

Legal Department

American Electric Power
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Columbus, OH 43215-2373
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Docketing Division Chief Public Utilities Commission of Ohio 180 East Broad Street Columbus Ohio 43215-3793

July 18, 2014

Re: In the Matter of the Application for the Biers Run-Hopetown-Delano 138kV

Transmission Line Project

OPSB Case No. 13-0429-EL-BTX

Dear Ms. McNeal:

On January 8, 2014, AEP Ohio Transmission Company, Inc. (AEP) submitted an Application seeking a Certificate of Environmental Compatibility and Public Need (Application) from the Ohio Power Siting Board (OPSB) for AEP's Biers Run-Hopetown-Delano 138 kV Transmission Line Project (Project) in Ross County, Ohio. Subsequent to submitting the Application, AEP evaluated potential route adjustments based on stakeholder concerns, potential increases or decreases in impacts to ecological, cultural and land use resources, and technical feasibility. AEP made five route adjustments to the original Preferred Route in the Application due to property owner concerns and re-evaluations. These route adjustments were submitted to the OPSB as a Supplement to the Application on May 5, 2014.

With the attached Second Supplement to the Application, AEP is submitting an alternative route across the Pleasant Valley Wildlife Area, which is now the Current Preferred Route. References to the original Preferred Route in the Application dated January 8, 2014 and the Supplement to the Application dated May 5, 2014 are now to be considered the "South Alternate Route." References to the original Alternate Route in the previous submittals are now to be considered the "North Alternate Route." These routes and the appropriate name changes are provided in Figure 1 of the attached Second Supplement to the Application.

Should you have any questions, please do not hesitate to contact me.

/s/ Yazen Alami	
Yazen Alami	

Respectfully submitted,

Yazen Alami, Esq. Regulatory Services (614) 716-2920 (P) (614) 716-2950 (F) yalami@aep.com On January 8, 2014, AEP Ohio Transmission Company, Inc. (AEP) submitted an Application seeking a Certificate of Environmental Compatibility and Public Need (Application) from the Ohio Power Siting Board (OPSB) for AEP's Biers Run-Hopetown-Delano 138 kV Transmission Line Project (Project) in Ross County, Ohio.

Subsequent to Application submittal, AEP evaluated potential route adjustments based on stakeholder concerns, potential increases or decreases in impacts to ecological, cultural, and land use resources, and technical feasibility. AEP made five substantive route adjustments to the Preferred Route due to property owner concerns and re-evaluations. These route adjustments were submitted to the OPSB as a Supplement to the Application on May 5, 2014.

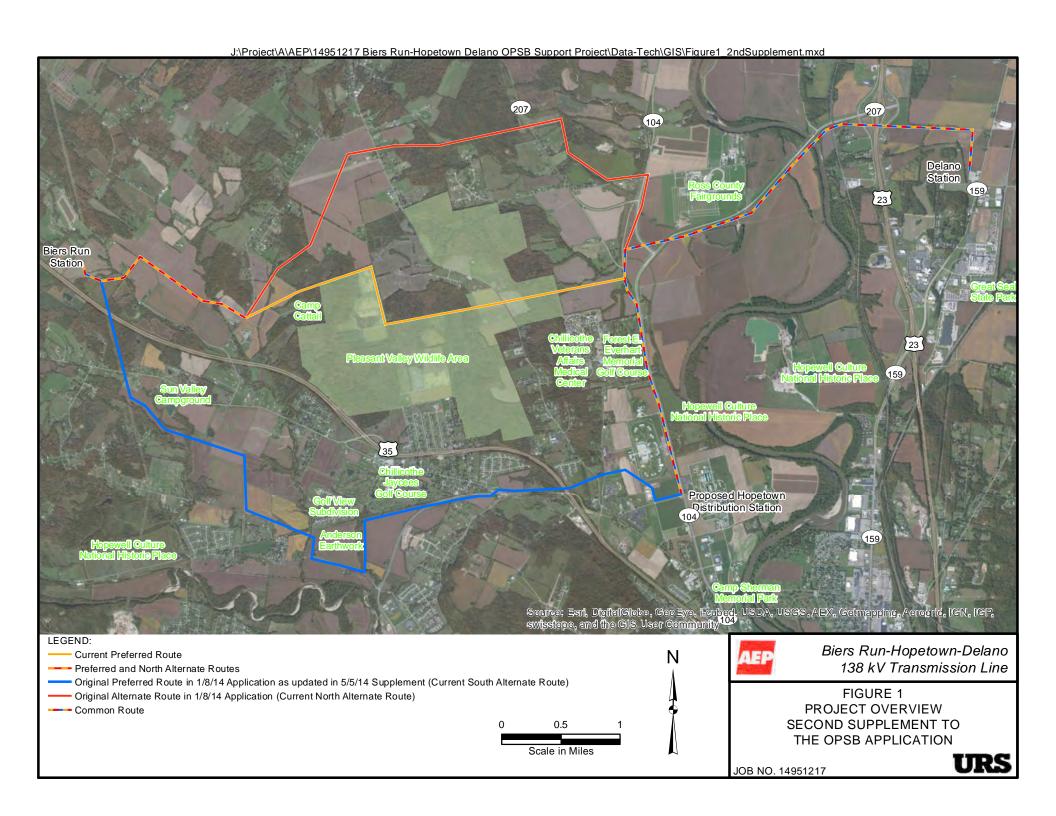
The Applicant's consultant, URS Corporation ("URS") completed a Route Selection Study for the proposed Project in January 2013 (Appendix 03-1 in the Application). As part of the Route Selection Study, AEP and URS identified potential route corridors for the Project. A relatively direct route candidate from Biers Run Station east toward Delano Station crosses the Ohio Department of Natural Resources' (ODNR) Pleasant Valley Wildlife Area (PVWA). As provided in the Route Selection Study, ODNR indicated that deed restrictions and their opposition would not allow the project to cross PVWA, and AEP abandoned evaluations of this candidate at that time.

By April 2014, public comments and support for a route crossing PVWA led AEP to re-engage discussions with ODNR concerning potentially crossing PVWA. ODNR, AEP, and URS discussed the process, associated timeline, and potential routes across PVWA. ODNR granted a right-of-entry to AEP and its contractors in May 2014 to investigate two route candidates across PVWA. URS conducted an ecological field surveys along these routes. No ecological resource fatal flaws were identified, although a stream, challenging topography, and U.S. 35 are all in close proximity, as well as land use impacts suggested the initial route exiting the southeast corner of PVWA was not feasible. AEP decided to pursue a generally west to east route across PVWA. Weller and Associates, Inc. conducted a cultural resources survey along the route and identified no National Register eligible or potentially eligible resources within the proposed right-of-way.

Based on public comments and support, results of the field surveys, and preliminary engineering evaluation, AEP is submitting the route across PVWA as the Current Preferred Route in this Second Supplement to the OPSB Application. References to the original Preferred Route in the Application dated January 8, 2014 and the Supplement to the Application dated May 5, 2014 are now to be considered the "South Alternate Route." References to the original Alternate Route in the previous submittals are now to be considered the "North Alternate Route." These routes and the appropriate name changes are provided in Figure 1 of this Second Supplement to the OPSB Application.

The document is formatted to provide supplemental information regarding the Current Preferred Route that crosses ODNR's PVWA. Only paragraphs within subsections of the Application where updated information based on the addition of the Current Preferred Route are included in this Second Supplement. The absence of a subsection indicates that the submitted subsection

remains unchanged, although the route naming convention discussed above was not revised if it was the only change.



4906-15-01 PROJECT SUMMARY AND FACILITY OVERVIEW

(A) PROJECT SUMMARY AND FACILITY OVERVIEW

(3) Route Selection Process

The Applicant's consultant, URS completed a Route Selection Study for the proposed Project in January 2013 (Appendix 03-1 of the January 8, 2014 Application). As part of the Route Selection Study, AEP and URS identified potential route corridors for the Project. A relatively direct route candidate from Biers Run Station east toward Delano Station crosses the ODNR'S PVWA. As provided in the Route Selection Study, ODNR indicated that deed restrictions and their opposition would not allow the project to cross PVWA, and AEP abandoned evaluations of this candidate at that time.

By April 2014, public comments and support for a route crossing PVWA led AEP to re-engage discussions with ODNR concerning potentially crossing PVWA. ODNR, AEP, and URS discussed the process, associated timeline, and potential routes across PVWA. ODNR granted a right-of-entry to AEP and its contractors in May 2014 to investigate two route candidates across PVWA. URS conducted an ecological field surveys along these routes. No ecological resource fatal flaws were identified, although a stream, challenging topography, and U.S. 35 are all in close proximity, as well as land use impacts that suggested the initial route exiting the southeast corner of PVWA was not feasible. AEP decided to pursue a generally west to east route across PVWA. Weller and Associates, Inc. conducted a cultural resources survey along the route and identified no National Register eligible or potentially eligible resources within the proposed right-of-way. Since this route compared favorably to routes submitted in the January 8, 2014 Application and updated in the May 5, 2014 Supplement, the route crossing PVWA is now considered the Current Preferred Route. The Current Preferred Route is the subject of this Second Supplement to the OPSB Application.

Current Preferred Route: The Current Preferred Route begins at the proposed Biers Run Station (OPSB Case Number 12-1361-EL-BSB), and crosses a short section of the overall station property. The first 0.2 mile of the Current Preferred Route as it exits Biers Run Station is shared by the North Alternate Route and South Alternate Route. The Current Preferred Route then heads generally east-southeast for 1.5 miles, sharing the same path as the North Alternate Route, primarily along property lines to Cattail Road. The route continues for 0.7 mile across a property owned by the Ross County Commissioners and occupied by a juvenile detention center and Camp Cattail before entering the ODNR's PVWA. The Current Preferred Route generally parallels the northern boundary of the irregularly shaped PVWA for approximately 2.0 miles to Egypt Pike. After crossing Egypt Pike, the route continues within the boundary of PVWA and then across a privately owned agricultural property for 1.0 mile to a point near the intersection of State Route 104 and State Route 207 where it meets the current right-of-way of the Camp Sherman-Circleville 69 kV line (Common Route). To this point, the Current Preferred Route will be constructed as a single circuit. However, the 2.0-mile portion of the Common Route heading

south parallel to State Route 104 and within the current right-of-way of the Camp Sherman-Circleville 69 kV line to the proposed Hopetown distribution station will require double circuit construction if the Current Preferred Route is selected. This is necessary to create a loop through the proposed Hopetown distribution station and back to the point where the Current Preferred Route and the Common Route intersect. The Camp Sherman-Circleville 69 kV line will be removed prior to construction of this portion of the Biers Run-Hopetown-Delano 138 kV transmission line. A single circuit will extend east along the Common Route heading north, then generally east and northeast parallel to State Route 207 for 2.6 miles. The route then crosses a U.S. 23 interchange, extending east and then south across agricultural fields for the final 1.2 miles into Delano Station. The total length of the Current Preferred Route is 11.2 miles.

(4) Principal Environmental and Socioeconomic Considerations

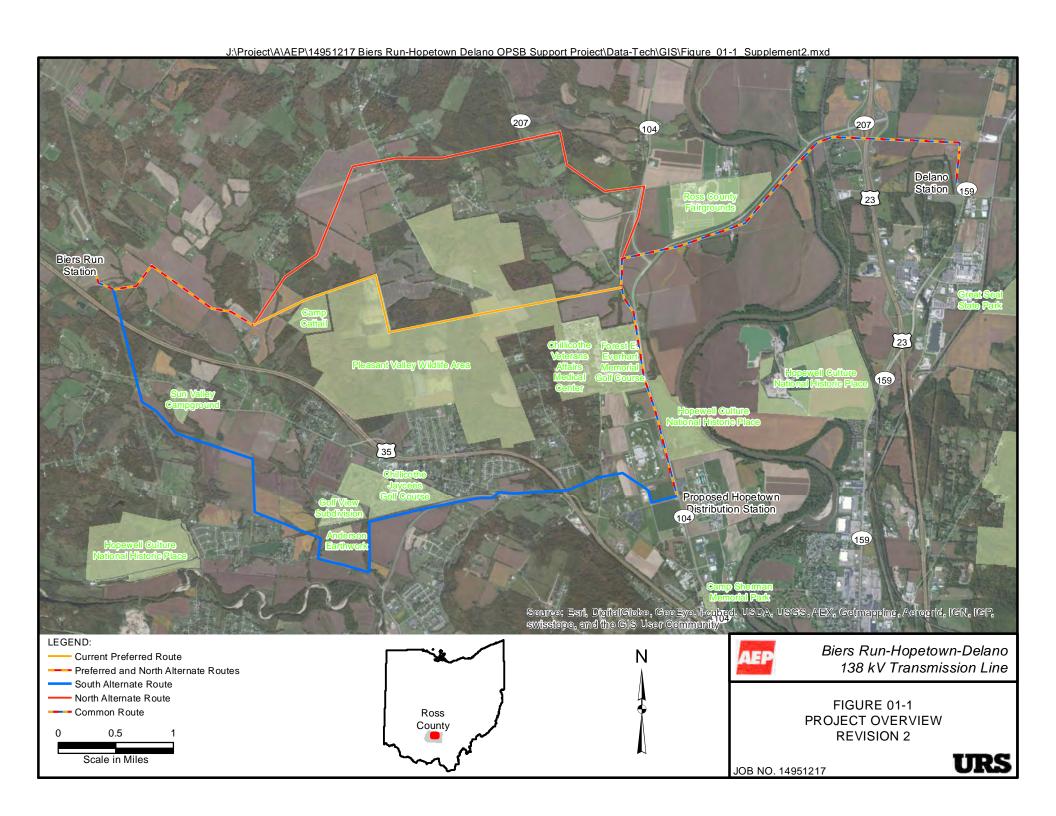
(a) Land Use Impacts:

Based on publicly available data and field observations, approximately 26 residences were identified within 1,000 feet of the Current Preferred Route. One of these residences, located along the Common Route shared by all three routes, is within 100 feet. No residences are proposed to be removed as part of the Project if the Current Preferred Route is selected. Approximately 2.4 miles (21%) of the Current Preferred Route crosses ODNR's PVWA. Approximately 59% of the Current Preferred Route crosses agricultural land. No schools or churches were identified within 1,000 feet of the Current Preferred Route. Property of the Chillicothe Correctional Institute is crossed by the Common Route. Three commercial facilities were identified within 1,000 feet of the Common Route. These businesses include an auto repair facility, a paint shop, and a warehouse all of which are just within 1,000 feet in the vicinity of Delano Station.

Ninety-two previously recorded archaeological sites were identified within 1,000 feet of the Current Preferred Route, 14 of which are within 100 feet. Twelve Ohio Historic Inventory (OHI) structures were identified within 1,000 feet, one of which is within 100 feet. Three National Register of Historic Places (NRHP) sites were identified within 1,000 feet of the Current Preferred Route, none of which are within 100 feet. Two cemeteries were also identified within 1,000 feet of the Current Preferred Route, one of which is within 100 feet. In addition to the OHPO data sources above, Weller & Associates conducted a Phase I cultural resources survey for the Current Preferred Route on behalf of AEP. No eligible or potentially eligible for listing on the National Register archaeological sites or historic structures were identified within the Project's limits of disturbance. Based on the preliminary results, the Current Preferred Route appears to have fewer impacts on cultural resources compared to the North and South Alternate Routes. The full Phase I report will be provided to OPSB and OHPO under separate cover.

(c) Ecological Impacts: An ecological study of the Current Preferred Route was performed. The study included analysis of published literature and maps and a field survey to assess the presence of endangered plant and animal species, streams, and wetlands. Areas within 100 feet of the Current Preferred Route were field surveyed for vegetation, habitat of endangered plants

and animals, streams, and wetlands from August through December 2013, and May 2014. The proposed right-of-way of the Current Preferred Route crosses eight wetlands with a total area of 0.48 acre, and 28 streams with a total length of 3,680 linear feet. Approximately 1.8 linear mile and 22 acres of woodlot would be cleared along the Current Preferred Route. The full results of this survey are discussed in detail in Section 7 of this Second Supplement to the Application.



4906-15-03 SITE AND ROUTE ALTERNATIVES ANALYSES

The Applicant's consultant, URS Corporation ("URS") completed a Route Selection Study for the proposed Project in January 2013 (Appendix 03-1 in the Application). As part of the Route Selection Study, AEP and URS identified potential route corridors for the Project. A relatively direct route candidate from Biers Run Station east toward Delano Station crosses the ODNR's PVWA. As provided in the Route Selection Study (Appendix 03-1 of the January 8, 2014 Application), ODNR indicated that deed restrictions and their opposition would not allow the project to cross PVWA, and AEP abandoned evaluations of this candidate route at that time.

By April 2014, public comments and support for a route crossing PVWA led AEP to re-engage discussions with ODNR concerning potentially crossing PVWA. ODNR, AEP, and URS discussed the process, associated timeline, and potential routes across PVWA. ODNR indicated that they were receptive to a route crossing PVWA as part of an overall evaluation of alternatives. ODNR granted a right-of-entry to AEP and its contractors in May 2014 to investigate two route candidates across PVWA. These routes include portions extending beyond the boundary of PVWA allowing the new candidates to rejoin the previously submitted routes.

URS conducted an ecological field surveys along the two routes crossing PVWA and the adjacent properties, as shown on Supplemental Figure 03-2. No ecological resource fatal flaws were identified, although a stream, challenging topography, and U.S. 35 are all in close proximity (See Supplemental Figure 03-2 Inset), as well as land use impacts that suggested the initial route exiting the southeast corner of PVWA was not feasible. The route exiting the southeast corner of PVWA was abandoned, and AEP decided to continue to pursue only the generally west to east route across PVWA.

On behalf of AEP, URS quantitatively compared the remaining route crossing PVWA with the routes submitted in the January 8, 2014 OPSB Application, as updated by the May 5, 2014 Supplement to the OPSB Application. Supplemental Table 03-1 provides the categories and results of this comparison.

SUPPLEMENTAL TABLE 03-1 ROUTE COMPARISON

Route Alternatives									
	Current Preferred (PVWA)	South Alternate	North Alternate						
Length (miles)	11.2	13.1	12.7						
	Features with	in 100 feet of Rout	e Alternatives						
Threatened and Endangered Species	0	0	0						
Historic Structures (OHI)	1	1	1						
Archaeological Sites	14	18	17						
NRHP Sites	0	0	0						
Residences	1	2	1						
Other sensitive land uses*	3	1	1						
	Features withi	n 1,000 feet of Rou	te Alternatives						
Threatened and Endangered Species	0	0	0						
Historic Structures (OHI)	12	11	14						
Archaeological Sites	92	102	103						
NRHP Sites	3	3	4						
Residences	26	251	77						
Other sensitive land uses*	5	8	4						
	Features within	n Proposed 100-foo	ot Right-of-way						
Delineated Wetlands (acres)	0.48	0.48	0.60						
Delineated Streams (feet)	3,680	2,233	4,003						
Forested Areas (acres)	22	12	23						

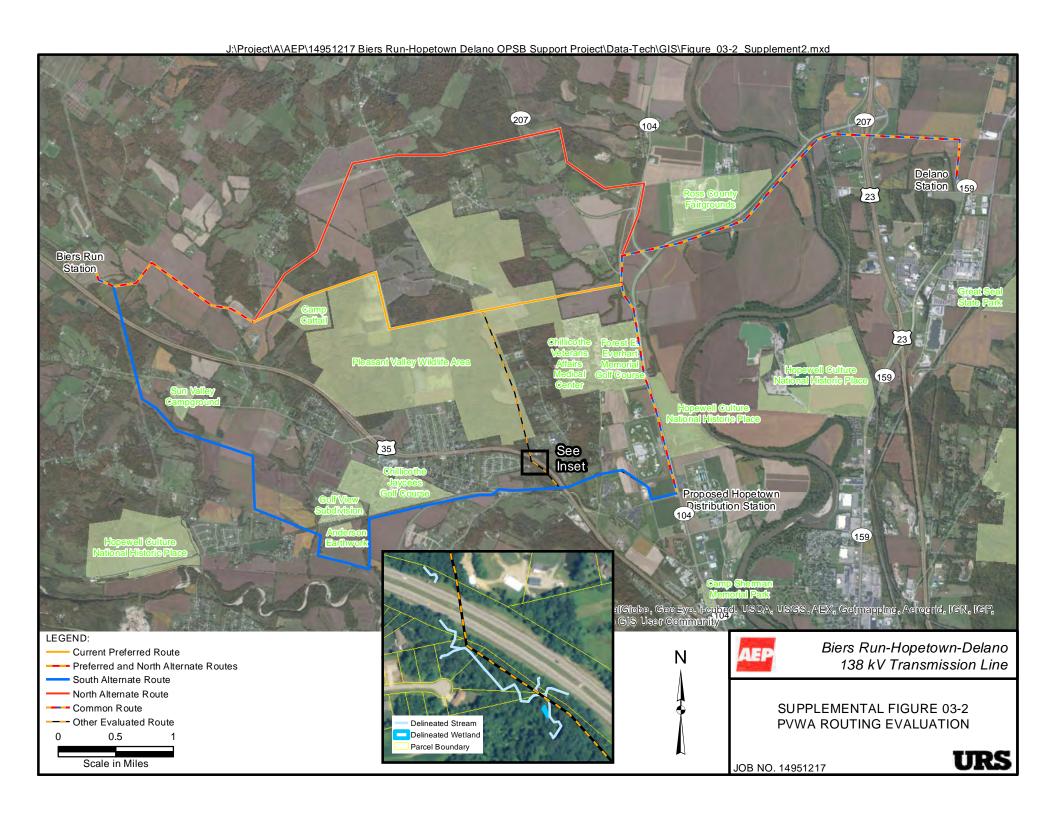
^{*} Other sensitive land uses include airports, parks, State forests, golf courses, schools, hospitals, churches, and cemeteries.

The most significant advantages of the route crossing PVWA over the other two routes include fewer potential residential impacts within 1,000 feet and shorter distance. No major

disadvantages were identified based on the quantitative comparison, although more woodlots would need to be cleared and more streams are within the proposed right-of-way along the Current Preferred Route compared to the South Alternate Route.

In conjunction with the quantitative comparison, Weller and Associates, Inc. conducted a cultural resources survey along west to east route across PVWA. No National Register eligible or potentially eligible resources were identified within the proposed right-of-way. The survey suggests fewer potential impacts to cultural resources along the new candidate route crossing PVWA relative to the two routes submitted in the January 8, 2014 OPSB Application and updated by the May 5, 2014 Supplement to the OPSB Application. General details of the Anderson Earthwork along the South Alternate Route and two significant archaeological sites along the North Alternate Route are provided in the January 8, 2014 OPSB Application. Specific details of these sites are provided in the Phase I reports provided to OPSB under separate cover.

Based on public comments, ODNR cooperation, the quantitative comparison provided in Supplemental Table 03-2, and reduced potential impacts to cultural resources, AEP believes the route crossing PVWA is the best available alternative. The purpose of this Second Supplement to the OPSB Application is to present this route and identify it as the Current Preferred Route.



4906-15-04 TECHNICAL DATA

(A) ALTERNATIVE SITES/ROUTES OF PROJECTS

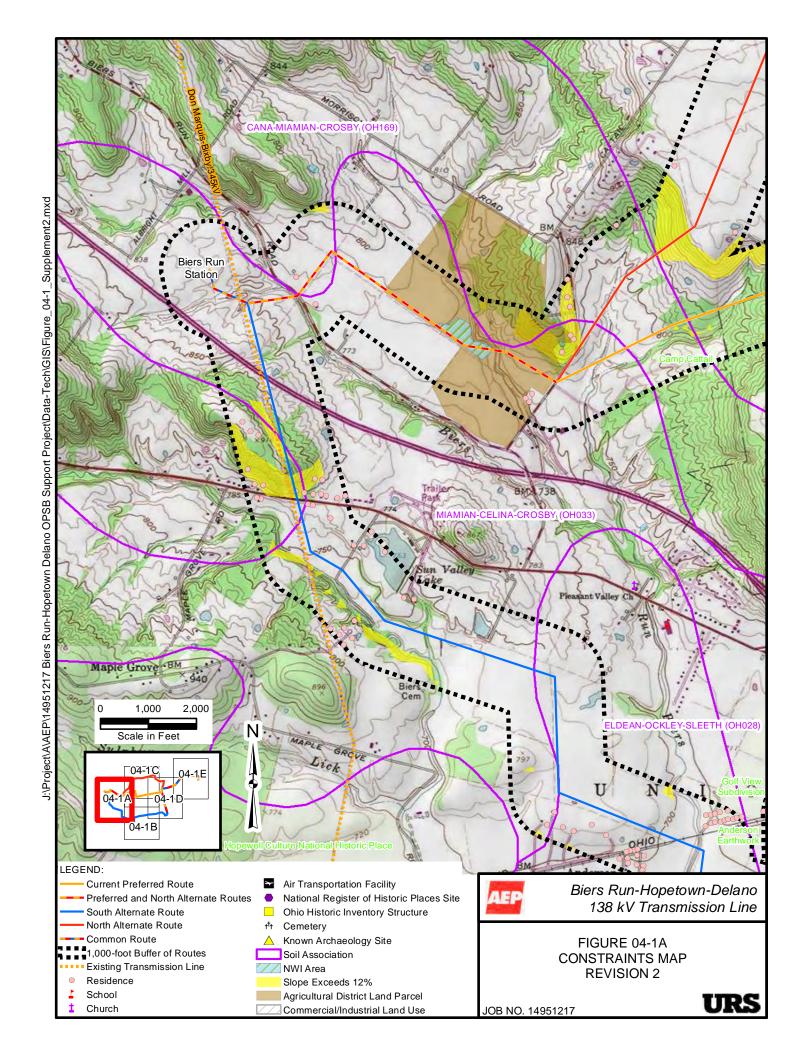
(2) Slope and Soil Mechanics

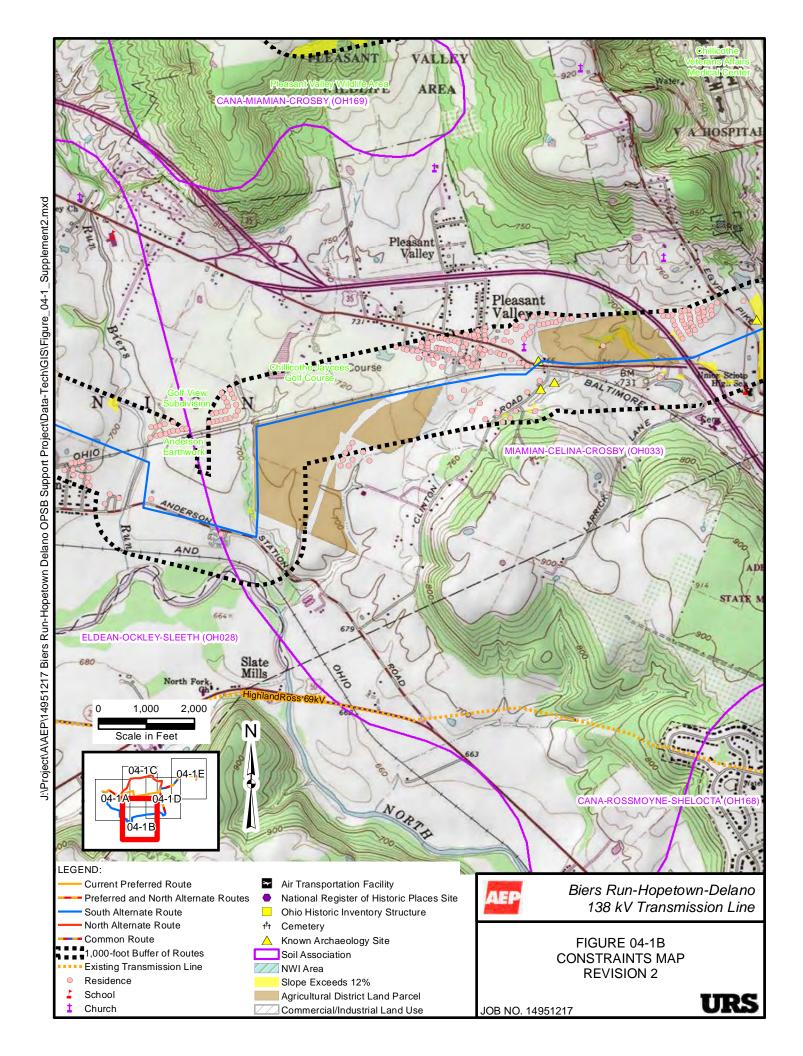
Approximately 4 percent of the length of the Current Preferred Route crosses areas with slopes that exceed 12 percent. This compares to approximately 7 percent of the length of the South Alternate Route and 12 percent of the length of the North Alternate Route.

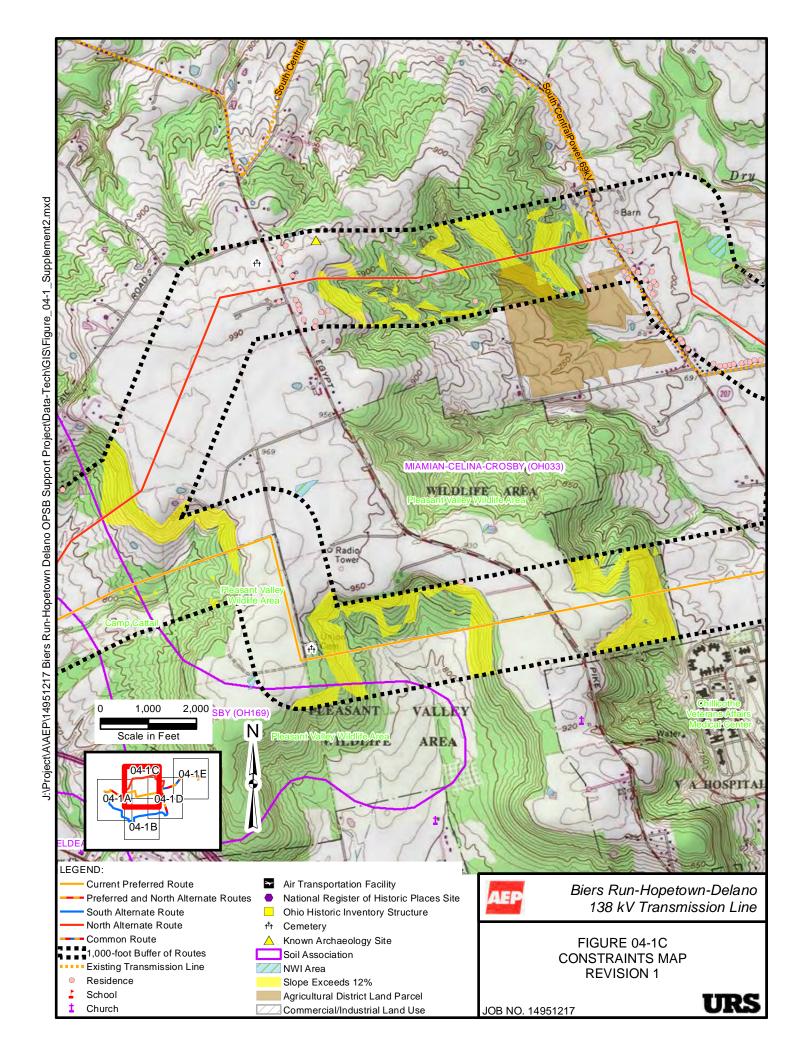
(C) TRANSMISSION EQUIPMENT

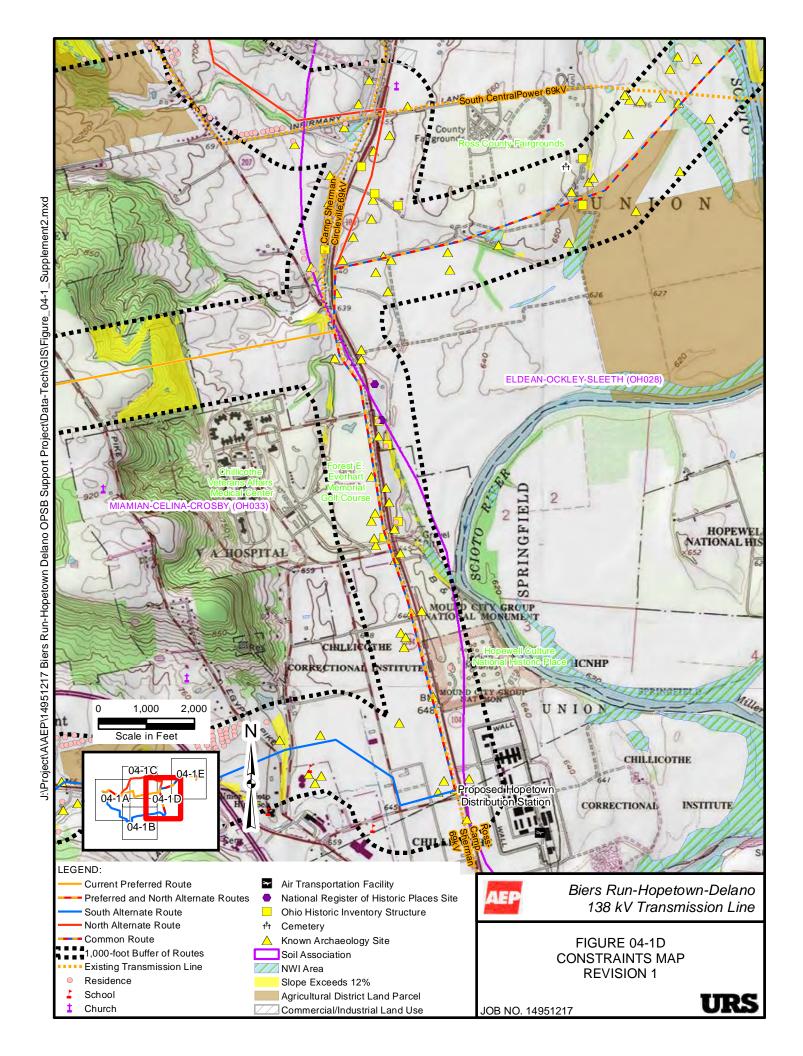
(1) Electric Transmission Line Data

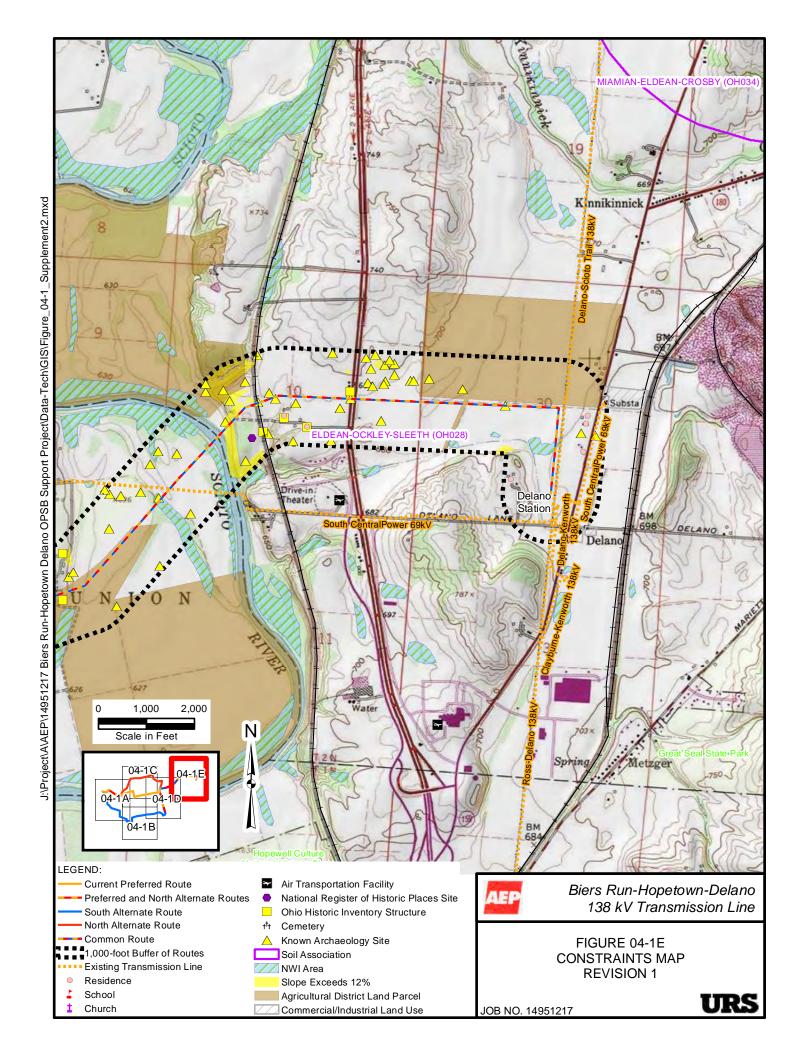
Based on the alignment of the Current Preferred Route and the resulting current design, the majority of the line will be composed of a steel tangent, braced post, delta structure (see Supplemental Figure 04-2G).



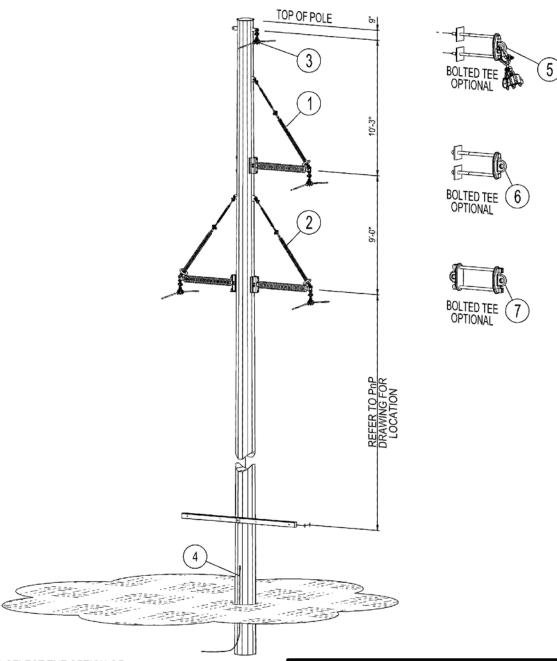








	REF. DRAWINGS								
ITEM	QTY. ASSEMBLY DESCRIPTION								
1	1	13B5-2739	138KV INSULATOR, POLYMER, ZERO DEGREE BRACED POST, W/CORONA RING						
2	2	13B5-2740	138KV INSULATOR, POLYMER, ZERO DEGREE BRACED POST, BACK TO BACK, W/CORONA RING						
3	1	30T0-1102	OHGW, SUSPENSION, CONCRETE, STEEL OR WOOD POLE						
4	1	21SE-1456	GROUND ROD FOR DIRECT EMBEDDED STEEL POLE						
5	1	71A0-1231	3/4 IN FLAT DEAD-END TEE						
6	1	71A0-1233	7/8 IN FLAT DEAD-END TEE						
7	1	71A0-1234	7/8 IN FLAT DEAD-END TEE BACK TO BACK						



NOTES:
1. T-LINE ENGINEER TO SELECT THE OPTION OF WELDED VANGS OR BOLTED TEES.

NOT TO SCALE



Biers Run-Hopetown-Delano 138 kV Transmission Line

SUPPLEMENTAL FIGURE 04-2G SINGLE CIRCUIT, DELTA, ZERO DEGREE BRACED POST WITH CORONA RING, STEEL STRUCTURE

JOB NO. 14951217



4906-15-05 FINANCIAL DATA

(B) ELECTRIC CAPITAL COST

Estimates of applicable intangible and capital costs for the Current Preferred Route and both Alternate Routes of the Biers Run-Hopetown-Delano Transmission Line are identified in Table 05-1 Revision 1.

TABLE 05-1 REVISION 1
ESTIMATES OF APPLICABLE INTANGIBLE AND CAPITAL COSTS FOR
THE CURRENT PREFERRED ROUTE AND BOTH ALTERNATE ROUTES

FERC Account Number	Description	Current Preferred Route	South Alternate Route	North Alternate Route
350	Land and Land Rights	\$1,400,000	\$1,445,000	\$1,401,000
355	Poles & Fixtures	\$7,784,212	\$8,728,109	\$8,237,147
356	Overhead Conductors & Devices	\$6,395,238	\$6,456,993	\$6,693,355
	TOTAL	\$15,579,450	\$16,630,102	\$16,331,502

4906-15-06 SOCIOECONOMIC AND LAND USE IMPACT ANALYSIS

(A) SOCIOECONOMIC CHARACTERISTICS

Based on review of aerial photography, Ross County Auditor data, and field reconnaissance, 26 residences were identified within 1,000 feet of the Current Preferred Route. One of these residences is located within 100 feet. This residence is located along the common portion of the Current Preferred Route, South Alternate Route, and North Alternate Route. No residences are expected be removed if the Current Preferred Route is selected.

(B) ROUTE ALIGNMENTS AND LAND USE

(1) Proposed Routing Alignments and Turning Points

Maps at 1:24,000-scale, including the area 1,000 feet on either side of the Current Preferred Route, South Alternate Route, and North Alternate Route are presented as Figures 04-1A through 04-1E. Due to significant routing constraints in the Project vicinity, approximately 54% of the Current Preferred Route overlaps with South Alternate Route. Approximately 67% of the Current Preferred Route overlaps with the North Alternate Route. Approximately 47% of the lengths of the South Alternate Route and North Alternate Route overlap. The overlapping portion of the routes is referred to as the "Common Route".

Current Preferred Route: The Current Preferred Route begins at the proposed Biers Run Station (OPSB Case Number 12-1361-EL-BSB), and crosses a short section of the overall station property. The first 0.2 mile of the Current Preferred Route as it exits Biers Run Station is shared by the North Alternate Route and South Alternate Route. The Current Preferred Route then heads generally east-southeast for 1.5 miles, sharing the same path as the North Alternate Route, primarily along property lines to Cattail Road. The route continues for 0.7 mile across a property owned by the Ross County Commissioners and occupied by a juvenile detention center and Camp Cattail before entering the ODNR's PVWA. The Current Preferred Route generally parallels the northern boundary of the irregularly shaped PVWA for approximately 2.0 miles to Egypt Pike. After crossing Egypt Pike, the route continues within the boundary of PVWA and then across a privately owned agricultural property for 1.0 mile to a point near the intersection of State Route 104 and State Route 207 where it meets the current right-of-way of the Camp Sherman-Circleville 69 kV line (Common Route). To this point, the Current Preferred Route will be constructed as a single circuit. However, the 2.0-mile portion of the Common Route heading south parallel to State Route 104 and within the current right-of-way of the Camp Sherman-Circleville 69 kV line to the proposed Hopetown distribution station will require double circuit construction if the Current Preferred Route is selected. This is necessary to create a loop through the proposed Hopetown distribution station and back to the point where the Current Preferred Route and the Common Route intersect. The Camp Sherman-Circleville 69 kV line will be removed prior to construction of this portion of the Biers Run-Hopetown-Delano 138 kV transmission line. A single circuit will extend east along the Common Route heading north, then generally east and northeast parallel to State Route 207 for 2.6 miles. The route then crosses a U.S. 23 interchange, extending east and then south across agricultural fields for the final 1.2 miles into Delano Station. The total length of the Current Preferred Route is 11.2 miles.

(3) General Land Use

The Project is located in a rural setting characterized by mixed agricultural and residential land uses, with large wooded areas. A comparison of the various land use characteristics is included as Table 06-2 Revision 2.

- (a) Residential: Twenty-six residences were identified within 1,000 feet of the Current Preferred Route, one of which is within 100 feet.
- **(b)** Commercial: The only commercial facilities identified within 1,000 feet of the Current Preferred Route are along the Common Route shared by all three alternatives. These businesses include an auto repair facility, a paint shop, and a warehouse all of which are just within 1,000 feet in the vicinity of Delano Station.
- (c) Industrial: No industrial land uses were identified within 1,000 feet of the Current Preferred Route.
- (d) Cultural: Ninety-two previously recorded archaeological sites were identified within 1,000 feet of the Current Preferred Route, 14 of which are within 100 feet. Twelve Ohio Historic Inventory (OHI) structures were identified within 1,000 feet, one of which is within 100 feet. Three National Register of Historic Places (NRHP) sites were identified within 1,000 feet of the Current Preferred Route, none of which are within 100 feet. Two cemeteries were also identified within 1,000 feet, one of which is within 100 feet.

In addition to the OHPO data sources above, Weller & Associates conducted a Phase I cultural resources survey for the Current Preferred Route on behalf of AEP. No eligible or potentially eligible for listing on the National Register archaeological sites or historic structures were identified within the Project's limits of disturbance. Based on the preliminary results, the Current Preferred Route appears to have fewer impacts on cultural resources compared to the North and South Alternate Routes. The full Phase I report will be provided to OPSB and OHPO under separate cover.

- **(e)** Agricultural: Approximately 59% of the Current Preferred Route crosses agricultural land.
- (f) Recreational: Approximately 2.4 miles (21%) of the Current Preferred Route crosses ODNR's PVWA (Figures 04-1C and 04-1D). PVWA is primarily utilized for recreational hunting. The Current Preferred Route primarily follows the northern property boundary of the PVWA to minimize impacts to this recreational area. Athletic fields are located just west of Egypt Pike, approximately 700 feet north of where the Current Preferred Route crosses this road. The athletic fields are associated with a property owned by the Ross County Commissioners. The

Forest E. Everhart Memorial Golf Course, associated with the Chillicothe Veteran's Affairs Medical Center, and the Ross County Fairgrounds (Figure 04-1C) are both within 1,000 feet of the Common Route. The overall property of the Forest E. Everhart Memorial Golf Course is crossed by the routes, but no new right-of-way will be necessary. The golf course will be crossed utilizing existing right-of-way of the Camp Sherman-Circleville 69 kV line, which will be removed prior to construction of the project.

(g) Institutional: No schools or churches were identified within 1,000 feet of the Current Preferred Route. Property of the Chillicothe Correctional Institute is crossed by the Common Route.

TABLE 06-2
SECOND SUPPLEMENT TO THE OPSB APPLICATION
SUMMARY OF LAND USE FACTORS OF THE
PREFERRED, SOUTH ALTERNATE, AND NORTH ALTERNATE ROUTES

Route Alternatives								
	Current Preferred	South Alternate	North Alternate					
Length (miles)	11.2	13.1	12.7					
% of Length in or Adjacent to Existing Roads Rights-of-way	37%	47%	31%					
% of Length in or Adjacent to Existing Transmission Line Rights-of-way	20%	21%	17%					
	Features with	in 100 feet of Rout	e Alternatives					
Threatened and Endangered Species	0	0	0					
Historic Structures (OHI)	1 1		1					
Archaeological Sites	14 18		17					
NRHP Sites	0	0	0					
Residences	1	<u>2</u>	1					
Other sensitive land uses*	3	1	1					
	Features withi	n 1,000 feet of Rou	te Alternatives					
Threatened and Endangered Species	0	0	0					
Historic Structures (OHI)	12	11	14					
Archaeological Sites	92	102	103					
NRHP Sites	3	3	4					
Residences	26	251	77					
Other sensitive land uses*	5	8	4					

^{*} Other sensitive land uses include airports, parks, State forests, golf courses, schools, hospitals, churches, and cemeteries.

(6) Noise Sensitive Areas

Current Preferred Route: Noise sensitive areas within 1,000 feet of the Preferred Route include 26 residences, one of which was identified within 100 feet.

(7) Agricultural Land (Agricultural District Land)

Five agricultural district land parcels were identified along within 1,000 feet, three of which were identified within 100 feet and crossed by the Current Preferred Route. One of these parcels is along the shared portion of the Current Preferred Route and the North Alternate Route. The remaining four parcels are along the Common Route.

(C) LAND USE IMPACTS OF THE PROPOSED PROJECT

(1) Number of Residential Structures

Based on review of aerial photography and field reconnaissance, 26 residences were identified within 1,000 feet of the Current Preferred Route. The one residence within 100 feet of the Current Preferred Route is along the Common Route at 17465 State Route 104, Chillicothe, Ohio (Parcel 370914007000).

(2) Impact of Construction

- (a) Residential: It is not anticipated that construction of the Current Preferred Route will require the removal of any residential structures, and no individuals are expected to be required to relocate.
- (d) Cultural: Based on the preliminary results of the Phase I conducted on behalf of AEP by Weller & Associates, impacts to cultural land use areas associated with construction of the Current Preferred Route are not anticipated. Intensive investigations may be required to avoid two sensitive archaeological sites along the Alternate Route or mitigate any impacts. The full Phase I report will be provided to OPSB and OHPO under separate cover.
- (f) Recreational: The Current Preferred Route crosses ODNR's PVWA, which is primarily used for recreational hunting. Approximately 20 acres of tree clearing is expected to be required within the proposed 100-foot right-of-way for the Current Preferred Route within PVWA.

(4) Mitigation Procedures

(f) Recreational: AEP anticipates mitigation for the approximately 20 acres of tree clearing within PVWA to be included in land rights negotiations with ODNR.

(D) PUBLIC INTERACTION INFORMATION

(3) Public Information Programs

In addition to the public information programs outlined in the Application, AEP continues to have ongoing discussions with affected property owners, including ODNR. AEP has scheduled a public information meeting for the evening of July 22, 2014 at the Pioneer School of Developmental Disabilities, 11268 County Road 550, Chillicothe, Ohio. AEP intends to publish a

public notice regarding the meeting in local newspapers. Affected property owners will also be sent a letter providing details of the meeting's time and location.

(6) Tax Revenues

Current Preferred Route: Ross County Green Township Union Township	\$108,100 \$7,500 \$60,700
Paint Valley Mental Health District	\$9,400
Chillicothe and Ross County Public Libraries	\$9,400
Zane Trace Local School District Union-Scioto Local School District Pickaway-Ross County Joint Vocational School District	\$37,900 \$279,800 <u>\$39,500</u> TOTAL \$552,300

(E) HEALTH AND SAFETY

(2) Electric and Magnetic Fields

(a) Calculated Electric and Magnetic Field Levels: Based on similar design, no changes to the electric and magnetic field calculations provided in the Application are anticipated as a result of the introduction of the Current Preferred Route.

(F) CULTURAL IMPACTS OF THE PROPOSED PROJECT

(1) Archaeological Resources and Correspondence with Agency

Current Preferred Route: Ninety-two previously recorded archaeological sites were identified within 1,000 feet of the Current Preferred Route, 14 of which are within 100 feet. Twelve Ohio Historic Inventory (OHI) structures were identified within 1,000 feet, one of which is within 100 feet. Three National Register of Historic Places (NRHP) sites were identified within 1,000 feet of the Current Preferred Route, none of which are within 100 feet. Two cemeteries were also identified within 1,000 feet, one of which is within 100 feet.

In addition to the OHPO data sources above, Weller & Associates conducted a Phase I cultural resources survey for the Current Preferred Route on behalf of AEP. No eligible or potentially eligible for listing on the National Register archaeological sites or historic structures were identified within the Project's limits of disturbance. Based on the preliminary results, the Current Preferred Route appears to have fewer impacts on cultural resources compared to the North and South Alternate Routes. The full Phase I report will be provided to OPSB and OHPO under separate cover.

(2) Construction Impacts on Cultural Resources

Weller & Associates conducted a Phase I cultural resources survey for the Current Preferred Route on behalf of AEP. Based on the currently proposed alignment, it appears likely that archaeological resources that are potentially eligible for the NRHP near the Current Preferred Route have been avoided through alignment decisions.

4906-15-07 ECOLOGICAL IMPACT ANALYSIS

(A) SUMMARY OF ECOLOGICAL IMPACT STUDIES

A field reconnaissance along the portion of the Current Preferred Route not already surveyed as part of other routes was conducted by URS ecologists at the request of AEP in May of 2014. This survey included portions of PVWA and two adjacent properties within and adjacent to the proposed right-of-way. The purpose of the survey was to document the endemic vegetation and wildlife and to quantify the occurrence and quality of wetlands and streams. The survey area generally consisted of a 300-foot corridor, 150 feet on either side of the centerline. However, properties adjacent to the PVWA where potential construction access was deemed unlikely along certain portions of the 300-foot corridor were not included. In these cases, the survey corridor width on one side of the centerline was limited to approximately 75 feet to the PVWA property line. The delineated features are described in greater detail in the subsections below.

(B) ECOLOGICAL FEATURES

Maps at a scale of 1:24,000 illustrating areas within 1,000 feet of the Current Preferred, South Alternate, and North Alternate Routes are presented as Figures 04-1A through 04-1E. Features within 1,000 feet of the proposed routes were derived from published data and, where possible, supplemented by the field survey. More detailed maps at 1:12,000-scale depicting delineated features, survey corridor, and proposed right-of-way are provided as Figures 07-1A through 07-1N. Supplemental Figures 07-1L through 07-1N provide the newly delineated features for the Current Preferred Route.

(1) Route Alignments

Due to significant routing constraints in the Project vicinity, approximately 54% of the Current Preferred Route overlaps with South Alternate Route. Approximately 67% of the Current Preferred Route overlaps with the North Alternate Route. Approximately 47% of the lengths of the South Alternate Route and North Alternate Route overlap. The overlapping portion of the routes is referred to as the "Common Route".

Current Preferred Route: The Current Preferred Route begins at the proposed Biers Run Station (OPSB Case Number 12-1361-EL-BSB), and crosses a short section of the overall station property. The first 0.2 mile of the Current Preferred Route as it exits Biers Run Station is shared by the North Alternate Route and South Alternate Route. The Current Preferred Route then heads generally east-southeast for 1.5 miles, sharing the same path as the North Alternate Route, primarily along property lines to Cattail Road. The route continues for 0.7 mile across a property owned by the Ross County Commissioners and occupied by a juvenile detention center and Camp Cattail before entering the ODNR's PVWA. The Current Preferred Route generally parallels the northern boundary of the irregularly shaped PVWA for approximately 2.0 miles to Egypt Pike. After crossing Egypt Pike, the route continues within the boundary of PVWA and

then across a privately owned agricultural property for 1.0 mile to a point near the intersection of State Route 104 and State Route 207 where it meets the current right-of-way of the Camp Sherman-Circleville 69 kV line (Common Route). To this point, the Current Preferred Route will be constructed as a single circuit. However, the 2.0-mile portion of the Common Route heading south parallel to State Route 104 and within the current right-of-way of the Camp Sherman-Circleville 69 kV line to the proposed Hopetown distribution station will require double circuit construction if the Current Preferred Route is selected. This is necessary to create a loop through the proposed Hopetown distribution station and back to the point where the Current Preferred Route and the Common Route intersect. The Camp Sherman-Circleville 69 kV line will be removed prior to construction of this portion of the Biers Run-Hopetown-Delano 138 kV transmission line. A single circuit will extend east along the Common Route heading north, then generally east and northeast parallel to State Route 207 for 2.6 miles. The route then crosses a U.S. 23 interchange, extending east and then south across agricultural fields for the final 1.2 miles into Delano Station. The total length of the Current Preferred Route is 11.2 miles.

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

(a) Streams and Drainage Channels: This Second Supplement to the OPSB Application primarily provides stream evaluations that were conducted within the survey corridor of the portion of the Current Preferred Route that was not previously surveyed as part of overlapping sections of the North Alternate Route and Common Route. Table 07-1 Revision 2 lists the attributes of each delineated stream, including Headwater Habitat Evaluation Index (HHEI) or Qualitative Habitat Evaluation Index (QHEI) score where appropriate, flow regime, aquatic use designations (Ohio Administrative Code rules 3745-1-26), bankfull width, stream length within the survey corridor, and stream length within the proposed right-of-way of the Current Preferred Route. While all streams along the Current Preferred Route are provided in Table 07-1 Revision 2, streams and associated data specifically along the Current Preferred Route that were not provided in the January 8, 2014 OPSB Application are highlighted in yellow.

Thirty-three streams have been evaluated within the survey corridor of the Current Preferred Route, including 22 along portions of the route not provided in the OPSB Application. Twenty-eight of the streams are within the proposed right-of-way of the Current Preferred Route totaling 3,680 linear feet. Nineteen of these streams are crossed by the centerline.

Representative photographs of the newly evaluated streams along the Current Preferred Route are provided in Supplemental Appendix 07-1. Copies of the HHEI delineation forms for the 22 newly evaluated streams within the survey corridor are included in Supplemental Appendix 07-2.

TABLE 07-1 REVISION 2
STREAMS WITHIN 100 FEET OF THE PREFERRED AND ALTERNATE ROUTES

Stream Report Name	Route	Figure	Flow Regime	Bankfull Width (feet)	Maximum Pool Depth (in)	Form ^a	Score ^b	Class/ Narrative Rating	Crossed by Centerline	Length (feet) within Survey Corridor (200-300 feet wide)	Length (feet) within Proposed Maintained Right-of-way (100 feet)
BR Stream 4	Common	07-1A	Intermittent	6	8	HHEI	69.0	Class II	Yes	324	162
BR Stream 1	Current Preferred/ North Alternate	07-1A	Intermittent	10	10	QHEI	45.5	Fair Warmwater	Yes	213	102
BR Stream 13	Current Preferred/ North Alternate	07-1A	Ephemeral	1.5	0	HHEI	11.0	Class I	No	95	0
BR Stream 14	Current Preferred/ North Alternate	07-1A	Ephemeral	3	0	HHEI	19.0	Modified Class I	No	117	117
Stream 21	Current Preferred/ North Alternate	07-1A	Intermittent	25	30	QHEI	53.0	Fair Warmwater	Yes	287	127
Stream 22	Current Preferred/ North Alternate	07-1A	Ephemeral	1.5	0	HHEI	22.0	Class I	No	62	0
Stream PV1	Current Preferred	07-1L	Intermittent	14	16	HHEI	69	Modified Class II	Yes	494	123
Stream PV2	Current Preferred	07-1L	Intermittent	10	5	HHEI	64	Modified Class II	Yes	269	129
Stream PV3	Current Preferred	07-1L	Ephemeral	3.5	1	HHEI	32	Modified Class II	No	132	109
Stream PV4	Current Preferred	07-1L	Ephemeral	4	1	HHEI	37	Modified Class II	No	139	32
Stream PV5	Current Preferred	07-1L	Ephemeral	2.5	1	HHEI	27	Class I	Yes	196	64
Stream PV6	Current Preferred	07-1L	Intermittent	15	6	HHEI	75	Class III	Yes	339	169

TABLE 07-1 REVISION 2
STREAMS WITHIN 100 FEET OF THE PREFERRED AND ALTERNATE ROUTES

Stream Report Name	Route	Figure	Flow Regime	Bankfull Width (feet)	Maximum Pool Depth (in)	Form ^a	Score ^b	Class/ Narrative Rating	Crossed by Centerline	Length (feet) within Survey Corridor (200-300 feet wide)	Length (feet) within Proposed Maintained Right-of-way (100 feet)
Stream PV7	Current Preferred	07-1L	Ephemeral	2	1	HHEI	19	Class I	No	387	29
Steam PV8	Current Preferred	07-1L	Intermittent	3	6	HHEI	45	Class II	Yes	505	238
Stream PV9	Current Preferred	07-1L	Ephemeral	3	0	HHEI	31	Modified Class II	No	434	17
Stream PV10	Current Preferred	07-1M	Ephemeral	3.5	1	HHEI	37	Class II	No	1,336	477
Stream PV11	Current Preferred	07-1M	Ephemeral	1.5	0	HHEI	24	Class I	No	394	25
Stream PV12	Current Preferred	07-1M	Ephemeral	1	0.5	HHEI	18	Class I	No	153	0
Stream PV13	Current Preferred	07-1M	Perennial	12	10	HHEI	74	Class III	Yes	301	136
Stream PV14	Current Preferred	07-1M	Ephemeral	1.5	2	HHEI	34	Class II	Yes	226	107
Stream PV15	Current Preferred	07-1M	Intermittent	5	8	HHEI	60	Modified Class II	Yes	258	122
Stream PV17	Current Preferred	07-1M	Ephemeral	3	1	HHEI	13	Class I	Yes	290	178
Stream PV18	Current Preferred	07-1M	Intermittent	5	2	HHEI	44	Class II	Yes	347	133
Stream PV19	Current Preferred	07-1M	Ephemeral	2.5	3	HHEI	50	Class II	No	116	74
Stream PV20	Current Preferred	07-1N	Ephemeral	1.5	0.5	HHEI	31	Class II	No	436	137
Stream PV21	Current Preferred	07-1N	Ephemeral	1	0	HHEI	14	Class I	No	68	0
Stream PV22	Current Preferred	07-1N	Ephemeral	1.5	0.5	HHEI	19	Class I	Yes	651	234
Stream PV23	Current Preferred	07-1N	Intermittent	3.5	2	HHEI	42	Modified Class II	No	343	0
Stream 16	Common	07-1H	Intermittent	8	3	HHEI	45.0	Modified Class II	Yes	125	75

TABLE 07-1 REVISION 2 STREAMS WITHIN 100 FEET OF THE PREFERRED AND ALTERNATE ROUTES

Stream Report Name	Route	Figure	Flow Regime	Bankfull Width (feet)	Maximum Pool Depth (in)	Form ^a	Score ^b	Class/ Narrative Rating	Crossed by Centerline	Length (feet) within Survey Corridor (200-300 feet wide)	Length (feet) within Proposed Maintained Right-of-way (100 feet)
Stream 17	Common	07-11	Intermittent	3	0	HHEI	19.0	Modified Class I	Yes	609	258
Stream 18	Common	07-11	Perennial	4	18	HHEI	58.0	Modified Class II	Yes	203	102
Stream 19	Common	07-1J	Perennial	275	unknown	NA	NA	Warmwater*	Yes	201	101
Stream 20	Common	07-1J	Ephemeral	2	0	HHEI	14.0	Class I	Yes	221	103

Form Used^a: QHEI = Qualitative Habitat Evaluation Index, HHEI = Headwater Habitat Evaluation Index, NA = Not Assessed (default to the State of Ohio's assessment)

Score^b: NA = Not Assessed (default to the State of Ohio's assessment)

Streams are provided predominantly from west to east.

A white cell indicates data for a stream along portions of the Current Preferred Route that overlap with either the North Alternate Route or Common Route. This data was provided in the January 8, 2014 Application.

A yellow cell indicates data for a new stream along the Current Preferred Route not previously provided.

^{* =} Narrative description is based on Ohio Environmental Protection Agency's ranking. See Ohio Administrative Code 3745-1-09.

(c) Marshes, Swamps, and Other Wetlands: This Second Supplement to the OPSB Application primarily provides wetland evaluations that were conducted within the survey corridor of the portion of the Current Preferred Route that was not previously surveyed as part of overlapping sections of the North Alternate Route and Common Route. Table 07-2 Revision 2 lists the attributes of each delineated wetland within the survey corridor and the proposed right-of-way of the Current Preferred Route. While all wetlands along the Current Preferred Route are provided in Table 07-2 Revision 2, wetlands and associated data specifically along the Current Preferred Route that were not provided in the January 8, 2014 OPSB Application are highlighted in yellow.

Eight total wetlands have been evaluated within the survey corridors of the Current Preferred Route, including four along portions of the route not provided in the OPSB Application. All of these wetlands are within the proposed right-of-way of the Current Preferred Route totaling 0.48 acre. Six of these wetlands are crossed by the centerline totaling 224 linear feet.

Representative photographs of the newly evaluated wetlands along the Current Preferred Route are provided in Supplemental Appendix 07-1. Copies of the United States Army Corps of Engineers (USACE) Midwest Regional Supplement to the Corps of Engineers Wetland Delineation Manual and Ohio Rapid Assessment Method (ORAM) delineation forms for the 22 newly evaluated streams within the survey corridor are included in Supplemental Appendix 07-3.

TABLE 07-2 REVISION 2 DELINEATED WETLANDS WITHIN THE SURVEY CORRIDOR

Wetland Name	Route	Figure	Cowardin Wetland Type ^a	ORAM Score	ORAM Category	Length Crossed by Centerline (feet) ^b	Acreage within Survey Corridor	Acreage within Proposed Maintained Right-of-way ^c
	Current Preferred/North							
Wetland 09	Alternate	07-1A	PEM	17.5	Category 1	NC	0.04	0.03
Wetland 10	Current Preferred/North Alternate	07-1A/1E	PFO	39	Category 2	NC	0.05	<0.01
Wetland PV1	Current Preferred	07-1M	PEM	51	Category 2	20	0.08	0.04
Wetland PV2	Current Preferred	07-1M	PEM	47	Category 2	11	0.07	0.03
Wetland PV3	Current Preferred	07-1M	PSS	54	Category 2	6	0.02	0.02
Wetland PV4	Current Preferred	07-1M	PEM	36	Category 2	43	0.05	0.05
Wetland 07	Common	07-1J	PFO	30.5	Category 2	64	0.24	0.13
Wetland 08	Common	07-1J	PFO/PEM	50	Category 2	80	0.31	0.18

Cowardin Wetland Type^a: PEM = palustrine emergent, PSS = palustrine scrub/shrub, PFO = palustrine forested

Linear Feet Crossed by Centerline (feet)^b: NC = Not Crossed by proposed centerline

Acreage within Proposed Maintained ROW^c:

Wetlands are provided predominantly from west to east.

A white cell indicates data for a wetland along portions of the Current Preferred Route that overlap with either the North Alternate Route or Common Route. This data was provided in the January 8, 2014 Application.

A yellow cell indicates data for a new wetland along the Current Preferred Route not previously provided.

(C) IMPACTS OF ALTERNATIVE SITES ON WATER BODIES

(1) Construction Impact

Twenty-eight streams were identified within the proposed right-of-way of the Current Preferred Route totaling 3,680 linear feet. Nineteen of these streams are crossed by the centerline. As proposed in the January 8, 2014 OPSB Application, AEP will not conduct mechanized clearing within 25 feet of any stream, and will only clear (via hand cutting techniques) those trees in this area that are tall enough to or have the potential to interfere with safe construction and operation of the line. No streams will be filled or permanently impacted. Streams will be avoided to the maximum extent practical for construction access; however, streams that need to be crossed for construction access will likely be done so using steel plates, timber mats or similar acceptable methods. Temporary stream fords, culverts, or other temporary bridges are also possible. Exact pole locations have not been fully determined to date. Access paths to proposed pole locations

will be evaluated as more detailed engineering is performed and land owner negotiations progress.

Crossing methods for each stream will be addressed in detail in the Storm Water Pollution Prevention Plan (SWPPP) for the project. The SWPPP will be provided to the OPSB under separate cover. Some of the access routes may be left in place for maintenance activity or at the request of the landowner.

(3) Mitigation Procedures

In addition to the mitigation procedures discussed in the January 8, 2014 OPSB Application, AEP anticipates stream mitigation within PVWA, if necessary, to be included in land rights negotiations with ODNR.

(D) WETLANDS IMPACT

(1) Construction Impact

Current Preferred Route: The field wetland delineation conducted for the survey corridor Current Preferred Route identified eight wetlands, two of which are along the shared portion of the North Alternate Route and two of which are along the Common Route. A total of 0.86 acres of wetland area were delineated within the survey corridor and 0.48 acre within the proposed right-of-way. Six of the wetlands are crossed by the centerline, totaling 224 linear feet.

- Category 1 wetlands: One Category 1 wetland totaling 0.03 acre was delineated within the proposed construction right-of-way of the Current Preferred Route. This wetland is not crossed by the Current Preferred Route centerline and received a score of 17.5.
- Category 2 wetlands: Seven Category 2 wetlands totaling 0.45 acre were delineated within the proposed construction right-of-way of the Current Preferred Route.
 Approximately 224 linear feet of Category 2 wetlands will be crossed by the Current Preferred Route centerline. Scores ranged from 30.5 to 54.
- Category 3 wetlands: No Category 3 wetlands were identified within the survey corridor of the proposed Preferred Route. No construction impacts to Category 3 wetlands are anticipated.

New transmission line structure locations will be selected to avoid wetland areas to the extent practical. Most, if not all, wetlands along the Current Preferred Route are expected to be spanned by the new conductors of the transmission line, with the new transmission structures being installed on upland areas. Care will be taken where wetlands are located to avoid or minimize filling and sedimentation, which could occur as a result of construction activities. Selective clearing will be required to remove woody vegetation in wetlands that might impede construction or interfere with operation of the transmission line.

Best Management Practices such as utilization of silt fences and construction matting will be implemented as required during construction to control sedimentation. Sedimentation potential at wetlands should be minimal due to the relatively flat topography along the routes, structure placement, and the fact that construction equipment will only cross wetlands if necessary, and do so using construction matting.

Disturbance of soils in wetland areas during construction will be minimized. No fill material is planned to be placed in any wetland area along the Current Preferred Route. Wetland areas will be clearly staked prior to the commencement of any clearing in order to minimize incidental vehicle impacts. Other than the pole locations discussed, operation of heavy mechanized equipment is not planned within any identified wetland areas, although some construction equipment will need to cross wetland areas. Woody vegetation in wetlands will be hand-cut by chain saws, hydro-axes, or other non-mechanized techniques. When necessary rubber-wheeled vehicles, or vehicles equipped with go tracks, will be used to remove vegetation debris.

(3) Mitigation Procedures

In addition to the mitigation procedures discussed in the January 8, 2014 OPSB Application, AEP anticipates wetland mitigation within PVWA, if necessary, to be included in land rights negotiations with ODNR.

(E) VEGETATION IMPACT

(1) Construction Impact

The following discussion describes the potential impacts on woody and herbaceous vegetation along the proposed route during construction. The Current Preferred Route is bordered for portions of its length by agricultural fields, old-field, pasture, scrub-shrub, young to mature oak-mixed mesophytic forests, bottomland hardwoods, landscaped areas, and existing roadway/railroad rights-of-way. A variety of woody and herbaceous lands, as described below, are present within the proposed right-of-way of the Current Preferred Route. Habitat descriptions and details on the expected impacts of construction are provided below.

<u>Agricultural Fields</u>: Approximately 6.3 miles (56%) of the Current Preferred Route, including portions of PVWA cross agricultural fields. Corn and soybeans were observed growing in these agricultural fields.

Old Field: Herbaceous cover exists alongside roads, field borders, and abandoned fields within the survey corridor of the Current Preferred Route in the form of successional old-field communities. These communities are the earliest stages of recolonization by plants following disturbance. This community type is typically short-lived, giving way progressively to shrub and forest communities unless periodically re-disturbed, in which case they remain as old fields. The old-field areas within the study corridor and adjacent areas are infrequently mowed areas of grasses, forbs, and occasional shrubs that include meadow fescue, goldenrod (*Solidago Spp.*),

blackberry, and autumn olive (*Eleagnus umbellate*). The Current Preferred Route crosses approximately 0.7 mile (6%) of old field.

<u>Pasture</u>: Pasture for cattle and hay fields were observed in various portions of the study area. Pasture areas within the study corridors and adjacent areas are frequently mowed and grazed areas of grasses and forbs. Approximately 0.2 mile (2%) of the Current Preferred Route crosses pasture and hayfields.

Oak-Mixed Mesophytic Woodland: Mixed mesophytic woodlands are present along the Current Preferred Route, predominantly within PVWA. Woody species dominating these areas included red oak (*Quercus rubra*), white oak (*Quercus alba*), sugar maple (*Acer saccharum*), red maple (*Acer rubrum*), hackberry (*Celtis occidentalis*), box elder (*Acer negundo*), American Beech (*Fagus grandfolia*), shagbark hickory (*Carya ovata*), and black walnut (*Juglans nigra*). The dominant shrub-layer species included poison ivy (*Toxicodendron radicans*), honeysuckle (*Lonicera japonica*), spicebush (*Lindera benzoin*), paw-paw (*Asimina triloba*), and blackberry (*Rubus fruticosus*). Approximately 1.8 miles (16%) of oak-mixed mesophytic forest are present along the Current Preferred Route. Based on the 100-foot right-of-way width, approximately 22 acres of these forested areas would be cleared along the Current Preferred Route, with approximately 20 of these acres of clearing within PVWA.

<u>Bottomland Hardwoods:</u> Riparian woodlands are common in the floodplain of the Scioto River, which is south of State Route 207, along the Common Route. Woody species dominating the riparian zone include green ash (*Fraxinus pennsylvanica*), silver maple (*Acer saccharinum*), box elder, and sycamore (*Platanus occidentalis*). The shrub and herb layer is dominated by Japanese stilt grass (*Microstegium vimineum*), wingstem (*Verbesina alternifolia*) and creeping jenny (*Lysimachia nummularis*). This area accounts for less than 0.1 mile of the common portion of the Current Preferred Route.

<u>Landscaped Areas:</u> Landscaped areas, including residential properties, a prison, and a golf course were observed within the Project vicinity. These landscaped areas within the study corridor and adjacent areas are frequently mowed of grasses and forbs. Approximately 1.4 miles (13%) of landscaped areas are located along both the Current Preferred Route.

<u>Streams and Wetlands:</u> Streams and wetlands were observed both within and beyond the survey corridor for the Project. Detailed stream and wetland descriptions and expected impacts are provided in Tables 07-1 and 07-2, respectively.

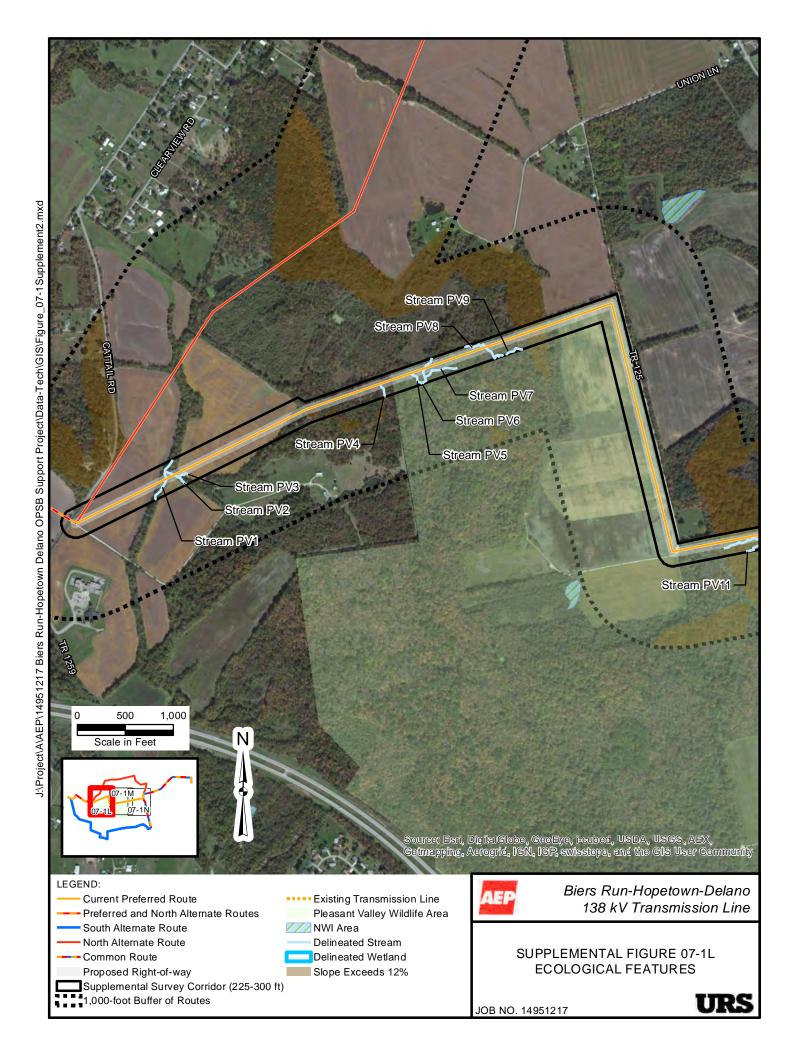
Remaining portions of the routes cross areas developed with commercial and industrial land uses, as well as road and railroad rights-of-way. These areas are generally devoid of significant woody and herbaceous vegetation.

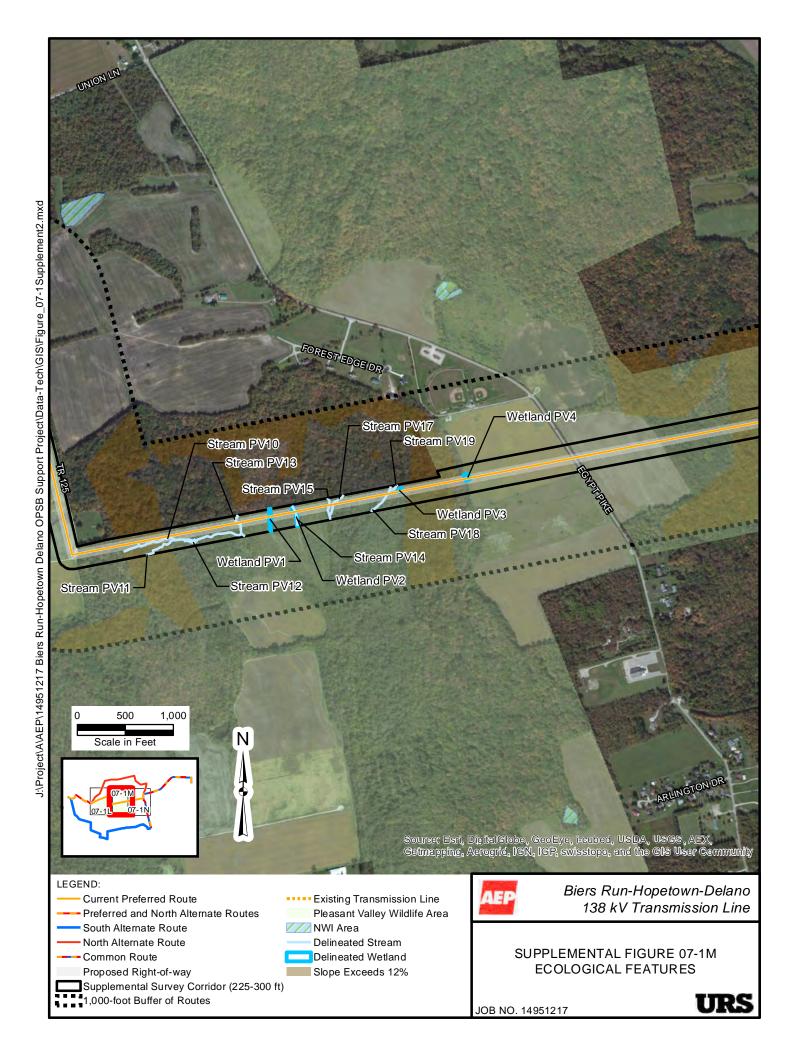
The potential impacts on woody and herbaceous vegetation along the Current Preferred Route will be limited to clearing within the proposed new transmission line right-of-way and potentially along access roads. However where required, trees adjacent to the proposed transmission line

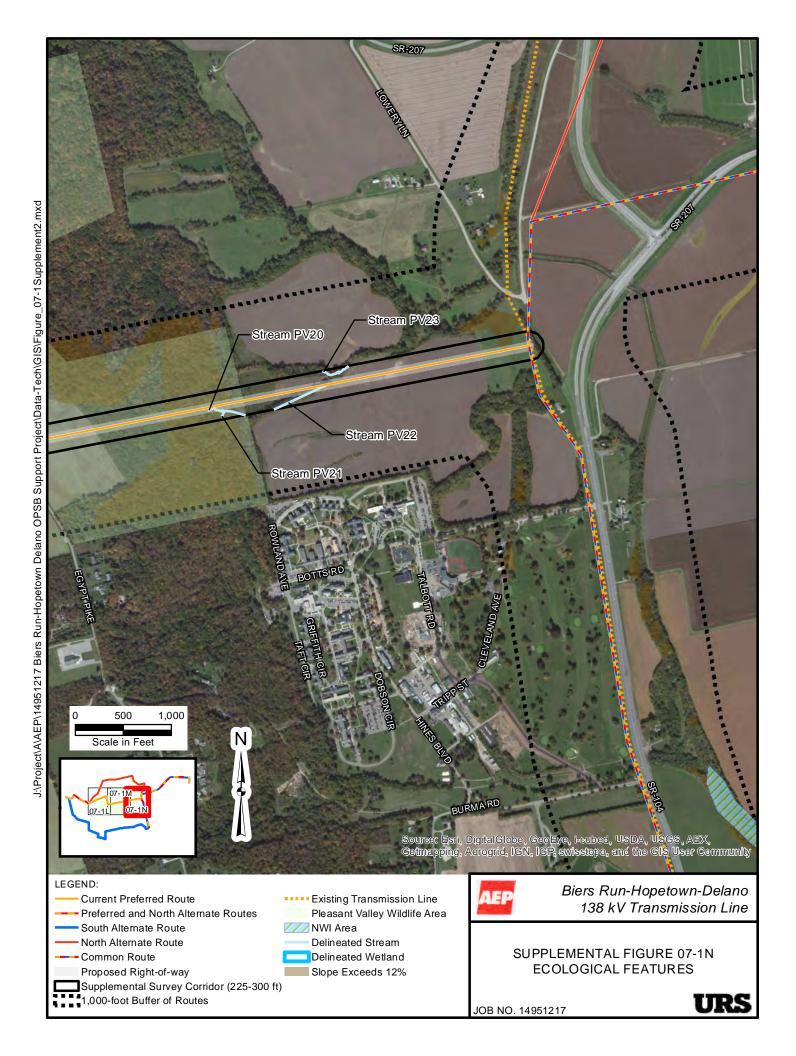
ROW that are dead, dying, diseased, leaning, significantly encroaching or prone to failure, may require clearing to allow for safe operation of the transmission line. Construction impacts to agricultural cropland within the existing transmission right-of-way are expected to be temporary in nature and limited to vehicle access and temporary lay down activities.

(3) Mitigation Procedures

In addition to the mitigation procedures discussed in the January 8, 2014 OPSB Application, AEP anticipates vegetation mitigation within PVWA, if necessary, to be included in land rights negotiations with ODNR.







APPENDIX 07-1

REPRESENTATIVE STREAM AND WETLAND PHOTOGRAPHS



Stream and Wetland Photographs

Client Name:

AEP

Site Location:

Biers Run-Hopetown-Delano 138 kV

Pleasant Valley Wildlife Area and Adjacent Properties

Project No. 14951217

Photo No. 1

Date:

May 14, 2014

Description:

Stream PV2, Unnamed Tributary to PV1

Typical Intermittent Stream

Facing upstream (Southeast)



Photo No. 2

Date:

May 20, 2014

Description:

Stream PV9, Unnamed Tributary to PV8

Typical Ephemeral Stream

Facing downstream (South)





Stream and Wetland Photographs

Client Name:

AEP

Site Location:

Biers Run-Hopetown-Delano 138 kV

Pleasant Valley Wildlife Area and Adjacent Properties

Project No. 14951217

Photo No. 3

Date:

May 20, 2014

Description:

Stream PV13, Unnamed Tributary to PV26

Typical Perennial Stream

Facing downstream (South)



Photo No. 4

Date:

May 20, 2014

Description:

Wetland PV1

PEM, Category 2

Looking North





Stream and Wetland Photographs

Client Name:

AEP

Site Location:

Biers Run-Hopetown-Delano 138 kV

Pleasant Valley Wildlife Area and Adjacent Properties

Project No. 14951217

Photo No. 5

Date:

May 20, 2014

Description:

Wetland PV2

PEM, Category 2

Looking South



Photo No. 6

Date:

May 20, 2014

Description:

Wetland PV3

PSS, Category 2

Looking North





Stream and Wetland Photographs

Client Name:

AEP

Site Location:

Biers Run-Hopetown-Delano 138 kV

Pleasant Valley Wildlife Area and Adjacent Properties

Project No. 14951217

Photo No. 7

Date:

May 20, 2014

Description:

Wetland PV4

PEM, Category 2

Looking North



APPENDIX 07-2

STREAM DELINEATION FORMS



CheFPA Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3):

SITE NAME/LOCATION AEA	BHD			Name of the latest the	
·		RIVER BASIN	DR	AINAGE AREA (mi²)	
LENGTH OF STREAM REACH (ft)				•	
DATE 5-14-14 SCORER	Bo MK c	OMMENTS INT			
NOTE: Complete All Items C	•				ictions
STREAM CHANNEL	NONE / NATURAL CL	IANNEL 💆 RECOVERE	D TRECOVERING T	DECENT OF NO PECO	WEDV
,		area, formall		RECENT OR NO RECO	VERT
modifications. Jmai	ripari-	NEW , torman	y crawen		
1. SUBSTRATE (Estimate p (Max of 40). Add total num TYPE BLDR SLABS [16 pts] BOULDER (>256 mm) BEDROCK [16 pt] COBBLE (65-256 mm) GRAVEL (2-64 mm) [9	per of significant substra PERCENT [16 pts] [12 pts] 20	ate types found (Max of 8). TYPE SILT [3 p LEAF PA	Final metric score is sum t] CKWOODY DEBRIS [3 pi TRITUS [3 pts] HARDPAN [0 pt]	of boxes A & B. PERCENT 10	HHEI Metric Points Substrate Max = 40
☐	35		AL [3 pts]		19
Total of Percentage: Bidr Slabs, Boulder, Cobbl SCORE OF TWO MOST PREDOM	e, Bedrock	8 '	AL NUMBER OF SUBSTI	(B)	A + B
2. Maximum Pool Depth (M evaluation. Avoid plunge p > 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts] COMMENTS	ools from road culverts	or storm water pipes) (C	heck ONLY one box): - 10 cm [15 pts] [5 pts] TER OR MOIST CHANNE	iL [Opts]	Pool Dept Max = 30
3, / BANK FULL WIDTH (Mea > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13' > 1.5 m - 3.0 m (> 4' 8" - 9' 10')) [25 pts]	☐ > 1.0 m	(Check ONLY one b - 1.5 m (> 3' 3" - 4' 8") [15 p (≤ 3' 3") [5 pts]	ots]	Bankfull Width Max=30
COMMENTS		A	VERAGE BANKFULL WII	Fccf 14	30
RIPARIAN ZONE / RIPARIAN WIDTI	AND FLOODPLAIN QUA	s Information <u>must</u> atso b ALITY ANOTE: River DPLAIN QUALITY	e completed Left (L) and Right (R) as to	ooking downstream☆	
L R (Per Bank)	L R	(Most Predominant per	Bank) L R	O	
☐ ☐ Wide >10m ☐ ☑ Moderate 5-10m	ପପ ଜାଜୀ	Mature Forest, Wetland Immature Forest, Shrut		Conservation Tillage Urban or Industrial	
☐ ☑ Moderate 5-10m		Fleld		Open Pasture, Row	
☐	00	Residential, Park, New		Crop	
☑ □ None COMMENTS	٥٥	Fenced Pasture	00	Mining or Construction	
FLOW REGIME (A	t <i>Time of Evaluation)</i> (n isolated pools (Interstil	g	Moist Channel, isolated po Dry channel, no water (Ep		
SINUO SITY (Numb	per of bends per 61 m (2 1.0 1.5	200 ft) of channel) (Check	.0 📮	3.0 >3	
STREAM GRADIENT EST		derate (2 fi/100 ft)	Moderate to Severe	Severe (10 1/100	ı ft)

ADDITIONAL STREAM	M INFORMATION (This information Must Al	so be Completed):	
QHEI PERF	ORMED? - Yes No QHEI Score	(If Yes, Attach Comple	eted QHEI Form)
	EAM DESIGNATED USE(S)	Distant	to from Evaluated Classes
LJ EWH Name:		Distanc	e from Evaluated Stream
MAPPING:	ATTACH COPIES OF MAPS, INCLUDING THE	ENTIRE WATERSHED AREA. C	LEARLY MARK THE SITE LOCATION
	me:		
County:	Tov	nship / City:	
MISCELLAN	NEOUS		
	? (Y/N): Y Date of last precipitation:		
Photograph Information	n: upstr, down tr.		
	/N): 1 Canopy (% open):		
Were samples collecte	ed for water chemistry? (Y/N): Note	lab sample no. or id. and attach	results) Lab Number:
Field Measures: Te	emp (°C) Dissolved Oxygen (mg/l)	pH (S.U.)C	conductivity (µmhos/cm)
Is the sampling reach r	representative of the stream (Y/N) If ne	ot, please explain:	And the same Annual Property Control of the State of the
Additional comments/d	description of pollution impacts:	i d water a	
BIOTIC EV	ALUATION		
Performed? (Y/N):	(If Yes, Record all observations. Vouc		
	Y Voucher? (Y/N) Salamanders served? (Y/N) Voucher? (Y/N) Aqu Biology: Cadd 5 4 may 4/1/		
	A pro		
DRAWI	NG AND NARRATIVE DESCRIPTION	N OF STREAM REACH	(This <u>must</u> be completed):
include importa	ant landmarks and other features of interest	for site evaluation and a narra	tive description of the stream's location
	1 HH-3	, Q	
	N V 3	Ag Field	
	y 4)	
FLOW -	A STATE OF THE STA		
12000		Fon	
	HN	rested ring	
Aa Fi	dd - "BAO	- 514 Parian	
47		114-7	
,		Vi.	
		The second second	



Primary Headwater Habitat Evaluation Form
HHEI Score (sum of metrics 1, 2, 3):

1:11
Q41
-

SITE NAME/LOCATION	AEP - BHD				
	SITE NUMBER	RIVER BASIN	DR	AINAGE AREA (mi²)	
LENGTH OF STREAM REACH	l (ft)LAT	LONG.	RIVER CODE	RIVER MILE_	
DATE 5-14-14 SCO	RER BAO, MRK	COMMENTS			
NOTE: Complete All Item	ns On This Form - Refe	er to "Field Evaluation M	lanual for Ohio's PHW	/H Streams" for Insti	uctions
STREAM CHANNEL	☐ NONE / NATURAL C	HANNEL ARECOVERED	RECOVERING C	RECENT OR NO REC	∩VEDV
MODIFICATIONS: 5	nall ripariar	zone, form	cally closed		OVEILL
 SUBSTRATE (Estima (Max of 40). Add total 	ite percent of every type on number of significant subst	of substrate present. Check trate types found (Max of 8).	ONLY two predominant s	substrate TYPE boxes	HHEI
TYPE	PERCENT	TYPE		PERCENT	Metric
BLDR SLABS [16] BOULDER (>256 r		☐☐ SILT [3 pt	t] CK/WOODY DEBRIS [3 pi		Points
DD BEDROCK [16 pt	i)	☐ ☐ FINE DET	TRITUS [3 pts]		Substrate
☐ COBBLE (65-256 r ☐ GRAVEL (2-64 mn	nm) [12 pts] 2.6	CLAY or)	HARDPAN [0 pt]		Max = 40
SAND (<2 mm) [6]	7	ARTIFICIA			19
Total of Percenta		(A)		(B)	
Bidr Slabs, Boulder, Co SCORE OF TWO MOST PRED		15	AL MUMBER OF OUR CONTRACT	4	A+B
			AL NUMBER OF SUBSTR		
 Maximum Pool Depth evaluation. Avoid plung 	i <i>(Measure the maximum</i> ge pools from road culverts	pool depth within the 61 m or storm water pipes) (Ch	eter (200 ft) evaluation re	ach at the time of	Pool Depth Max = 30
> 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts]	s]	☐ >5cm-	10 cm [15 pts]		
> 10 - 22.5 cm [25 pts]			ER OR MOIST CHANNE	L'[0 pts]	25
COMMENTS		MA	AXIMUM POOL DEPTH (4	inches 5	
		of 3-4 measurements)	(Check ONLY one b		
> 4.0 meters (> 13') [30 p	its]	☐ > 1.0 m -	1.5 m (> 3' 3" - 4' 8") [15 p		Bankfult Width
> 3.0 m - 4.0 m (> 9' 7" - 3.0 m (> 4' 8" -	· 9' 7") [20 pts]	☐ . s 1.0 m (≤ 3' 3") [5 pts]		Max=30
COMMENTS		AV	FRAGE BANKEIII I WID	feet 9	20
			ENTOL BANK! OLE WIE	TITI (IHE(EIS)	THE REAL PROPERTY.
PIDA PIAN YOU	Th	ls Information <u>must</u> also be	completed		
RIPARIAN 20N RIPARIAN WI	IE AND FLOODPLAIN QU DTH FLOO	ALITY	eft (L) and Right (R) as lo	oking downstream☆	
LR (Per Bank) ☐ Wide >10m	L R	(Most Predominant per E	Bank) L R		
☐ ☐ ☐ Wide >10m ☐ ☐ Moderate 5-1	Om 데데	/		Conservation Tillage	
		Field		Urban or Industrial	
☑		,		Open Paslure, Row Crop	
UU None COMMENTS	00	Fenced Pasture		Mining or Construction	
/ FLOW REGIME	(At Time of Evaluation)	(Check OM V one boy)			
		М	oist Channel, isolated poo		
COMMENTS_	with Isolated pools (Intersti	tial) 🗍 Di	ry channel, no water (Eph	emeral)	
SINUOSITY (Nu	mber of bends per 61 m (200 ft) of channel) (Check C	ONI Y one hov).		
□ None □ 0.5	1.0	2.0		3.0	
	U 1.5	□ 2.5	U	>3	
STREAM GRADIENT E	STIMATE to Moderate	derate (2 1/100 ft)	Moderate to Severe	Severe (10 #/100	4.
	····			C 264616 (10 17100	n)

QHEI PERFORMED? -
□ WWH Name: Distance from Evaluated Stream □ 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: NRCS Soil Map Page: NRCS Soil Map Stream Order County: Township / City:
CWH Name: Distance from Evaluated Stream MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION USGS Quadrangle Name: NRCS Soil Map Page: NRCS Soil Map Stream Order County: Township / City:
Distance from Evaluated Stream MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION USGS Quadrangle Name: NRCS Soil Map Page: NRCS Soil Map Stream Order Township / City:
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION USGS Quadrangle Name: NRCS Soil Map Page: NRCS Soil Map Stream Order County: Township / City:
USGS Quadrangle Name: NRCS Soil Map Page: NRCS Soil Map Stream Order County: Township / City:
County: Township / City:
MISCELLANEOUS
••• • • • • • • • • • • • • • • • • •
Base Flow Conditions? (Y/N): Y Date of last precipitation: 5-/3-/4 Quantity:
Photograph Information:
Elevated Turbidity? (Y/N): U Canopy (% open): 30
Were samples collected for water chemistry? (Y/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) If not, please explain:
Additional comments/description of pollution impacts:
BIOTIC EVALUATION
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N)
Comments Regarding Biology: Cadd x x reasofty
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location
N Ag. Field
Ac. Field
FLOW Ag. Fied
Commenda of the commendation of the commendati
Torest To
MA-BAO-51911
Ag Field

HH-BAO - 51414-4

ChieFPA Primary Headwater Habitat Evaluation Form

		FINEL	Score (sum of metrics 1	, 2, 3):
SITE NAME/LOCATION				
SITEN	IUMBER	RIVER BASIN	DRAINAGE	AREA (mi²)
LENGTH OF STREAM REACH (ft)	LAT,	LONG.	BIVED CODE	RIVER MILE
DATE USINIA SCORER_	BAU, ME	COMMENTS EPA		
NOTE: Complete All Items On	This Form - Ref	er to "Field Evaluation Ma	nual for Ohio's PHWH Strea	ams" for Instructions
			RECOVERING A RECEN	
MODIFICATIONS: Partial	14 10	A: // a l:	TO MECONEMING YEAR RECEN	IT OR NO RECOVERY
, our pace.	17 11 29	. tield, pertion	in recovered force	s+
1. SUBSTRATE (Estimate per (Max of 40). Add total number TYPE BLDR SLABS [16 pts] BOULDER (>256 mm) [1 BEDROCK [16 pt] COBBLE (65-256 mm) [1 GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts]	PERCEN 6 pts] 2 pts]	Ifrate types found (Max of 8), Fi TYPE SILT [3 pt] LEAF PACH FINE DETR CLAY OF HA	CWOODY DEBRIS [3 pts] ETUS [3 pts] ARDPAN [0 pt] ts]	TYPE boxes A & B. RCENT 40 Substrat Max = 40
Total of Percentages o Bldr Slabs, Boulder, Cobble, SCORE OF TWO MOST PREDOMIN,	f Bedrock	(A) 12	. NUMBER OF SUBSTRATE TY	(B) 5 A+B
2. Maximum Pool Depth (Meas evaluation. Avoid plunge pool > 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts]	sure the maximum is from road culvert	s or storm water pipes) (Che > 5 cm - 10 < 5 cm [5 j	0 cm [15 pts] ots] R OR MOIST CHANNEL [0 pts]	Max = 30
COMMENTS		MAX	inch IMUM POOL DEPTH (contimet t	ග් irs):
3. BANK FULL WIDTH (Measur > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [2 > 1.5 m - 3.0 m (> 4' 8" - 9' 7")	5 pts)	of 3-4 measurements) 2	5 m (> 3' 3" - 4' 8") [15 pts]	Bankfull Width Max=30
COMMENTS		AVE	RAGE BANKFULL WIDTH (magte	(P5)
RIPARIAN ZONE AND RIPARIAN WIDTH L R (Per Bank)) FLOODPLAIN QU	DPLAIN QUALITY (Most Predominant per Ba Mature Forest, Wetland	nk) L R	ristream ∂ r ation Tillage Industrial
□□ Narrow <5m ⊠□ None COMMENTS	00		Crop	sture, Row
FLOW REGIME (At Tin Stream Flowing Subsurface flow with iso COMMENTS		(Check ONLY one box): Moi: tial)	st Channel, isolated pools, no flow channel, no water (Ephemeral)	v (Intermitlent)
SINUO SITY (Number of None 0.5	of bends, per 61 m (3 2 1.0 1.5	200 ft) of channel) (Check OA 2.0 2.5	/LY one box):	-
STREAM GRADIENT ESTIMA Flat (0.5 11/100 ft) Flat to Moo		rderate (2 1/100 to	oderate to Severe	Severe (10 t/100 ft)

ADDITIONAL STREAM INFORMATION (This information Must Also be Complete	<u>d):</u>
QHEI PERFORMED? - TYes ANO QHEI Score(If Yes,	Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	
CWH Name:	
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERS	
USGS Quadrangle Name: NRCS Soil M	
County: Township / City:	
MISCELLANEOUS	
Base Flow Conditions? (Y/N): 1 Date of last precipitation: 5-13-19	Quantity
Photograph Information: Elevated Turbidity? (Y/N): N Canopy (% open):	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or	
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U	
Is the sampling reach representative of the stream (Y/N) If not, please explain	
Additional comments/description of pollution impacts: Sedimentation	From ag. fuld
BIOTIC EVALUATION	
Performed? (Y/N): (If Yes, Record all observations. Voucher collections opti	tional. NOTE: all voucher samples must be labeled with the site to Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macroinverte) Voucher? (Y/N) ⊵brates Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:	
DRAWING AND NARRATIVE DESCRIPTION OF STREA	M REACH (This must be completed):
Include Important landmarks and other features of interest for site evaluation	,

W The state of the	Q Ag. field
Ag field my &	HH - BAO - 51414 - 4
FLOW - Q MES	ANY DAY DIALIZA
-0-	, ha field
	1200

HH- BAO - 51414 -3

Chieff Primary Headwater Habitat Evaluation Form

	HHEI Score (sum of metrics 1, 2, 3):	3-1
SITE NAME/LOCATION AFP BHD		
SITE NUMBER	RIVER BASIN DRAINAGE AREA (ml²)	
LENGTH OF STREAM REACH (ft)LAT	LONG. RIVER CODE PIVER MILE	
DATE 3-14-14 SCORER BAQ MKK O	COMMENTS <u>EPH</u>	
NOTE: Complete All Items On This Form - Refer	to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruc	ctions
	ANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING RECENT OR RECOVERING RECENT OR RECOVERING REC	
MODIFICATIONS: Mature forest	— NEOTENINO E NEOLIVI ON NO RECOV	/ERY
SUBSTRATE (Estimate percent of every type of (Mey of 40). Add total number of significant substrate.	substrate present. Check ONLY two predominant substrate TYPE boxes	
TYPE PERCENT	ate types found (Max of 8). Final metric score is sum of boxes A & B. TYPE PERCENT	HHE! Metric
☐ ☐ BLDR SLABS [16 pts]	SILT [3 pt]	Points
☐ ☐ BOULDER (>256 mm) [16 pts]	LEAF PACKWOODY DEBRIS [3 pts] 10	Substrate
		Max = 40
☐ ☐ COBBLE (65-256 mm) [12 pts]		
ULJ <u>SAND (<2 mm) [6 pts]</u> <u>20</u>	☐ ☐ ARTIFICIAL [3 pts]	17
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock	(A) 12	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPE	PES: TOTAL NUMBER OF SUBSTRATE TYPES: 5	
2. Maximum Pool Depth (Measure the maximum po	on I don'th with heat of the standard	
evaluation. Avoid pluringe pools from road culiverts of	if storm water pipes) (Check ONLY one box):	ool Dept Max = 30
> 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts]	☐	
> 10 - 22.5 cm [25 pts]	NO WATER OR MOIST CHANNEL [0 pts]	5
COMMENTS	MAXIMUM POOL DEPTH (centimeters):	
	3-4 measurements) (Check ONLY one box):	
2 4.0 meters (> 13) [30 pts]	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankfull Width
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	< 1 0 m / < 2' 2"\ FE mtml	Max=30
	feet 4	15
COMMENTO.	AVERAGE BANKFULL WIDTH (motors)	
This	Information <u>must</u> also be completed	
RIPARIAN ZONE AND FLOODPLAIN QUAL	LITY ANOTE: River Left (L) and Right (R) as looking downstream?	
RIPARIAN WIDTH	PLAIN QUALITY	
□ □ Wide >10m □ □	(Most Predominant per Bank) Mature Forest, Wetland L R Conservation Tillage	
☐ ☐ Moderate 5-10m ☐ ☐	Immature Forest, Shrub or Old Field Urban or Industrial	
□□, Narrow <5m □□	Residential, Park, New Field Open Paslure, Row	
Ø Ø None □□	Crop	
COMMENTS	Fenced Pasture	
FLOW REGIME (At Time of Evaluation) (Ch	neck ONLY one boxy.	
Stream Flowing Subsurface flow with isolated pools (Interstitial	Moist Channel, isolated pools, no flow (Intermittent)	
COMMENTS	Dry channel, no water (Ephemeral)	
SINUOSITY (Number of bends per 61 m (200	ft) of channel) (Check OA!! V one boy)	
- 📙 None 📙 1.0	□ / 2.0	
	☑ 2.5 ☐ >3	
STREAM GRADIENT ESTIMATE Flat (0.5 #/160 #) Flat to Moderate Moderate Moderate	rate (2 6/100/ ft) Moderate to Severe	
Wodel	rate (2 f/100 ft)	

ADDITIONAL STREAM INFORMATION (This information Must	Also be Completed):
QHEI PERFORMED? - TYES TO QHEI Score_	(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	B
	Distance from Evaluated Stream
	Distance from Evaluated Stream Distance from Evaluated Stream
	E ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
	NRCS Soil Map Page: NRCS Soil Map Stream Order
County: To	ownship / City:
MISCELLANEOUS	,
Base Flow Conditions? (Y/N): Date of last precipitation:_	
4,	
Elevated Turbidity? (Y/N): N Canopy (% open):	10
Nere samples collected for water chemistry? (Y/N): N (Note	e lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l)	pH (S.U.) Conductivity (µmhos/cm)
s the sampling reach representative of the stream (Y/N) If	not, please explain:
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
	ucher collections optional. NOTE: all voucher samples must be labeled with the sitil data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) Voucher? (Y/N) Salamande Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) A Comments Regarding Biology:	quatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)
	ION OF STREAM REACH (This <u>must</u> be completed): st for site evaluation and a narrative description of the stream's location
A Mature Forest	E T
FLOW - Q	Matare Forest
	HA- BAO - 51414-3

OnicEPA Primary Headwater Habitat Evaluation Form

SITE NAMELOCATION AEP - BICHD SITE NUMBER RIVER BASIN DRAINAGE AREA (m²) LENGTH OF STREAM REACH (ft) LAT. LONG RIVER CODE RIVER MILE DATE 5 2012 SCORER HAP) COMMENTS EXAMPLED AT THE DATE STOLE AND A HILL-HAP 57014-2 NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY MODIFICATIONS: LOSS OF CC Channel In Floudylain Of HILL-HAP 52014-2 1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. TYPE SILT [3 pt] PERCENT TYPE SILT [3 pt] SAND (<2 mm) [6 pts] SAND (<2 mm) [6 pts] ARTIFICIAL [3 pts] SILT [3
DATE 5 20 M SCORER HAP COMMENTS EXPRESSION OF HILLIAR 57014-2 NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY MODIFICATIONS: LOGS COMMENTS CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY MODIFICATIONS: LOGS COMMENTS CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY MODIFICATIONS: LOGS COMMENTS CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY MODIFICATIONS: LOGS COMMENTS CHANNEL RECOVERED RECOVERED RECOVERY MODIFICATIONS: LOGS COMMENTS CHANNEL RECOVERED RECOVERED RECOVERY MODIFICATIONS: LOGS COMMENTS CHANNEL RECOVERED RECOVERED RECOVERY MODIFICATIONS: LOGS COMMENTS CHANNEL RECOVERED RECOVERY MODIFICATIONS: LOGS COMMENTS CHANNEL RECOVERED RECOVERY MODIFICATIONS: LOGS COMMENTS CHANNEL RECOVERED RECOVERED RECOVERY MODIFICATIONS: LOGS CHANNEL RECOVERED RECOVERED RECOVERY MODIFICATIONS: LOGS CHANNEL RECOVERY LOGS CHANNEL RECOVERY MODIFICATIONS: LOGS CHANNEL RECOVERY LOGS CHANNEL RECOVERY LOGS CHANNEL RECOVERY LOGS CHANNEL RECOVERY MODIFICATIONS: LOGS CHANNEL RECOVERY LOGS CHANNEL RECOVERY LOGS CHANNEL RECOVERY MODIFICATIONS: LOGS CHANNEL RECOVER CONT. LOGS CHANNEL RECOVERY LOGS CHANNEL RECOVERY MODIFICATIONS: LOGS CHANNEL RECOVER CONT. LOGS CHANNEL RECOVERY LOGS CHANNEL RECOVERY MODIFICATIONS LOGS CHANNEL RECOVERY LOGS CHANNEL RECOVERY LOGS CHANNEL RECOVERY LOGS CHANNEL RECO
DATE 5 20 M SCORER HAP COMMENTS EXPRESSION OF HILLIAR 57014-2 NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY MODIFICATIONS: LOGS COMMENTS CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY MODIFICATIONS: LOGS COMMENTS CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY MODIFICATIONS: LOGS COMMENTS CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY MODIFICATIONS: LOGS COMMENTS CHANNEL RECOVERED RECOVERED RECOVERY MODIFICATIONS: LOGS COMMENTS CHANNEL RECOVERED RECOVERED RECOVERY MODIFICATIONS: LOGS COMMENTS CHANNEL RECOVERED RECOVERED RECOVERY MODIFICATIONS: LOGS COMMENTS CHANNEL RECOVERED RECOVERY MODIFICATIONS: LOGS COMMENTS CHANNEL RECOVERED RECOVERY MODIFICATIONS: LOGS COMMENTS CHANNEL RECOVERED RECOVERED RECOVERY MODIFICATIONS: LOGS CHANNEL RECOVERED RECOVERED RECOVERY MODIFICATIONS: LOGS CHANNEL RECOVERY LOGS CHANNEL RECOVERY MODIFICATIONS: LOGS CHANNEL RECOVERY LOGS CHANNEL RECOVERY LOGS CHANNEL RECOVERY LOGS CHANNEL RECOVERY MODIFICATIONS: LOGS CHANNEL RECOVERY LOGS CHANNEL RECOVERY LOGS CHANNEL RECOVERY MODIFICATIONS: LOGS CHANNEL RECOVER CONT. LOGS CHANNEL RECOVERY LOGS CHANNEL RECOVERY MODIFICATIONS: LOGS CHANNEL RECOVER CONT. LOGS CHANNEL RECOVERY LOGS CHANNEL RECOVERY MODIFICATIONS LOGS CHANNEL RECOVERY LOGS CHANNEL RECOVERY LOGS CHANNEL RECOVERY LOGS CHANNEL RECO
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions STREAM CHANNEL None / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY MODIFICATIONS: None / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY MODIFICATIONS: None / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY MODIFICATIONS: None / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY MODIFICATIONS: None / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY MODIFICATIONS: None / NATURAL CHANNEL RECOVERED RECOVERED RECENT OR NO RECOVERY MODIFICATIONS: None / NATURAL CHANNEL RECOVERED RECOVERED RECENT OR NO RECOVERY MODIFICATIONS: None / NATURAL CHANNEL RECOVERED RECENT OR NO RECOVERY MODIFICATIONS: None / NATURAL CHANNEL RECOVERED RECENT OR NO RECOVERY MODIFICATIONS: None / NATURAL CHANNEL RECOVERED RECENT OR NO RECOVERY MODIFICATIONS: None / NATURAL CHANNEL RECOVERED RECENT OR NO RECOVERY MODIFICATIONS: None / NATURAL CHANNEL RECOVERED RECENT OR NO RECOVERY MODIFICATIONS: None / NATURAL CHANNEL RECENT OR NO RECOVERY MODIFICATIONS: None / Natural CHANNEL RECENT OR NO RECOVERY MODIFICATIONS: None / Natural CHANNEL RECENT OR NO RECOVERY MODIFICATIONS: None / Natural CHANNEL RECENT OR NO RECOVERY MECON / Natural CHANNEL RECENT OR NO RECOVERY MECON / Natural CHANNEL RECENT OR NO RECOVERY MODIFICATION OF NONE RECENT OR NO RECOVERY MODIFICATION OF NONE RECOVERY MODIFICATION OF NONE RECOVERY MODIFICATION OF NATURAL RECENT OR NO RECOVERY MECON / NATURAL RECENT OR NO RECOVERY MODIFICATION OF NATURAL RECENT OR NO RECOVERY MODIFICATION OF NATURAL RECENT OR NO RECOVERY MODIFICATION OF NATURAL REC
STREAM CHANNEL NONE / NATURAL CHANNEL
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. TYPE O
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONL Y two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. TYPE BLDR SLABS [16 pts] BUDR SLABS [16 pt
TYPE BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts] BEDROCK [16 pt] COBBLE (65-256 mm) [12 pts] GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts] Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock COMMINITER TYPES: METRICIAL [3 pts] Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 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) Max = 30 Pool Depth (Max = 30 Sand (-2 mg) [5 pts] Sand (-2 mg) [6 pts] A + B Pool Depth (Max = 30 Sand (-2 mg) [6 pts] Max = 40 Pool Depth (-2 mg) [6 pts] Sand (-2 mg) [6 pts] Max = 40 Pool Depth (-2 mg) [6 pts] Sand (-2 mg) [6 pts] Sand (-2 mg) [6 pts] Sand (-2 mg) [6 pts] A + B Score (-1 nd metric score is sum of boxes as the Element of the pts] Sand (-2 mg) [6 pts] Sand (-2 mg) [6 pts] Sand (-2 mg) [6 pts] A + B Score (-1 nd metric score is sum of boxes as the Element of the pts] Sand (-2 mg) [6 pts] Sand (-2 mg) [6 pts] A + B Score (-1 nd metric score is sum of boxes as the Element of the pts] A + B Score (-1 nd metric score is sum of boxes as the Element of the pts] A + B Score (-1 nd metric score is sum of boxes as the Element of the pts] Bercent (-1 mg) [6 pts] A + B Score (-1 nd metric score is sum of boxes as the Element of the pts] Bercent (-1 mg) [6 pts] A + B Score (-1 mg) [6 pts] A + B Score (-1 nd metric score is sum of boxes as the Element of the pts] Bercent (-1 mg) [6 pts] Bercent (-1 mg) [6 pts] A + B Score (-1 mg) [6 pts]
TYPE BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts] BEDROCK [16 pt] COBBLE (65-256 mm) [12 pts] GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts] Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock COMMINITERED BEDROCK [16 pt] Max = 40 TOTAL NUMBER OF SUBSTRATE TYPES: Metric Points Substrate Max = 40 A + B TOTAL NUMBER OF SUBSTRATE TYPES: 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.
BLDR SLABS [16 pts] 5 SILT [3 pt] 50 BOULDER (>256 mm) [16 pts] 5 SILT [3 pt] 50 BEDROCK [16 pt] 5 Substrate COBBLE (65-256 mm) [12 pts] 10 CLAY or HARDPAN [0 pt] 50 GRAVEL (2-64 mm) [9 pts] 20 MUCK [0 pts] 60 SAND (<2 mm) [6 pts] 7 ARTIFICIAL [3 pts] 7 Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 30 ARTIFICIAL [3 pts] 7 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 7 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): 7 > 30 centimeters [20 pts] 7 > 5 cm - 10 cm [15 pts] 7 > 5 cm - 10 cm [15 pts] 7 NO WATER OR MOIST CHANNEL [0 pts] 7 SILT [3 pt] 7 Points Points A + B Substrate Max = 40 In Total NUMBER OF SUBSTRATE TYPES: 7 Pool Depth Max = 30 Pool Depth Max = 30 Score - 10 cm [15 pts] 7 Score - 10
BEDROCK [16 pt] COBBLE (65-256 mm) [12 pts] GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts] Total of Percentages of Bidr Slabs, Boulder, Cobble, Bedrock Max = 40 Total of Percentages of Bidr Slabs, Boulder, Cobble, Bedrock Max = 40 Total of Percentages of Bidr Slabs, Boulder, Cobble, Bedrock Total of Percentages of Bidr Slabs, Boulder, Cobble, Bedrock Total number of substrate types: 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] > 5 cm - 10 cm [15 pts] > 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]
COBBLE (65-256 mm) [12 pts]
SAND (<2 mm) [6 pts] Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock (A) 2
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock Cobble, Bedr
Bldr Slabs, Boulder, Cobble, Bedrock
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]
> 30 certimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]
COMMENTSMAXIMUM POOL DEPTH (centimeters):
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): Bankfull
> 3.0 m - 4.0 m (> 9'7" - 13') [25 pts]
2 P 1.5 m - 5.0 m (5 4 8 - 9 7) [20 pts]
COMMENTSAVERAGE BANKFULL WIDTH (meters)
This information <u>must</u> also be completed
RIPARIAN ZONE AND FLOODPLAIN QUALITY #RNOTE: River Left (L) and Right (R) as looking downstream.*
, L R (Per Bank) L R (Most Predominant per Bank) L R
₩ Wide >1Cm
Moderate 5-10m Immalure Forest, Shrub or Old Immalure Forest Urban or Industrial
Moderate 5-10m Immature Forest, Shrub or Old Immature Forest, Shru
Moderate 5-10m Immalure Forest, Shrub or Old Immalure Forest Urban or Industrial
Moderate 5-10m

QHEI PERFORMEDY - LJ Yes No	QHEI Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
	NCLUDING THE <u>ENTIRE</u> WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
	NRCS Soil Map Page: NRCS Soll Map Stream Order
County:	Township / City:
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last	t precipitation:Quantity:
Photograph Information: US N DS S	<u> </u>
Elevated Turbidity? (Y/N): NA Canopy ((% open):
Were samples collected for water chemistry? (Y/N):	:(Note lab sample no. or id. and attach results) Lab Number:
	Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
•	(Y/N) If not, please explain:
is the sampling reach representative of the stream ((Y/N) If not, please explain
BIOTIC EVALUATION Performed? (Y/N): N (If Yes, Record all ob	bservations. Voucher collections optional. NOTE; all voucher samples must be labeled with the site appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
BIOTIC EVALUATION Performed? (Y/N): N (If Yes, Record all ob ID number. Include at Include at Include at ID number. Include at ID n	bservations. Voucher collections optional. NOTE; all voucher samples must be labeled with the site
BIOTIC EVALUATION Performed? (Y/N): N (If Yes, Record all oblin ID number. Include: ID number. ID numbe	bservations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) \[\sum_Salamanders Observed? (Y/N) \sum_\text{Voucher? (Y/N)
BIOTIC EVALUATION Performed? (Y/N): N (If Yes, Record all oblin ID number. Include: ID number. ID numbe	bservations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) Salamanders Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Aquatic MacroInvertebrates Observed? (Y/N) Voucher? (Y/N) DESCRIPTION OF STREAM REACH (This must be completed): atures of Interest for site evaluation and a narrative description of the stream's location
BIOTIC EVALUATION Performed? (Y/N): N (If Yes, Record all oblin ID number. Include: ID number. ID numbe	bservations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) \[\sum_Salamanders Observed? (Y/N) \sum_\text{Voucher? (Y/N)
BIOTIC EVALUATION Performed? (Y/N): N (If Yes, Record all oblin ID number. Include: ID number. ID numbe	bservations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) \[Description of STREAM REACH (This must be completed): \[\text{all voucher samples must be labeled with the site appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) \[\text{Voucher? (Y/N) \subseteq Voucher? (Y/N)
BIOTIC EVALUATION Performed? (Y/N): N (If Yes, Record all oblin ID number. Include: ID number. ID numbe	bservations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) \[Description of STREAM REACH (This must be completed): \[\text{all voucher samples must be labeled with the site appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) \[\text{Voucher? (Y/N) \subseteq Voucher? (Y/N)
BIOTIC EVALUATION Performed? (Y/N): N (If Yes, Record all oblin number. Include: ID n	bservations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) \[\subseteq Salamanders Observed? (Y/N) \rightarrow Voucher? (Y/N) \righ
BIOTIC EVALUATION Performed? (Y/N): N (If Yes, Record all oblin ID number. Include: ID number. Include: ID number. Include: IT (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Voucher Comments Regarding Biology: Voucher Include Important landmarks and other feat	bservations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) \[\begin{align*} \text{Salamanders Observed? (Y/N) \text{N} \text{Voucher? (Y/N) \text{N} Voucher? (Y/N) \text{Voucher? (Y/N) \text{Voucher
BIOTIC EVALUATION Performed? (Y/N):N (If Yes, Record all oblin number. Include: ID number. ID number. Include: ID number. Include: ID number. ID number. Include: ID number. ID numbe	bservations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) L Salamanders Observed? (Y/N) \(\) \(
BIOTIC EVALUATION Performed? (Y/N):N (If Yes, Record all oblid number. Include: ID number. ID number. Include: ID number.	bservations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) L Salamanders Observed? (Y/N) \(\) \(
BIOTIC EVALUATION Performed? (Y/N):N (If Yes, Record all oblid number. Include: ID number. Include:	bservations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) \[\begin{align*} \text{Salamanders Observed? (Y/N) \begin{align*} \text{Voucher? (Y/N) \begin{align*} Voucher? (Y/N) \begin{ali
BIOTIC EVALUATION Performed? (Y/N):N (If Yes, Record all oblid number. Include: ID number. ID number. Include: ID number. Include: ID number. Include: ID number. I	bservations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) \[\begin{align*} Salamanders Observed? (Y/N) \bigcept Voucher? (Y/N) \bigcept V
BIOTIC EVALUATION Performed? (Y/N): N (If Yes, Record all oblin number. Include: In	bservations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) \[\begin{align*} Salamanders Observed? (Y/N) \bigcept Voucher? (Y/N) \bigcept V

ChieFPA Primary Headwater Habitat Evaluation Form

	02014-2	IHEI Score (sum of n	netrics 1, 2, 3) : 🔝	10
SITE NAME/LOCATION				
AFP-RRHD SITE NUMBER	RIVER BASIN		RAINAGE AREA (ml²)	
LENGTH OF STREAM REACH (R)	LAT, LONG	DIVED CODE	RIVER MILE	
NOTE: Complete All Items On This Form	COMMENTS IN THE	a in ment		
NOTE: Complete All Items On This Form				
STREAM CHANNEL AND NONE / NAT	TURAL CHANNEL 🗍 ŘECON	PERED RECOVERING	TRECENT OR NO RECO	VEF
MODIFICATIONS.				
. SUBSTRATE (Estimate percent of ever	rv type of substrate present	Chack ON! Vhus and a sign is		
Type	in substate types found (Max	of 8). Final metric score is sur	of boxes A & B.	Н
BLDR SLABS [16 pts]	RCENT TYPE	T [3 pt]	PERCENT	M
BOULDER (>256 mm) [16 pts]	LEA	F PACKWOODY DEBRIS [3]	ots] 0	Po
	FINI	E DETRITUS [3 pts]		Sut Ma
\	20	NY OF HARDPAN (10 pt)	***************************************	
□ Ø SAND (<2 mm) [6 pts]		[FICIAL [3 pts]		2
Total of Percentages of Bldr Stabs, Boulder, Cobble, Bedrock	(A) 1-		(B) C	_
CORE OF TWO MOST PREDOMINATE SUBST		TOTAL NUMBER OF SUBST	511	A·
evaluation. Avoid plunge pools from road	ximum pool depth within the culverts or storm water pipes)	61 meter (200 ft) evaluation re (Check ONLY one box)	each at the time of	Pool
> 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts]	및 >5	cm - 10 cm [15 pts]	<u> </u>	Max
> 10 - 22.5 cm [25 pts]		cm [5 pts] WATER OR MOIST CHANNE	L [0 pts]	2
COMMENTS			/ 1/	
BANK FULL WIDTH (Measured as the a				·
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9'7" - 13') [25 pts]	□ > 1.	0 m - 1.5 m (> 3'3" - 4'8') [15 c	otsj	Ban Wi
> 1.5 m - 3.0 m (> 4'.8" - 9'.7") [20 pts]	ئىك لىشى خالىنى 	.0 m (s 3' 3") [5 pts]	 _	Max
COMMENTS		AVERAGE DANKERS MO	15"	3
		_ AVERAGE BANKFULL WII	DIH (meters)	
	This information must al	so be completed		
RIPARIAN ZONE AND FLOODPLI RIPARIAN WIDTH		iver Left (L) and Right (R) as lo	ooking downstream-2r	
	L R (Most Predominant			
L R (Per Bank)		land 🔲 🗍	Conservation Tillage	
☑ ☑ Wide >1Cm	Mature Forest, Wel	hrub or Old		
☐ ☐ Moderate 5-10m	Immature Forest, S	hrub or Old	Urban or Industrial	
☐ ☐ Moderate 5-10m ☐ ☐ Narrow <5m	Immature Forest, S Field Residentia , Park, N	New Field		
☐ ☐ Moderate 5-10m	Immature Forest, S Field		Urban or Industrial Open Pasture, Row	
☐☐ Moderate 5-10m ☐☐ Narrow <5m ☐☐ None COMMENTS	Immature Forest, S Field Residentia , Park, N Fenced Pasture	New Field	Urban or Industrial Open Pasture, Row Crop	
☐ ☐ Moderate 5-10m ☐ ☐ Narrow <5m ☐ ☐ None COMMENTS	Immature Forest, S Field Residentia , Park, N Fenced Pasture (Check ONLY one box):	New Field	Urban or Industrial Open Pasture, Row Crop Mining of Construction	
Moderate 5-10m Narrow <5m None COMMENTS FLOW REGIME (At Time of Evaluation Stream Flowing) Subsurface flow with isolated pools of the control of the con	Immature Forest, S Field Residentia , Park, N Fenced Pasture (Check ONLY one box):	New Field	Urban or Industrial Open Pasture, Row Crop Mining or Construction ols, no flow (Intermittent)	
☐ Moderate 5-10m ☐ Narrow <5m ☐ None COMMENTS	Immature Forest, S Field Residentia , Park, N Fenced Pasture ation) (Check ONLY one box): (Interstitial)	New Field	Urban or Industrial Open Pasture, Row Crop Mining or Construction ols, no flow (Intermittent)	
Moderate 5-10m Marrow <5m None COMMENTS FLOW REGIME (At Time of Evalua Stream Flowing Subsurface flow with isolated pools COMMENTS SINUOSITY (Number of bends per	Immature Forest. S Field Residentia . Park. N Fenced Pasture ation) (Check ONLY one box): (Interstitial) 61 m (200 ft) of channel) (Ch	Moist Channel, isolated por Dry channel no water (Epi	Urban or Industrial Open Pasture, Row Crop Mining or Construction ols, no flow (Intermittent)	
Moderate 5-10m Narrow <5m None COMMENTS FLOW REGIME (At Time of Evalua Stream Flowing Subsurface flow with isolated pools of COMMENTS SINUOSITY (Number of bends per	Immature Forest. S Field Residentia . Park . N Fenced Pasture ation) (Check ONLY one box): (Interstitial) 61 m (200 ft) of channel) 2(Ch	Moist Channel, isolated por Dry channel no water (Epi	Urban or Industrial Open Pasture, Row Crop Mining of Construction ols, no flow (Intermittent) hemeral)	

ADDITIONAL STREAM INFORMATION (This information Must Also be Completed):	
QHEI PERFORMED? - 🗆 Yes 🗵 No QHEI Score (If Yes, Attact	n Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	
CWH Name:	
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED A	
USGS Quadrangte Name: NRCS Soil Map Pa	
County: Township / City:	
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Date of last precipitation:	Quantity:
Photograph Information: US. E. D.S. W.	1
Elevated Turbidity? (Y/N):N Canopy (% open):	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. an	d 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 poliution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. ID number. Include appropriate field data sheets from the Print	
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aqualic Macroinvertebrate Comments Regarding Biology: Walthy, Cadd 1947	Voucher? (Y/N)Voucher? (Y/N)
DRAWING AND NARRATIVE DESCRIPTION OF STREAM R	EACH (This must be completed):
include important landmarks and other features of interest for sile evaluation any	• • • • • • •
	Stop bank
FLOW	
Gevel	Ron
· Pai	
	<u> </u>
modern and a	•
mature woods	

ChieFPA Primary Headwater Habitat Evaluation Form

HH-HAB	-52014-3	HHEI Score	(sum of metrics	1, 2, 3): 19
SITE NAME/LOCATION				
AEP BRHD SITE NUMBER	RIVE	R BASIN	DRAINAGI	E ADEA (~i?)
SELECTION OF CHINESES AND CHINE	1 🕰 1	1000	IVER CODE	PN/ED MILE
DATE TOTAL SCORER MAL	COMMENT	s <u>Fru</u>		
NOTE: Complete All Items On This I	orm - Refer to "Field	Evaluation Manual fo	r Ohio's PHWH Stre	ams" for Instructions
STREAM CHANNEL NONE	NATURAL CHANNEL	RECOVERED RE	00/50 D 0	
MODIFICATIONS: LOSES C	in bonned	floodplain 4	1)1) NAMECE	NI OK NO RECOVERY
SUBSTRATE (Estimate percent of (Max of 40). Add total number of single	every type of substrate	present. Check ONLY two	predominant substrate	TYPE boxes
TYPE	PERCENT TYP	unu (wax or 8). Final metri	c score is sum of boxes	A&B. HHEI
BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts]	X	SILT [3 pt]		ERCENT Metric Points
BEDROCK [16 pt]			Y DEBRIS [3 pts]	৪০
COBBLE (65-256 mm) [12 pts]	20 0			Substrate Max = 40
GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts]		MUCK [0 pts]		
(z mm/to brod		ARTIFICIAL [3 pts]		
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock	(A)			(B) > A+B
SCORE OF TWO MOST PREDOMINATE SU	BSTRATE TYPES:	TOTAL NUMBE	R OF SUBSTRATE TY	
Maximum Pool Depth (Measure the evaluation, Avoid plunge pools from a contract that the evaluation of the pools from a contract that the pools from a	maximum pool denth i			· ··· · · · · · · · · · · · · · · · ·
evaluation. Avoid plunge pools from r > 30 centimeters [20 pts]	oad culverts or storm wa	er pipes) (Check ONLY	one boxi:	e time of Pool Depth Max = 30
> 22.5 - 30 cm [30 pts]		> 5 cm - 10 cm [15] < 5 cm [5 pts]	pts]	
> 10 - 22,5 cm [25 pts]		NO WATER OR MC	IST CHANNEL [0 pts]	5
COMMENTS		MAXIMUM PO		
3. BANK FULL WIDTH (Measured as t				5.37.
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]		> 1.3 m - 1.5 m (> 3'	k <i>ONLY</i> one box): 3" - 4' 8') [15 pts]	Bankfull Width
> 1.5 m + 3.0 m (> 4'8" - 9'7") [20 pts]		য়ে ≲ 1.0 m (≲ 3° 3") [5 p	ts]	Max=30
				2 5
COMMENTS		AVERAGE BA	NKFULL WIDTH (met	ers)
	This information	n <u>must</u> also be co m plete	d	
RIPARIAN ZONE AND FLOOI	OPLAIN QUALITY 💎 🖫	NOTE: River Left (L) and i	u Right (F) as looking dow	vnstream <i>∆</i> r
RIPARIAN WIDTH L R (Per Bank)	FLOODPLAIN QUA	ALITY edominant per Bank)	1 0	
◯ ◯ V/ide >1Cm	□ □ Meture F	orest, Welland	L R Conserv	ration Tillage
□ □ Moderate 5-10m		Forest, Shrub or Old	Urban o	r Industrial
☐ ☐ Narrow <5m		a , Park, New Field	Open Pa	asture, Row
□ □ None	□□ Fenced F		Crop	Construction
COMMENTS			, mining o	
FLOW REGIME (At Time of Ex	aiuation) (Check ONL)			
Stream Flowing Subsurface flow with isolated po	ods (Interstitial)	Moist Channel	el, isolated pools, no flo no water (Ephemeral)	₩ (Intermittent)
COMMENTS SA	<u> </u>	TUG	water (cpnemeral)	
SINUOSITY (Number of bends	per 61 m (200 ft) of char	inel) (Check ONLY one h	OX):	
☐ None ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	7.0 1.5	<u> </u>	<u> </u>	
	, (.3	IJ 25	LJ >3	
STREAM GRADIENT ESTIMATE Flat to 57/109 to Flat to Moderate	Moderate (2.170)	n Vineadomes to	S	1.0

ADDITIONAL STREAM INFORMATION (This information Must Also be Completed):
QHEI PERFORMED? - TYes 🗷 No QHEI Score(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)
Distance from Evaluated Stream
Distance from Evaluated Stream
Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE <u>ENTIRE</u> WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Township / City:
MISCELLANEOUS
Base Flow Conditions? (Y/N): Y Date of last precipitation: Quantity:
Photograph Information: US E DS W
Elevated Turbidity? (Y/N): N(A Canopy (% open): 25
Were samples collected for water chemistry? (Y/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:
BIOTIC EVALUATION
Performed? (Y/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) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Aquatic MacroInvertebrates Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Blology:
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed): include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location
mende important fandmans and other reactions of interest for site evaluation and a natival securition of the stream's location
λ
loses channel of
FLOW -

Chiefpa Primary Headwater Habitat Evaluation Form
HH-HA6-52014-4 HHEI Score (sum of metrics 1, 2, 3):

1		
ı	10	
ı	45	
ı	, 0	

SITE NAME/LOCATION AEP PRHD SITE NUMBER	RIVER BASIN	DRAINAGE AREA (mi²)
LENGTH OF STREAM REACH (R)	LATLCNG.	RIVER CODE RIVER MILE
NOTE: Complete All Marie	COMMENTS_INTERMITE	RIVER CODE RIVER MILE
STREAM CHANNEL NONE /N MODIFICATIONS:	NATURAL CHANNEL RECOVERED R	for Ohio's PHWH Streams" for Instructions
1. SUBSTRATE (Estimate percent of e (Max of 40). Add total number of signing type BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts] BEDROCK [16 pt] COBBLE (65-256 mm) [12 pts] GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts] Total of Percentages of Bldr Slabs. Boulder, Cobble. Bedrock SCORE OF TWO MOST PREDOMINATE SUB	FINE DETRITUS CLAY OF HARDPA CLAY OF HARDPA MUCK [0 pts] ARTIFICIAL [3 pts [A]	PERCENT OY DEBRIS [3 pts] [3 pts] N [0 pt] HHEI Metric Points Substrate Max = 40
> 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts]	maximum pool depth within the 61 meter (200 ad culverts or storm water pipes) (Check ONL > 5 cm - 10 cm [1 < 5 cm [5 pts] NO WATER OR M	Proj evaluation reach at the time of Yone box: 5 pts] MOIST CHANNEL [0 pts]
	MUMIXAM	
BANK FULL WIDTH (Measured as th > 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" - 9'.7") [20 pts]	e average of 3-4 measurements) (Che \bigcirc > 1.0 m - 1.5 m (> \bigcirc 5 1.0 m (\le 3° 3°) [5	3'3" - 4'8') [15 pts] Width 5 pts] Max=30
COMMENTS	AVERAGE	BANKFULL WIDTH (meters)
RIPARIAN ZONE AND FLOOD RIPARIAN WIDTH	This information must also be comple PLAIN QUALITY **NOTE: River Left (L) an FLOODPLAIN QUALITY	ted d Right (R) as looking downstream☆
L R (Per Bank)	L R (Most Predominant per Bank)	
	Mature Forest, Welland Immature Forest, Shrub or Old Field	Conservation Tillage Urban or Industrial
□ □ Narrow <5m	Residentia . Park, New Field	Open Pasture, Row
OMMENTS	☐ ☐ Fenced Pasture	Crop Mining of Construction
FLOW REGIME (At Time of Eve Stream Flowing Subsurface flow with isolated pox COMMENTS	ds (Interstitial) : Dry change	nnel. isolated pools, no flow (Intermittent) el no water (Ephemeral)
SINUOSITY (Number of bends possible of bends pos	Der 61 m (200 ft) of channel) (Check ONLY one 1.0	= box):
STREAM GRADIENT ESTIMATE	☐ Moderate (2 €160 t) ☐ ☑ Moderate	to Severe (10 t/100 ft)

HH-HAB- 52014-4

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - TYes X No QHEI Score(If Yes, Attac	ch Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	
DEWH Name:	
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED	
USGS Quadrangle Name:NRCS Soli Map P	
County: Township / City:	· ——
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation:	Quantity:
Photograph Information: US E DS W	-
Elevated Turbidity? (Y/N): Y Canopy (% open): 20	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. a	and attach recuite) i ah Number
is the sampling reach representative of the stream (Y/N) if not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional	•
ID number. Include appropriate field data sheets from the Pri	•
Fish Observed? (Y/N) Voucher? (Y/N) Saiamanders Observed? (Y/N) Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aqualic Macroinvertebrat	
Comments Regarding Biology: 120005 10 00015	
DRAWING AND NARRATIVE DESCRIPTION OF STREAM I	REACH (This must be completed):
include important landmarks and other features of interest for site evaluation ar	• •
Immature forest	
Small Chestnut oaks, Si targled understory mut	
tented under de muit	agar maples
mul	HT1010 YOU
FLOW	7
FLOW •	
(× × × × × × × × × × × × × × × × × × ×	ODNR Propline
N Sou	71
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V	\rightarrow
PHWH Form Page - 2	
June 20, 2008 Revision () and the largest of the light little and the largest terms of the l	rasili ne dia bitang katalah makabalih bitan berati ne r

June 20, 2006 Revision

ChioEPA Primary Headwater Habitat Evaluation Form

HH-HAB-E	2014-5	HHEI Score	(sum of metric	s 1, 2, 3) :	31
SITE NAME/LOCATION					
AEP BRHD SITE NUMBER	RIVER E	MASIN	DRAIN	AGE AREA (mi²)	
LENGTH OF STREAM REACH (ft)	LAT. LO	ONG PI	VED CODE	O11 (ED 1411 m	
DATE DIZUNA SCORER HAN	COMMENTS_	Ephemera	of to bot	HH-4128-	52014
NOTE: Complete All Items On This I	Form - Refer to "Field E	valuation Manual fo	r Ohio's PHWH S	treams" for Inst	ructions
STREAM CHANNEL NONE	NATURAL CHANNEL []	RECOVERED TRE	COVERING I RE	CENT OR NO REC	OVERY
MODIFICATIONS:					
1. SUBSTRATE (Estimate percent of (Max of 40). Add total number of sign TYPE BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts] BEDROCK [16 pt]	PERCENT TYPE 5 00	esent. Check ONLY two I (Max of 8). Final metri SILT [3 pt] LEAF PACKWOOD FINE DETRITUS [3	c score is sum of bo Y DEBRIS [3 pts]	rate TYPE boxes xes A & B. PERCENT IS	HHEI Metric Points
COBBLE (65-256 mm) [12 pts] GRAVEL (2-64 mm) [9 pts]	<u>-3</u> 0 □□	CLAY or HARDPAN			Max = 40
☐☐ GRAVEL (2-84 mm) [9 pts] ☐☐ SAND (<2 mm) [6 pts]	<u>40</u> 00	MUCK [0 pts]			26
		ARTIFICIAL [3 pts]			
Total of Percentages of Bidr Slabs, Boulder, Cobble, Bedroc-	35 (A) 21			(B) 5	A+B
SCORE OF TWO MOST PREDOMINATE SU	BSTRATE TYPES:	TOTAL NUMBE	R OF SUBSTRATE	TYPES:	
	X X		DIST CHANNEL [0 p	/)	Max = 30
BANK FULL WIDTH (Measured as t > 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" - 9' 7") [20 pts]		ments) (Chec > 1,9 m - 1,5 m (> 3' \$ 1.0 m (\$ 3' 3") [5 p	k ONLY one box): 3" - 4' 8') [15 pts] xts]	Manustang	Bankfull Width Max≃30
COMMENTS		AVERAGE BA	ANKFULL WIDTH (r	meters) 3	5
	This information n	rust also be complete	at		
RIPARIAN ZONE AND FLOO RIPARIAN WIDTH	DPLAIN QUALITY AND	DTE: River Left (L) and	ɑ Right (R) as looking	downstream:2r	
L R (Per Bank)	L R (Most Predo	 minant per Bank)	L R		
X X Wide >1 Cm	Meture Fore			ervation Tillage	
□ □ Moderate 5-10m	Field	rest, Stilds of Old	□□ Urba	n or Industrial	
☐ ☐ Narrow <5m	🗍 🗍 Residentia .	Park, New Field	المسار المسار	Pasture, Row	
OMMENTS	☐ ☐ Fenced Past	ure	☐ ☐ Crop	g or Construction	
FLOW REGIME (At Time of Ex Stream Flowing Subsurface flow with isolated po COMMENTS		Moist Channe	el, isolated pools, no no water (Ephemer	flow (Intermittent)	
SINUOSITY (Number of bends None C.5	per 61 m (200 ft) of channel 7.0 7.5) (Check ONLY one 5	ox): 3.0		
STREAM GRADIENT ESTIMATE ☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate	☐ Moderate (2 t/1(∞ tj)	Moderate to	Severe	Severe (10 4/100	M arangalia

ADDITIONAL STREAM INFORMATION (This information Must Also be Completed):
QHEI PERFORMED? - Tyes X No QHEI Score(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S) WWH Name: Distance from Evaluated Stream CWH Name: Distance from Evaluated Stream EWH Name: Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE <u>ENTIRE</u> WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Township / City:
MISCELLANEOUS
Base Flow Conditions? (Y/N): Y Date of last precipitation: Quantity:
Photograph Information: US NE D5 5W
Elevated Turbidity? (Y/N): Canopy (% open):
Were samples collected for water chemistry? (Y/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) If not, please explain:
Additional comments/description of pollution impacts:
BIOTIC EVALUATION
Performed? (Y/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) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> 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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Primary Headwater Habitat Evaluation Form

HH-HAB-52014-6 HHEI Score (sum of metrics 1, 2, 3): SITE NAME/LOCATION AEP BRHD __site NUMBER_____ RIVER BASIN__ ___ DRAINAGE AREA (mi²) LENGTH OF STREAM REACH (ft) _____ LAT. ____ LONG. ____ RIVER CODE _____ RIVER MILE __ DATE 5/2014 SCORER HAB COMMENTS EDPENTERAL NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions NONE / NATURAL CHANNEL | RECOVERED | RECOVERING | RECENT OR NO RECOVERY STREAM CHANNEL MODIFICATIONS: SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. HHEI TYPE PERCENT TYPE Metric BLDR SLABS [16 pts] SILT [3 pt] **Points** BOULDER (>256 mm) [16 pts] LEAF PACKWOODY DEBRIS [3 pts] BEDROCK [16 pt] FINE DETRITUS [3 pts] Substrate COBBLE (65-256 mm) [12 pts] Max = 40 $\neg \neg$ CLAY or HARDPAN [0 pt] 口図 GRAVEL (2-64 mm) [9 pts] MUCK [0 pts] SAND (<2 mm) [6 pts] ARTIFICIAL [3 pls] Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 20 A + BSCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES TOTAL NUMBER OF SUBSTRATE TYPES: Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of Pool Depth evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): Max = 30> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts] > 22.5 - 30 cm [30 pts] < 5 cm [5 pts] > 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts] COMMENTS _MAXIMUM POOL DEPTH (centimeters): BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): Bankfull > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3'3" - 4'8') [15 pts] Width > 3.0 m - 4.0 m (> 9'7" - 13') [25 pts] ≤ 1.0 m (≤ 3' 3") [5 pts] Max=30> 1.5 m - 3.0 m (> 4'8" - 9'7") [20 pts] 3,5 COMMENTS AVERAGE BANKFULL WIDTH (meters) This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream ☆ RIPARIAN WIDTH FLOODPLAIN QUALITY (Per Bank) (Most Predominant per Bank) Wide >1Cm Mature Forest, Welland Conservation Tillage Immature Forest, Shrub or Old Moderate 5-10m Urban or Industrial Open Pasture, Row Narrow <5m Residentia, Park, New Field Сгор None Fenced Pasture Mining or Construction COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermittent) Subsurface flow with isolated pools (Interstitial) Dry channel no water (Ephemeral) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 0.5 ۶.5 STREAM GRADIENT ESTIMATE

Moderate to Severe

Severe (10 price n)

Moderate (2 t/100 t)

Flat (0.5 ft/100 ft)

☐ Flat to Moderate

ADDITIONAL STREAM INFORMATION (This Information Must Also be Comple	ted):
QHEI PERFORMED? - TYes ANO QHEI Score(If Ye	es, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
☐ CWH Name:	
J EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATER	RSHED AREA. CLEARLY MARK THE SITE LOCATION
JSGS Quadrangle Name:NRCS Soil	Map Page: NRCS Soil Map Stream Order
County: Township / City:	
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Date of last precipitation:	Quantity:
Photograph Information: US W DS E	
Elevated Turbidity? (Y/N): Canopy (% open):	
Were samples collected for water chemistry? (Y/N): (Note lab sample no.	or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S	S.U.)Conductivity (µmhos/cm)
s the sampling reach representative of the stream (Y/N) If not, please expla	ain:
BIOTIC EVALUATION Performed? (Y/N): (If Yes, Record all observations. Voucher collections of ID number. Include appropriate field data sheets from Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Aquatic Macroinve Comments Regarding Biology:	Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)
DRAWING AND NARRATIVE DESCRIPTION OF STRE	EAM REACH (This <u>must</u> be completed):
triclude important tandmarks and other features of interest for site evalua-	ation and a narrative description of the stream's location
	,
• • • • • •	
FLOW -	
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Primary Headwater Habitat Evaluation Form 44-4AB-52014-7 HHEI Score (sum of metrics 1, 2, 3): SITE NAME/LOCATION AEP BRHD SITENUMBER RIVER BASIN DRAINAGE AREA (mi²) LENGTH OF STREAM REACH (ft) _____LAT. ____ __LONG. _ RIVER CODE RIVER MILE DATE 5/2014 SCORER COMMENTS Ephomoral trib of HIN-HAG-52014-10 NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY STREAM CHANNEL MODIFICATIONS: SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. HHEI PERCENT TYPE Metric PERCENT BLDR SLABS [16 pts] SILT [3 pt] **Points** BOULDER (>256 mm) [16 pts] LEAF PACKWOODY DEBRIS [3 pts] BEDROCK [15 pt] FINE DETRITUS [3 pts] Substrate 図口 COBBLE (65-256 mm) [12 pts] Max = 40CLAY or HARDPAN [0 pt] ٥٥ GRAVEL (2-64 mm) [9 pts] MUCK [0 pts] SAND (<2 mm) [6 pts] ARTIFICIAL [3 pts] Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock (B) A + BSCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES: 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): Pool Depth > 30 centimeters [20 pts] Max = 30> 5 cm - 10 cm [15 pts] > 22.5 - 30 cm [30 pts] < 5 cm [5 pts] > 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts] COMMENTS MAXIMUM POOL DEPTH (centimeters): BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (> 13') [30 pts] Bankfuli > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] Width > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ≤ 1.0 m (≤ 3° 3") [5 pts] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] Max=30 COMMENTS __ AVERAGE BANKFULL WIDTH (meters) This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY 화NOTE: River Left (L) and Right (R) as looking downstream와 RIPARIAN WIDTH FLOODPLAIN QUALITY (Per Bank) (Most Predominant per Bank) 図図 Wide >10m Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Moderate 5-10m 図図 Urban or Industrial Narrow <5m Open Pasture, Row Residential, Park, New Field Crop None Fenced Pasture Mining or Construction COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Moist Channel, isolated pools, no flow (Intermittent) Subsurface flow with isolated pools (Interstitial) 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 0.5 2.5 STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) ☐ Flat to Moderate Moderate 12 t/100 m Moderate to Severe Severe (10 ti/100 it)

HH- HAB-52014-7

ADDITIONAL STREAM INFORMATION (This information Must Also be Completed):
QHEI PERFORMED? - Tes X No QHEI Score(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)
WWH Name: Distance from Evaluated Stream
CWH Name: Distance from Evaluated Stream
Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE <u>ENTIRE</u> WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Township / City:
MISCELLANEOUS
Base Flow Conditions? (Y/N): Date of last precipitation: Quantity:
Photograph Information: US SW DS NE
Elevated Turbidity? (Y/N): NA Canopy (% open): 30
Were samples collected for water chemistry? (Y/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) If not, please explain:
Additional comments/description of pollution impacts:
BIOTIC EVALUATION Performed? (Y/N):
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Vo
Comments Regarding Biology:
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed): include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location
FLOW -
THE DESCRIPTION OF THE PROPERTY OF THE PROPERT
DHWH Form Dogs 2

Stream PVID

Onio Primary Headwater Habitat Evaluation Form

44-14	B-52014-8	HHEI Sco	ore (sum of metrics 1,	2,3): \\
SITE NAME/LOCATION				
AEP BOHO SITE NO	UMBER	RIVER BASIN	DRAINAGE A	REA (mi²)
DATE SCORER 1	COMM COMM	ENTS EPH +()	O M- HU-HAR	520W-D
NOTE: Complete All Items On	This Form - Refer to "F	ield Evaluation Manual	for Ohio's PHWH Stream	as" for Instructions
STREAM CHANNEL DIA	IONE/NATURAL CHANNE	I DECOVERED O	DECOVERING CT	
MODIFICATIONS:		a Gillovered D	KECOVERING ID RECENT	OR NO RECOVERY
			anterior de la companya de la compa 	
1. SUBSTRATE (Estimate pero (Max of 40). Add total number TYPE BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pt] BEDROCK [16 pt]	PERCENT pts]	TYPE SILT[3 pt]	etric score is sum of boxes A PER ODY DEBRIS [3 pts]	& B. HHEI CENT Metric
COBBLE (65-256 mm) [12	2 pts]	CLAY OF HARDP	AN TO pti	Max = 40
GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts]		☐☐ MUCK [0 pts]		
	····	ARTIFICIAL [3 pt	[s]	_ 8
Total of Percentages of Bldr Slabs, Boulder, Cobble, B SCORE OF TWO MOST PREDOMINA	Bedrock TE SUBSTRATE TYPES:	6 TOTAL NUM	BER OF SUBSTRATE TYPE	3
Maximum Pool Depth (Meass evaluation. Avoid plunge pools > 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts]	ure the maximum pool de from road culverts or storn	water pipes) (Check ON	'LY one boxi:	Max = 30
COMMENTS		MAXIMUM	POOL DEPTH (centimeters): 1/2
BANK FULL WIDTH (Measure > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [2	i ptsī	easurements) (CF	> 3' 3" ~ 4' 8') [15 pts]	Bankfull Width Max=30
COMMENTS		AVERAGE	BANKFULL WIDTH (meters	, [5
RIPARIAN WIDTH L R (Per Bank)	FLOODPLAIN QUALITY FLOODPLAIN	nation <u>must</u> also be compli ☆NOTE: River Left (L) a <u>OUALITY</u> It Predominant per Bank)	eted nd Right (R) as looking downs L=R	tream ∕ r
⊠ Wide >1Cm	LI LI Metu	re Forest, Welland	Conservation	on Tillage
☐ ☐ Moderate 5-10m	図園 Immi Field	ature Forest, Shrub or Old	☐ ☐ Urban or In	dustrial
□□ Narrow <5m	□ □ Resid	dentia , Park, New Field	Open Pastu	re, Row
None COMMENTS	☐ ☐ Fenc	ed Pasture	Crop Mining or C	on struction
FLOW REGIME (At Time Streem Flowing Subsurface flow with isolar COMMENTS	e of Evaluation) (Check O	Moist Cha	nnel. isolated pools, no flow (I el no water (Ephemeral)	ntermittent)
SINUOSITY (Number of None 0.5	bends per 61 m (200 ft) of	channel) (Check ONLY on 20	e box):	and the second s
STREAM GRADIENT ESTIMAT		tilling to Madamta		

QHEI PERFORMED? - TYes	No QHEI Score	(If Yes, Attach Cor	npleted QHEI Form)	•
DOWNSTREAM DESIGNATED L				
WWH Name:				
CWH Name:				
EWH Name:		Dist	ance from Evaluated Stream	
MAPPING: ATTACH COPIES OF I	Maps, including the <u>entir</u>	E WATERSHED AREA	. CLEARLY MARK THE SITE LOCA	пои
SGS Quadrangle Name:	N	RCS Soil Map Page:_	NRCS Soil Map Stream Or	der
unty:	Township	/ City:		
MISCELLANEOUS				
ase Flow Conditions? (Y/N): Dat	e of last precipitation:		Quantity:	
notograph Information: <u>W SV</u>	1 DS NE			
levated Turbidity? (Y/N): NA c	anopy (% open):			
ere samples collected for water chemistry			ach results) Lab Number:	
eld Measures: Temp (°C) Dis	solved Oxygen (mg/l)	pH (S.U.)	Conductivity (µmhos/cm)	
the sampling reach representative of the				
the same in the sa	<u></u>			***************************************
BIOTIC EVALUATION				
BIOTIC EVALUATION rformed? (Y/N): (if Yes, Recomplement of the property of the propert	ord all observations. Voucher or include appropriate field data st (/N) Salamanders Observoucher? (Y/N) Aquatic N	ollections optional. NOT neets from the Primary H erved? (Y/N) Vo Macroinvertebrates Ob	E: all voucher samples must be labele leadwater Habitat Assessment Manua oucher? (Y/N) served? (Y/N) Voucher? (Y/N	ai)
BIOTIC EVALUATION erformed? (Y/N): (if Yes, Recomplement) ID number. sh Observed? (Y/N) Voucher? (Yogs or Tadpoles Observed? (Y/N) Voucher)	ord all observations. Voucher or include appropriate field data st (/N) Salamanders Observoucher? (Y/N) Aquatic N	ollections optional. NOT neets from the Primary H erved? (Y/N) Vo Macroinvertebrates Ob	E: all voucher samples must be labele leadwater Habitat Assessment Manua oucher? (Y/N) served? (Y/N) Voucher? (Y/N	ai)
BIOTIC EVALUATION erformed? (Y/N): (if Yes, Recomplement) ID number. sh Observed? (Y/N) Voucher? (Yogs or Tadpoles Observed? (Y/N) Voucher)	ord all observations. Voucher or include appropriate field data st (/N) Salamanders Observoucher? (Y/N) Aquatic N	ollections optional. NOT neets from the Primary H erved? (Y/N) Vo Macroinvertebrates Ob	E: all voucher samples must be labele leadwater Habitat Assessment Manua oucher? (Y/N) served? (Y/N) Voucher? (Y/N	ai)
BIOTIC EVALUATION erformed? (Y/N): (if Yes, Recomplet In number. In n	ord all observations. Voucher or include appropriate field data sh //N) Salamanders Obse /oucher? (Y/N) Aquatic N	ollections optional. NOT neets from the Primary H erved? (Y/N) Vo Macroinvertebrates Ob	E: all voucher samples must be labele leadwater Habitat Assessment Manua oucher? (Y/N) served? (Y/N) Voucher? (Y/N)
erformed? (Y/N): (if Yes, Reco ID number. sh Observed? (Y/N) Voucher? (Yrogs or Tadpoles Observed? (Y/N) Voucher? (Yrogs or Tadpoles Observed? (Y/N) Voucher?	ord all observations. Voucher or include appropriate field data si //N) Salamanders Observation (Y/N) Aquatic Noucher? (Y/N) Aquatic Noucher?	ollections optional. NOT neets from the Primary H erved? (Y/N) Vo Macroinvertebrates Ob	E: all voucher samples must be labele leadwater Habitat Assessment Manua oucher? (Y/N) served? (Y/N) Voucher? (Y/N	d):
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ChisEPA Primary Headwater Habitat Evaluation Form

HH -HA6 -52014 - 9 HHEI Score (sum of metrics 1, 2, 3):	:74	
SITE NAME/LOCATION		
AEP BRUD SITE NUMBER RIVER BASIN DRAINAGE AREA (mi²)		
(A)		
COMMENTS COMMENTS		
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Ir	structions	
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OF NO R	FCOVERY	
MODIFICATIONS:		
 SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. 	Luce	
PERCENT TYPE PERCENT	HHEI Metric	
BOULDER (>256 mm) [16 pts] SILT [3 pt] 10	Points	
BEDROCK [16 pt] FINE DETRITUS (3 pts]	Substrate	
CLAY OF HARDPAN [0 pt]	Max = 40	
GRAVEL (2-64 mm) [9 pts] 40	10	
Total of Percentages of	1 7	
Bldr Slabs, Boulder, Cobble, Bedrock	A+B	
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:	1	
 Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plungs pools from coad guillands or start and the time of 	Pool Depth	
> 30 centimeters [20 pts]	Max = 30	
4.5 cm [5 pts]	22	
WILLIAM MOIST CHANNEL IN PIS		
COMMENTSMAXIMUM POOL DEPTH (centimeters):		
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (> 13') [30 pts]	Bankfull	
≥ 3.0 m - 4.0 m (> 9'7'- 13') [25 pts]	Width	
27 7 (3 iii - 3.0 iii (5 4 8 - 9 7) [zu pts]	Max=30	
COMMENTSAVERAGE BANKFULL WIDTH (meters)	125	
This Information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (1) and Right (R) as looking deposition in A		
RIPARIAN WIDTH FLOODPLAIN QUALITY		
L, R (Per Bank) L R (Most Predominant per Bank) L R Meture Forest Welland		
Moderate 5-10m Immature Forest, Shrub or Old Conservation Tillage		
Field Urban or Industrial		
Residentia, Park, New Fleid Cross		
☐ None ☐ ☐ Fenced Pasture ☐ ☐ Mining or Construction		
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	~~ <u>~</u>	
Stream Flowing Moint Channel is also as a second second is also as a second second is also as a second seco		
Subsurface flow with isolated pools (Interstillal) COMMENTS	,	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		
STREAM GRADIENT ESTIMATE Flat (0.5 to 100 ft)		

ADDITIONAL STREAM INFORMATION (This information Mu	ıst Also be Completed):
QHEI PERFORMED? - TYES NO QHEI Scon	e (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
_	Distance from Evaluated Stream
	Distance from Evaluated Stream
	Distance from Evaluated Stream
	THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
	NRCS Soil Map Page: NRCS Soil Map Stream Order
County:	Township / City:
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Date of last precipitation	on: Quantity:
Photograph Information: US N DS 3	
Elevated Turbidity? (Y/N): N Canopy (% open):	30
Were samples collected for water chemistry? (Y/N): (I	Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg	pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N)	If not, please explain:
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
	Voucher collections optional. NOTE: all voucher samples must be labeled with the site field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) Voucher? (Y/N) Salama	•
Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N)	Aqualic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology: JUMO116 So	otamanda(S
	PTION OF STREAM REACH (This <u>must</u> be completed):
Include Important landmarks and other features of inte	erest for site evaluation and a narrative description of the stream's location
	.).
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FLOW	
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	4

4			700			iditat Eval			211
			-H-HAB-	520H	1-10	HHEI Scor	e (sum of r	metrics 1, 2, 3):	29
SITE	NAME	LOCATION_							
11		PKHD	SITE NUMBER_		RIVER BAS	IN		CRAINAGE AREA (mí²) _	
	J 1 1 1 O (O LALLAN NE	40n (II)	LAI	LONG	3 F	RIVER CODE _	RIVER MILE	
DATE	-	s	CORER	c	OMMENTS	<u> </u>			
NO	TE: C	omplete All I	tems On This Fo	rm - Refer	to "Field Eval	uation Manual f	or Ohio's PH	WH Streams" for Inst	tructions
		CHANNEL							
		ATIONS:	Ç.,.ONC / ()	TOTAL OF			-COVERING	TRECENT OR NO REC	COVERY
TINTS			ades a file of the second		्रे । १८५० है विक्रिकेट -				
1.	SUE	STRATE (Est	imate percent of ev	verv type of	substrate prese	nt Chack OM VI		substrate TYPE boxes	
	(Ma	x of 40). Add to	stal number of signifi	cant substra	ite types found (N	lax of 8). Final met	ric score is sur	substrate TYPE boxes	HHE
TYP	<u>'=</u>			PERCENT	TYPE			PERCENT	Metri
d		BLDR SLABS BOULDER (>2	FO			SILT [3 pt]	DV DEDDIG TO	100	Point
	J 1	BEDROCK [1				LEAF PACK/WOO! FINE DETRITUS [OY DEBRIS [3	pts]	Substrat
		COBBLE (65-2	56 mm) [12 pts]			CLAY or HARDPAI		-	Max = 4
] (GRAVEL (2-64				MUCK [0 pts]	F- 6-3	*************************************	11
L., I L.	J <u>-</u>	SAND (<2 mm)	[6 pts]			ARTIFICIAL [3 pts]	1		17
		Total of Perc	entages of		(A)			(B)	-
ടഗവഴ			. Cobbie. Bedrock _ REDOMINATE SUB:		12			2	A+B
		WO MOST PR	EDOMINA LE 2018	SIKAIE IY	PES:	TOTAL NUMB	ER OF SUBST	RATE TYPES;	
2.	Max	lmum Pool De	pth (Measure the n	naximum po	ool depth within	the 61 meter (200	ft) evaluation r	each at the time of	Pool Dept
	evan	pation. Avoid p centimeters [20	mude hoors now tos	d culverts o	r storm wa <u>ter</u> pipa	s) (Check ONL	Yone boxi:		Max = 30
	> 22.5	5 - 30 cm [30 p	ots]			> 5 cm - 10 cm [1: < 5 cm [5 pts]			; ~~
1)	> 10	- 22.5 cm [25 p	ots]			NO WATER OR M	IOIST CHANNI	EL [0 pts]	15
	COM	MENTS				MAXIMUM	ארפארו	(contimutare):	
3.	RAN	K FILL WIDT	H (Measured as the						
	> 4.01	neters (> 13') [3	10 pts]	average of		nts) (Che > 1.0 m - 1.5 m (>)	ck ONLY one	box):	Bankfuli
\exists	> 3.0 r	n - 4.0 m (> 9'	7" - 13") [25 pts]		×	≤ 1.0 m (≤ 3' 3") [5	pts]	hral	Width _Max=30
·	7 1.51	n - 3.um (> 4 [.]	8" - 9' 7") [20 pts]					, ~,	
	COM	MENTS	***************************************			AVERAGE I	BANKFULL WI	DTH (meters)	5
								(motors)	
				This	Information <u>mus</u>	t also be complet	ed		
		RIPARIAN Z RIPARIAN	ONE AND FLOODS	PLAIN QUAI	LITY ☆NOTE	: River Left (L) and	d Right (R) as i	ooking downstream 🛠	
	L R			L R	PLAIN QUAUTY (Most Predomin	ant ner Qanki			
	図口	Wide >10	m	ট্ট ব্ৰি	Mature Forest,		<u> </u>	Conservation Tillage	
		Moderate	5-10m	包図	Immature Fores		JO	Urban or Industrial	
] Name :			Field				
)(1)	00	Residenlia . Par			Open Pasture, Row Crop	
	L. L.	J None COMMENTS			Fenced Pasture			Mining or Construction	
							·····		
		FLOW REGIS	ME (At Time of Evai	uation) (Cl	reck ONLY one b				
	Ō		w with isolated pool	s (Interstitia	D .	Moist Chan	nel, isolated po I no water (Ep	ols, no flow (Intermittent)	
		COMMENTS	- 1:			Dry sname	no water (Ep	nemeral)	
		SINUOSITY	Number of bends po	er 61 m (20)	If the observation	Chook OAK V			
		None		1.0 1.0	i (ic) Si Cirance)	D 20	⊃ox):	3.0	
	U	0.5	凤	1.5	Ō	J 25	ă	>3	
_	STRE	AM GRADIEN		.					
	1 10.5 11/1		lat to Moderate	Node:	rata in eisen es	C Name and a second		☐ Severe (10 ±/100	

☐ Moderate to Severe ☐ Severe (10 tr/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - 🗆 Yes 🖄 No QHEI Score (If Yes, Attact	n Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	
CWH Name:	
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE <u>ENTIRE</u> WATERSHED A	REA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: NRCS Soil Map Pa	ge: NRCS Soll Map Stream Order
County: Township / City:	
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Date of last precipitation:	Quantity:
Photograph Information: <u>US/DS</u>	
Elevated Turbidity? (Y/N): NA Canopy (% open): O	
Were samples collected for water chemistry? (Y/N): Note lab sample no. or id. an	d attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.)	
is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of poliution impacts!	
BIOTIC EVALUATION	
Performed? (Y/N):	NOTE: all voucher samples must be labeled with the site lary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrate Comments Regarding Biology:	s Observed? (Y/N) Voucher? (Y/N)
DRAWING AND NARRATIVE DESCRIPTION OF STREAM R	EACH (This must be completed):
Include important landmarks and other features of Interest for site evaluation and	i a naπative description of the stream's location
FLOW - 52014-2	
	The same of the sa
4)	

Primary Headwater Habitat Evaluation Form PH-HAB-52014-11 HHEI Score (sum of metrics 1, 2, 3): SITE NAME/LOCATION AEP PRHD _____SITE NUMBER______ RIVER BASIN DRAINAGE AREA (mi²) LENGTH OF STREAM REACH (ft) _____LAT. ____ LONG. RIVER CODE _____ RIVER MILE ____ DATE 5/2014 SCORER HAP COMMENTS INTERMIT NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions STREAM CHANNEL ON NO NE (NATURAL CHANNEL OR RECOVERED OR RECOVERY) MODIFICATIONS: SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY iwo predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & E. HHEI TYPE Metric BLDR SLABS [16 pts] SILT [3 pt] **Points** BOULDER (>256 mm) [16 pts] LEAF PACKWOODY DEBRIS [3 pts] BEDROCK [16 pt] FINE DETRITUS [3 pts] Substrate COBBLE (65-256 mm) [12 pts] Max = 40CLAY OF HARDPAN [0 pt] GRAVEL (2-64 mm) [9 pts] MUCK [0 pts] SAND (<2 mm) [6 pts] ARTIFICIAL [3 pts] Total of Percentages of (B) Bldr Slabs, Boulder, Cobble, Bedrock A + BSCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES: Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of Pool Depth evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one boxi: > 30 centimeters [20 pts] Max = 30> 5 cm - 10 cm [15 pts] > 22.5 - 30 cm [30 pts] < 5 cm [5 pts] > 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts] COMMENTS_ _ MAXIMUM POOL DEPTH (centimeters): BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): Bankfull > 4.0 meters (> 13') [30 pts] > 1.3 m - 1.5 m (> 3'3" - 4'8') [15 pts] Width > 3.0 m - 4.0 m (> 9'7" - 13') [25 pts] $\le 1.0 \, \text{m} \, (\le 3' \, 3") \, [5 \, \text{pts}]$ Max=30 > 1.5 m - 3.0 m (> 4'8" - 9'7") [20 pts] COMMENTS_ AVERAGE BANKFULL WIDTH (meters)

	RIPARIAN ZONE AND FLO	This Infor DODPLAIN QUALITY FLOODPLAIS	mation <u>must</u> also be complete ☆NOTE: River Left (L) and	ed I Right (R) as l	ooking downstream☆
Ž r	R (Per Bank) X Wide >1Cm	L R (M:	ost Predominanl per Bank) ture Forest, Wetland	L R	Conservation Tillage
<u>.</u>	Moderate 5-10m	図図 Imr	nature Forest, Shrub or Old d		Urban or Industrial
			sidentia, Park, New Field	90	Open Pasture, Row Crop
ا ليا	J None COMMENTS	☐ ☐ Fer	ced Pasture		Mining of Construction
	FLOW REGIME (At Time of Stream Flowing Subsurface flow with isolated COMMENTS		Moist Chann	el, isolated po no water (Ep	ols, no flow (Intermittent) hemeral)
	SINUOSITY (Number of ber None 0.5	ds per 61 m (200 ft) o (200 ft) o (30 ft) o	fichannel) (Check ONLY one 20 25	oox):	3.0 >3
STR Flat (0.5 r	EAM GRADIENT ESTIMATE	☐ Moderate	2 a/100 h;	o Severe	Severe (10 c/100 ft)

QHEI PERFO	KMED! - LJ 165 (八 —	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
	AM DESIGNATED U	• •			
				Distance from Evaluated Stream	
				Distance from Evaluated Stream	
EWH Name:				Distance from Evaluated Stream	
MAPPING: A	TTACH COPIES OF N	aps, including the	ENTIRE WATERSHED A	REA. CLEARLY MARK THE SITE LOCA	TION
USGS Quadrangle Nan	16:		NRCS Soil Map Pag	ge: NRCS Soli Map Stream Or	der
County:		То	wnship / City:		
MISCELLAN					
				Quantity:	
Photograph Information	: <u>US N</u>	tos S			
Elevated Turbidity? (Y/I	N): Ca	anopy (% open):			
Nere samples collected	for water chemistry	? (Y/N): (Note	e lab sample no. or id. and	d attach results) Lab Number:	
Field Measures: Te	mp (°C) Diss	olved Oxygen (mg/l) _	pH (S.U.)	Conductivity (µmhos/cm)	
s the sempling reach re	epresentative of the s	tream (Y/N) If r	not, please explain:		
			•		
Additional comments/di		Impacts;			
BIOTIC EVA Performed? (Y/N): Fish Observed? (Y/N)_ Frogs or Tadpoles Obs	LUATION (if Yes, Reco ID number. i Voucher? (Y	rd all observations. Voundude appropriate field /N) Salamander oucher? (Y/N) Ac	cher collections optional. Idea sheets from the Primars Observed? (Y/N)	NOTE: all voucher samples must be label ary Headwater Habitat Assessment Manu. Voucher? (Y/N) Observed? (Y/N) Voucher? (Y/N)	ed with the
Performed? (Y/N): Fish Observed? (Y/N)_ Frogs or Tadpoles Obs	LUATION (if Yes, Reco ID number. i Voucher? (Y	rd all observations. Voundude appropriate field /N) Salamander oucher? (Y/N) Ac	cher collections optional. Idea sheets from the Primars Observed? (Y/N)	NOTE: all voucher samples must be label ary Headwater Habitat Assessment Manu	ed with the
BIOTIC EVA Performed? (Y/N): Fish Observed? (Y/N)_ Frogs or Tadpoles Obs	LUATION (if Yes, Reco ID number. i Voucher? (Y	rd all observations. Voundude appropriate field /N) Salamander oucher? (Y/N) Ac	cher collections optional. Idea sheets from the Primars Observed? (Y/N)	NOTE: all voucher samples must be label ary Headwater Habitat Assessment Manu. Voucher? (Y/N) Observed? (Y/N) Voucher? (Y/N)	ed with the
BIOTIC EVA Performed? (Y/N): Fish Observed? (Y/N)_ Frogs or Tadpoles Obs	LUATION (if Yes, Reco ID number. i Voucher? (Y	rd all observations. Voundude appropriate field /N) Salamander oucher? (Y/N) Ac	cher collections optional. Idea sheets from the Primars Observed? (Y/N)	NOTE: all voucher samples must be label ary Headwater Habitat Assessment Manu. Voucher? (Y/N) Observed? (Y/N) Voucher? (Y/N)	ed with the
BIOTIC EVAPER FISH Observed? (Y/N)_Frogs or Tadpoles Observed Regarding E	LUATION (If Yes, Reco ID number. I Voucher? (Y erved? (Y/N) V	rd all observations. Voundude appropriate field /N) Salamander oucher? (Y/N) Ac	icher collections optional. Idata sheets from the Primars Observed? (Y/N) Youalic Macroinvertebrates	NOTE: all voucher samples must be label ary Headwater Habitat Assessment Manu Voucher? (Y/N) Observed? (Y/N)_Y Voucher? (Y/N	ed with th
BIOTIC EVAPER PERFORMENT PERFORME	LUATION (If Yes, Reco ID number. I Voucher? (Y erved? (Y/N) V	rd all observations. Voundude appropriate field /N) Salamander oucher? (Y/N) Ac	icher collections optional. Idata sheets from the Primars Observed? (Y/N) Yqualic Macroinvertebrates	NOTE: all voucher samples must be label ary Headwater Habitat Assessment Manus Voucher? (Y/N) Observed? (Y/N) Voucher? (Y/N	ed with th ai)
BIOTIC EVAPER PERFORMENT PERFORME	LUATION (If Yes, Reco ID number. I Voucher? (Y erved? (Y/N) V	rd all observations. Voundude appropriate field /N) Salamander oucher? (Y/N) Ac	icher collections optional. Idata sheets from the Primars Observed? (Y/N) Yqualic Macroinvertebrates	NOTE: all voucher samples must be label ary Headwater Habitat Assessment Manu Voucher? (Y/N) Observed? (Y/N)_Y Voucher? (Y/N	ed with th ai)
BIOTIC EVAPER PERFORMENT PERFORMENTS (Y/N): Fish Observed? (Y/N)_Frogs or Tadpoles Observed Performents Regarding Experience Perfor	LUATION (If Yes, Reco ID number. I Voucher? (Y erved? (Y/N) V	rd all observations. Voundude appropriate field /N) Salamander oucher? (Y/N) Ac /IS_, Salamander TIVE DESCRIPTION Ter features of interes	icher collections optional. Idata sheets from the Primars Observed? (Y/N) Yqualic Macroinvertebrates	NOTE: all voucher samples must be label ary Headwater Habitat Assessment Manus. Voucher? (Y/N) Voucher? (Y/N) CObserved? (Y/N) Voucher? (Y/N) EACH (This must be complete a narrative description of the stream's	ed with the ail)
BIOTIC EVAPER PERFORMENT PERFORMENTS (Y/N): Fish Observed? (Y/N)_Frogs or Tadpoles Observed Performents Regarding Experience Perfor	LUATION (If Yes, Reco ID number. I Voucher? (Y erved? (Y/N) V	rd all observations. Voundude appropriate field /N) Salamander oucher? (Y/N) Ac /IS_, Salamander TIVE DESCRIPTION Ter features of interes	icher collections optional. Idata sheets from the Primars Observed? (Y/N) Yqualic Macroinvertebrates	NOTE: all voucher samples must be label ary Headwater Habitat Assessment Manus. Voucher? (Y/N) Voucher? (Y/N) CObserved? (Y/N) Voucher? (Y/N) EACH (This must be complete a narrative description of the stream's	ed with the ail)
BIOTIC EVAPER PERFORMENT PERFORME	LUATION (If Yes, Reco ID number. I Voucher? (Y erved? (Y/N) V	rd all observations. Voundude appropriate field /N) Salamander oucher? (Y/N) Ac /IS_, Salamander TIVE DESCRIPTION Ter features of interes	icher collections optional. Idata sheets from the Primars Observed? (Y/N) Yqualic Macroinvertebrates	NOTE: all voucher samples must be label ary Headwater Habitat Assessment Manus. Voucher? (Y/N) Voucher? (Y/N) CObserved? (Y/N) Voucher? (Y/N) EACH (This must be complete a narrative description of the stream's	ed with th ai)
BIOTIC EVAPORTOR	LUATION (If Yes, Reco ID number. I Voucher? (Y erved? (Y/N) V	rd all observations. Voundude appropriate field /N) Salamander oucher? (Y/N) Ac	icher collections optional. Idata sheets from the Primars Observed? (Y/N) Yqualic Macroinvertebrates	NOTE: all voucher samples must be label ary Headwater Habitat Assessment Manus. Voucher? (Y/N) Voucher? (Y/N) CObserved? (Y/N) Voucher? (Y/N) EACH (This must be complete a narrative description of the stream's	ed with th ai)
BIOTIC EVAPER Performed? (Y/N): Fish Observed? (Y/N)_ Frogs or Tadpoles Observed Regarding E	LUATION (If Yes, Reco ID number. I Voucher? (Y erved? (Y/N) V	rd all observations. Voundude appropriate field /N) Salamander oucher? (Y/N) Ac /IS_, Salamander TIVE DESCRIPTION Ter features of interes	icher collections optional. Idata sheets from the Primars Observed? (Y/N) Yqualic Macroinvertebrates	NOTE: all voucher samples must be label ary Headwater Habitat Assessment Manual Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) EACH (This must be complete a narrative description of the stream's	ed with th
BIOTIC EVAPER Performed? (Y/N): Fish Observed? (Y/N)_ Frogs or Tadpoles Observed Regarding E	LUATION (If Yes, Reco ID number. I Voucher? (Y erved? (Y/N) V	rd all observations. Voundude appropriate field /N) Salamander oucher? (Y/N) Ac /IS_, Salamander TIVE DESCRIPTION Ter features of interes	icher collections optional. Idata sheets from the Primars Observed? (Y/N) Yqualic Macroinvertebrates	NOTE: all voucher samples must be label ary Headwater Habitat Assessment Manual Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) EACH (This must be complete a narrative description of the stream's	ed with the ail)
BIOTIC EVAPER Performed? (Y/N): Fish Observed? (Y/N)_ Frogs or Tadpoles Observed Regarding E	LUATION (If Yes, Reco ID number. I Voucher? (Y erved? (Y/N) V	rd all observations. Voundude appropriate field /N) Salamander oucher? (Y/N) Ac /IS_, Salamander TIVE DESCRIPTION Ter features of interes	icher collections optional. Idata sheets from the Primars Observed? (Y/N) Yqualic Macroinvertebrates	NOTE: all voucher samples must be label ary Headwater Habitat Assessment Manual Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) EACH (This must be complete a narrative description of the stream's	ed with the ail)
BIOTIC EVAPER PERFORMENT PERFORME	LUATION (If Yes, Reco ID number. I Voucher? (Y erved? (Y/N) V	rd all observations. Voundude appropriate field /N) Salamander oucher? (Y/N) Ac /IS_, Salamander TIVE DESCRIPTION Ter features of interes	icher collections optional. Idata sheets from the Primars Observed? (Y/N) Yqualic Macroinvertebrates	NOTE: all voucher samples must be label ary Headwater Habitat Assessment Manual Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) EACH (This must be complete a narrative description of the stream's	ed with the ai)
BIOTIC EVAPER Performed? (Y/N): Fish Observed? (Y/N)_ Frogs or Tadpoles Observed Regarding E	LUATION (If Yes, Reco ID number. I Voucher? (Y erved? (Y/N) V	rd all observations. Voundude appropriate field /N) Salamander oucher? (Y/N) Ac /IS_, Salamander TIVE DESCRIPTION Ter features of interes	icher collections optional. Idata sheets from the Primars Observed? (Y/N) Yqualic Macroinvertebrates	NOTE: all voucher samples must be label ary Headwater Habitat Assessment Manual Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) EACH (This must be complete a narrative description of the stream's	ed with the ai)
BIOTIC EVAPER Performed? (Y/N): Fish Observed? (Y/N)_ Frogs or Tadpoles Observed Regarding E	LUATION (If Yes, Reco ID number. I Voucher? (Y erved? (Y/N) V	rd all observations. Voundude appropriate field /N) Salamander oucher? (Y/N) Ac /IS_, Salamander TIVE DESCRIPTION Ter features of interes	icher collections optional. Idata sheets from the Primars Observed? (Y/N) Yqualic Macroinvertebrates	NOTE: all voucher samples must be label ary Headwater Habitat Assessment Manus. Voucher? (Y/N) Voucher? (Y/N) CObserved? (Y/N) Voucher? (Y/N) EACH (This must be complete a narrative description of the stream's	ed with the ail)

Stream PV17

Chieff Primary Headwater Habitat Evaluation Form HH-HAB-52014-13 HHEI Score (sum of metrics 1)

SIT	ENAN	MEAOCATION	11 100					metrics 1, 2, 3):	
F	上と	BRHD si	E NUMBER		RIVER B	ASIN	·	DRAINAGE AREA (mi²) _	
DA:	TE 5	OF STREAM REACH (1 2014 SCORE	R HAB	_ LAT	LC	NG	RIVER CODE	RIVER MILE	
N	OTE:	Complete All Items	On This For	m - Refe	r to "Field Ev	PIROLINOLO	γ!	HWH Streams" for Ins	
ST	REAN	I CHANNEL CATIONS:	Ønone/na	TURAL CI	HANNEL [] F	RECOVERED R	or Unio's Pi Ecovering	HWH Streams" for Ins	tructions COVERY
1.	SI	UBSTRATE (Estimate	percent of eve	ery type of	substrate pre	sent. Check ONLY tw	vo predominar	nt substrate <i>TYPE</i> boxes	
TY	(N PE	flax of 40). Add total nur	•		210 19603 100110	(Max of 8). Final mel	ric score is su	n of boxes A & B.	HHE
		BLDR SLABS [16 pts]	ERCENT	TYPE	SILT [3 pt]		PERCENT	Metric
		BOULDER (>256 mm) [16 pts]		立 🗵	LEAF PACK/WOOL	DY DEBRIS 13	pts] $\frac{(00)}{40}$	Points
		BEDROCK [16 pt]	_		20	FINE DETRITUS [3 pts]	hroi ———	Substrate
	3	COBBLE (65-256 mm			99	CLAY or HARDPAN	V [0 pt]	-	Max = 40
$\overline{\Box}$		GRAVEL (2-64 mm) [SAND (<2 mm) [6 pts				MUCK [0 pts]			18
	-					ARTIFICIAL [3 pis]			
	Blo	Total of Percentage fr Slabs, Boulder, Cobb	s of le. Bedrock		(A) 1 c			(B)	
sco	RE OF	TWO MOST PREDOM	INATE SUBS	TRATE TY	PES: U	TOTAL MISSES		2	A+B
2.						TO IME NUMB	ER OF SUBS	TRATE TYPES:	
۷.	eva	ximum Pool Depth <i>(M</i> aluation, Avoid plunge p Deptimeters F20 pts1	easure the ma	eximum po	ool depth with	n the 61 meter (200	ft) evaluation (reach at the time of	Pool Depti
\Box	> 30	centimeters [20 pts]	**************************************	converts o	r storm water p	pes) (Check <i>ONL</i>) > 5 cm - 10 cm [15	one boxi:		Max = 30
\exists	> 23	25 - 30 cm [30 pts]			Ğ	< 5 cm [5 pts]	ptsj		
) - 22.5 cm [25 pts]			<u> </u>	NO WATER OR M	OIST CHANN	EL [0 pts]	
_	co	MMENTS		······································		MAXIMUM P		/\	
3	ВА	NK FULL WIDTH (Mea							
7	- 4.0	macis (~ (3) [30 pis]				2 1.3 m - 1.5 m (> 3	ck ONLY one	box):	Bankfull
Ĭ	> 1.5)m -4.0m (> 9',7"-13' im -3.0m (> 4',8"-9',7][25 pts] [20 pts]		X	≤ 1.0 m (≤ 3° 3") [5	pts]	p.s ₁	Width _Max=30
			-						-
	CO	MMENTS	······		·····	AVERAGE B	ANKFULL W	DTH (meters)	15
								- m (motors)	
		RIPARIAN ZONE A	ND FLOODPL	This AIN QUAI	Information <u>mu</u> ITY ☆NO	<u>ist</u> also be complete FE: River Left (1) and	ed Right (R) as I	ooking downstream☆	
		RIPARIAN WIDTH	•		CALL COALLY	_	mgm (m) as t	ooking downstream 27	
	X)1	R (Per Bank)			(Most Predom	inant per Bank)	L R		
	$\overline{\alpha}$	- }`			Mature Forest	. Welland est. Shrub or Old		Conservation Tillage	
	ا محسدة	Moderate 5-10m		短風	Field	sst. Gillub Of Old		Urban or Industrial	
		Narrow <5m			Residentia , P	ark. New Field	00	Open Pasture, Row	
					Fenced Pastur			Сгор	
		COMMENTS					<u> </u>	Mining of Construction	
		FLOW REGIME (AI	Time of Evalua	ition) (Ch	ook OM V	h			
		Stream Flowing					ما امماماما	-t	
		Subsurface flow with COMMENTS	solated pools	(Interstitial)	Dry channel	no water (Ep	ols, no flow (Intermittent) hemeral)	
							·		
•	$\overline{}$	SINUOSITY (Numbe	r of bends per	61 m (200	ft) of channel)	(Check ONLY one o	ox);		
	H	None C.5	본	1.0 1.5		<u>□</u> 20		3.0	
	med.		لبا	:.0		□ 25		>3	
7 E1-	STRE at 105 tu	EAM GRADIENT ESTIN	IATE	देश		_			
1 LG	10 3 IV	······································	outrate.	KY Woder	ate (2 t/100 t)	Moderate to	Severe	Severe (10 c/100	ma developing the

HH-HAB-52014-13

ADDITIONAL	L STREAM INFORMATION (This information Must Also be Completed):
QH	IEI PERFORMED? - TYes DNo QHEI Score(If Yes, Attach Completed QHEI Form)
	OWNSTREAM DESIGNATED USE(S)
	me: Distance from Evaluated Stream me: Distance from Evaluated Stream
	ne: Distance from Evaluated Stream
	APPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
	rangle Name: NRCS Soil Map Page: NRCS Soil Map Stream Order
	Township / City:
	SCELLANEOUS
	conditions? (Y/N): Y Date of last precipitation: Quantity:
	Information: US NE DS SW
• •	bldity? (Y/N): NA Canopy (% open): 20
	·
Were sample	es collected for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number:
Field Measur	res: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
is the sampling	ing reach representative of the stream (Y/N) If not, please explain:
	omments/description of pollution Impacts:
	OTIC EVALUATION
Performed? ((Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observe	ed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Vo
	Regarding Biology:
	DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):
	te important landmarks and other features of interest for site evaluation and a narrative description of the stream's location
•	, \
	channel dissypates
FLOW -	by color of the state of the st
FLOW 4	Will the state of
	(mt -11)
VN	
Jure 20, 2008 Re	evision

ChieFPA Primary Headwater Habitat Evaluation Form HH-HAB-52014-14 HHEI Score (sum of metrics 1

SITE NAME/LOCATION		DIA-14 HHEISO		
SITE NUM	MBER	RIVER BASIN	DRAINAGE AREA	(mi²)
LENGTH OF STREAM REACH (ft)	LAT]20 14	COMMENTS (TECT)	RIVER CODE RIVER	MILE
NOTE: Complete All Items On Ti	his Form - Refe	er to "Field Evaluation Manu	al for Ohio's PHWW street all	· · · · · · · · · · · · · · · · · · ·
STREAM CHANNEL	NE/NATURAL C	HANNEL RECOVERED	DRECOVERING DRECENT OF	NO RECOVERY
. SUBSTRATE (Estimate percer	nt of every type o	of substrate present. Check ONL	Y two predominant substrate TYPE t	
TYPE BLDR SLABS [16 pts] BOULDER (>256 mm) [16 p	PERCENT	TYPE SILT[3 pt]	Two predominant substrate TYPE to metric score is sum of boxes A & B. PERCEN OODY DEBRIS [3 pts]	HH
☐ ☐ BEDROCK [16 pt]	00	III FINE DETRITU	IS [3 pts]	Subst
GRAVEL (2-64 mm) [9 pts]	$\begin{array}{c} \text{(s)} & \frac{2+0}{15} \\ \end{array}$	CLAY or HARD MUCK [0 pts]	PAN [0 pt]	Max =
SAND (<2 mm) [6 pts]		□□ ARTIFICIAL [3	pls]	9
Total of Percentages of Bidr Slabs, Boulder, Cobble, Bed	irock 49	(A)	(B)	A+E
CORE OF TWO MOST PREDOMINATE	SUBSTRATE T	YPES: TOTAL NU	IMBER OF SUBSTRATE TYPES:	1
Maximum Pool Depth (Measure	e the maximum p	oool depth within the 61 meter (200 ft) evaluation reach al the time o	f Pool D
> 30 centimeters [20 pts]	om road culverts	or storm water pipes) (Check C > 5 cm - 10 cm	PNLY ane box): n [15 pts]	Max =
> 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts]		🧺 <5cm [5 pts]	R MOIST CHANNEL [0 pts]	
COMMENTS			JM POOL DEPTH (centimeters):),,
BANK FULL WIDTH (Measured > 4.6 meters (> 13') [30 pts]	as the average o		Check ONLY one box):	Bankf
> 3.0 m - 4.0 m (> 9'7" - 13') [25 pt] > 1.5 m - 3.0 m (> 4'8" - 9'7") [20]	ts]	☐ > 1.0 m - 1.5 m ☐ ≤ 1.0 m (≤ 3' 3'	(> 3'3"-4'8') [15 pts] ") [5 pts]	Widti _Max=3
			Ţ	R 20
COMMENTS		AVERAC	SE BANKFULL WIDTH (meters)	
RIPARIAN ZONE AND FE	This	s Information must also be com	pleted	
RIPARIAN WIDTH	FLOOD	DPLAIN QUALITY	and Right (R) as looking downstrear	गार्थर
L R (Per Bank) Wide >10m		(Most Predominant per Bank) Meture Forest, Welland	L R Conservation Til	llage
☐ ☐ Moderate 5-10m	回回	Immature Forest, Shrub or Old Field	Urban or Industr	_
□□ Narrow <5m	OO	Residentia , Park, New Field	Open Pasture, R	gow.
☐ ☐ None COMMENTS		Fenced Pasture	☐ ☐ Crop ☐ ☐ Mining of Constr	ruction
***************************************	of Combination of			
FLOW REGIME (At Time Stream Flowing Subsurface flow with isolate COMMENTS		Moist C	hannel, isolated pools, no flow (Intern nnel no water (Ephemeral)	mittent)
CINTIO CITY (Albumb on a Sh	ends her 61 m (2)	00 ft) of channel) (Check ONLY	00.0 DOV):	

ADDITIONAL STREAM INFORMATION (This information Must Also be Completed)	<u>.</u>
QHEI PERFORMED? - TYes No QHEI Score(If Yes, A	ttach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	
CWH Name:	
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE <u>ENTIRE</u> WATERSH	
USGS Quadrangle Name: NRCS Soil Ma	
County: Township / Clty:	
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Date of last precipitation:	Quantity:
Photograph Information: <u>US (US</u>	
Elevated Turbidity' (Y/N): Canopy (% open): 2D	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or k	d. 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) If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N): (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the	
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N)_ Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aqualic Macroinvertet	voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:	
DRAWING AND NARRATIVE DESCRIPTION OF STREAM	M REACH (This <u>must</u> be completed):
include important landmarks and other features of interest for site evaluation	and a narrative description of the stream's location
FLOW	
VN \	
\setminus 4	
` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` `	<u> </u>

Stream PV19

One EPA Primary Headwater Habitat Evaluation Form

BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts] BEDROCK [16 pt] COBBLE (65-256 mm) [12 pts] GRAVEL (2-64 mm) [9 pts] Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 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) ARTIFICIAL [3 pts] TOTAL NUMBER OF SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES: ARTIFICIAL [3 pts] TOTAL NUMBER OF SUBSTRATE TYPES: ARTIFICIAL [3 pts] TOTAL NUMBER OF SUBSTRATE TYPES: ARTIFICIAL [3 pts] TOTAL NUMBER OF SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES: AD Cock ONLY one box; Some 10 cm [15 pts] > 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts] ARXIMUM POOL DEPTH (centimeters): MAXIMUM POOL DEPTH (centimeters): ANAMALIMUM POOL DEPTH (centimeters): Some 1.5 mt (> 33"-4" 8") [15 pts] > 1.0 m - 1.5 mt (> 33"-4" 8") [15 pts]	uctions
LENGTH OF STREAM REACH (ft) LAT. LONG RIVER CODE RIVER MILE DATE 5 20 14 SCORER LAD COMMENTS LONG RIVER CODE RIVER MILE NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruct STREAM CHANNEL STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERED RECOVERING RECOVERING RECOVERING RECENT OR NO RECOVERED RECOVERING RECOVERING RECOVERING RECOVERING RECOVERING RECENT OR NO RECOVERED RECOVERING RECOVER	HHI Meti Poin Substr Max =
LENG HOP STREAM REACH (f) DATE DIZO A SCORER LAD COMMENTS COMMENTS COMMENTS NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruct STREAM CHANNEL MODIFICATIONS: 1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY Iwo predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. TYPE BLDR SLABS [16 pts] PERCENT TYPE BEDROCK [16 pt] BEDROCK [16 pt] COBBLE (85-256 mm) [16 pts] COBBLE (85-256 mm) [12 pts] COBBLE (85-256 mm) [12 pts] CLAY or HARDPAN [10 pt] SAND (<2 mm) [6 pts] ARTIFICIAL [3 pts] Total of Percentages of Bldr Slabs, Boulder. Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 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. Sand (<2 mm) [3 pts] COMMENTS MAXIMUM POOL DEPTH (centimeters): BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): > 1. Substrate Types (Check ONLY one box): A 0. meters (> 13) [30 pts] > 3.0 m -4.0 m (> 97" - 13) [25 pts] > 3.0 m -4.0 m (> 97" - 13) [25 pts] > 3.0 m -4.0 m (> 97" - 13) [25 pts]	HHI Meti Poin Substr Max =
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruct STREAM CHANNEL	HHI Meti Poin Substr Max =
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruct STREAM CHANNEL	HHI Meti Poin Substr Max =
STREAM CHANNEL AND	HHI Meti Poin Substr Max =
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY Iwo predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. TYPE BLDR SLABS [16 pts] BDR SLABS [16 pts] BUDR SLAB SLABS [16 pts] BUDR SLAB SLABS [16 pts] BUDR SLAB SLAB SLAB SLAB SLAB [16 pts] BUDR SLAB [16 pts] BUDR SLAB [1	HHI Meti Poin Substr Max =
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY Iwo predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & E. TYPE PERCENT PE	Meti Poin Substr Max =
TYPE BLDR SLABS [16 pts] BULDER (>256 mm) [16 pts] COBBLE (65-256 mm) [12 pts] GRAVEL (2-64 mm) [9 pts] Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock Boulder, Cobble, Bedrock Aximum 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) Aximum Pool Depth (Measure the maximum pool depth within the 63 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) COMMENTS BANK FULL WIDTH (Measured as the average of 3-4 measurements) Aximum Pool Depth (Measured as the average of 3-4 measurements) COMMENTS MAXIMUM POOL DEPTH (centimeters): BANK FULL WIDTH (Measured as the average of 3-4 measurements) Aximum Pool Depth (Measured as the average of 3-4 measurements) Check ONLY one box): Aximum Pool Depth (Measured as the average of 3-4 measurements) Check ONLY one box): Aximum Pool Depth (Measured as the average of 3-4 measurements) Check ONLY one box): Aximum Pool Depth (Measured as the average of 3-4 measurements) Check ONLY one box): Aximum Pool Depth (Measured as the average of 3-4 measurements) Check ONLY one box): Aximum Pool Depth (Measured as the average of 3-4 measurements) Check ONLY one box): Aximum Pool Depth (Sentimeters):	Meti Poin Substr Max =
TYPE BLDR SLABS [16 pts] PERCENT PERCEN	Meti Poin Substr Max =
BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts] BEDROCK [16 pt] COBBLE (65-256 mm) [12 pts] GRAVEL (2-64 mm) [9 pts] Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrocx Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrocx 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) ARTIFICIAL [3 pts] TOTAL NUMBER OF SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES: ARTIFICIAL [3 pts] TOTAL NUMBER OF SUBSTRATE TYPES: ARTIFICIAL [3 pts] FINE DETRITUS [3 pts] MUCK [0 pts] ARTIFICIAL [3 pts] TOTAL NUMBER OF SUBSTRATE TYPES: NO WATER OR MOIST CHANNEL [0 pts] Sometimeters [20 pts] > 5 cm - 10 cm [15 pts] > 5 cm [5 pts] NO WATER OR MOIST CHANNEL [0 pts] ARXIMUM POOL DEPTH (centimeters): MAXIMUM POOL DEPTH (centimeters): BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): Some - 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3'3'-4' 8') [15 pts]	Poin Substr Max =
BOULDER (>256 mm) [16 pts] BEDROCK [16 pt] BEDROCK [16 pt] COBBLE (65-256 mm) [12 pts] GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts] Total of Percentages of Bldr Slabs, Boulder. Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 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] COMMENTS MAXIMUM POOL DEPTH (centImeters): BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): AMAXIMUM POOL DEPTH (centImeters): 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]	Substr Max =
BEDROCK [16 pt] COBBLE (65-256 mm) [12 pts] GRAVEL (2-64 mm) [9 pts] MUCK [0 pts] ARTIFICIAL [3 pts] Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 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] COMMENTS MAXIMUM POOL DEPTH (centimeters): BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3'3"-4'8') [15 pts] > 1.0 m - 1.5 m (> 3'3"-4'8') [15 pts]	Max =
COBBLE (65-256 mm) [12 pts] GRAVEL (2-64 mm) [9 pts] Total of Percentages of Bidr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 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] COMMENTS MAXIMUM POOL DEPTH (centimeters): 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]	Max =
GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts] Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 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] COMMENTS MAXIMUM POOL DEPTH (centimeters): 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') [75 pts]	A+B
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 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]	A+B
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 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]	A+8
Bidr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 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]	A + B
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]	
Solution	
Solution	D1 D
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts] > 22.5 - 30 cm [30 pts] < 5 cm [5 pts] NO WATER OR MOIST CHANNEL [0 pts] NO WATER OR MOIST CHANNEL [0 pts]	Pool De Max =
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts] COMMENTS MAXIMUM POOL DEPTH (centimeters): BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3'3" - 4'8') [15 pts] > 3.0 m - 4.0 m (> 9'.7" - 13') [25 pts]	
COMMENTS MAXIMUM POOL DEPTH (centimeters): BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3'3" - 4'8') [15 pts] > 3.0 m - 4.0 m (> 9'7" - 13') [25 pts]	25
BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (> 13') [30 pts]	
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3'3" - 4'8') [15 pts] > 3.0 m - 4.0 m (> 9'7" - 13') [25 pts]	
> 1.0 m - 1.5 m (> 3'3" - 4'8') [15 pts]	Bankfo
	Width
> 1.5 m - 3.0 m (> 4'8" - 9'7") [20 pts]	Max=3
COMMENTS 35	!=
COMMENTSAVERAGE BANKFULL WIDTH (meters)	12
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY	
RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream of RIPARIAN WIDTH FLOODPLAIN QUALITY	
L R (Per Bank) L R (Most Predominant per Bank) L R	
Wide >10m Mature Forest, Welland Conservation Tillage	
Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial	
Narrow <5m Residentia , Park , New Field Open Pasture , Row	
None Crop	
COMMENTS Penced Pasture	
FLOW DECIME (A) Time of Carlotter (C)	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Streem Flowing Moiet Chaptel isolated each as flow (Leave to the control of the c	
Subsurface flow with isolated pools (Interstitial) Subsurface flow with isolated pools (Interstitial) Dry channel no water (Ephemeral)	
COMMENTS	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one pox):	
☐ None ☐ 1.0 ☐ 20 ☐ 3.0	

ADDITIONAL STREAM INFORMATION (This Information Must Also be Comp	
QHEI PERFORMED? - Yes No QHEI Score(If	Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S) WWH Name:	Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WAT	
USGS Quadrangle Name: NRCS S	oil Map Page: NRCS Soll Map Stream Order
County: Township / City.	
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Date of last precipitation:	Quantity:
Photograph Information: US DS	
Elevated Turbidity? (Y/N): N Canopy (% open): 20	
Were samples collected for water chemistry? (Y/N): (Note lab sample n	o. 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) If not, please exp	olain:
Additional comments/description of poliution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N): (If Yes, Record all observations. Voucher collection	s optional. NOTE: all voucher samples must be labeled with the site in the Primary Headwater Habitat Assessment Marual)
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macroin Comments Regarding Biology:	Y/N) Voucher? (Y/N) vertebrates Observed? (Y/N) Voucher? (Y/N)
Market and the second s	
DRAWING AND NARRATIVE DESCRIPTION OF STR	REAM REACH (This must be completed):
Include important landmarks and other features of interest for site evalu	uation and a narrative description of the stream's location
15	
FLOW →	
14	
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PHWH Form Page	-2

Jure 20, 2008 Revision

Stream PV 20

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Primary Headwater Habitat Evaluation Form

HH- HAB-51914-7 HHEI Score (sum of metrics 1, 2, 3):	31
SITE NAME/LOCATION	
DEP-BAD DINR SITE NUMBER RIVER BASIN DRAINAGE AREA (m²)	
LENGTH OF STREAM REACH (ft) LAT LONG RIVER CODE RIVER MILE	
LENGTH OF STREAM REACH (R) LAT. LONG RIVER CODE RIVER MILE DATE 5/19/14 SCORER HAS COMMENTS EPH	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Ir	structions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO R	=COVERY
MODIFICATIONS:	
SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	
(Max of 40). Add total number of significant substrate types found (Max of 8). Final matric score is sum of boxes A & B.	HHEI
TYPE PERCENT TYPE PERCENT BLDR SLABS [16 pis] TYPE SILT [3 pt] PERCENT A()	Metric Points
BOULDER (>256 mm) [16 pts] 5 LEAF PACK/WOODY DEBRIS [3 pts] 1)	1 Ollits
BEDROCK [16 pt]	Substrate Max = 40
COBBLE (65-256 mm) [12 pts]	
□□ SAND (<2 mm) [6 pts]	21
Total of Percentages of (A) (B)	
Bldr Slabs, Boulder, Cobble, Bedrock [5]	A+B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES:	*
 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): 	Pool Depth
> 30 centimeters [20 pts] (Check ONLY one box):	Max = 30
> 22.5 - 30 cm [30 pts]	5
(b)	
COMMENTSMAXIMUM POOL DEPTH (centimeters):	*
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m /> 3'.3" - 4'.8') [45 pts]	Bankfull
□ > 3.0 m - 4.0 m (> 9'7' - 13') [25 pts]	Width Max=30
□ > 1.5 m - 3.0 m (> 4'8"-9'7") [20 pts]	
COMMENTSAVERAGE BANKFULL WIDTH (meters)	5
This Information <u>must</u> also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆	
RIPARIAN WIDTH FLOODPLAIN QUALITY	
L R (Per Bank) L R (Most Predominant per Bank) L R Wide >10m	
Moderate 5-10m Immature Forest, Shrub or Old	
Field Crist of Industrial	
Crop	
☐☐ Mining of Construction COMMENTS ———————————————————————————————————	n
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	
Stream Flowing Moist Channel, isolated pools, no flow (Intermitte	ıt)
Subsurface flow with isolated pools (Interstitial) COMMENTS Dry channel no water (Ephemeral)	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None	
STREAM GRADIENT ESTIMATE Flat (0.5 to 100 t) Flat to Moderate	รดง คัง

H HHAB 51914-7

ADDITIONAL STREAM INFORMATION (This information Must Also be Completed):	
QHEI PERFORMED? - Yes No QHEI Score (If Yes, Attac	ch Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
DEWH Name:	·
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE <u>Entire</u> Watershed A	
USGS Quadrangle Name: NRCS Soll Map Pa	
County: Township / City:	
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Date of last precipitation:	Quantily:
Photograph Information:	
Elevated Turbidity? (Y/N): Canopy (% open):	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. an	nd 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) If not, please explain:	
Additional comments/description of pollution Impacts:	
BIOTIC EVALUATION	
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. ID number. Include appropriate field data sheets from the Prim	NOTE: all voucher samples must be labeled with the site nary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) Voucher? (Y/N) Salamenders Observed? (Y/N) Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrate	Voucher? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:	
DRAWING AND NARRATIVE DESCRIPTION OF STREAM R	EACH (This must be completed):
include important landmarks and other features of interest for site evaluation and	• • •
	HH-BAO-51414-5
FLOW -	- *
	\rightarrow
	HH-HAB-SMIA-K
	WAS SPILL
7	##
1 +H-720-51AA-8	

Stream PV 21

ChieFA Primary Headwater Habitat Evaluation Form LH-HAB-51914-8 HHEI Score (sum of metrics 1, 2, 3):	4
SITE NAME/LOCATION AFP BHY) DWC SITE NUMBER RIVER BASIN DRAINAGE AREA (mi²) LENGTH OF STREAM REACH (ft) LAT. LONG. RIVER CODE RIVER MILE DATE DATE DATE COMMENTS EPH TOB. OF HH-HAB-51914- NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	-7
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOMMODIFICATIONS:	
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. TYPE BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts] BEDROCK [16 pt] COBBLE (65-256 mm) [12 pts] GRAVEL (2-64 mm) [9 pts] GRAVEL (2-64 mm) [6 pts] ARTIFICIAL [3 pts]	HHEI Metric Points Substrate Max = 40
Total of Percentages of Bidr Slabs, Boulder, Cobble, Bedrock (A) 6 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES:	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]	Pool Depth Max = 30
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (> 13') [30 pts]	Bankfull Width Max=30
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY PROTE: River Left (L) and Right (R) as looking downstream: RIPARIAN WIDTH FLOODPLAIN QUALITY PRODUCTION FLOODPLAIN QUALITY RESIDENTIAL CONSERVATION Mature Forest, Wetland Moderate 5-10m Moderate 5-10m Residential, Park, New Field Narrow <5m Residential, Park, New Field COMMENTS This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream: ANOTE: River Left (L) and Right (R) as looking downstream: ANOTE: River Left (L) and Right (R) as looking downstream: RIPARIAN ZONE AND FLOODPLAIN QUALITY FLOODPLAIN QUALITY Mature Forest, Wetland Mature Forest, Shrub or Old Field Open Pasture, Row Crop Mining or Construction	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS Worst Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None	
STREAM GRADIENT ESTIMATE ☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 tt/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft))

HH-HAB-51914-8

ADDITIONAL STREAM INFORMATION (This Information Must Also be	Completed):
QHEI PERFORMED? - TYes YNO QHEI Score	(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	
CWH Name:	
☐ EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE	
USGS Quadrangle Name: NF	RCS Soil Map Page: NRCS Soil Map Stream Order
County: Township	/ City:
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Date of last precipitation:	Quantity:
Photograph Information:	
Elevated Turbidity? (Y/N): Canopy (% open):	<u>.</u>
Were samples collected for water chemistry? (Y/N): (Note lab samples collected for water chemistry?	nple 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) If not, plea	se explain:
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N): (If Yes, Record all observations. Voucher coll ID number. Include appropriate field data she	lections optional. NOTE: all voucher samples must be labeled with the site eets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Obser Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic M	ved? (Y/N) Voucher? (Y/N) acroinvertebrates Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology.	
DRAWING AND NARRATIVE DESCRIPTION OF Include important landmarks and other features of interest for site	
FLOW -	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7
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Stream PV22

HH-HAB- SITE NAMELOCATION AFP-BHD-DIR SITE NUMBER LENGTH OF STREAM REACH (ft) DATE 5/19/14 SCORER HAB NOTE: Complete All Items On This Form STREAM CHANNEL XINONE/NAT	LATLCNGRIV COMMENTS EPH + 1'D OF Refer to "Field Evaluation Manual for TURAL CHANNEL TRECOVERED TREC	CSUM of metrics 1, 2, 3): CRAINAGE AREA (mi²) VER CODE RIVER MILE HH-BAD-51414 - 05 TOHIO'S PHWH Streams" for Instruction	ctions
1. SUBSTRATE (Estimate percent of ever (Max of 40). Add total number of significa PE BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts] BEDROCK [16 pt] COBBLE (65-256 mm) [12 pts] GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts] Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBST	ry type of substrate present. Check ONLY two ant substrate types found (Max of 8). Final metric SERCENT TYPE SILT [3 pt] LEAF PACKWOOD FINE DETRITUS [3 CLAY & HARDPAN MUCK [0 pts] ARTIFICIAL [3 pts] CATAL NUMBE	predominant substrate TYPE boxes c score is sum of boxes A & B. PERCENT 75 Y DEBRIS [3 pts] 15 pts] [0 pt] (B) SR OF SUBSTRATE TYPES:	HHEI Metric Points Substrate Max = 40
> 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts]	MAXIMUM PO verage of 3-4 measurements) (Check	one box): pts] DIST CHANNEL [0 pts] OOL DEPTH (centimeters): k ONLY one box): 3"-4'8') [15 pts]	ool Dept Max = 30 5 Bankfull Width
> 1.5 m - 3.0 m (> 4'8" - 9'7") [20 pts]	X ≤ 1.0 m (≤ 3° 3") [5 p	(e)	Max=30 5
RIPARIAN ZONE AND FLOODPLA RIPARIAN WIDTH L R (Per Bank) Vide > 1Cm Moderate 5-10m Narrow <5m None COMMENTS	This Informalion must also be completed AIN QUALITY ☆NOTE: River Left (L) and I FLOODPLAIN QUALITY L R (Most Predominant per Bank) Meture Forest, Welland Immature Forest, Shrub or Old Field Residentia . Park, New Field Fenced Pasture	d Right (R) as looking downstream☆ Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction	
FLOW REGIME (At Time of Evalual Stream Flowing Subsurface flow with Isolated pools (COMMENTS KLCETT) SINUOSITY (Number of bends per least of the stream of	☐ Moist Channe	el, isolaled pools, no flow (Intermittent) no water (Ephemeral)	
STREAM GRADIENT ESTIMATE	1.0	☐ 3.0 ☐ >3	A CAS

QHEI PERFORMED? - 🗆 Yes 🙇 No QHEI Score	(if Yes, Attach Completed OUS! Same
DOWNSTREAM DESIGNATED USE(S)	(ii i es, zetadi completed che i rom)
	Distance from Evaluated Stream
J CWH Name:	Distance from Evaluated Stream
J EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE	ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
SGS Quadrangle Name:	NRCS Soil Map Page: NRCS Soil Map Stream Order
ounty: To	wnship / City:
MISCELLANEOUS	
ase Flow Conditions? (Y/N): Y Date of last precipitation:	Quantity:
hotograph Information: US DS	
levated Turbidity? (Y/N): N Canopy (% open): 5	
Vere samples collected for water chemistry? (Y/N): (Note	lab sample no. or id. and attach results) Lab Number:
ield Measures: Temp (°C) Dissolved Oxygen (mg/l)	pH (S.U.) Conductivity (µmhos/cm)
	ot, please explain:
additional comments/description of pollution Impacts:	
The state of the s	
BIOTIC EVALUATION erformed? (Y/N): (if Yes, Record all observations. Vouc ID number. Include appropriate field of the control of the	cher collections optional. NOTE: all voucher samples must be labeled with the site data sheets from the Primary Headwater Habitat Assessment Manual) s Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)
BIOTIC EVALUATION Performed? (Y/N): (if Yes, Record all observations. Vouc ID number. Include appropriate field of the control of the	cher collections optional. NOTE: all voucher samples must be labeled with the site data sheets from the Primary Headwater Habitat Assessment Manual) s Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)
BIOTIC EVALUATION Performed? (Y/N): (If Yes, Record all observations. Vouc ID number. Include appropriate field of the Company of the	cher collections optional. NOTE: all voucher samples must be labeled with the site data sheets from the Primary Headwater Habitat Assessment Manual) s Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)
BIOTIC EVALUATION Performed? (Y/N): (If Yes, Record all observations. Vouc ID number. Include appropriate field of the control of the	cher collections optional. NOTE: all voucher samples must be labeled with the site data sheets from the Primary Headwater Habitat Assessment Manual) s Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)
BIOTIC EVALUATION Performed? (Y/N): (if Yes, Record all observations. Vouc ID number. Include appropriate field of the state of	cher collections optional. NOTE: all voucher samples must be labeled with the site data sheets from the Primary Headwater Habitat Assessment Manual) s Observed? (Y/N) Voucher? (Y/N) voucher? (Y/N) valic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)
BIOTIC EVALUATION Performed? (Y/N): (if Yes, Record all observations. Vouc ID number. Include appropriate field of the state of	cher collections optional. NOTE: all voucher samples must be labeled with the site data sheets from the Primary Headwater Habitat Assessment Manual) is Observed? (Y/N) Voucher? (Y/
BIOTIC EVALUATION Performed? (Y/N): (if Yes, Record all observations. Vouc ID number. Include appropriate field of its Control of Tadpoles Observed? (Y/N) Salamanders frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquity Comments Regarding Biology: DRAWING AND NARRATIVE DESCRIPTION Include Important landmarks and other features of interest	cher collections optional. NOTE: all voucher samples must be labeled with the site data sheets from the Primary Headwater Habitat Assessment Manual) is Observed? (Y/N) voucher? (Y/
BIOTIC EVALUATION erformed? (Y/N): (if Yes, Record all observations. Vouc ID number. Include appropriate field of ID nu	cher collections optional. NOTE: all voucher samples must be labeled with the site data sheets from the Primary Headwater Habitat Assessment Manual) is Observed? (Y/N) voucher? (Y/

HH- BAO - 51414 - 5

S'tream PV 23

OhioEPA

Primary Headwater Habitat Evaluation Form

SITE NAMEACCATION AEP BHD SITE NUMBER RIVER BASIN DRAINAGE AREA (mif)					HHEI Sco	re (sum of met	rics 1, 2, 3) :	42
LENGTH OF STREAM MEACH (II) LAT. LONG. RIVER CODE RIVER MILE AT SCORE BAO MAK COMMENTS JUT NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions STREAM CHANNEL ONNE NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY MODIFICATIONS: Small riperion area, formally class RECENT OR NO RECOVERY MODIFICATIONS: Small riperion area, formally class of Substrate present. Check ONLY two predominant substrate TYPE boxes (Mix of 40). Add total number of significant substrate present. Check ONLY two predominant substrate TYPE boxes (Mix of 40). Add total number of significant substrate present. Check ONLY two predominant substrate TYPE boxes (Mix of 40). Add total number of significant substrate present. Check ONLY two predominant substrate TYPE boxes (Mix of 40). Add total number of significant substrate present. Check ONLY two predominant substrate TYPE boxes (Mix of 40). Add total number of significant substrate present. Check ONLY two predominant substrate TYPE boxes HEI Metric Percent Points Substrate Max = 30 AT IFICIAL [3 pts] Total of Percentages of (A) BACK (24 mm) [9 pts] AT Total of Percentages of (A) BACK (24 mm) [9 pts] AT Total of Percentages of (A) BACK (24 mm) [9 pts] AT Total of Percentages of (A) BACK (15 pts) Total Number of Substrate Types: Total Number of Substra								
LENGTH OF STREAM MEACH (II) LAT. LONG. RIVER CODE RIVER MILE AT SORRER BAO MRK COMMENTS LAT. NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions STREAM CHANNEL ONNE ONNE ON This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions STREAM CHANNEL ONNE ONNE ON This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions STREAM CHANNEL ONNE ON This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions STREAM CHANNEL ONNE ON This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions STREAM CHANNEL ONNE ON This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions STREAM CHANNEL ONNE ON This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions STREAM CHANNEL ONNE ON This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions STREAM CHANNEL ONNE ON THIS Form - Refer to "Field Evaluation manual for Ohio's PHWH Streams" for Instructions STREAM CHANNEL ON This Form - Refer of Substrate TyPE boxes HELD Metric PERCENT TYPE BURD SLABS [16 pts] SILT [3 pt] PERCENT PERCENT PERCENT TYPE BURD SLABS [16 pts] SILT [3 pt] PERCENT PERCENT PERCENT PRESENT ON THIS Form Instructions Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 fg) evaluation reach at the lime of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): A HELD Metric PERCENT TYPE Total of Percentages of (A) MICHANDE [10 pts] SILT AND PRESENTATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES: A + B A + B A + B A + B A + B A + B A + B A + B A + B A + B A + B A + B A + B A + B A + B A + B A + B A + B A + B A +			SITE NUMBER_		RIVER BASIN	DRA	NAGE AREA (mi²)	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohlo's PHWH Streams" for Instructions STREAM CHANNEL	LEM	GIR OF STREAM RE	:ACH (ft)	LAT.	LONG.	PIVED CODE	DIVED MILE	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohlo's PHWH Streams" for Instructions STREAM CHANNEL	DAI	E	CORER DAG	MKK_C	OMMENTSLN [
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY MODIFICATIONS: Smell Desiren area formally claims c	NC	OTE: Complete All	ltems On This Fo	rm - Refer	to "Field Evaluation Manual	for Ohlo's PHWH	Streams" for Inst	ructions
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. METERICAL (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. METERICAL (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. METERICAL (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. METERICAL (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. METERICAL (Max of 40). Add total number of sum of boxes A & B. METERICAL (Max of 40). Add total number of substrate types found (Max of 8). Final metric score is sum of boxes A & B. METERICAL (Max of 40). Add total number of sum of total substrate types found (Max of 8). Final metric score is sum of boxes A & B. METERICAL (Max of 8). Final metric score is sum of boxes A & B. METERICAL (Max of 8). Final metric score is sum of boxes A & B. METERICAL (Max of 8). Final metric score is sum of boxes A & B. Metric Percentage of 9 in the final metric score is sum of boxes A & B. Metric Percentage of 9 in the final metric score is sum of boxes A & B. Metric Percentage of 9 in the final metric score is sum of boxes A & B. Metric Percentage of 9 in the final metric score is sum of boxes A & B. Metric Percentage of 9 in the final metric score is sum of boxes A & B. Metric Percentage of 9 in the final metric score is sum of boxes A & B. Metric Percentage of 9 in the final metric score is sum of boxes A & B. Metric Percentage is sum of boxes A & B. Metric Percentage is sum of boxes A & B. Metric Percentage is sum of boxes A & B. Metric Percentage is sum of boxes A & B. Metric Percentage is sum of boxes A & B. Metric Percentage is sum of boxes A & B. Metric Percentage is sum of bo								
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrale TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. TYPE (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. TYPE BLDR SLABS [16 pts]	МО	DIFICATIONS:	Smell rio	erien.	area formally	RECOVERING E	RECENT OR NO REC	OVERY
HELD BLDR SLABS [16 pts] PERCENT TYPE BLDR SLABS [16 pts] PERCENT PERCEN					-cross, tarmany	cleared		
Type	1.	SUBSTRATE (Es	timate percent of e	very type of	substrate present. Check ONLY	two predominant sub	ostrale TYPE boxes	I
BLDR SLABS [16 pts]	TYI	(IVIAX OI 40). Add t	otal number of signif	icant substra	te types found (Max of 8). Final m	etric score is sum of	boxes A & B.	HHEI
BEODER (\$256 mm) [16 pts]		BLDR SLABS			SILT [3 pt]			Points
COBBLE (65-256 mm) [12 pts]	_	= ""					5	
GRAVEL (2-64 mm) [6 pts]			256 mm) [12 pts]	5				•
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the lime of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts]	Ø,	GRAVEL (2-64				√4 [o bt]		
Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 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]		SAND (<2 mm) [6 pts]		☐☐ ARTIFICIAL [3 pt	s]		12
ATT SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the lime of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts]					(A)		(B)	
Some continued in Avoid plants proofs from foad culvers or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts]	SCOF				PES: TOTAL NUM	IBER OF SUBSTRA	7	A+B
Some continued in Avoid plants proofs from foad culvers or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts]	2.	Maximum Pool De	epth (Measure the r	naxlınum po	ool depth within the 61 meter (20	00 ft) evaluation read	at the time of	Pool Pout
> 22.5 - 30 cm [30 pts]		evaluation. Avoid p	intide boots itom to	ad culverts or	r storm wat <u>er pi</u> pes) (Check ON	LY one box):	21 11/0 11/10 01	, .
Deficion Comments		> 22.5 - 30 cm [30	pts]		5 cm [5 pts]			
BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): 3.0 m + 4.0 m (> 9' 7" - 13') [25 pts]		> 10 - 22.5 cm [25	pts]	·····	NO WATER OR	MOIST CHANNEL[(5
AVERAGE BANKFULL WIDTH (meters) This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH RIPARIAN WIDTH		COMMENTS			MAXIMUN	POOL DEPTH (con	inches a	
AVERAGE BANKFULL WIDTH (meters) This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH RIPARIAN WIDTH	3. _	BANK FULL WIDT	H (Measured as the	average of	3-4 measurements) (CI	reck ONLY one hox)•	Donlefell
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY		~ 4.0 meters (> 13) [au prsj			> 3' 3" - 4' 8") [15 pts]	,,	
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) L R (Most Predominant per Bank) Mide >10m Mature Forest, Wetland Moderate 5-10m Moderate 5-10m AVERAGE BANKFULL WIDTH (meters) This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY L R (Most Predominant per Bank) L R Moderate 5-10m Mature Forest, Wetland D Conservation Tillage Immature Forest, Shrub or Old Field D Urban or Industrial		> 1.5 m - 3.0 m (> 4	'8" - 9' 7") [20 pts]		⊆ 5 T.U m (≤ 3° 3″)	[5 pts]	-	Max=30
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY		COMMENTS			AV/ERACE	F D 6 Mar Peril 1 Marin -	fat 3.5	15
RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) U Wide >10m Mature Forest, Wetland Moderate 5-10m RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Most Predominant per Bank) Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Field Urban or Industrial					AVERAGE	BANKFULL WID IF	(meters)	
RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) U Wide >10m Mature Forest, Wetland Moderate 5-10m RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Most Predominant per Bank) Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Field Urban or Industrial								
L R (Per Bank) Wide >10m Mature Forest, Wetland Moderate 5-10m L R (Most Predominant per Bank) Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Field Urban or Industrial				This	Information must also be compl	eted		
☐ Wide >10m ☐ Mature Forest, Wetland ☐ Conservation Tillage ☐ Moderate 5-10m ☐ Immature Forest, Shrub or Old ☐ Urban or Industrial		RIPARIAN :	ZONE AND FLOOD	PLAIN QUAI	JTY ☆NOTE: River Left (L) a	eted nd Right (R) as l∞ki	ng downstream☆	
Moderate 5-10m Modera		RIPARIAN L R (Per Ban	WIDTH	PLAIN QUAL FLOODF L R	LITY	nd Right (R) as looki	ng downstream∜	
M ST		RIPARIAN L R (Per Ban Wide >10	<u>l WIDTH</u> k)	PLAIN QUAL FLOODF L R	LITY	nd Rìght (R) as l∞ki LR		
		RIPARIAN L R (Per Ban Wide >10	I <u>WIDTH</u> k) Dm	PLAIN QUAL FLOODF L R	LITY SYNOTE: River Left (L) a PLAIN QUALITY (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Shrub or Old	nd Right (R) as looki	onservation Tillage	
☐ None ☐ Fenced Pasture ☐ ☐ Mining or Construction		RIPARIAN L R (Per Ban Wide >10	NUDTH k) Om 55-10m	PLAIN QUAL FLOODF LR C	LITY SYNOTE: River Left (L) a PLAIN QUALITY (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Shrub or Old	nd Right (R) as looki	onservation Tillage ban or Industrial pen Paslure, Row	

Moderate (2 ft/100 ft)

STREAM GRADIENT ESTIMATE

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

Subsurface flow with isolated pools (Interstitial)

Flal to Moderate

☐ Moderate to Severe

Moist Channel, isolated pools, no flow (Intermittent)

3.0

Dry channel, no water (Ephemeral)

Severe (10 1/100 II)

Stream Flowing

COMMENTS

ADDITIONAL STREAM INFORMATION (This information Must Also	be Completed):
QHEI PERFORMED? - TYes No QHEI Score	(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
•	ITIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
	NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Town	ship / City:
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Date of last precipitation:	
Photograph Information: 14.25tr. down str.	
Elevated Turbidity? (Y/N):N Canopy (% open):	
Were samples collected for water chemistry? (Y/N): Note la.	b sample no. or id, and attach results) Lab Number:
•	pH (S.U.) Conductivity (μπhos/cm)
Is the sampling reach representative of the stream (Y/N) If not	, please explain:
Additional comments/description of pollution impacts:	culture on park side
of riparian zone	
BIOTIC EVALUATION	
Performed? (Y/N): (If Yes, Record all observations. Vouch	er collections optional. NOTE: all voucher samples must be labeled with the site ta sheets from the Primary Headwater Habital Assessment Manual)
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders of Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aqua	atic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:	
DRAWING AND MADDATIVE DESCRIPTIO	N OF STREAM REACH (This must be completed):
	or site evaluation and a narrative description of the stream's location
Include Important landmarks and other features of interest i	or site evaluation and a man arive description of the stream's location
A	
A restant forested of	
N Company of the	N. R. C.
FLOW Field	4
and the state of t	À
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	and the second s

APPENDIX 07-3

WETLAND DELINEATION FORMS

Site: AEP BRHD PV	NA Rater(s): HAB		Date:	5/20/2014
	,	WETLAND PV1	-	
1 1	Metric 1. Wetland Area (size).			
max 6 pts subtotal	Select one size class and assign score. >50 acres (>20.2ha) (6 pts) 25 to <50 acres (10.1 to <20.2ha) (5 pts) 10 to <25 acres (4 to <10.1ha) (4 pts) 3 to <10 acres (1.2 to <4ha) (3 pts) 0.3 to <3 acres (0.12 to <1.2ha) (2pts) x 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt) <0.1 acres (0.04ha) (0 pts)			
14 15	Metric 2. Upland buffers and surr	ounding land use.		
max 14 pts. subtotal	Za. Calculate average buffer width. Select only on X WIDE. Buffers average 50m (164ft) or more around width MEDIUM. Buffers average 25m to <50m (82 to <164ft) NARROW. Buffers average 10m to <25m (32ft to <85 VERY NARROW. Buffers average <10m (<32ft) around the select one X VERY LOW. 2nd growth or older forest, prairie, saval LOW. Old field (>10 years), shrubland, young second MODERATELY HIGH. Residential, fenced pasture, proceedings of the selection of the	wetland perimeter (7) ft) around wetland perimeter (4) 2ft) around wetland perimeter (1) und wetland perimeter (0) or double check and average. nnah, wildlife area, etc. (7) i growth forest. (5) ark, conservation tillage, new fallow field. (3)		
22.0 37	HIGH. Urban, industrial, open pasture, row cropping, Metric 3. Hydrology.	mining, construction. (1)		
max 30 pts. subtotal	3a. Sources of Water. Score all that apply. High pH groundwater (5) X Other groundwater (3) Precipitation (1) X Seasonal/Intermittent surface water (3) Perennial surface water (lake or stream) (5) 3c. Maximum water depth. Select one. >0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 27.6in) (2) <0.4m (<15.7in) (1) 3e. Modifications to natural hydrologic regime. Source of the second of the sec	Check all disturbances observed ditch point s tile x filling/g	n use (1) promplex (1) Score one or dbl check. ated (4) 12in) (1) source (nonstormwater) grading ed/RR track ng	
10 47	Metric 4. Habitat Alteration and D	Development.		
max 20 pts. subtotal	4a. Substrate disturbance. Score one or double c x None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1) 4b. Habitat development. Select only one and ass 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 None or none apparent (9) Recovered (6) X Recovering (3) Recent or no recovery (1)	and average. Check all disturbances observed x mowing shrub/ grazing herbad clearcutting sedim x selective cutting dredgi woody debris removal farmin		I

subtotal this page ORAM v. 5.0 Field Form Quantitative Rating

Wetland 001.xlsm | test_Field 5/28/2014

Site: AEP	BRHD PVW	/A Rater(s): HAB			Date:	5/20/2014
				WETLAND PV1		
	47			0		
	subtotal this pa	ge				
	0 47	Metric 5. Special Wetlands.				
max 10 pts.	subtotal	Check all that apply and score as indica	ated.			
		Bog (10)				
		Fen (10)				
	_	Old growth forest (10)				
	-	Mature forested wetland (5)	logy (4	10)		
	-	Lake Erie coastal/tributary wetland-unrestricted hydrol Lake Erie coastal/tributary wetland-restricted hydrolog		10)		
	<u> </u>	Lake Plain Sand Prairies (Oak Openings) (10)	,, (°)			
		Relict Wet Praires (10)				
		Known occurrence state/federal threatened or endang	gered s	species (10)		
	L	Significant migratory songbird/water fowl habitat or us				
	4 54	Category 1 Wetland. See Question 5 Qualitative Ratin				
	4 51	Metric 6. Plant communities, inter	rspe	ersion, microtopograpny.		
max 20pts.	subtotal	6a. Wetland Vegetation Communities.	_	Vegetation Community Cove		
	г	Score all present using 0 to 3 scale. Aquatic bed	1	Absent or comprises <0.1ha (0.2471 a Present and either comprises small pa		
	-	2 Emergent	'	vegetation and is of moderate quality,		
	<u> </u>	Shrub		significant part but is of low quality	or comprised a	
		Forest	2	Present and either comprises significant	nt part of wetland's 2	
		Mudflats		vegetation and is of moderate quality of	r comprises a small	
	L	Open water		part and is of high quality		
	L	Other	3	Present and comprises significant part	, or more, of wetland's 3	
		6b. horizontal (plan view) Interspersion. Select only one.		vegetation and is of high quality		
	Г	High (5)		Narrative Description of Vegetation	Quality	
		Moderately high(4)		Low spp diversity and/or predominance	•	
		Moderate (3)		disturbance tolerant native species		
		Moderately low (2)		Native spp are dominant component of	-	
	<u> </u>	x Low (1)		although nonnative and/or disturbance	• • • • • • • • • • • • • • • • • • • •	
	L	None (0) 6c. Coverage of invasive plants. Refer		can also be present, and species diver moderately high, but generallyw/o pres	•	
		Table 1 ORAM long form for list. Add		threatened or endangered spp to	ence or rare	
		or deduct points for coverage		A predominance of native species, with	n nonnative spp high	
	Γ	Extensive >75% cover (-5)		and/or disturbance tolerant native spp	absent or virtually	
		Moderate 25-75% cover (-3)		absent, and high spp diversity and ofte	n, but not always,	
	_	Sparse 5-25% cover (-1)		the presence of rare, threatened, or en	dangered spp	
	-	Nearly absent <5% cover (0)		Mudflet and Onen Water Class Out	:4.,	
	L	x Absent (1) 6d. Microtopography.	0	Mudflat and Open Water Class Qual Absent <0.1ha (0.247 acres)	щу	
		Score all present using 0 to 3 scale.		Low 0.1 to <1ha (0.247 dcres)		
	Γ	Vegetated hummucks/tussucks	2	` '	s)	
		Coarse woody debris >15cm (6in)	3	High 4ha (9.88 acres) or more		
		Standing dead >25cm (10in) dbh				
		Amphibian breeding pools	0	Microtopography Cover Scale 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 of	quality	
	51 GRAND	TOTAL(max 100 pts)	3	Present in moderate or greater amoun	ts	

CATEGORY 2

Wetland 001.xlsm | test_Field 5/28/2014

and of highest quality

WETLAND DETERMINATION DATA FORM -- Midwest Region

WETLAND PV1	1					
Project/Site:	PVWMA Options BR-	H-D 138 kV Transmi	ssion Line	City/County:	Ross Count	ty Sampling Date: 5/20/2014
Applicant/Owner:	AEP Ohio Transco					State: OH Sampling Point: 1
Investigator(s):	Heather A. Bobich			Sect	ion, Townshi	ip, Range:
Landform (hillslope,	terrace, etc.): Shallo	w Swale			Local r	relief (concave, convex, none): concave
Slope (%):	Lat:			Long:		Datum:
Soil Map Unit Name						NWI classification: n/a
Are climatic / hydrol	ogic conditions on the	site typical for this tim	ne of year?	Yes	X No	(If no, explain in Remarks.)
Are Vegetation	N , Soil N	, or Hydrology	N significantly d	listurbed?	Are "No	ormal Circumstances" present? Yes X No
Are Vegetation	N , Soil N	 , or Hydrology	N naturally prob	lematic?	(If need	ded, explain any answers in Remarks.)
SUMMARY OF	FINDINGS Atta	 ch site map sho	 owing samplin	g point loca	ations, tra	insects, important features, etc.
Hydrophytic Vegeta		Yes X	No		Sampled Are	
Hydric Soil Present?		Yes X	No		a Wetland?	
Wetland Hydrology		Yes X				
Remarks: PEM in oldfield area	1					
VEGETATION -	Use scientific n	ames of plants.				
<u> </u>			Absolute	Dominant	Indicator	
Tree Stratum (Plot	size: 30' radius)	% Cover	Species?	Status	Dominance Test worksheet:
						Number of Demissrat Co.
				·		Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
						11101 AIG ODE, I AOW, UI FAC. 4 (A)
5.						Total Number of Dominant
				= Total Cover		Species Across All Strata: 5 (B)
	um (Plot size: 15' ra	dius)				Percent of Dominant Species
1						That Are OBL, FACW, or FAC: 80% (A/B)
2						
4.						Prevalence Index worksheet:
5.						Prevalence Index worksheet:
6.						
t				= Total Cover		Total % Cover of: Multiply by:
Herb Stratum (Plot)				OBL species 75 x1 = 75
1. Cyperus erythro			<u>50</u> 10	Yes	OBL	FACW species 30 x2 = 60
Agrimonia parvi Penstemon digi			20	No Yes	OBL	FAC species 20 x3 = 60 FACU species 40 x4 = 160
Schizachyrium :			25	Yes	FACU	UPL species x5 =
5. Solidago canad	·		15	No	FACU	Column Totals: 165 (A) 355 (B)
6. Toxicodendron			20	Yes	FAC	
7. Rubus alleghen	niensis var. alleghenien	sis	5	No	OBL	Prevalence Index = B/A = 2.15
8. Elymus virginicu	us		20	Yes	FACW	
9						Hydronhysia Vagatation Indicators
						Hydrophytic Vegetation Indicators:
10						1-Rapid Test for Hydrophytic Vegetation
13.						X 2-Dominance Test is >50%
14.						X 3-Prevalence Index is ≤3.0 ¹
15.						4-Morphological Adaptations ¹ (Provide supporting
						data in Remarks or on a separate sheet)
17.						Problematic Hydrophytic Vegetation ¹ (Explain)
18. 19.						¹ Indicators of hydric soil and wetland hydrology must
						be present, unless disturbed or problematic.
				= Total Cover		So prosoni, amoso distances of procedurate.
Woody Vine Stratur	m (Plot size: 30' ra	dius)				Hydrophytic
1						Vegetation
2				Tetal O		Present? Yes X No No
				= Total Cover		
Remarks: (Include	photo numbers here or	on a senarate sheet	+)			1
	poto mamboro nere ur	on a coparate sneet	,			
US Army Corps of	Engineers					Midwest Region version 2.0
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4
- 1

Septimens Color (moist)	Soils³: A16) Ses (F12) Inface (TF12) Searks) Segetation and Segeta
Type: C-Concentration, D=Depletion, RM=Reduced Marrix, CS-Covered or Coated Sand Grains.	Soils³: A16) Ses (F12) Inface (TF12) Searks) Segetation and Segeta
Type: C-Concentration, D-Depletion, RM-Reduced Marrix, CS-Covered or Coated Sand Grains.	e Soils ³ : A16) ses (F12) face (TF12) narks) egetation and be present, oblematic.
Mychric Soil Indicators:	e Soils ³ : A16) ses (F12) face (TF12) narks) egetation and be present, oblematic.
Mychric Soil Indicators:	e Soils ³ : A16) ses (F12) face (TF12) narks) egetation and be present, oblematic.
Mychric Soil Indicators:	e Soils ³ : A16) ses (F12) face (TF12) narks) egetation and be present, oblematic.
Mychric Soil Indicators:	e Soils ³ : A16) ses (F12) face (TF12) narks) egetation and be present, oblematic.
Mychric Soil Indicators:	e Soils ³ : A16) ses (F12) face (TF12) narks) egetation and be present, oblematic.
Mychric Soil Indicators:	e Soils ³ : A16) ses (F12) face (TF12) narks) egetation and be present, oblematic.
Mychric Soil Indicators:	e Soils ³ : A16) ses (F12) face (TF12) narks) egetation and be present, oblematic.
Mychric Soil Indicators:	e Soils ³ : A16) ses (F12) face (TF12) narks) egetation and be present, oblematic.
Histocol (A1) Sandy Gleyed Matrix (S4) Coast Prairie Redox (A16) Incn-Managenes Masses (F12) Black Histo (A3) Stripped (A3) Sardy Redox (S5) Dark Surface (S7) Uero-Managenes Masses (F12) Dark Surface (S7) Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) 2 cm Muck (A10) Z Depleted Matrix (F2) Depleted Below Dark Surface (A11) Redox Dark Surface (F6) Depleted Dark Surface (A12) Depleted Dark Surface (F7) Phick Dark Surface (A12) Depleted Dark Surface (F7) Phick Dark Surface (A12) Pepleted Dark Surface (F7) Problematic (S1) Sendy Mucky Mineral (S1) Redox Depressions (F8) Wetland hydrology must be present, unless disturbed or problematic. **Sendy Mucky Mineral (S1) Redox Depressions (F8) Wetland hydrology must be present, unless disturbed or problematic. **Wetland Hydrology Indicators:** **Wetland Hydrology Indicators:** **Work Marker (A1) Water Stained Leaves (B9) Surface Soil Cracks (B6) Surface (Marker (A1) Depth (Inches): Surface Value (Marker (A1) Depth (Marker (B1) Depth (Marker	A16) ses (F12) face (TF12) narks) egetation and be present, bblematic.
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Black Histic (A3)	egetation and be present, oblematic.
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Stratified Layers (A5)	egetation and person processing the present, oblematic.
2 cm Muck (A10)	egetation and be present, oblematic.
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Thick Dark Surface (A12)	be present, oblematic.
Sandy Mucky Mineral (S1) Redox Depressions (F8) wetland hydrology must be present, unless disturbed or problematic. Som Mucky Peat or Peat (S3) Hydric Soil Present? Yes X No Pepth (inches): Type: Depth (inches): Hydric Soil Present? Yes X No Pepth (inches): Water-Stained Leaves (B9) Surface Soil Cracks (B6) High Water (A1) Water-Stained Leaves (B9) Surface Soil Cracks (B6) High Water Table (A2) Aquatic Fauna (B13) X Drainage Patterns (B10) Saturation (A3) True Aquatic Plants (B14) Dry-Season Water Table (C2) Water Marks (B1) Hydrogen Sulfide Odor (C1) Craylish Burrows (C8) Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3) Saturation (Visible on Aerial Imagery (C9) Drift Deposits (B3) Presence of Reduced Iron (C4) Stunted or Stressed Plants (D1) Algal Mat or Crust (B4) Recent Iron Reduction in Tilled Soils (C6) Geomorphic Position (D2) Iron Deposits (B3) Thin Muck Surface (C7) FAC-Neutral Test (D5) Inundation Visible on Aerial Imagery (B7) Gauge or Well Data (D9) Sparsely Vegetated Concave Surface (B8) Other (Explain in Remarks) Wetland Hydrology Present? Yes X No Depth (inches): 47 Wetland Hydrology Present? Yes X No Depth (inches): 47 Wetland Hydrology Present? Yes X No Depth (inches): 47 Wetland Hydrology Present? Yes X No Depth (inches): 47 Wetland Hydrology Present? Yes X No Depth (inches): 47 Wetland Hydrology Present? Yes X No Depth (inches): 47 Wetland Hydrology Present? Yes X No Depth (inches): 47 Wetland Hydrology Present? Yes X No Depth (inches): 47 Wetland Hydrology Present? Yes X No Depth (inches): 47 Wetland Hydrology Present? Yes X No Depth (inches): 47 Wetland Hydrology Present? Yes X No Depth (inches): 47 Wetland Hydrology Present? Yes X No Depth (inches): 47 Wetland Hydrology Present? Yes X No Depth (inches): 47 Wetland Hydrology Present? Yes X No Depth (inches): 47 Wetland Hydrology Present? Yes X No Depth (inches): 47 Wetland Hydrology Present? Yes X No Depth (inches): 47 Wetland Hydrology Present? Yes X No Depth (inches): 47 Wetland Hydrology Present? Yes X No Depth (inch	be present, oblematic.
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Separates: Page	
Type: Depth (inches): Hydric Soil Present? Yes X No emarks: Page	s X No
Depth (inches):	s X No
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YDROLOGY etland Hydrology Indicators:	
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Saturation Present? Yes x No Depth (inches): 4" Wetland Hydrology Present? Yes X No No No Includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	; X No
Remarks:	
Remarks:	
Kemarks:	
	1

US Army Corps of Engineers Midwest Region version 2.0

Site: AEP BRHD PVWA	A Rater(s): HAB		Date:	5/20/2014
	•	WETLAND PV2		
0 0	Metric 1. Wetland Area (size).			
max 6 pts subtotal	Select one size class and assign score. >50 acres (>20.2ha) (6 pts) 25 to <50 acres (10.1 to <20.2ha) (5 pts) 10 to <25 acres (4 to <10.1ha) (4 pts) 3 to <10 acres (1.2 to <4ha) (3 pts) 0.3 to <3 acres (0.12 to <1.2ha) (2pts) 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)			
14 14	Metric 2. Upland buffers and surro	ounding land use.		
max 14 pts. subtotal	MEDIUM. Buffers average 25m to <50m (82 to <164ft NARROW. Buffers average 10m to <25m (32ft to <82 VERY NARROW. Buffers average <10m (<32ft) arour 2b. Intensity of surrounding land use. Select one of VERY LOW. 2nd growth or older forest, prairie, savan LOW. Old field (>10 years), shrubland, young second	etland perimeter (7)) around wetland perimeter (4) ft) around wetland perimeter (1) nd wetland perimeter (0) or double check and average. nah, wildlife area, etc. (7) growth forest. (5)		
	MODERATELY HIGH. Residential, fenced pasture, pa HIGH. Urban, industrial, open pasture, row cropping, r			
19.0 33	Metric 3. Hydrology.			
max 30 pts. subtotal	Seasonal/Intermittent surface water (3) Perennial surface water (lake or stream) (5) 3c. Maximum water depth. Select one. >0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 27.6in) (2) <0.4m (<15.7in) (1) 3e. Modifications to natural hydrologic regime. Sc	Check all disturbances observed ditch point s tile filling/g	on use (1) Implex (1) Score one or dbl check. Sted (4) Signature (1) Score one or dbl check. Signature (1) Score one or dbl check. Signature (1) Score one or dbl check.	
10 43	Metric 4. Habitat Alteration and Do	evelopment.		
max 20 pts. subtotal	Poor to fair (2) Poor (1) 4c. Habitat alteration. Score one or double check a None or none apparent (9) Recovered (6)	gn score. and average. Check all disturbances observed x mowing shrub/ grazing herbac clearcutting sedim	sapling removal teous/aquatic bed remova	ı
43		x selective cutting dredgi woody debris removal toxic pollutants x nutrier		

subtotal this page ORAM v. 5.0 Field Form Quantitative Rating

Wetland 001.xlsm | test_Field 5/28/2014

Site: AEF	P BRHD PV	WA	Rater(s): HAB			Date:	5/20/2014
					WETLAND PV2		
	43	3			0		
	subtotal this	page					
	0 43	3	Metric 5. Special Wetlands.				
max 10 pts.	subtotal	_	Check all that apply and score as indica	ated			
max to pts.	Subtotal		Bog (10)	accu.			
			Fen (10)				
			Old growth forest (10)				
			Mature forested wetland (5)		10)		
			Lake Erie coastal/tributary wetland-unrestricted hydrol Lake Erie coastal/tributary wetland-restricted hydrolog		10)		
			Lake Plain Sand Prairies (Oak Openings) (10)	jy (J)			
			Relict Wet Praires (10)				
			Known occurrence state/federal threatened or endang	gered s	species (10)		
			Significant migratory songbird/water fowl habitat or us	•	,		
	41 4-		Category 1 Wetland. See Question 5 Qualitative Ratir				
	4 47	1	Metric 6. Plant communities, inte	rspe	ersion, microtopography.		
max 20pts.	subtotal		6a. Wetland Vegetation Communities.		Vegetation Community Cove		
		_	Score all present using 0 to 3 scale.	_	Absent or comprises <0.1ha (0.2471 a	, 0	
		2	Aquatic bed Emergent	1	Present and either comprises small pa vegetation and is of moderate quality,		
			Shrub		significant part but is of low quality	or comprises a	
			Forest	2	Present and either comprises significant	nt part of wetland's 2	
			Mudflats		vegetation and is of moderate quality of	r comprises a small	
			Open water		part and is of high quality		
		<u> </u>	Other 6b. horizontal (plan view) Interspersion.	3	Present and comprises significant part vegetation and is of high quality	, or more, or wetland's 3	
			Select only one.		vegetation and is of high quality		
			High (5)		Narrative Description of Vegetation	Quality	
			Moderately high(4)		Low spp diversity and/or predominance	e of nonnative or low	
		<u> </u>	Moderate (3)		disturbance tolerant native species		
		_	Moderately low (2) Low (1)		Native spp are dominant component of although nonnative and/or disturbance		
		_^	None (0)		can also be present, and species diver		
			6c. Coverage of invasive plants. Refer		moderately high, but generallyw/o pres		
			Table 1 ORAM long form for list. Add		threatened or endangered spp to		
			or deduct points for coverage		A predominance of native species, with		
			Extensive >75% cover (-5)		and/or disturbance tolerant native spp	•	
			Moderate 25-75% cover (-3) Sparse 5-25% cover (-1)		absent, and high spp diversity and ofte the presence of rare, threatened, or en		
			Nearly absent <5% cover (0)		the presence of fare, threatened, of ch	dangered spp	
		х	Absent (1)		Mudflat and Open Water Class Qual	ity	
			6d. Microtopography.		Absent <0.1ha (0.247 acres)		
		-	Score all present using 0 to 3 scale.	_1_		\	
			Vegetated hummucks/tussucks Coarse woody debris >15cm (6in)		Moderate 1 to <4ha (2.47 to 9.88 acres High 4ha (9.88 acres) or more	5)	
			Standing dead >25cm (10in) dbh	3	Trigit 4tia (9.00 acres) or more		
			Amphibian breeding pools		Microtopography Cover Scale		
			-		Absent		
				1	Present very small amounts or if more	common	
				2	of marginal quality Present in moderate amounts, but not	of highest	
				_	quality or in small amounts of highest of	•	
	47 GRAN	ם דמ	TAL(max 100 pts)	3	Present in moderate or greater amoun		
			(_			
					and of highest quality		

CATEGORY 2

Wetland 001.xlsm | test_Field 5/28/2014

WETLAND DETERMINATION DATA FORM -- Midwest Region

WETLAND PV2

Project/Site:	PVWMA Options BR-H-	D 138 kV Transmis	sion Line	City/County:	Ross Coun	ty	Sampling Date: 5/20/2014	
Applicant/Owner:	AEP Ohio Transco					State: OH	Sampling Point: 1	
Investigator(s):	Heather A. Bobich			Section, Township, Range:				
Landform (hillslope	, terrace, etc.): Shallow	Swale			Local	relief (concave, convex, none):	concave	
Slope (%):	8% Lat:			Long:			Datum:	
Soil Map Unit Name	e:					NWI class	sification: n/a	
Are climatic / hydro	logic conditions on the site	e typical for this time	of year?	Yes_	X No	(If no, explain in Remark	ks.)	
Are Vegetation	N, Soil N	, or HydrologyI	significantly d	listurbed?	Are "N	ormal Circumstances" present	? Yes X No	
Are Vegetation	N, Soil N	, or HydrologyI	naturally prob	lematic?	(If nee	ded, explain any answers in Re	emarks.)	
SUMMARY OF	FINDINGS Attach	n site map show	wing sampling	g point loca	tions, tra	ansects, important feati	ures, etc.	
Hydrophytic Vegeta	ation Present?	Yes X	No	Is the	Sampled Ar	ea		
Hydric Soil Present	?	Yes X	No		a Wetland?	Yes	X No	
Wetland Hydrology	Present?	Yes X	No					
Remarks: PEM in oldfield area	a							
VEGETATION	Use scientific nar	mes of plants.						
			Absolute	Dominant	Indicator			
Tree Stratum (Plot	size: 30' radius	_)	% Cover	Species?	Status	Dominance Test workshee	et:	
1. 2.						Number of Dominant Specie	ac .	
						That Are OBL, FACW, or FA		
5.						Total Number of Dominant		
				= Total Cover		Species Across All Strata:	(B)	
Capling/Chruh Ctra	tum (Diet eizer 15' rediu	١٥ ١				Doroont of Dominant Chasia		
1	tum (Plot size: 15' radiu					Percent of Dominant Specie That Are OBL, FACW, or FA		
2						711at7110 CDL, 171CVV, 0117	(702)	
3.								
4.						Prevalence Index workshee	et:	
5						Prevalence Index workshee	et:	
6.				= Total Cover		Total 0/ Cover of	Marie in Land	
Herb Stratum (Plot	t size: 5' radius)		= Total Cover		Total % Cover of: OBL species 55	$\frac{\text{Multiply by:}}{\text{x1} = 55}$	
Cyperus sp.	<u> </u>	_,	70	Yes	FAC	FACW species 60	x2 = 120	
2. Solidago canad	densis		30	No	FACU	FAC species 70	x3 = 210	
3. Penstemon dig			20	No	OBL	FACU species 30	x4 = 120	
4. Lysimachia nur			40	Yes	FACW	UPL species	x5 = (P)	
 Fraxinus penns Calamagrostis 	<i>.</i>		20 20	No No	FACW OBL	Column Totals: 215	(A) <u>505</u> (B)	
7. Apocynum can			10	No	OBL	Prevalence Index =	: B/A = 2.35	
8. Asclepias incar			5	No	OBL			
9								
10						Hydrophytic Vegetation In	dicators:	
11.						1 Panid Tost for Hy	vdrophytic Vogotation	
12. 13.				-		X 2-Dominance Test	drophytic Vegetation is >50%	
14.						X 3-Prevalence Index		
15.						4-Morphological Ad	laptations ¹ (Provide supporting	
16							r on a separate sheet)	
17.						Problematic Hydro	phytic Vegetation ¹ (Explain)	
10						¹ Indicators of hydric soil and	wetland hydrology must	
20.				-		be present, unless disturbed	· =:	
			215	= Total Cover		, , , , , , , , , , , , , , , , , , , ,		
Woody Vine Stratu	m (Plot size: 30' radiu	us)				Hydrophytic Vegetation		
				Tatal O		Present? Yes	X No	
				= Total Cover				
Remarks: (Include	photo numbers here or or	n a separate sheet						
110 A	· · · · · · · · · · · · · · · · · · ·						Midwest Desire weeks 2.2	

4
- 1

Depth			_	da., C /				
/: la >	Matrix	0/		dox Features	Tune1	1 - 2	- Tt	D
(inches)	Color (moist)	<u>%</u>	Color (moist)		Type ¹	Loc ²	Texture	Remarks
0-16"	10YR 4/2	95	7.5YR 5/8	5	C	M	Silty Clay	
¹Type: C=C	Concentration, D=Depletion	n RM=Reduce	ed Matrix CS=Covere	ed or Coated S	Sand Grains	² Locat	ion: PL=Pore Lining,	M=Matrix
	Indicators:	n, rawi–radado	d Matrix, 00=00ver	or or oddica t	Jana Oramis.		cators for Problema	
Histoso			Sandy Gley	ed Matrix (S4)	1			e Redox (A16)
	Epipedon (A2)		Sandy Redo					nese Masses (F12)
	Histic (A3)		Stripped Ma				Dark Surface	
	gen Sulfide (A4)			ky Mineral (F1)			Dark Surface (TF12)
	ed Layers (A5)			ed Matrix (F2)	-			ain in Remarks)
	fluck (A10)		x Depleted M					•
	ed Below Dark Surface (A	11)		Surface (F6)				
	Dark Surface (A12)	•		ark Surface (F	7)		³ Indicators of hydr	ophytic vegetation and
Sandy	Mucky Mineral (S1)			essions (F8)				ogy must be present,
5 cm N	Mucky Peat or Peat (S3)		<u> </u>	, ,				bed or problematic.
estrictive I	Layer (if observed):							
Type:								
_	inches):					Hydric	Soil Present?	Yes X No
YDROL								
Vetland Hyd								
	drology Indicators:	required: chec	ck all that apply)				Secondary Indicat	ors (minimum of two required)
Primary Indi		required: chec		ed Leaves (B	9)			ors (minimum of two required) Cracks (B6)
Primary Indic	drology Indicators: cators (minimum of one is e Water (A1)	required: chec	Water-Stain	,	9)		Surface Soil	Cracks (B6)
Primary India Surface High W	drology Indicators: cators (minimum of one is e Water (A1) Vater Table (A2)	required: chec	Water-Stain Aquatic Fau	ına (B13)	•		Surface Soil X Drainage Pa	Cracks (B6) atterns (B10)
Surface High W x Saturat	drology Indicators: cators (minimum of one is e Water (A1) Vater Table (A2) tion (A3)	required: chec	Water-Stain Aquatic Fau True Aquati	ina (B13) c Plants (B14)		Surface Soil X Drainage Pa Dry-Season	Cracks (B6) atterns (B10) Water Table (C2)
Primary India Surface High W X Saturat Water	drology Indicators: cators (minimum of one is e Water (A1) Vater Table (A2) tion (A3) Marks (B1)	required: chec	Water-Stain Aquatic Fau True Aquati Hydrogen S	ina (B13) c Plants (B14) ulfide Odor (C) ;1)	ts (C3)	Surface Soil X Drainage Pa Dry-Season Crayfish Bur	Cracks (B6) htterns (B10) Water Table (C2) rrows (C8)
Primary India Surface High W X Saturat Water Sedime	drology Indicators: cators (minimum of one is e Water (A1) Vater Table (A2) tion (A3)	required: chec	Water-Stain Aquatic Fau True Aquati Hydrogen S Oxidized Rh	ina (B13) c Plants (B14) :1) n Living Roo	ts (C3)	Surface Soil X Drainage Pa Dry-Season Crayfish Bur Saturation V	Cracks (B6) atterns (B10) Water Table (C2)
Primary India Surface High W x Saturat Water Sedime Drift De	drology Indicators: cators (minimum of one is e Water (A1) Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3)	required: chec	Water-Stain Aquatic Fau True Aquati Hydrogen S Oxidized Rh Presence of	ina (B13) c Plants (B14) ulfide Odor (C nizospheres of f Reduced Iron) c1) n Living Room n (C4)		Surface Soil X Drainage Pa Dry-Season Crayfish Bur Saturation V Stunted or S	Cracks (B6) htterns (B10) Water Table (C2) hrows (C8) Fisible on Aerial Imagery (C9)
Primary India Surface High W x Saturat Water Sedime Drift De	drology Indicators: cators (minimum of one is e Water (A1) Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2)	required: chec	Water-Stain Aquatic Fau True Aquati Hydrogen S Oxidized Rh Presence of Recent Iron	ina (B13) c Plants (B14) ulfide Odor (C nizospheres o) c1) n Living Room n (C4)		Surface Soil X Drainage Pa Dry-Season Crayfish Bur Saturation V Stunted or S	Cracks (B6) htterns (B10) Water Table (C2) rrows (C8) fisible on Aerial Imagery (C9) httressed Plants (D1) Position (D2)
Primary India Surface High W x Saturat Water I Sedime Drift De Algal M Iron De	drology Indicators: cators (minimum of one is e Water (A1) Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4)		Water-Stain Aquatic Fau True Aquati Hydrogen S Oxidized Rh Presence of Recent Iron Thin Muck S	nna (B13) c Plants (B14) ulfide Odor (C nizospheres or f Reduced Iror Reduction in Surface (C7)) c1) n Living Room n (C4)		Surface Soil X Drainage Pa Dry-Season Crayfish Bur Saturation V Stunted or S X Geomorphic	Cracks (B6) htterns (B10) Water Table (C2) rrows (C8) fisible on Aerial Imagery (C9) httressed Plants (D1) Position (D2)
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Primary India Surface High W X Satural Water Sedime Drift De Algal M Iron De Inunda Sparse	drology Indicators: cators (minimum of one is e Water (A1) Vater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) tion Visible on Aerial Imagely Vegetated Concave Su	gery (B7)	Water-Stain Aquatic Fau True Aquati Hydrogen S Oxidized Rh Presence of Recent Iron Thin Muck S Gauge or W	una (B13) c Plants (B14) ulfide Odor (Conizospheres on f Reduced Iron Reduction in Surface (C7) /ell Data (D9)	on Living Room (C4) Tilled Soils (Surface Soil X Drainage Pa Dry-Season Crayfish Bur Saturation V Stunted or S X Geomorphic	Cracks (B6) htterns (B10) Water Table (C2) rrows (C8) fisible on Aerial Imagery (C9) httressed Plants (D1) Position (D2)
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Site: AEP B	RHD PV	WΑ	Rater(s): HAB			Date:	5/20/2014
			• ,		WETLAND PV3	-	
	0 0		Metric 1. Wetland Area (size).				
max 6 pts	subtotal	X	Select one size class and assign score. >50 acres (>20.2ha) (6 pts) 25 to <50 acres (10.1 to <20.2ha) (5 pts) 10 to <25 acres (4 to <10.1ha) (4 pts) 3 to <10 acres (1.2 to <4ha) (3 pts) 0.3 to <3 acres (0.12 to <1.2ha) (2pts) 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt) <0.1 acres (0.04ha) (0 pts)				
	14 14	ļ.	Metric 2. Upland buffers and surr	our	nding land use.		
max 14 pts.	subtotal	X	2a. Calculate average buffer width. Select only on WIDE. Buffers average 50m (164ft) or more around w MEDIUM. Buffers average 25m to <50m (82 to <164ft NARROW. Buffers average 10m to <25m (32ft to <82 VERY NARROW. Buffers average <10m (<32ft) around 2b. Intensity of surrounding land use. Select one of VERY LOW. 2nd growth or older forest, prairie, savan LOW. Old field (>10 years), shrubland, young second MODERATELY HIGH. Residential, fenced pasture, pa HIGH. Urban, industrial, open pasture, row cropping, if	vetlan t) aro 2ft) ar nd we or do nnah, grow ark, c	nd perimeter (7) und wetland perimeter (4) ound wetland perimeter (1) ettland perimeter (0) unble check and average. wildlife area, etc. (7) th forest. (5) onservation tillage, new fallow field. (3)		
19	0.0 33	 	Metric 3. Hydrology.	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	9, 0011011 4011011. (1)		
max 30 pts.	subtotal	X	3a. Sources of Water. Score all that apply. High pH groundwater (5) Other groundwater (3) Precipitation (1) Seasonal/Intermittent surface water (3) Perennial surface water (lake or stream) (5) 3c. Maximum water depth. Select one. >0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 27.6in) (2) <0.4m (<15.7in) (1) 3e. Modifications to natural hydrologic regime. Sc	x	one or double check and average. Check all disturbances observed ditch point s tile filling/g	n use (1) pmplex (1) Score one or dbl check. ated (4) 12in) (1) source (nonstormwater) grading ed/RR track ng	
	16 49)	Metric 4. Habitat Alteration and D	eve	elopment.		
max 20 pts.	subtotal	X	4a. Substrate disturbance. Score one or double chance or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1) 4b. Habitat development. Select only one and assi Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) Poor (1) 4c. Habitat alteration. Score one or double check and None or none apparent (9) Recovered (6) Recovered (6) Recovered (7) Recovered (7)	and a	core. Average. Check all disturbances observed mowing shrub/ grazing herbar clearcutting sedim dredgi woody debris removal farmin		I
	49	7			nutror		

subtotal this page ORAM v. 5.0 Field Form Quantitative Rating

Wetland 001.xlsm | test_Field 5/28/2014

Site: AEP	BR	HD PV	WA	Rater(s): HAB			Date:	5/20/2014
<u> </u>				• • • • • • • • • • • • • • • • • • • •		WETLAND PV3		
		49				0		
						-		
F	_	subtotal this	. ·	Matria F. Creatial Matlanda				
	0	49	1	Metric 5. Special Wetlands.				
max 10 pts.		subtotal		_Check all that apply and score as indica	ited.			
			_	Bog (10)				
				Fen (10) Old growth forest (10)				
				Mature forested wetland (5)				
				Lake Erie coastal/tributary wetland-unrestricted hydrol	logy (10)		
				Lake Erie coastal/tributary wetland-restricted hydrolog	y (5)			
			_	Lake Plain Sand Prairies (Oak Openings) (10)				
				Relict Wet Praires (10) Known occurrence state/federal threatened or endang	harad	species (10)		
				Significant migratory songbird/water fowl habitat or us		,		
				Category 1 Wetland. See Question 5 Qualitative Ratin				
	5	54		Metric 6. Plant communities, inter	rspe	ersion, microtopography.		
max 20pts.		subtotal	_	6a. Wetland Vegetation Communities.		Vegetation Community Cove	er Scale	
				Score all present using 0 to 3 scale.	0	Absent or comprises <0.1ha (0.2471 a	cres) contiguous area	
			<u> </u>	Aquatic bed	1	Present and either comprises small pa		
			1	Emergent Shrub		vegetation and is of moderate quality, or	or comprises a	
		H	Forest	2	significant part but is of low quality Present and either comprises significant	nt part of wetland's 2		
				Mudflats	_	vegetation and is of moderate quality of		
				Open water		part and is of high quality		
				Other	3	Present and comprises significant part	or more, of wetland's 3	
				6b. horizontal (plan view) Interspersion.		vegetation and is of high quality		
				Select only one. High (5)		Narrative Description of Vegetation	Quality	
				Moderately high(4)		Low spp diversity and/or predominance		
				Moderate (3)		disturbance tolerant native species		
			Х	Moderately low (2)		Native spp are dominant component of		
				Low (1) None (0)		although nonnative and/or disturbance can also be present, and species diver		
			<u> </u>	6c. Coverage of invasive plants. Refer		moderately high, but generallyw/o pres		
				Table 1 ORAM long form for list. Add		threatened or endangered spp to	01100 01 1010	
				or deduct points for coverage		A predominance of native species, with	nonnative spp high	
			<u> </u>	Extensive >75% cover (-5)		and/or disturbance tolerant native spp		
			_	Moderate 25-75% cover (-3) Sparse 5-25% cover (-1)		absent, and high spp diversity and ofte the presence of rare, threatened, or en		
			_	Nearly absent <5% cover (0)		the presence of fare, threatened, or en	uangereu spp	
				Absent (1)		Mudflat and Open Water Class Qual	ity	
				6d. Microtopography.		Absent <0.1ha (0.247 acres)		
			_	Score all present using 0 to 3 scale.	_1	,	,	
			1	Vegetated hummucks/tussucks Coarse woody debris >15cm (6in)		Moderate 1 to <4ha (2.47 to 9.88 acres High 4ha (9.88 acres) or more	<u> </u>	
			H	Standing dead >25cm (10in) dbh	3	Inight 4ha (9.00 acres) or more		
				Amphibian breeding pools		Microtopography Cover Scale		
				_		Absent		
					1	Present very small amounts or if more	common	
					-2	of marginal quality Present in moderate amounts, but not	of highest	
					_	quality or in small amounts of highest of	•	
	54	GRANI) TO	OTAL(max 100 pts)	3	Present in moderate or greater amoun	•	

CATEGORY 2

Wetland 001.xlsm | test_Field 5/28/2014

and of highest quality

WETLAND DETERMINATION DATA FORM -- Midwest Region

WETLAND PV3									
Project/Site: PVWM	A Options BR-H-	D 138 kV Transm	nission Line	City/County:	Ross Count	ty Sampling Date: <u>5/20/2014</u>			
Applicant/Owner: AEP O	hio Transco			State: OH Sampling Point: 1					
Investigator(s): Heather	r A. Bobich		ion, Townshi	nip, Range:					
Landform (hillslope, terrace,	etc.): hillslope				Local relief (concave, convex, none): concave				
Slope (%):	Lat:			Long:		Datum:			
Soil Map Unit Name:						NWI classification: n/a			
Are climatic / hydrologic con	ditions on the site	e typical for this tir	me of year?	Yes_	X No_	(If no, explain in Remarks.)			
Are Vegetation N	, Soil N	, or Hydrology	N significantly d	isturbed?	Are "No	ormal Circumstances" present? Yes X No			
Are Vegetation N	, Soil N	, or Hydrology	N naturally prob	lematic?	(If need	ded, explain any answers in Remarks.)			
SUMMARY OF FINDI	NGS Attacl	h site map sh	owing samplin	g point loca	ations, tra	nsects, important features, etc.			
Hydrophytic Vegetation Pres		Yes X	No		Sampled Are				
Hydric Soil Present?		Yes X	No	within	a Wetland?	Yes X No			
Wetland Hydrology Present	?	Yes X							
Remarks: PEM in oldfield area									
VEGETATION Use	scientific na	mes of plants	.						
		_	Absolute	Dominant	Indicator				
Tree Stratum (Plot size:	30' radius	_)	% Cover	Species?	Status	Dominance Test worksheet:			
1						Number of Dominant Species			
2. 3.						That Are OBL, FACW, or FAC: 4 (A)			
3. 4.						(1)			
5.						Total Number of Dominant			
				= Total Cover		Species Across All Strata: 5 (B)			
Sapling/Shrub Stratum (Plo	t size: 15' radiu	<u>ıs</u>)	40	V	EA C)A/	Percent of Dominant Species			
Ulmus americana Fraxinus pennsylvanica			10	Yes Yes	FACW	That Are OBL, FACW, or FAC: 80% (A/I			
Rosa multiflora			10	Yes	FACU				
4.						Prevalence Index worksheet:			
5.						Prevalence Index worksheet:			
6.									
			30	= Total Cover		Total % Cover of: Multiply by:			
Herb Stratum (Plot size:	5' radius	_)	40	Yes	OBL	OBL species 40 x1 = 40 FACW species 50 x2 = 100			
Glyceria striata Lysimachia nummularia			30	Yes	FACW	FAC species 35 x3 = 105			
Toxicodendron radicans			20	No	FAC	FACU species 30 x4 = 120			
4. Geum vernum			20	No	FACU	UPL species x5 =			
5. Carex sp.			15	No	FAC	Column Totals: 155 (A) 365 (
6									
7						Prevalence Index = B/A = 2.35			
8. 9.				-					
10.				-		Hydrophytic Vegetation Indicators:			
11.						.,,			
12.						1-Rapid Test for Hydrophytic Vegetation			
13.						X 2-Dominance Test is >50%			
14						X 3-Prevalence Index is ≤3.0¹			
15						4-Morphological Adaptations¹ (Provide supporting			
16 17.						data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation ¹ (Explain)			
18.						- 10000mano myoropmyno vegetanom (Explain)			
19.						¹ Indicators of hydric soil and wetland hydrology must			
20.						be present, unless disturbed or problematic.			
			125	= Total Cover					
Woody Vine Stratum (Plot s	170. 20' rodi:	ie)				Hydrophytic			
1. (Plot s	size: 30' radiu	(در				Hydrophytic Vegetation			
2.						Present? Yes X No			
				= Total Cover		<u> </u>			
			·						
Remarks: (Include photo nu	ımbers here or o	n a separate shee	et.)						
US Army Corps of Enginee	rs					Midwest Region version			

4
- 1

D th	cription: (Describe to the	o dopin noode	a to accument the i	iluicator or c		bacilice c	i indicator or,	
Depth	Matrix		Re	dox Features			<u>-</u>	
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-5"	10YR 3/2	100					Silt Loam	
5-16"	10YR 5/3	80	10YR 5/8	20	C	М	Silty Clay	
							-	
1- 0						2		
Type: C=C	Concentration, D=Depletio	on, RM=Reduce	ed Matrix, CS=Cover	ed or Coated S	Sand Grains.		ion: PL=Pore Lining	-
Histoso			Sandy Clay	ed Matrix (S4)		maic		e Redox (A16)
	Epipedon (A2)		Sandy Gley					nese Masses (F12)
	Histic (A3)		Stripped Ma				Dark Surface	· ·
	gen Sulfide (A4)			ky Mineral (F1	1			v Dark Surface (TF12)
	ed Layers (A5)			ed Matrix (F2)				ain in Remarks)
	Muck (A10)		Depleted M		•		Other (Expire	all ill Remarks)
	ed Below Dark Surface (A	(11)		Surface (F6)				
	Dark Surface (A12)	,		ark Surface (F	7)		³ Indicators of hydr	ophytic vegetation and
	Mucky Mineral (S1)			ressions (F8)	- /			ogy must be present,
	Mucky Peat or Peat (S3)			(. 0)				bed or problematic.
Postrictive I	Layer (if observed):							· · · · ·
Type:	Layer (ii observed).							
-	(inches):	_				Hydric	Soil Present?	Yes X No
HYDROL	.OGY							
Wetland Hy	drology Indicators:							
Wetland Hye Primary Indi	drology Indicators: icators (minimum of one is	s required: che		and Language /P	2)			ors (minimum of two required)
Primary Indi	drology Indicators: icators (minimum of one is be Water (A1)	s required: che	Water-Stair	ned Leaves (B	9)		Surface Soi	Cracks (B6)
Primary Indi Surface High W	drology Indicators: icators (minimum of one is the Water (A1) Vater Table (A2)	s required: che	Water-Stair Aquatic Fau	ına (B13)	,		Surface Soi X Drainage Pa	Cracks (B6) atterns (B10)
Primary Indi Surface High W x Satura	drology Indicators: icators (minimum of one is the Water (A1) Vater Table (A2) Ition (A3)	s required: che	Water-Stair Aquatic Fau True Aquati	una (B13) c Plants (B14)	, I		Surface Soi X Drainage Pa Dry-Season	Cracks (B6) atterns (B10) Water Table (C2)
Primary Indi Surface High W x Satura Water	drology Indicators: icators (minimum of one is the Water (A1) Vater Table (A2) Ition (A3) Marks (B1)	s required: che	Water-Stair Aquatic Fau True Aquati Hydrogen S	una (B13) c Plants (B14) culfide Odor (C	:1)	ec (C3)	X Drainage Pa Dry-Season Crayfish Bu	Cracks (B6) atterns (B10) Water Table (C2) rrows (C8)
Primary Indi Surface High W X Satura Water Sedime	drology Indicators: icators (minimum of one is the Water (A1) Vater Table (A2) Ition (A3) Marks (B1) ent Deposits (B2)	s required: che	Water-Stair Aquatic Fau True Aquati Hydrogen S Oxidized RI	una (B13) c Plants (B14) culfide Odor (C nizospheres on	:1) n Living Root	rs (C3)	Surface Soi X Drainage Pa Dry-Season Crayfish Bu Saturation \	Cracks (B6) atterns (B10) Water Table (C2) rrows (C8) /isible on Aerial Imagery (C9)
Primary Indi Surface High W X Satura Water Sedime	drology Indicators: icators (minimum of one is the Water (A1) Vater Table (A2) tition (A3) Marks (B1) ent Deposits (B2) eposits (B3)	s required: che	Water-Stair Aquatic Fau True Aquati Hydrogen S Oxidized RI Presence o	una (B13) c Plants (B14) culfide Odor (C nizospheres or f Reduced Iror	:1) n Living Root n (C4)		Surface Soi X Drainage Pa Dry-Season Crayfish Bu Saturation \ Stunted or S	Cracks (B6) atterns (B10) Water Table (C2) rrows (C8) //isible on Aerial Imagery (C9) Stressed Plants (D1)
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US Army Corps of Engineers Midwest Region version 2.0

Site: AEP BRHD PV	WA	Rater(s): HAB		Date:	5/20/2014
		•	WETLAND PV4	•	
0 0	Metric 1. W	etland Area (size).			
max 6 pts subtotal	>50 acres (>20.2h 25 to <50 acres (1 10 to <25 acres (4 3 to <10 acres (1.2 0.3 to <3 acres (0.2)	0.1 to <20.2ha) (5 pts) to <10.1ha) (4 pts) 2 to <4ha) (3 pts) 12 to <1.2ha) (2pts) 0.04 to <0.12ha) (1 pt)			
10 10	Metric 2. U	oland buffers and sur	rounding land use.		
max 14 pts. subtotal	X WIDE. Buffers ave MEDIUM. Buffers NARROW. Buffers VERY NARROW. 2b. Intensity of s VERY LOW. 2nd g LOW. Old field (>1 X MODERATELY HI	erage 50m (164ft) or more around average 25m to <50m (82 to <16 s average 10m to <25m (32ft to < 6 s buffers average <10m (<32ft) arourrounding land use. Select on growth or older forest, prairie, say 10 years), shrubland, young secon	4ft) around wetland perimeter (4) 82ft) around wetland perimeter (1) bound wetland perimeter (0) e or double check and average. annah, wildlife area, etc. (7) d growth forest. (5) park, conservation tillage, new fallow field.		
16.0 26			,, 3,		
max 30 pts. subtotal	3a. Sources of W High pH groundwate Other groundwate x Precipitation (1) Seasonal/Intermitt Perennial surface 3c. Maximum wa >0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 0.4m (<15.7in) (1	ater. Score all that apply. ater (5) r (3) ent surface water (3) water (lake or stream) (5) ter depth. Select one. ater (27.6in) (2) b) at to natural hydrologic regime. Searent (12)	tile filli	iman use (1)), complex (1) (1) (on. Score one or dbl checl aturated (4) m (12in) (1)	k.
7 33	Metric 4. Ha	abitat Alteration and	Development.		
max 20 pts. subtotal	x None or none app. Recovered (3) Recovering (2) Recent or no recov 4b. Habitat devel Excellent (7) Very good (6) Good (5) Moderately good (Fair (3) x Poor to fair (2) Poor (1)	very (1) opment. Select only one and as 4) tion. Score one or double checarent (9)	k and average. Check all disturbances observed x mowing sh grazing he clearcutting selective cutting dri	rub/sapling removal rbaceous/aquatic bed remov dimentation edging rming	ral
33	1			trient enrichment	

subtotal this page ORAM v. 5.0 Field Form Quantitative Rating

Wetland 001.xlsm | test_Field 5/28/2014

Site: AEF	P BRHD PV	WA	Rater(s): HAB			Date:	5/20/2014
					WETLAND PV4		
	33				0		
	subtotal this	page					
	0 33	Metric 5. S	pecial Wetlands.				
max 10 pts.	subtotal	J	t apply and score as indic	rated			
max to pis.	Subiolai	Bog (10)	it apply and score as man	atca.			
		Fen (10)					
		Old growth forest	(10)				
		Mature forested v	* *		0)		
			tributary wetland-unrestricted hydr/ tributary wetland-restricted hydrok/	• • •	0)		
			Prairies (Oak Openings) (10)	Jgy (U)			
		Relict Wet Praire	s (10)				
			e state/federal threatened or endar	-			
			ory songbird/water fowl habitat or u				
	3 36		and. See Question 5 Qualitative Rat				
		1		ei spe	ersion, microtopography.		
max 20pts.	subtotal		Vegetation Communities. using 0 to 3 scale.	0	Vegetation Community Cove Absent or comprises <0.1ha (0.2471 a		
		Aquatic bed	using 0 to 3 scale.	_	Present and either comprises small pa	, 0	
		1 Emergent			vegetation and is of moderate quality,		
		Shrub			significant part but is of low quality		
		Forest		2	Present and either comprises significan		
		Mudflats Open water			vegetation and is of moderate quality of part and is of high quality	r comprises a smail	
		Other		3	Present and comprises significant part	or more, of wetland's 3	
			lan view) Interspersion.		vegetation and is of high quality	,	
		Select only one.					
		High (5)	1)		Narrative Description of Vegetation		
		Moderately high(4	+)		Low spp diversity and/or predominance disturbance tolerant native species	e of nonnative of low	
		Moderately low (2	2)		Native spp are dominant component of	the vegetation, mod	
		Low (1)			although nonnative and/or disturbance		
		x None (0)			can also be present, and species diver	•	
			invasive plants. Refer ng form for list. Add		moderately high, but generallyw/o pres	ence of rare	
		or deduct points f			threatened or endangered spp to A predominance of native species, with	nonnative spp high	
		Extensive >75%	=		and/or disturbance tolerant native spp		
		Moderate 25-75%	cover (-3)		absent, and high spp diversity and ofte	n, but not always,	
		Sparse 5-25% co			the presence of rare, threatened, or en	dangered spp	
		Nearly absent <5 x Absent (1)	% cover (0)		Mudflat and Open Water Class Qual	itv	
		6d. Microtopogr	aphv.	0	Absent <0.1ha (0.247 acres)	ity	
			using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 to 2.47 acres)		
		Vegetated humm			Moderate 1 to <4ha (2.47 to 9.88 acres	5)	
		Coarse woody de		3	High 4ha (9.88 acres) or more		
		Standing dead >2 1 Amphibian breed			Microtopography Cover Scale		
			9 2000	0	Absent		
				1	Present very small amounts or if more	common	
					of marginal quality	. (11.1)	
				2	Present in moderate amounts, but not quality or in small amounts of highest of		
	36 CD AND	O TOTAL(max 100	ntc)	2	, ,	,	
L	30 GRANI	J TOTAL(Max 100	hro)	3	Present in moderate or greater amount	ıs	
					and of highest quality		

CATEGORY 2

Wetland 001.xlsm | test_Field 5/28/2014

WETLAND DETERMINATION DATA FORM -- Midwest Region

WETI AND PV4

Droinet/Site:		U D 139 k)/ Transmir	noion Lina	City/County	Boss Cour	Sampling Data: E/20/2014
Project/Site: Applicant/Owner:	AEP Ohio Transco	R-H-D 138 kV Transmis	ssion line	City/County:	Ross Coun	state: OH Sampling Point: 1
nvestigator(s):	Heather A. Bobich			Sec	ion. Townsh	nip, Range:
• , ,	, terrace, etc.): terra	ce				relief (concave, convex, none): concave
Slope (%):	· —			I ona.		Datum:
Soil Map Unit Nam						NWI classification: n/a
· ·	logic conditions on the	site typical for this tim	e of vear?	Yes	X No	(If no, explain in Remarks.)
Are Vegetation		, or Hydrology		_		lormal Circumstances" present? Yes X No
Are Vegetation		, or Hydrology				ded, explain any answers in Remarks.)
=						ansects, important features, etc.
Hydrophytic Vegeta		Yes X	•		Sampled Ar	· •
Hydric Soil Present		Yes X	No		a Wetland?	
Wetland Hydrology		Yes X	No			· · · · · · · · · · · · · · · · · · ·
Remarks: PEM in oldfield are	a					
VEGETATION	Use scientific	names of plants.				
<u>-</u>			Absolute	Dominant	Indicator	
<u>Free Stratum</u> (Plot	size: 30' radius)	% Cover	Species?	Status	Dominance Test worksheet:
						Number of Dominant Species
3.						That Are OBL, FACW, or FAC: 3 (A)
4.						
_						Total Number of Dominant
				= Total Cover		Species Across All Strata: 3 (B)
Cambia a /Chauch Cha	turn (Diet einer AFI e					Descent of Demissort Consise
5apiing/Shrub Stra 1.	tum (Plot size: 15' ra	adius)				Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)
2.						(vb)
3.						
4						Prevalence Index worksheet:
5						Prevalence Index worksheet:
6.				= Total Cover		Total % Cover of: Multiply by:
Herb Stratum (Plot	t size: 5' radius			= Total Cover		OBL species 20 x1 = 20
1. Calamagrostis		<u> </u>	20	Yes	OBL	FACW species 40 x2 = 80
2. Festuca nutans	S		30	Yes	FAC	FAC species 40 x3 = 120
3. Rumex crispus			10	No	FAC	FACU species x4 =
4. Eleocharis gen	iculata		40	Yes	FACW	UPL species x5 =
5 6.						Column Totals: 100 (A) 220 (B)
7.						Prevalence Index = B/A = 2.20
8.						
9.						
10						Hydrophytic Vegetation Indicators:
11						
12						1-Rapid Test for Hydrophytic Vegetation X 2-Dominance Test is >50%
4						X 3-Prevalence Index is ≤3.0 ¹
5.						4-Morphological Adaptations ¹ (Provide supporting
6.						data in Remarks or on a separate sheet)
17.						Problematic Hydrophytic Vegetation ¹ (Explain)
9						¹ Indicators of hydric soil and wetland hydrology must
20				Total Cause		be present, unless disturbed or problematic.
			100	= Total Cover		
Noody Vine Stratu	m (Plot size: 30' ra	adius)				Hydrophytic
4	<u></u> (1.1010101					Vegetation
2.						Present? Yes X No No
				= Total Cover		
			,			
≺emarks: (Include	photo numbers here of	or on a separate sheet.	.)			
US Army Corps of	f Engineers					Midwest Region version 2

4
- 1

Depth (inches) Matrix (close) Redox Features Type¹ (close) Loc² (close) Texture 0-16" 10YR 4/2 85 7.5YR 4/6 15 C PL Silty Clay	
0-16" 10YR 4/2 85 7.5YR 4/6 15 C PL Silty Clay	Remarks
	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ² Location: PL=Pore Lining, M=Matrix	iv
Hydric Soil Indicators: Indicators for Problematic Hydric	
Histosol (A1) Sandy Gleyed Matrix (S4) Coast Prairie Redox	
Histic Epipedon (A2) Sandy Redox (S5) Iron-Manganese Mas	` '
Black Histic (A3) Stripped Matrix (S6) Dark Surface (S7)	,
x Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) Very Shallow Dark Su	ırface (TF12)
Stratified Layers (A5) Loamy Gleyed Matrix (F2) Other (Explain in Rer	marks)
2 cm Muck (A10) x Depleted Matrix (F3)	
Depleted Below Dark Surface (A11) Redox Dark Surface (F6)	
Thick Dark Surface (A12) Depleted Dark Surface (F7) 3Indicators of hydrophytic v	egetation and
Sandy Mucky Mineral (S1) Redox Depressions (F8) wetland hydrology must	be present,
5 cm Mucky Peat or Peat (S3) unless disturbed or pr	oblematic.
Restrictive Layer (if observed):	
Type:	
Depth (inches): Hydric Soil Present? Ye	s X No
IYDROLOGY	
Wetland Hydrology Indicators: Primary Indicators (minimum of one is required: check all that apply) Secondary Indicators (minimum of one is required: check all that apply)	mum of two required)
Primary Indicators (minimum of one is required: check all that apply) Surface Water (A1) Water-Stained Leaves (B9) Surface Soil Cracks (B9)	
- Valido Valer (11) - Valer dained Edaves (ES)	(00)
High Water Table (A2)	(10)
High Water Table (A2) Aquatic Fauna (B13) X Drainage Patterns (B	
x Saturation (A3) True Aquatic Plants (B14) Dry-Season Water Ta	able (C2)
x Saturation (A3) True Aquatic Plants (B14) Dry-Season Water To Water Marks (B1) x Hydrogen Sulfide Odor (C1) Crayfish Burrows (C8)	able (C2) 3)
x Saturation (A3) True Aquatic Plants (B14) Dry-Season Water Ta	able (C2) 3) Aerial Imagery (C9)
x Saturation (A3) True Aquatic Plants (B14) Dry-Season Water Tax Water Marks (B1) x Hydrogen Sulfide Odor (C1) Crayfish Burrows (C8 Sediment Deposits (B2) x Oxidized Rhizospheres on Living Roots (C3) Saturation Visible on Presence of Reduced Iron (C4) Drift Deposits (B3) Presence of Reduced Iron (C4) Stunted or Stressed Inc.	able (C2) 3) Aerial Imagery (C9) Plants (D1)
x Saturation (A3) True Aquatic Plants (B14) Dry-Season Water Town Water Marks (B1) x Hydrogen Sulfide Odor (C1) Crayfish Burrows (C8) Sediment Deposits (B2) x Oxidized Rhizospheres on Living Roots (C3) Saturation Visible on Structed or Stressed (C4) Drift Deposits (B3) Presence of Reduced Iron (C4) Stunted or Stressed (C4)	able (C2) 3) Aerial Imagery (C9) Plants (D1) (D2)
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x Saturation (A3) True Aquatic Plants (B14) Dry-Season Water Town (B14) Water Marks (B1) x Hydrogen Sulfide Odor (C1) Crayfish Burrows (C8) Sediment Deposits (B2) x Oxidized Rhizospheres on Living Roots (C3) Saturation Visible on Saturation Visible on Presence of Reduced Iron (C4) Stunted or Stressed in Stunted or Stressed	able (C2) 3) Aerial Imagery (C9) Plants (D1) (D2)
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x Saturation (A3) True Aquatic Plants (B14) Dry-Season Water Tax Water Marks (B1) x Hydrogen Sulfide Odor (C1) Crayfish Burrows (C8 Sediment Deposits (B2) x Oxidized Rhizospheres on Living Roots (C3) Saturation Visible on Saturation Visible on Presence of Reduced Iron (C4) Stunted or Stressed Inc. Algal Mat or Crust (B4) Recent Iron Reduction in Tilled Soils (C6) Geomorphic Position Geomorphic Position Inc. Iron Deposits (B5) Thin Muck Surface (C7) FAC-Neutral Test (D8 Inundation Visible on Aerial Imagery (B7) Gauge or Well Data (D9) Sparsely Vegetated Concave Surface (B8) Other (Explain in Remarks) Field Observations: Surface Water Present? Yes x No Depth (inches): 2" Depth (inches): 8" Saturation Present? Yes x No Depth (inches): surface Wetland Hydrology Present? Yes	able (C2) 3) Aerial Imagery (C9) Plants (D1) (D2) 5)
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