81.6045 *Office verified location* ☐

1] SUBSTRATE

Check *ONLY* Two substrate *TYPE BOXES*; estimate % or note every type present

BEST TYPES	POOL	RIFFLE	OTHER TYPES	POOL	RIFFLE
☐ ☐ BLDR /SLABS [10]			☐ ☐ HARDPAN [4]		
☐ ☐ BOULDER [9]			☐ ☐ DETRITUS [3]		
☐ ☐ COBBLE [8]			☐ ☐ MUCK [2]		
☐ ☐ GRAVEL [7]		10	☒ ☐ SILT [2]		60
☒ ☐ SAND [6]		30	☐ ☐ ARTIFICIAL [0]		
☐ ☐ BEDROCK [5]			(Score natural substrates; ignore sludge from point sources)		

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

Check ONE (*Or 2 & average*)

ORIGIN	QUALITY
☐ LIMESTONE [1]	☒ HEAVY [-2]
☒ TILLS [1]	☐ MODERATE [-1]
☐ WETLANDS [0]	☐ NORMAL [0]
☐ HARDPAN [0]	☐ FREE [1]
☐ SANDSTONE [0]	☒ EXTENSIVE [-2]
☐ RIP/RAP [0]	☐ MODERATE [-1]
☐ LACUSTURINE [0]	☐ NORMAL [0]
☐ SHALE [-1]	☐ NONE [1]
☐ COAL FINES [-2]	

SILT

EMBEDDEDNESS

Comments

stream site too deep for wading; substrate visually estimated

Substrat **5** *Maximun 20*

2] INSTREAM COVER

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

1 UNDERCUT BANKS [1]	0 POOLS > 70cm [2]	0 OXBOWS, BACKWATERS [1]
0 OVERHANGING VEGETATION [1]	1 ROOTWADS [1]	0 AQUATIC MACROPHYTES [1]
0 SHALLOWS (IN SLOW WATER) [1]	0 BOULDERS [1]	0 LOGS OR WOODY DEBRIS [1]
1 ROOTMATS [1]		

AMOUNT

Check ONE (*Or 2 & average*)

☐ EXTENSIVE >75% [11]
☐ MODERATE 25-75% [7]
☒ SPARSE 5-<25% [3]
☐ NEARLY ABSENT <5% [1]

Comments

Cover Maximum 20 **6**

3] CHANNEL MORPHOLOGY

Check ONE in each category (*Or 2 & average*)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [6]	☐ HIGH [3]
☐ MODERATE [3]	☐ GOOD [5]	☐ RECOVERED [4]	☒ MODERATE [2]
☐ LOW [2]	☐ FAIR [3]	☐ RECOVERING [3]	☐ LOW [1]
☒ NONE [1]	☒ POOR [1]	☒ RECENT OR NO RECOVERY [1]	

Comments

channelized section of stream

Channel Maximum 20 **5**

4] BANK EROSION AND RIPARIAN ZONE

Check ONE in each category for *EACH BANK* (*Or 2 per bank & average*)

River right looking downstream

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

Indicate predominant land use(s) past 100m riparian.

Comments

Riparian Maximum 10 **5.75**

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH	CHANNEL WIDTH	CURRENT VELOCITY	
Check ONE (*ONLY!*)	Check ONE (*Or 2 & average*)	Check ALL that apply	
☒ > 1m [6]	☐ POOL WIDTH > RIFFLE WIDTH [2]	☐ TORRENTIAL [-1]	☒ SLOW [1]
☐ 0.7-<1m [4]	☒ POOL WIDTH = RIFFLE WIDTH [1]	☐ VERY FAST [1]	☐ INTERSTITIAL [-1]
☐ 0.4-<0.7m [2]	☐ POOL WIDTH < RIFFLE WIDTH [0]	☐ FAST [1]	☐ INTERMITTENT [-2]
☐ 0.2-<0.4m [1]		☐ MODERATE [1]	☐ EDDIES [1]
☐ < 0.2m [0]		*Indicate for reach*	*pools and riffles.*

Recreation Potential
Primary Contact
Secondary Contact
(circle one and comment on back)

Comments

pools undefined within reach

Pool / Current Maximum 12 **8**

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Check ONE (*Or 2 & average*). ☒ NO RIFFLE [metric=0]

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

Comments

most of reach consists of run/glide area, shallow to moderate depth, slow current

Riffle / Run Maximum 8 **0**

6] GRADIENT

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

DRAINAGE AREA (50.00 mi²)

%POOL: 5.00 %GLIDE: 25.00
%RUN: 70.00 %RIFFLE: 0.00

Gradient Maximum 10 **10**

] SAMPLED REACH

Check ALL that app y

IETHOD

-] BOAT
-] WADE
-] L. LINE
-] OTHER

ISTANCE

-] 0.5 Km
-] 0.2 Km
-] 0.15 Km
-] 0.12 Km
-] OTHER

50 meters

STAGE

1st -sample pass- 2nd

- ☐ HIGH ☐
- ☐ UP ☐
- ☐ NORMAL ☐
- ☐ LOW ☐
- ☐ DRY ☐

CLARITY

1st --sample pass-- 2nd

- ☐ < 20 cm ☐
- ☐ 20-<40 cm ☐
- ☐ 40-70 cm ☐
- ■ > 70 cm/ CTB ☐
- ☐ SECCHI DEPTH ☐

CANOPY

1st _____ cm
pass
2nd _____ cm

-] > 85% OPEN
-] 55%-<85%
-] 30%-<55%
-] 10%-<30%
-] <10% CLOSED

Comment RE: Reach consistency/ Is reach typ ca of steam?, *Recreation/* Observed - Inferred, *Other/* Samp ng observat ons, Concerns, Access d rect ons, etc.

reach appears cons stent w th major ty of stream; stream s urban zed, channe zed feature w th some recovery of r par an vegetat on growth (woods, o df e d, etc) occurr ng; most of stream morpho ogy s stra ght, ow grad ent run/g de w th soft substrates, m ted recreat ona potent a as de from bank f sh ng act v t es; ag/row-crop present adjacent to stream, h gh y urban zed/ ndustr a zed watershed downstream rece v ng stream s Tuscarawas R ver headwaters (WWH & MWH)

B] AESTHETICS

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

C] RECREATION

AREA DEPTH

POOL: ☐ >100ft² ☐ >3ft

D] MAINTENANCE

C rc e some & *COMMENT*

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

E] ISSUES

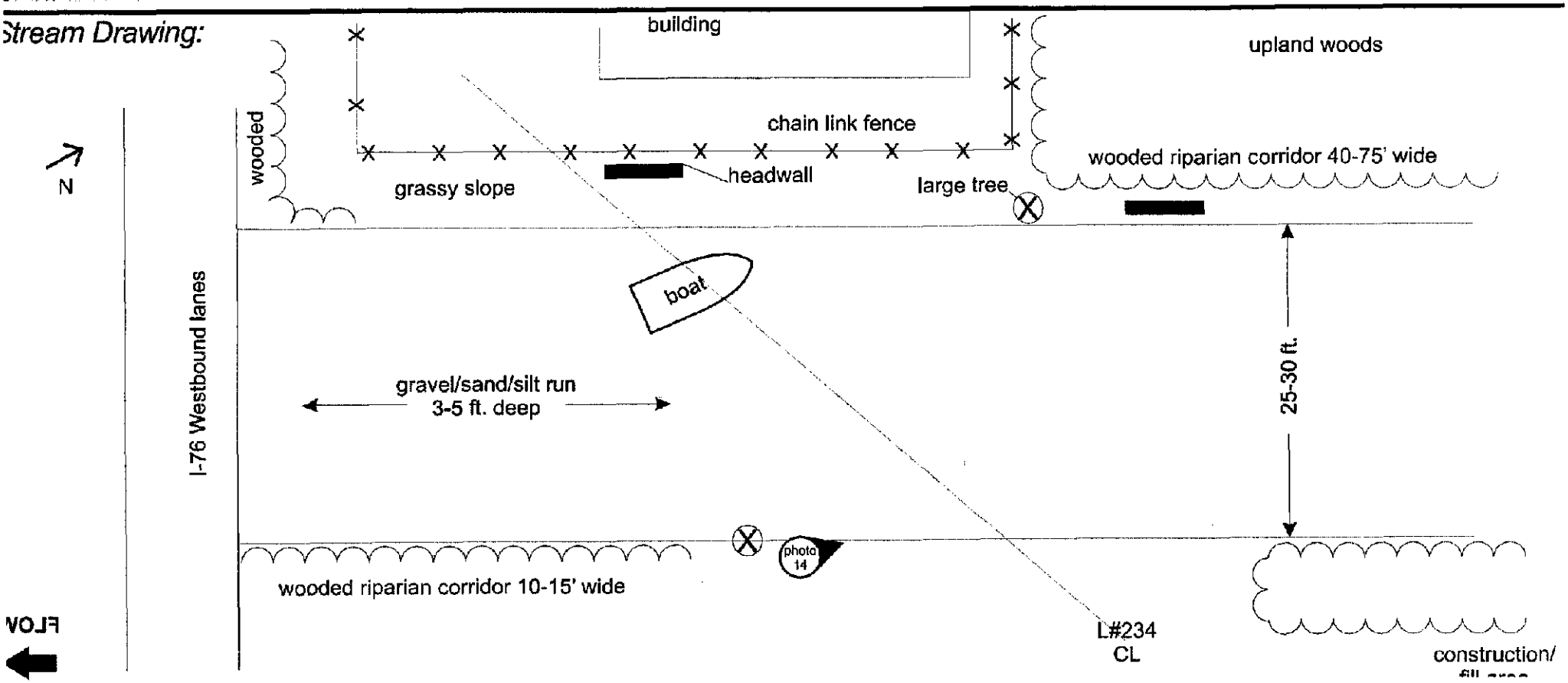
WWTP / CSO / NPDES / INDUSTRY
HARDENED / URBAN / DIRT&GRIME
CONTAMINATED / LANDFILL
BMPs-CONSTRUCTION-SEDIMENT
LOGGING / IRRIGATION / COOLING
BANK / EROSION / SURFACE
FALSE BANK / MANURE / LAGOON
WASH H_20 / TILE / H_20 TABLE
ACID / MINE / QUARRY / FLOW
NATURAL / WETLAND / STAGNANT
PARK / GOLF / LAWN / HOME
ATMOSPHERE / DATA PAUCITY

F] MEASUREMENTS

$\bar{x}$ width
$\bar{x}$ depth
max. depth
$\bar{x}$ bankfull width
bankfull $\bar{x}$ depth
W/D ratio
bankfull max. depth
floodprone x^2 width
entrench. ratio

Legacy Tree:

Stream Drawing:



OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : **47**

SITE NAME/LOCATION: UT4 to Wolf Creek/Domion EOG, Bare Steel-Mohican Transmission Phase I

SITE NUMBER: S5 RIVER BASIN: 05040001-Tuscara DRAINAGE AREA (mi²): 0.07

LENGTH OF STREAM REACH (ft): 200 LAT. 41.03689 LONG. -81.61155 RIVER CODE: RIVER MILE: 0.18

DATE: 12/17/08 SCORER: BL, LM COMMENTS: contained in drainage ditch and culverts by business

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

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

1. SUBSTRATE

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

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65 256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☑	GRAVEL (2 64 mm) [9 pts]	40%	☐ ☐	MUCK [0 pts]	0%
☑ ☐	SAND (<2 mm) [6 pts]	60%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A) Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 TOTAL NUMBER OF SUBSTRATE TYPES: 2

HHEI Metric Points — Substrate Max = 40: **17** (A + B)

2. Maximum Pool Depth

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

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 30 cm [30 pts]
- ☑ > 10 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ ≤ 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: pools located upstream of culvert MAXIMUM POOL DEPTH (centimeters): 13

Pool Depth Max = 30: **25**

3. BANK FULL WIDTH

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

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: narrow, deeply cut channel (constructed) AVERAGE BANKFULL WIDTH (meters): 0.70

Bankfull Width Max=30: **5**

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L R	FLOODPLAIN QUALITY (Most Predominant per Bank) L R	L R
☐ ☐ Wide >10m	☐ ☐ Mature Forest, Wetland	☐ ☐ Conservation Tillage
☐ ☐ Moderate 5 10m	☐ ☐ Immature Forest, Shrub or Old Field	☑ ☐ Urban or Industrial
☐ ☐ Narrow <5m	☐ ☑ Residential, Park, New Field	☐ ☐ Open Pasture, Row Crop
☑ ☑ None	☐ ☐ Fenced Pasture	☐ ☐ Mining or Construction

COMMENTS: upstream floodplain undeveloped right bank

FLOW REGIME

(*At Time of Evaluation*) (Check *ONLY* one box):

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS: flow 6 - 13 cm depth and 0.3 - 0.6 m wide, drains large wetland upstream

SINUOSITY

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

☑ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >3

STREAM GRADIENT ESTIMATE

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

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

QHEI PERFORMED? ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Wolf Creek (MWH) Distance from Evaluated Stream 0.18
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: Wadsworth NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Summit Township / City: Norton

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 12/15/08 Quantity: 0.19

Photograph Information: photo 18 upstream

Elevated Turbidity? (Y/N): N Canopy (% open): 90%

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

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

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

Additional comments/description of pollution impacts:

channel runs parallel to parking lot, has been mostly channelized and culverted through this reach

BIOTIC EVALUATION

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

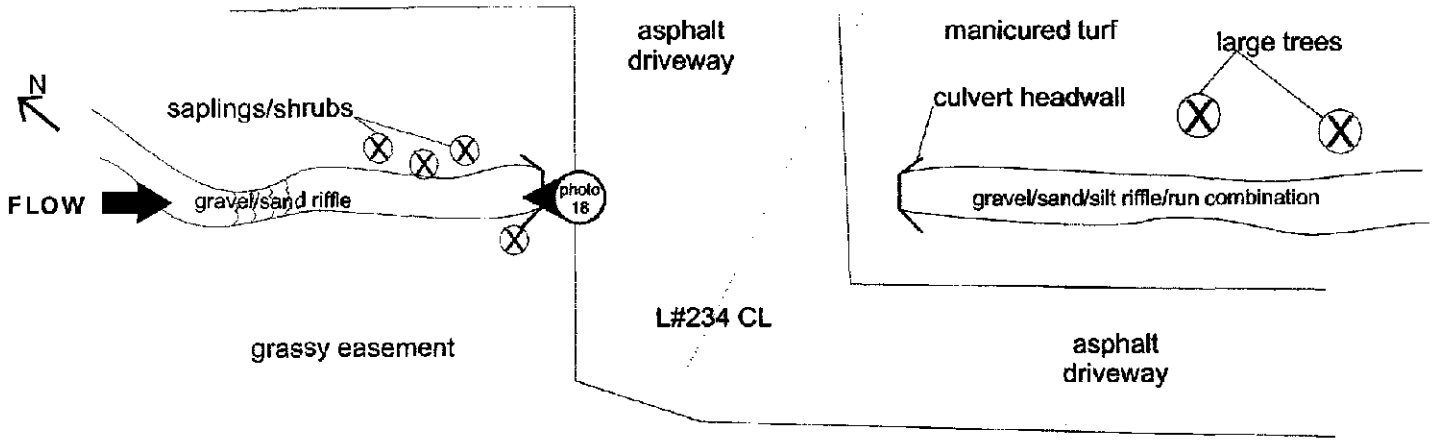
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N
Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology:

none observed; very limited habitat within reach

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

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



OhioEPA Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 50.5

Stream & Location: Site S6, Van Hyning Run *RM:* 0.3 *Date:* 12 / 17 / 08

Dominion EOG, Bare Steel Mohican Transmission Phase I *Scorers Full Name & Affiliation:* Bill Leopold, Environment & Archaeology, LLC

River Code: ___-___-___ *STORET #:* _____ *Lat./Long.:* (NAD 83 - decimal °) 41.0348 / 81.6147 *Office verified location* ☐

1] SUBSTRATE

Check *ONLY* Two substrate *TYPE BOXES*; estimate % or note every type present

BEST TYPES	POOL	RIFFLE	OTHER TYPES	POOL	RIFFLE
☐ ☐ BLDR /SLABS [10]			☐ ☐ HARDPAN [4]		
☐ ☐ BOULDER [9]			☐ ☐ DETRITUS [3]		
☐ ☐ COBBLE [8]			☐ ☐ MUCK [2]		
☐ ☐ GRAVEL [7]			☒ ☐ SILT [2]		20
☒ ☐ SAND [6]		80	☐ ☐ ARTIFICIAL [0]		
☐ ☐ BEDROCK [5]			(Score natural substrates; ignore sludge from point sources)		

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

Check ONE (*Or 2 & average*)

ORIGIN	QUALITY
☐ LIMESTONE [1]	☐ HEAVY [-2]
☒ TILLS [1]	☒ MODERATE [-1]
☐ WETLANDS [0]	☐ NORMAL [0]
☐ HARDPAN [0]	☐ FREE [1]
☐ SANDSTONE [0]	☒ EXTENSIVE [-2]
☐ RIP/RAP [0]	☐ MODERATE [-1]
☐ LACUSTURINE [0]	☐ NORMAL [0]
☐ SHALE [-1]	☐ NONE [1]
☐ COAL FINES [-2]	

SILT

EMBEDDEDNESS

Comments

Substrat **6** *Maximun 20*

2] INSTREAM COVER

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

1 UNDERCUT BANKS [1]	1 POOLS >70cm [2]	0 OXBOWS, BACKWATERS [1]
1 OVERHANGING VEGETATION [1]	1 ROOTWADS [1]	0 AQUATIC MACROPHYTES [1]
1 SHALLOWS (IN SLOW WATER) [1]	0 BOULDERS [1]	1 LOGS OR WOODY DEBRIS [1]
1 ROOTMATS [1]		

AMOUNT

Check ONE (*Or 2 & average*)

☐ EXTENSIVE >75% [11]
☐ MODERATE 25-75% [7]
☒ SPARSE 5-<25% [3]
☐ NEARLY ABSENT <5% [1]

Comments

fallen trees, woody debris present in several spots; erosion causing undercut banks and exposed rootmats/rootwads

Cover Maximum 20 **11**

3] CHANNEL MORPHOLOGY

Check ONE in each category (*Or 2 & average*)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [6]	☐ HIGH [3]
☐ MODERATE [3]	☐ GOOD [5]	☐ RECOVERED [4]	☐ MODERATE [2]
☒ LOW [2]	☒ FAIR [3]	☒ RECOVERING [3]	☒ LOW [1]
☐ NONE [1]	☐ POOR [1]	☐ RECENT OR NO RECOVERY [1]	

Comments

Channel Maximum 20 **9**

4] BANK EROSION AND RIPARIAN ZONE

Check ONE in each category for *EACH BANK* (*Or 2 per bank & average*)

River right looking downstream

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

Indicate predominant land use(s) past 100m riparian.

Comments

Barberton Speedway adjacent to left bank, upstream of site

Riparian Maximum 10 **7.50**

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH	CHANNEL WIDTH	CURRENT VELOCITY
Check ONE (*ONLY!*)	Check ONE (*Or 2 & average*)	Check ALL that apply
☐ > 1m [6]	☐ POOL WIDTH > RIFFLE WIDTH [2]	☐ TORRENTIAL [-1] ☒ SLOW [1]
☒ 0.7-<1m [4]	☒ POOL WIDTH = RIFFLE WIDTH [1]	☐ VERY FAST [1] ☐ INTERSTITIAL [-1]
☐ 0.4-<0.7m [2]	☐ POOL WIDTH < RIFFLE WIDTH [0]	☐ FAST [1] ☐ INTERMITTENT [-2]
☐ 0.2-<0.4m [1]		☒ MODERATE [1] ☐ EDDIES [1]
☐ < 0.2m [0]		*Indicate for reach pools and riffles.*

Recreation Potential
Primary Contact
Secondary Contact
(circle one and comment on back)

Comments

riffles limited in extent

Pool / Current Maximum 12 **7**

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: ☒ NO RIFFLE [metric=0]

Check ONE (*Or 2 & average*).

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

Comments

riffle area very limited, not bioloigcially functional

Riffle / Run Maximum 8 **0**

6] GRADIENT

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

DRAINAGE AREA (2.60 mi²)

%POOL: 15.00 %GLIDE: 25.00 %RUN: 55.00 %RIFFLE: 50.00

Gradient Maximum 10 **10**

] SAMPLED REACH
Check ALL that app y

IETHOD
-] BOAT
-] WADE
-] L. LINE
-] OTHER

IISTANCE
-] 0.5 Km
-] 0.2 Km
-] 0.15 Km
-] 0.12 Km
-] OTHER

50 meters

STAGE (1st -sample pass- 2nd)
- ☐ HIGH ☐
- ☐ UP ☐
- ☐ NORMAL ☐
- ☐ LOW ☐
- ☐ DRY ☐

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

CANOPY
-] > 85%- OPEN
-] 55%-<85%
-] 30%-<55%
-] 10%-<30%
-] <10%- CLOSED

1st pass _____ cm
2nd _____ cm

Comment RE: Reach consistency/ Is reach typ ca of steam?, *Recreation/* Observed - Inferred, *Other/* Samp ng observat ons, Concerns, Access d rect ons, etc.

reach most y typ ca of stream, except for r par an c ear ng due to p pe ne ROW; broken down personne br dge over stream; streambed s

5-8 feet w de, banks 6-10' w de, 4-5' h gh; sand bar present a ong w th scattered woody debr s; access through p pe ne ROW from north

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

C] RECREATION
AREA DEPTH
POOL: ☐ >100ft² ☐ >3ft

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

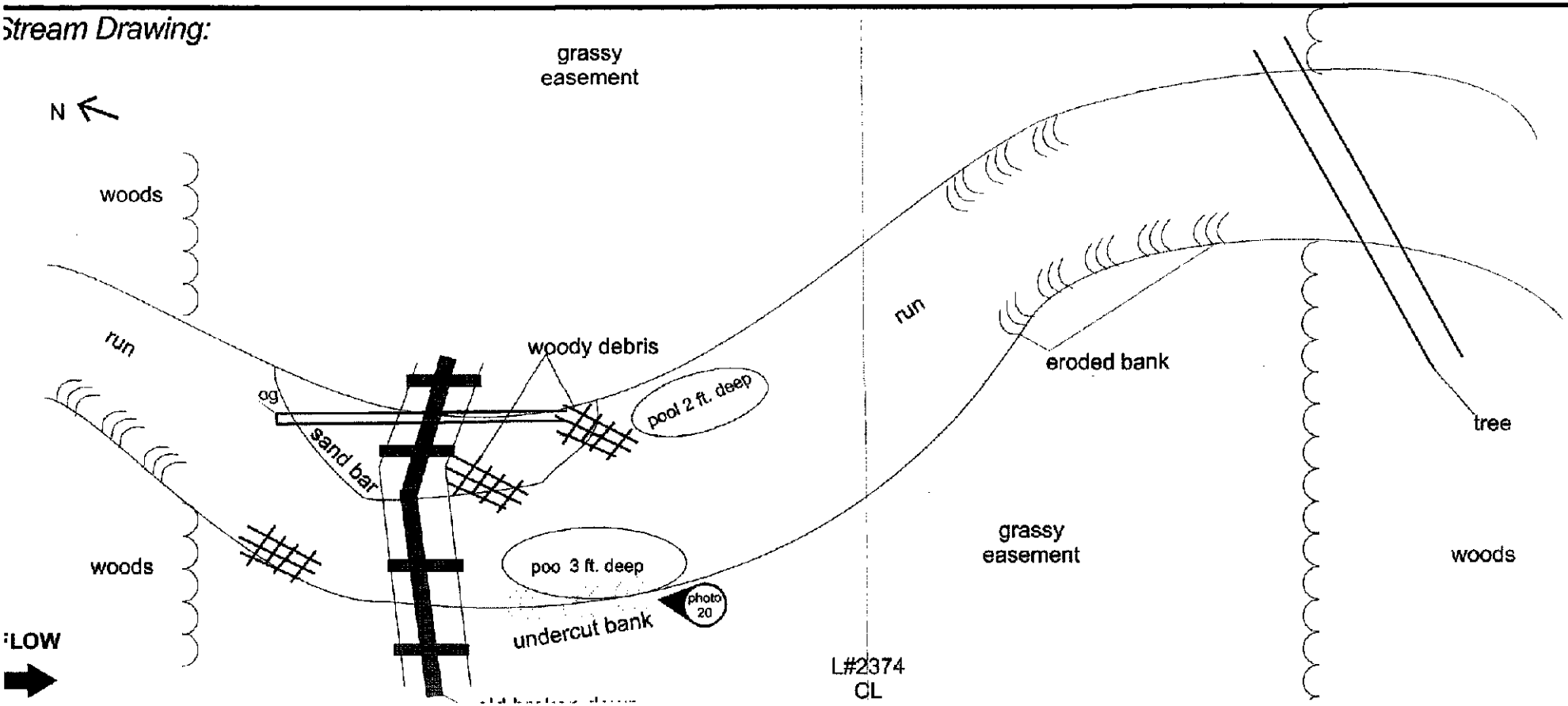
C rc e some & *COMMENT*

E] ISSUES
WWTP / CSO / NPDES / INDUSTRY
HARDENED / URBAN / DIRT&GRIME
CONTAMINATED / LANDFILL
BMPs-CONSTRUCTION-SEDIMENT
LOGGING / IRRIGATION / COOLING
BANK / EROSION / SURFACE
FALSE BANK / MANURE / LAGOON
WASH H_2O / TILE / H_2O TABLE
ACID / MINE / QUARRY / FLOW
NATURAL / WETLAND / STAGNANT
PARK / GOLF / LAWN / HOME
ATMOSPHERE / DATA PAUCITY

F] MEASUREMENTS
- $\bar{x}$ width
- $\bar{x}$ depth
- max. depth
- $\bar{x}$ bankfull width
- bankfull $\bar{x}$ depth
- W/D ratio
- bankfull max. depth
- floodprone x^2 width
- entrench. ratio

Legacy Tree:

Stream Drawing:



OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : **22**

SITE NAME/LOCATION UT5 to Van Hyning Run/Domion EOG, Bare Steel-Mohican Transmission Phase I

SITE NUMBER S7 RIVER BASIN 05040001-Tuscara DRAINAGE AREA (mi²) 0.01

LENGTH OF STREAM REACH (ft) 200 LAT. 41.03229 LONG. -81.61847 RIVER CODE RIVER MILE 0.3

DATE 12/17/08 SCORER BL, LM COMMENTS at base of hillside, drains to "constructed pool"

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

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

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

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

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0.00% (A) 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 3

HHEI Metric Points — Substrate Max = 40: **12** (A + B)

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

- [ ] > 30 centimeters [20 pts]
- [ ] > 22.5 30 cm [30 pts]
- [ ] > 10 22.5 cm [25 pts]
- [ ] > 5 cm - 10 cm [15 pts]
- [✓] < 5 cm [5 pts]
- [ ] NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS pools not well defined in channel MAXIMUM POOL DEPTH (centimeters): 5

Pool Depth Max = 30: **5**

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

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

COMMENTS AVERAGE BANKFULL WIDTH (meters): 0.40

Bankfull Width Max=30: **5**

This information must also be completed

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

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
[✓]	[✓]	Wide >10m	[✓]	[✓]	Mature Forest, Wetland	[ ]	[ ]	Conservation Tillage
[ ]	[ ]	Moderate 5 10m	[ ]	[ ]	Immature Forest, Shrub or Old Field	[ ]	[ ]	Urban or Industrial
[ ]	[ ]	Narrow <5m	[ ]	[ ]	Residential, Park, New Field	[ ]	[ ]	Open Pasture, Row Crop
[ ]	[ ]	None	[ ]	[ ]	Fenced Pasture	[ ]	[ ]	Mining or Construction

COMMENTS

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

- [✓] Stream Flowing
- [ ] Subsurface flow with isolated pools (Interstitial)
- [ ] Moist Channel, isolated pools, no flow (Intermittent)
- [ ] Dry channel, no water (Ephemeral)

COMMENTS flow 2 - 4 cm depth and 0.1 - 0.5 m wide; small trib just upstream of site

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

[ ] None	[ ] 1.0	[ ] 2.0	[ ] 3.0
[ ] 0.5	[✓] 1.5	[ ] 2.5	[ ] >3

STREAM GRADIENT ESTIMATE

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

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

QHEI PERFORMED? ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Van Hyning Run Distance from Evaluated Stream 0.29
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: Wadsworth NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Summit Township / City: Norton

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 12/15/08 Quantity: 0.19

Photograph Information: photo 23 upstream

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

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

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

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

Additional comments/description of pollution impacts:

small pvc pipes within channel, appear to be drainage pipes from nearby camping trailer

BIOTIC EVALUATION

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

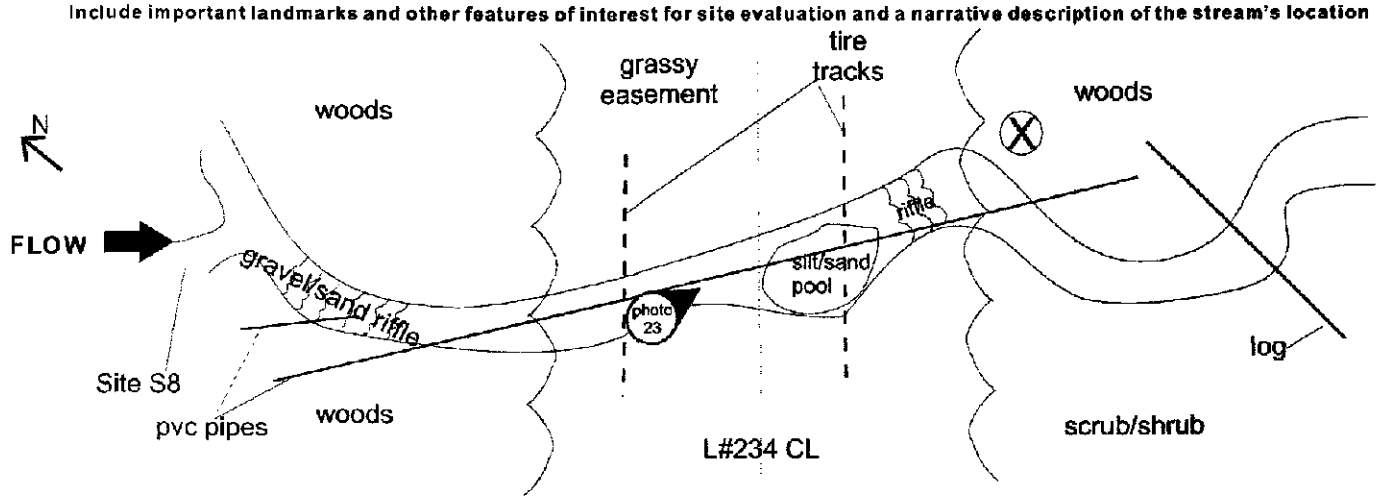
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N
Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology:

none observed; very limited habitat within reach

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

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



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HHEI Score (sum of metrics 1, 2, 3) : **22**

SITE NAME/LOCATION UT6 to Van Hyning Run/Domion EOG, Bare Steel-Mohican Transmission Phase I

SITE NUMBER S8 RIVER BASIN 05040001-Tuscara DRAINAGE AREA (mi²) 0.00

LENGTH OF STREAM REACH (ft) 200 LAT. 41.03234 LONG. -81.61865 RIVER CODE RIVER MILE 0.0

DATE 12/17/08 SCORER BL, LM COMMENTS at base of hillside, drains to "constructed pool"

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

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

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

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☑	SILT [3 pt]	30%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65 256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2 64 mm) [9 pts]	10%	☐ ☐	MUCK [0 pts]	0%
☑ ☐	SAND (<2 mm) [6 pts]	60%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0.00% (A) 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 3

HHEI Metric Points — Substrate Max = 40: **12** (A + B)

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

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 30 cm [30 pts]
- ☐ > 10 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☑ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS pools not well defined in channel MAXIMUM POOL DEPTH (centimeters): 5

Pool Depth Max = 30: **5**

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

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS AVERAGE BANKFULL WIDTH (meters): 0.40

Bankfull Width Max=30: **5**

This information must also be completed

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

RIPARIAN WIDTH (Per Bank) L R	FLOODPLAIN QUALITY (Most Predominant per Bank) L R	L R
☑ ☑ Wide >10m	☑ ☑ Mature Forest, Wetland	☐ ☐ Conservation Tillage
☐ ☐ Moderate 5 10m	☐ ☐ Immature Forest, Shrub or Old Field	☐ ☐ Urban or Industrial
☐ ☐ Narrow <5m	☐ ☐ Residential, Park, New Field	☐ ☐ Open Pasture, Row Crop
☐ ☐ None	☐ ☐ Fenced Pasture	☐ ☐ Mining or Construction

COMMENTS

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

- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS flow 2 - 4 cm depth and 0.1 - 0.5 m wide

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

☐ None	☑ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >3

STREAM GRADIENT ESTIMATE

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

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

QHEI PERFORMED? ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: Van Hyning Run Distance from Evaluated Stream 0.30
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: Wadsworth NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Summit Township / City: Norton

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 12/15/08 Quantity: 0.19

Photograph Information: _____

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

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

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

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

Additional comments/description of pollution impacts:

flows into UT5/S7

BIOTIC EVALUATION

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

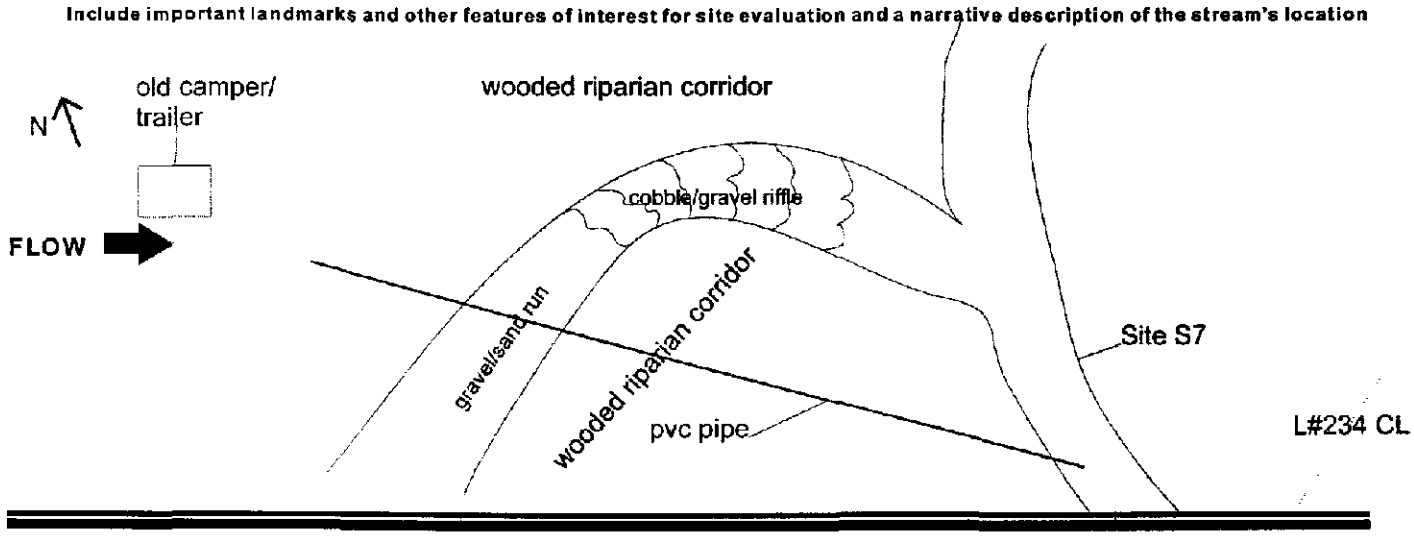
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N
Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology:

none observed; very limited habitat within reach

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

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



October 24, 2002 Revision