

# LEVEL 2 ECOLOGICAL SURVEY REPORT



OHIO DEPARTMENT OF TRANSPORTATION  
OFFICE OF ENVIRONMENTAL SERVICES  
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Project C-R-S / Name:	SCI-823-0.00 (Construction Phases 2 & 3)
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<b>TABLE OF CONTENTS</b>	<b>PAGE #</b>
<b>PROJECT SUMMARY</b>	1
<b>LITERATURE REVIEW</b>	4
<b>FIELD METHODS</b>	5
<b>FIELD DATA COLLECTION RESULTS</b>	6
Aquatic Ecology	6
Stream Table	8
Wetland Table	36
Potentially Jurisdictional Ditch Table	46
Pond, Lake, Reservoir Table	47
Fish Community Table	48
Aquatic Macroinvertebrate Community Table	49
Mussel Community Table	50
Terrestrial Ecology	51
Vegetative Communities Table	52
Vegetation Table	54
Mammal Table	64
Bird Table	65
Reptile Table	68
Amphibian Table	69
Listed Species	70
Federally Listed Species Table	72
State-Listed Species Table	73
<b>IMPACT SUMMARY</b>	76
Streams Impacts	76
Wetland Impacts	87
Potentially Jurisdictional Ditch Impacts	91
Pond, Lake, Reservoir Impacts	92
Impacts to Aquatic Life	93
Other Impacts to Water Quality	93
Vegetative Community and Land Cover Impacts	95
Impacts to Terrestrial Wildlife	97
Federally Endangered Indiana Bat ( <i>Myotis sodalis</i> ) Impacts	98
Federally Listed Species Impacts	98
State-Listed Species Impacts	102
<b>LITERATURE CITED</b>	105
<b>APPENDICES</b>	106

**PROJECT SUMMARY**

<b>LOCATION DATA</b>	
ODOT District:	<b>District 9</b>
County(ies):	<b>Scioto</b>
Township(s):	<b>Valley, Jefferson, Harrison, and Porter</b>
Project Center (lat./long.):	<b>Phase 2 Project Center - Latitude 38.78451 °N, Longitude 82.95015 °W Phase 3 Project Center - Latitude 38.78451 °N, Longitude 82.86705 °W</b>
Project Area Size (Ac):	<b>1,075 acres (Phase II, 618 acres and Phase III, 457acres)</b>

<b>PROJECT DESCRIPTION</b>
<p>The overall Portsmouth bypass project will provide a missing link in the Appalachian Development Highway System to improve travel time and regional mobility, avoiding 30 traffic signals, 80 intersections and 500 driveways over the entire 26-mile route. A new roadway will result in a time savings of 16 minutes per trip (off peak) compared to the current through route. In addition to transportation benefits, a primary purpose is to provide access to suitable property (relatively flat) for economic development in the economically depressed region surrounding Portsmouth, Ohio, which consistently experiences unemployment and poverty rates of more than twice the statewide average.</p> <p>ODOT will construct a new four-lane limited access highway/bypass of Portsmouth, Ohio as part of the Appalachian Development Highway system. This Ecological Survey Report (ESR) was conducted on Construction Phases 2 and 3 of the Portsmouth Bypass Project. Construction Phase 2 extends from the US 23 Interchange to the Lucasville-Minford Road (CR 28) Interchange, where it will tie into Construction Phase 1 of the project (Figure 1, Sheet 1). Phase 2 is approximately 7.4 miles long. Construction Phase 3 ties into Phase 1 at the Shumway Hollow Road (TR 234) Interchange, near the Scioto County Airport, and extends south to the proposed US 52/Sciotoville Interchange (Figure 1, Sheets 2 and 3. Construction Phase 3 is approximately 5.6 miles long.</p>

**ECOLOGICAL IMPACT SUMMARY (Impacts may be preliminary and subject to revision)**

<b>Provisional Stream Impact Summary</b>			
<b>Stream Designation*</b>	<b>Phase II</b>	<b>Phase III</b>	<b>Total Phases II &amp; III</b>
<b>Class I</b>	<b>17,266 ft</b>	<b>11,092 ft</b>	<b>28,358 ft</b>
<b>Class II</b>	<b>20,193 ft</b>	<b>15,204 ft</b>	<b>35,397 ft</b>
<b>Class III**</b>	<b>1,526 ft</b>	<b>718 ft</b>	<b>2,244 ft</b>
<b>WWH</b>	<b>0 ft</b>	<b>3,153 ft</b>	<b>3,153 ft</b>
<b>Totals</b>	<b>38,985 ft</b>	<b>30,167 ft</b>	<b>69,152 ft</b>

\*Includes Modified

\*\*Includes Class IIIA PHWH designation

<b>Provisional Wetland Impact Summary</b>			
<b>ORAM Category</b>	<b>Phase II</b>	<b>Phase III</b>	<b>Total Phases II &amp; III</b>
<b>Category 1</b>	<b>0.753 acre</b>	<b>1.307 acres</b>	<b>2.060 acres</b>
<b>Modified Category 2</b>	<b>0.175 acre</b>	<b>0.321 acre</b>	<b>0.496 acre</b>
<b>Category 2</b>	<b>2.822 acres</b>	<b>0.563 acre</b>	<b>3.385 acres</b>
<b>Category 3</b>	<b>0 acre</b>	<b>1.091 acres</b>	<b>1.091 acres</b>
<b>Totals</b>	<b>3.750 acres</b>	<b>3.282 acres</b>	<b>7.032 acres</b>

<b>Provisional Potentially Jurisdictional Ditch Impact Summary</b>		
<b>Ditch ID</b>	<b>Phase</b>	<b>Impact Acre (feet)</b>
<b>PJD 1</b>	<b>Phase III</b>	<b>0.013 acre (218 ft)</b>
<b>PJD 2</b>	<b>Phase III</b>	<b>0.024 acre (409 ft)</b>
<b>PJD 3</b>	<b>Phase II</b>	<b>0.025 acre (428 ft)</b>
<b>Totals</b>		<b>0.062 acre (1,055 ft)</b>

<b>Provisional Pond Impact Summary</b>		
<b>Pond ID</b>	<b>Phase</b>	<b>Impact Area</b>
<b>Pond 1</b>	<b>Phase III</b>	<b>0.140 acre</b>
<b>Pond 3</b>	<b>Phase III</b>	<b>0.012 acre</b>
<b>Totals</b>		<b>0.152 acre</b>

Provisional Vegetative Community Impacts			
Community Type (Symbol)	Phase II	Phase III	Total Phases II & III
Developed Open Space (DS)	47.02 acres	42.92 acres	89.94 acres
Marsh (MA)	4.23 acres	2.03 acres	6.26 acres
Upland Forest (UF)	356.64 acres	328.78 acres	685.42 acres
Scrub/Shrub (SS)	92.37 acres	46.07 acres	138.44 acres
Barren Land (BL)	79.06 acres	10.67 acres	89.73 acres
Cultivated Crops (CC)	23.15 acres	0.00 acre	23.15 acres
Grassland/Herbaceous (GH)	10.20 acres	12.98 acres	23.18 acres
Pasture/Hay (PH)	5.43 acres	10.06 acres	15.49 acres
Open Water (OW)	0.00 acre	0.16 acre	0.16 acre
Floodplain Forest (FF)	0.00 acre	2.58 acres	2.58 acres
Herbaceous Riverine (HR)	0.00 acre	0.68 acre	0.68 acre
<b>Totals</b>	<b>618.10 acres</b>	<b>456.93 acres</b>	<b>1,075.03 acres</b>

**Federally Listed Species Impacts:** None

**State-Listed Species Impacts:** Impacts to the State Endangered primrose-leaved violet (*Viola primulifolia*), the State Threatened riverbank paspalum (*Paspalum repens*), and the State-Listed Species of Concern eastern box turtle (*Terrapene carolina carolina*) and eastern garter snake (*Thamnophis sirtalis sirtalis*) are likely. Impacts to the State Threatened black sandshell mussel (*Ligumia recta*) are not likely as this species was collected upstream and downstream of the proposed bridge over the Little Scioto River and this project will likely require mussel relocation prior to the construction of the proposed project.

LITERATURE REVIEW		
Literature Source(s) Reviewed (check all that apply)	Results of Review	Map Included In Appendix
<input checked="" type="checkbox"/> <a href="#">Ecoregion Map</a>	List Ecoregion(s): <b>70d. Lower Scioto Dissected Plain</b> <b>70f. Ohio-Kentucky Coniferous Plateaus</b>	<b>YES</b> <b>Figure 3,</b> <b>Sheets 1–3</b>
<input checked="" type="checkbox"/> <a href="#">Physiographic Regions Map of Ohio</a>	List Physiographic Region(s): <b>15.0 Shawnee-Mississippian Plateau</b> <b>(Choose Physiographic Region)</b>	<b>YES</b> <b>Figure 8</b>
<input checked="" type="checkbox"/> USGS 7.5 Minute Topographic Quadrangle Maps	List quadrangle(s): <ul style="list-style-type: none"> <li>• Lucasville</li> <li>• Minford</li> <li>• New Boston</li> <li>• Portsmouth</li> <li>• Wakefield</li> <li>• Wheelersburg</li> </ul>	<b>Map</b> <b>Required</b> <b>Figure 1,</b> <b>Sheets 1–3</b>
<input checked="" type="checkbox"/> County Soil Survey	Mapped hydric soils within project area? <b>NO</b>	<b>Map</b> <b>Required</b> <b>Figure 9,</b> <b>Sheets 1–7</b>
<input checked="" type="checkbox"/> <a href="#">Ohio Water Quality Standards (Ohio Administrative Code, Chapter 3745-1)</a>		Not Applicable
<input type="checkbox"/> <a href="#">Biological and Water Quality Reports</a>	List reports that cover project area (if applicable):	Not Applicable
<input checked="" type="checkbox"/> <a href="#">Hydrologic Unit Code(s) (HUC)</a>	List 14 Digit Watershed boundaries within project area: <b>05060002-160-060</b> –Miller Run <b>05060002-160-050</b> –Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run] <b>05090103-040-010</b> –Rocky Fork headwaters above McConnell Creek <b>05090103-040-030</b> –Long Run <b>05090103-040-050</b> –Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek] <b>05090103-040-060</b> –Ohio River below Pine Creek to above Scioto River [except Lower Scioto River & Tygarts Creek (KY)]	<b>YES</b> <b>Figure 5,</b> <b>Sheets 1–3</b>
<input checked="" type="checkbox"/> <a href="#">Total Maximum Daily Load (TMDL) Program</a>	List TMDL status of project area (if applicable): <b>Lower Scioto River – Watershed Assessment in Progress (as of 1/3/2013)</b> <b>Pine, Ice and Little Scioto Creeks – Load Analysis in Progress (as of 1/3/2013)</b>	<b>NO</b>
<input checked="" type="checkbox"/> <a href="#">National</a> and <a href="#">State</a> Wild and Scenic River lists, and the <a href="#">Nationwide Rivers Inventory (NRI)</a>	List river(s) within or near the project area (if within applicable reach): <b>Not Applicable</b>	<b>NO</b>

		<b>Not Applicable</b>	
<input checked="" type="checkbox"/>	Federal Emergency Management Agency (FEMA) <a href="#">Flood Insurance Rate Maps (FIRM)</a>	Is the project within a 100 year floodplain: <b>YES</b>	<b>YES</b> <b>Figure 4, Sheets 1-3</b>
<input checked="" type="checkbox"/>	<a href="#">Ohio's Coastal Zone Management Area</a>	Is the project within the Coastal Zone Management Area: <b>NO</b>	<b>NO</b>
<input checked="" type="checkbox"/>	National Wetlands Inventory (NWI) and or Ohio Wetland Inventory Mapping (OWI)		<b>YES</b> <b>Figure 7, Sheets 1-8</b>
<input checked="" type="checkbox"/>	ODNR Division of Natural Areas and Preserves <a href="#">Natural Heritage Database</a>	Are there records for listed species within 1 mile of the project area? <b>YES</b> Summarize on <b>State-Listed Species Table</b>	<b>YES</b> <b>Figure 2, Sheets 1-5</b>
<input checked="" type="checkbox"/>	<a href="#">Federally Endangered, Threatened, Proposed and Candidate Species in Ohio</a>	List and Summarize on <b>Federally Listed Species Table</b>	Not Applicable
<input checked="" type="checkbox"/>	<a href="#">Oak Openings Region of Ohio</a>	Is the project located within the Oak Openings Region of Ohio? <b>NO</b>	<b>NO</b>
<input checked="" type="checkbox"/>	Other: National Land Cover Map		<b>Figure 6, Sheets 1-3</b>
<input checked="" type="checkbox"/>	Other: Vegetative Communities Map		<b>Figure 10, Sheets 1-8</b>

<b>FIELD METHODS</b>	
Field Investigator Name(s):	Jason Earley, Josh Kubitzka, Len Mikles and Rick Paul
Affiliation:	ASC Group, Inc.
Date(s) of Field Work:	June 25, 2012 through November 8, 2012, and week of February 18, 2013
Weather Conditions:	Various - hot, humid and sunny, cool and overcast, cold and overcast.

**Check all that apply**

<b>Stream Survey (Habitat and Biology)</b>	
<input checked="" type="checkbox"/>	Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams (v 2.3) (OEPA 2009)
<input checked="" type="checkbox"/>	Methods for Assessing Habitat in Flowing Waters: Using the Qualitative Habitat Evaluation Index (QHEI). (OEPA 2006)
<input checked="" type="checkbox"/>	Biological Criteria for the Protection of Aquatic Life: Volume I (OEPA 1987a), Volume II (OEPA 1987b, 2008a), Volume III (OEPA 1989, 2008b),
<input checked="" type="checkbox"/>	ODOT Ecological Manual: Sections 203.2.1.1 -Stream, 203.2.1.5-Fishes, 203.2.1.6-Macrobenothos, 203.2.1.7-Mussels (ODOT 2010)
<input type="checkbox"/>	Other Methods (describe and cite):
<b>Wetland Delineation and Classification</b>	

<input checked="" type="checkbox"/>	Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1 (Environmental Laboratory 1987)
	Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual:
<input type="checkbox"/>	Midwest Region (Environmental Laboratory 2008)
<input type="checkbox"/>	Northcentral and Northeast
<input checked="" type="checkbox"/>	Eastern Mountains and Piedmont
<input checked="" type="checkbox"/>	Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al. 1979)
<input checked="" type="checkbox"/>	Ohio Rapid Assessment Method for Wetlands v. 5.0, User's Manual and Scoring Forms (OEPA 2001)
<input type="checkbox"/>	Other Methods (describe and cite):
<b>Other Waters</b>	
<input checked="" type="checkbox"/>	ODOT Ecological Manual: Sections 203.2.1.3-Ditches/Swales, 203.2.1.4-Ponds/Lakes (ODOT 2010)
<input type="checkbox"/>	Other Methods (describe and cite):
<b>Terrestrial</b>	
<input checked="" type="checkbox"/>	ODOT Ecological Manual: Section 203.2.2 -Terrestrial Ecology (ODOT 2010)
<input type="checkbox"/>	Other Methods (describe and cite):
<b>Listed Species</b>	
<input checked="" type="checkbox"/>	ODOT Ecological Manual: Sections 203.2.3 -Listed Species (ODOT 2010)
<input type="checkbox"/>	Other Methods (describe and cite):

**FIELD DATA COLLECTION RESULTS**

<b>AQUATIC ECOLOGY</b>	
<b>Streams</b>	
Were any streams identified within the project area? (If NO, delete the <b>Stream Table</b> )	<b>YES</b>
Total number of streams within the project area:	125
Total length of streams within the project area (linear feet):	69,152

<b>Wetlands</b>	
Were any wetlands identified within the project area? (If NO, delete the <b>Wetland Table</b> )	<b>YES</b>
Total number of wetlands within the project area:	40
Total area of wetlands within the project area (acres):	7.032

<b>Potentially Jurisdictional Ditches</b>	
Were any potentially jurisdictional ditches identified within the project area? (If NO, delete the <b>Potentially Jurisdictional Ditch Table</b> )	<b>YES</b>
Total number of potentially jurisdictional ditches within the project area:	3



<b>Potentially Jurisdictional Ditches</b>	
Total area of potentially jurisdictional ditches within the project area (feet):	0.062 acre (1,055 ft)

<b>Ponds</b>	
Were any ponds identified within the project area? (If NO, delete the <b>Pond Table</b> )	<b>YES</b>
Total number of ponds within the project area:	2
Total area of ponds within the project area (acres):	0.152

<b>Aquatic Life</b>	
Were any fish communities sampled/observed within the project area? (If NO, delete the <b>Fish Table</b> )	<b>YES</b>
If yes, total number of fish species identified:	5
Were any aquatic macroinvertebrate communities sampled/observed within the project area? (If NO, delete the <b>Macroinvertebrate Table</b> )	<b>YES</b>
If yes, total number of aquatic macroinvertebrate species identified:	9
Were any mussel communities sampled/observed within the project area? (If NO, delete the <b>Mussel Table</b> )	<b>YES</b>
If yes, total number of mussel species identified:	9

**CONSTRUCTION PHASE 2 STREAM TABLE : RESOURCES IDENTIFIED ON FIGURE(S) 11**

Stream Name/I.D.:	Photograph #(s):	Receiving Waters:	Drainage Area (mi <sup>2</sup> ):	14-Digit HUC:	Total Length Within Project Area (lin. ft.):	Is this Stream Captured within the Roadway Ditch:	Stream Hydrology Type:	USACE Flow Characteristics:	Habitat Assessment	Evidence of Mussels Present:	Biological Sampling Conducted			Ohio EPA Aquatic Life Use Designation (may be provisional based on qualitative data):	Anti-degradation Designation:	National or State Wild, Scenic, or NRI Stream, or within 1,000 ft. of a Wild or Scenic:	Within a HUC with an Approved or Pending TMDL:
											Salamanders Observed:	Fish Observed:	Aquatic Macro-invertebrates Observed:				
Stream 1	1-6, 8	Scioto River	0.57	05060002-160-050 See Additional Information	2,190	NO	Intermittent	Relatively Permanent Water-Seasonal	HHEI 30	NO	None Found	Not Surveyed Observed*	HMFEI-Class I	Modified Class II PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<p>Stream 1 -&gt; Scioto River (TNW) Stream 1 is provisionally classified as a Modified Class II PHWH, even though it attained an HMFEI macroinvertebrate score indicative of a Class I PHWH. The Modified Class II is more appropriate due to the presence of fish in the stream *Western Mosquitofish (<i>Gambusia affinis</i>) were collected during the HMFEI sampling at the confluence of Streams 1 and 2.</p> <p><b>05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b></p>												
Stream 2	5, 7	Stream 1	0.23	05060002-160-050 See Additional Information	1,479	YES	Intermittent	Relatively Permanent Water-Seasonal	HHEI 26	NO	None Found	Not Surveyed Observed*	HMFEI-Class I	Modified Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<p>*Western Mosquitofish (<i>Gambusia affinis</i>) were collected during the HMFEI sampling at the confluence of Streams 1 and 2. Stream 2 was provisionally classified as a Modified Class I PHWH, even though fish were present at the confluence of Streams 1 and 2. Stream 2 did not contain any standing water upstream of its confluence with Stream 1, and a provisional Modified Class 1 PHWM designation is appropriate. Stream 2 -&gt; Stream 1 -&gt; Scioto River (TNW)</p> <p><b>05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b></p>												
Stream 3	12 - 15	Stream 1	0.29	05060002-160-050 See Additional Information	1,100	YES	Intermittent	Relatively Permanent Water-Seasonal	HHEI 34	NO	None Found	Not Surveyed	None Found	Modified Class II PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<p>Stream 3 -&gt; Stream 1 -&gt; Scioto River (TNW)</p> <p><b>05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b></p>												
Stream 4	18	Stream 1	0.80	05060002-160-050 See Additional Information	213	YES	Intermittent	Relatively Permanent Water-Seasonal	HHEI 38	NO	None Found	Not Surveyed	None Found	Modified Class II PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<p>Stream 4 -&gt; Stream 1 -&gt; Scioto River (TNW)</p> <p><b>05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b></p>												

**CONSTRUCTION PHASE 2 STREAM TABLE : RESOURCES IDENTIFIED ON FIGURE(S) 11**

Stream Name/I.D.:	Photograph #(s):	Receiving Waters:	Drainage Area (mi <sup>2</sup> ):	14-Digit HUC:	Total Length Within Project Area (lin. ft.):	Is this Stream Captured within the Roadway Ditch:	Stream Hydrology Type:	USACE Flow Characteristics:	Habitat Assessment	Evidence of Mussels Present:	Biological Sampling Conducted			Ohio EPA Aquatic Life Use Designation (may be provisional based on qualitative data):	Anti-degradation Designation:	National or State Wild, Scenic, or NRI Stream, or within 1,000 ft. of a Wild or Scenic:	Within a HUC with an Approved or Pending TMDL:
											Salamanders Observed:	Fish Observed:	Aquatic Macro-invertebrates Observed:				
Stream 5	27, 28	Stream 6	0.04	05060002-160-050 See Additional Information	599	NO	Perennial (interstitial)	Relatively Permanent Water-Perennial	HHEI 59	NO	Class IIIA Species	None Found	HMFEI-Class II	Modified Class IIIA PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Would be classified as a Modified Class IIIA PHWH due to the presence of larval and juvenile/adult of two-lined salamanders (Photograph 31). Stream 5 -&gt; Stream 6 -&gt; Stream 1 -&gt; Scioto River (TNW)</b> <b>05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												
Stream 5A	26	Stream 5	<0.01	05060002-160-050 See Additional Information	237	NO	Intermittent	Relatively Permanent Water-Seasonal	HHEI 21	NO	None Found	Not Surveyed	None Found	Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 5A -&gt; Stream 5 -&gt; Stream 6 -&gt; Stream 1 -&gt; Scioto River (TNW)</b> <b>05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												
Stream 5B	25	Stream 5	<0.01	05060002-160-050 See Additional Information	248	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 12	NO	None Found	Not Surveyed	None Found	Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 5B -&gt; Stream 5 -&gt; Stream 6 -&gt; Stream 1 -&gt; Scioto River (TNW)</b> <b>05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												
Stream 5C	29, 30	Stream 5	<0.01	05060002-160-050 See Additional Information	153	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 11	NO	None Found	Not Surveyed	None Found	Modified Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 5C-&gt; Stream 5 -&gt; Stream 6 -&gt; Stream 1 -&gt; Scioto River (TNW)</b> <b>05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												
Stream 6	37	Stream 1	0.50	05060002-160-050 See Additional Information	862	NO	Perennial (interstitial)	Relatively Permanent Water-Perennial	HHEI 50	NO	None Found	None Found	Yes*	Class II PHWH	General High Quality Waters	NO	NO

**CONSTRUCTION PHASE 2 STREAM TABLE : RESOURCES IDENTIFIED ON FIGURE(S) 11**

Stream Name/I.D.:	Photograph #(s):	Receiving Waters:	Drainage Area (mi <sup>2</sup> ):	14-Digit HUC:	Total Length Within Project Area (lin. ft.):	Is this Stream Captured within the Roadway Ditch:	Stream Hydrology Type:	USACE Flow Characteristics:	Habitat Assessment	Evidence of Mussels Present:	Biological Sampling Conducted			Ohio EPA Aquatic Life Use Designation (may be provisional based on qualitative data):	Anti-degradation Designation:	National or State Wild, Scenic, or NRI Stream, or within 1,000 ft. of a Wild or Scenic:	Within a HUC with an Approved or Pending TMDL:
											Salamanders Observed:	Fish Observed:	Aquatic Macro-invertebrates Observed:				
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 6 -&gt; Stream 1 -&gt; Scioto River (TNW)</b> Only water striders (Hemiptera) were observed. Per HMFEL protocols, Hemiptera do not receive any points in the HMFEL. <b>05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												
Stream 6A	33, 34	Stream 6	0.05	05060002-160-050 See Additional Information	623	NO	Intermittent	Relatively Permanent Water-Seasonal	HHEI 45	NO	Class IIIA Species	Not Surveyed	HMFEL-Class I	Class II PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 6A -&gt; Stream 6 -&gt; Stream 1 -&gt; Scioto River (TNW)</b> Four adult two-lined salamanders were collected at this location. No evidence of reproduction observed and would therefore be classified as a Modified Class II PHWH. <b>05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												
Stream 6B	38, 41	Stream 6	0.02	05060002-160-050 See Additional Information	927	NO	Intermittent	Relatively Permanent Water-Seasonal	HHEI 45	NO	Class IIIA Species	Not Surveyed	None Found	Class IIIA PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 6B -&gt; Stream 6 -&gt; Stream 1 -&gt; Scioto River (TNW)</b> Modified Class IIIA – 1 larval two-lined salamander observed. An HMFEL form was not completed because no other HMFEL species were observed during the evaluation. <b>05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												
Stream 6B1	No Photo	Stream 6B	<0.01	05060002-160-050 See Additional Information	198	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 10	NO	None Found	Not Surveyed	None Found	Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 6B1 -&gt; Stream 6b -&gt; Stream 6 -&gt; Stream 1 -&gt; Scioto River (TNW)</b> <b>05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												
Stream 6B2	39, 40	Stream 6B	<0.01	05060002-160-050 See Additional Information	297	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 18	NO	None Found	Not Surveyed	None Found	Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 6B2 -&gt; Stream 6b -&gt; Stream 6 -&gt; Stream 1 -&gt; Scioto River (TNW)</b> <b>05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												

**CONSTRUCTION PHASE 2 STREAM TABLE : RESOURCES IDENTIFIED ON FIGURE(S) 11**

Stream Name/I.D.:	Photograph #(s):	Receiving Waters:	Drainage Area (mi <sup>2</sup> ):	14-Digit HUC:	Total Length Within Project Area (lin. ft.):	Is this Stream Captured within the Roadway Ditch:	Stream Hydrology Type:	USACE Flow Characteristics:	Habitat Assessment	Evidence of Mussels Present:	Biological Sampling Conducted			Ohio EPA Aquatic Life Use Designation (may be provisional based on qualitative data):	Anti-degradation Designation:	National or State Wild, Scenic, or NRI Stream, or within 1,000 ft. of a Wild or Scenic:	Within a HUC with an Approved or Pending TMDL:
											Salamanders Observed:	Fish Observed:	Aquatic Macro-invertebrates Observed:				
Stream 7	45, 46	Stream 8	0.13	05060002-160-050 See Additional Information	441	NO	Intermittent	Relatively Permanent Water-Seasonal	HHEI 20	NO	None Found	Not Surveyed	None Found	Modified Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 7 has been severely impacted during recent clear cutting activities. Stream 7 -&gt; Stream 8 -&gt; unnamed Tributary -&gt; Stream 6 -&gt; Stream 1 -&gt; Scioto River (TNW) 05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												
Stream 8	47, 48	UNT to Stream 6	0.09	05060002-160-050 See Additional Information	1,177	NO	Intermittent	Relatively Permanent Water-Seasonal	HHEI 10	NO	Not Surveyed	Not Surveyed	Not Surveyed	Modified Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 8 has been severely impacted during recent clear cutting activities. Stream 8 -&gt; unnamed Tributary -&gt; Stream 6 -&gt; Stream 1 -&gt; Scioto River (TNW) 05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												
Stream 9	50, 51	Back Run	0.09	05060002-160-060 Miller Run	781	NO	Intermittent	Relatively Permanent Water-Seasonal	HHEI 34	NO	None Found	Not Surveyed	None Found	Class II PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Clear cutting was observed downstream of sample location during the field investigation. Stream 9 -&gt; Back Run -&gt; Miller Run -&gt; Scioto River (TNW)</b>												
Stream10	55, 62	Stream 11	0.15	05060002-160-050 See Additional Information	1,025	NO	Intermittent	Relatively Permanent Water-Seasonal	HHEI 37	NO	None Found	None Found	HMFEI-Class I	Modified Class II PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream10 -&gt; Stream 11-&gt; Lake Margaret -&gt;unnamed Tributary -&gt; Candy Run -&gt; Scioto River (TNW) 05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												
Stream 10A	56, 57	Stream 10	<0.01	05060002-160-050 See Additional Information	229	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 22	NO	Not Surveyed	Not Surveyed	Not Surveyed	Modified Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 10A -&gt; Stream10 -&gt; Stream 11-&gt; Lake Margaret -&gt;unnamed Tributary -&gt; Candy Run -&gt; Scioto River (TNW) 05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												

**CONSTRUCTION PHASE 2 STREAM TABLE : RESOURCES IDENTIFIED ON FIGURE(S) 11**

Stream Name/I.D.:	Photograph #(s):	Receiving Waters:	Drainage Area (mi <sup>2</sup> ):	14-Digit HUC:	Total Length Within Project Area (lin. ft.):	Is this Stream Captured within the Roadway Ditch:	Stream Hydrology Type:	USACE Flow Characteristics:	Habitat Assessment	Evidence of Mussels Present:	Biological Sampling Conducted			Ohio EPA Aquatic Life Use Designation (may be provisional based on qualitative data):	Anti-degradation Designation:	National or State Wild, Scenic, or NRI Stream, or within 1,000 ft. of a Wild or Scenic:	Within a HUC with an Approved or Pending TMDL:
											Salamanders Observed:	Fish Observed:	Aquatic Macro-invertebrates Observed:				
Stream 10B	53, 54	Stream 10	0.04	05060002-160-050 See Additional Information	708	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 10	NO	Not Surveyed	Not Surveyed	Not Surveyed	Modified Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>The majority of the Stream 10B channel is under a large slag pile from logging activities in the valley. Stream 10B-&gt; Stream10 -&gt; Stream 11-&gt; Lake Margaret -&gt;unnamed Tributary -&gt; Candy Run -&gt; Scioto River (TNW) 05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												
Stream 10C	58, 59	Stream 10	0.03	05060002-160-050 See Additional Information	112	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 12	NO	None Found	Not Surveyed	None Found	Modified Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 10C-&gt; Stream10 -&gt; Stream 11-&gt; Lake Margaret -&gt;unnamed Tributary -&gt; Candy Run -&gt; Scioto River (TNW) 05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												
Stream 10D	60, 61	Stream 10	0.03	05060002-160-050 See Additional Information	128	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 23	NO	None Found	Not Surveyed	None Found	Modified Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 10D-&gt; Stream10 -&gt; Stream 11-&gt; Lake Margaret -&gt;unnamed Tributary -&gt; Candy Run -&gt; Scioto River (TNW) 05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												
Stream 11	71, 72	Candy Run	0.12	05060002-160-050 See Additional Information	1,082	NO	Intermittent	Relatively Permanent Water-Seasonal	HHEI 46	NO	Class IIIA Species	Not Surveyed	HMFEI-Class I	Class II PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Only 1 adult/juvenile two-lined salamander observed. No evidence of two-lined salamander breeding at this location and would be classified as a Modified Class II PHWH. Stream 11-&gt; Candy Run -&gt; Scioto River (TNW) 05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												
Stream 11A	65, 66	Stream 11	0.02	05060002-160-050 See Additional Information	606	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 22	NO	None Found	Not Surveyed	None Found	Class I PHWH	General High Quality Waters	NO	NO

**CONSTRUCTION PHASE 2 STREAM TABLE : RESOURCES IDENTIFIED ON FIGURE(S) 11**

Stream Name/I.D.:	Photograph #(s):	Receiving Waters:	Drainage Area (mi <sup>2</sup> ):	14-Digit HUC:	Total Length Within Project Area (lin. ft.):	Is this Stream Captured within the Roadway Ditch:	Stream Hydrology Type:	USACE Flow Characteristics:	Habitat Assessment	Evidence of Mussels Present:	Biological Sampling Conducted			Ohio EPA Aquatic Life Use Designation (may be provisional based on qualitative data):	Anti-degradation Designation:	National or State Wild, Scenic, or NRI Stream, or within 1,000 ft. of a Wild or Scenic:	Within a HUC with an Approved or Pending TMDL:
											Salamanders Observed:	Fish Observed:	Aquatic Macro-invertebrates Observed:				
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 11A -&gt; Stream 11-&gt; Candy Run -&gt; Scioto River (TNW)</b>												
					<b>05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												
Stream 11B	67, 68	Stream 11A	<0.01	05060002-160-050 See Additional Information	379	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 18	NO	None Found	Not Surveyed	None Found	Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 11B-&gt; Stream 11A -&gt; Stream 11-&gt; Candy Run -&gt; Scioto River (TNW)</b>												
					<b>05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												
Stream 11C	69, 70	Stream 11A	<0.01	05060002-160-050 See Additional Information	431	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 28	NO	None Found	Not Surveyed	None Found	Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 11C -&gt; Stream 11A-&gt; Stream 11-&gt; Candy Run -&gt; Scioto River (TNW)</b>												
					<b>05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												
Stream 11D	76, 77	Stream 11	0.02	05060002-160-050 See Additional Information	580	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 13	NO	None Found	Not Surveyed	None Found	Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 11D -&gt; Stream 11-&gt; Candy Run -&gt; Scioto River (TNW)</b>												
					<b>05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												
Stream 11E	73, 74	Stream 11	0.02	05060002-160-050 See Additional Information	324	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 32	NO	None Found	Not Surveyed	None Found	Class II PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 11E -&gt; Stream 11-&gt; Candy Run -&gt; Scioto River (TNW)</b>												
					<b>05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												
Stream 11F	78, 79	Stream 11	0.02	05060002-160-050 See Additional Information	757	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 12	NO	None Found	Not Surveyed	None Found	Class I PHWH	General High Quality Waters	NO	NO

**CONSTRUCTION PHASE 2 STREAM TABLE : RESOURCES IDENTIFIED ON FIGURE(S) 11**

Stream Name/I.D.:	Photograph #(s):	Receiving Waters:	Drainage Area (mi <sup>2</sup> ):	14-Digit HUC:	Total Length Within Project Area (lin. ft.):	Is this Stream Captured within the Roadway Ditch:	Stream Hydrology Type:	USACE Flow Characteristics:	Habitat Assessment	Evidence of Mussels Present:	Biological Sampling Conducted			Ohio EPA Aquatic Life Use Designation (may be provisional based on qualitative data):	Anti-degradation Designation:	National or State Wild, Scenic, or NRI Stream, or within 1,000 ft. of a Wild or Scenic:	Within a HUC with an Approved or Pending TMDL:
											Salamanders Observed:	Fish Observed:	Aquatic Macro-invertebrates Observed:				
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 11F -&gt; Stream 11-&gt; Candy Run -&gt; Scioto River (TNW)</b>												
					<b>05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												
Stream 12	81, 82	Stream 11	0.10	05060002-160-050 See Additional Information	696	NO	Intermittent	Relatively Permanent Water-Seasonal	HHEI 32	NO	None Found	Not Surveyed	None Found	Class II PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 12 -&gt; Stream 11-&gt; Candy Run -&gt; Scioto River (TNW)</b>												
					<b>05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												
Stream 13	83, 84	Stream 11	0.01	05060002-160-050 See Additional Information	628	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 44	NO	None Found	Not Surveyed	None Found	Class II PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 13-&gt; Stream 11-&gt; Candy Run -&gt; Scioto River (TNW)</b>												
					<b>05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												
Stream 14	No Photo	Stream 11	0.02	05060002-160-050 See Additional Information	706	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 23	NO	None Found	Not Surveyed	None Found	Modified Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 14 -&gt; Stream 13-&gt; Stream 11-&gt; Candy Run -&gt; Scioto River (TNW)</b>												
					<b>05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												
Stream 15	85, 86	Stream 16	0.02	05060002-160-050 See Additional Information	1,040	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 22	NO	None Found	Not Surveyed	None Found	Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 15 -&gt; Stream 16 -&gt; Stream 11-&gt; Candy Run -&gt; Scioto River (TNW)</b>												
					<b>05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												
Stream 15A	87	Stream 15	<0.01	05060002-160-050 See Additional Information	339	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 21	NO	None Found	Not Surveyed	None Found	Class I PHWH	General High Quality Waters	NO	NO



**CONSTRUCTION PHASE 2 STREAM TABLE : RESOURCES IDENTIFIED ON FIGURE(S) 11**

Stream Name/I.D.:	Photograph #(s):	Receiving Waters:	Drainage Area (mi <sup>2</sup> ):	14-Digit HUC:	Total Length Within Project Area (lin. ft.):	Is this Stream Captured within the Roadway Ditch:	Stream Hydrology Type:	USACE Flow Characteristics:	Habitat Assessment	Evidence of Mussels Present:	Biological Sampling Conducted			Ohio EPA Aquatic Life Use Designation (may be provisional based on qualitative data):	Anti-degradation Designation:	National or State Wild, Scenic, or NRI Stream, or within 1,000 ft. of a Wild or Scenic:	Within a HUC with an Approved or Pending TMDL:
											Salamanders Observed:	Fish Observed:	Aquatic Macro-invertebrates Observed:				
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 15A -&gt; Stream 15 -&gt; Stream 16 -&gt; Stream 11-&gt; Candy Run -&gt; Scioto River (TNW)</b>												
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												
Stream 15B	88, 89	Stream 15	<0.01	05060002-160-050 See Additional Information	317	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 11	NO	None Found	Not Surveyed	None Found	Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 15B -&gt; Stream 15 -&gt; Stream 16 -&gt; Stream 11-&gt; Candy Run -&gt; Scioto River (TNW)</b>												
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												
Stream 16	92, 93	Stream 11	0.27	05060002-160-050 See Additional Information	1,040	NO	Intermittent	Relatively Permanent Water-Seasonal	HHEI 41	NO	Class IIIA Species	Not Surveyed	None Found	Class II PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>1 adult two-lined salamander found. No evidence of breeding. No other aquatic species observed. Class II PHWH would apply. Stream 16 -&gt; Stream 11-&gt; Lake Margaret -&gt;unnamed Tributary -&gt; Candy Run -&gt; Scioto River (TNW)</b>												
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												
Stream 16A	94, 95	Stream 16	0.05	05060002-160-050 See Additional Information	310	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 26	NO	None Found	Not Surveyed	None Found	Modified Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 16A -&gt; Stream 16 -&gt; Stream 11-&gt; Candy Run -&gt; Scioto River (TNW)</b>												
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												
Stream 17	96, 97	Candy Run	0.09	05060002-160-050 See Additional Information	1,046	NO	Intermittent	Relatively Permanent Water-Seasonal	HHEI 61	NO	None Found	Not Surveyed	HMFEI-Class I	Class II PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 17 was one of the few streams that had water in the channel during the ecological survey. HMFEI sampling was cut short due to disturbing a yellow jacket nest in the channel.</b>												
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 17-&gt; Candy Run -&gt; Scioto River (TNW)</b>												
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												

**CONSTRUCTION PHASE 2 STREAM TABLE : RESOURCES IDENTIFIED ON FIGURE(S) 11**

Stream Name/I.D.:	Photograph #(s):	Receiving Waters:	Drainage Area (mi <sup>2</sup> ):	14-Digit HUC:	Total Length Within Project Area (lin. ft.):	Is this Stream Captured within the Roadway Ditch:	Stream Hydrology Type:	USACE Flow Characteristics:	Habitat Assessment	Evidence of Mussels Present:	Biological Sampling Conducted			Ohio EPA Aquatic Life Use Designation (may be provisional based on qualitative data):	Anti-degradation Designation:	National or State Wild, Scenic, or NRI Stream, or within 1,000 ft. of a Wild or Scenic:	Within a HUC with an Approved or Pending TMDL:
											Salamanders Observed:	Fish Observed:	Aquatic Macro-invertebrates Observed:				
Stream 17A	98	Stream 17	<0.01	05060002-160-050 See Additional Information	122	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 29	NO	None Found	Not Surveyed	None Found	Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 17A -&gt; Stream 17-&gt; Candy Run -&gt; Scioto River (TNW)</b> <b>05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												
Stream 17B	99, 101	Stream 17	0.04	05060002-160-050 See Additional Information	870	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 32	NO	None Found	Not Surveyed	None Found	Class II PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 17B-&gt; Stream 17-&gt; Candy Run -&gt; Scioto River (TNW)</b> <b>05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												
Stream 17C	102, 103	Stream 17B	0.04	05060002-160-050 See Additional Information	553	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 37	NO	None Found	Not Surveyed	None Found	Class II PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 17C -&gt; Stream 17B-&gt; Stream 17-&gt; Candy Run -&gt; Scioto River (TNW) -&gt; Ohio River (TNW)</b> <b>05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												
Stream 17C1	104, 105	Stream 17C	<0.01	05060002-160-050 See Additional Information	130	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 28	NO	None Found	Not Surveyed	None Found	Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 17C1 -&gt; Stream 17C -&gt; Stream 17B-&gt; Stream 17-&gt; Candy Run -&gt; Scioto River (TNW)</b> <b>05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												
Stream 18	106, 107	Candy Run	<0.01	05060002-160-050 See Additional Information	716	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 37	NO	None Found	Not Surveyed	None Found	Class II PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 18 -&gt; Candy Run -&gt; Scioto River (TNW)</b> <b>05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												

**CONSTRUCTION PHASE 2 STREAM TABLE : RESOURCES IDENTIFIED ON FIGURE(S) 11**

Stream Name/I.D.:	Photograph #(s):	Receiving Waters:	Drainage Area (mi <sup>2</sup> ):	14-Digit HUC:	Total Length Within Project Area (lin. ft.):	Is this Stream Captured within the Roadway Ditch:	Stream Hydrology Type:	USACE Flow Characteristics:	Habitat Assessment	Evidence of Mussels Present:	Biological Sampling Conducted			Ohio EPA Aquatic Life Use Designation (may be provisional based on qualitative data):	Anti-degradation Designation:	National or State Wild, Scenic, or NRI Stream, or within 1,000 ft. of a Wild or Scenic:	Within a HUC with an Approved or Pending TMDL:
											Salamanders Observed:	Fish Observed:	Aquatic Macro-invertebrates Observed:				
Stream 18A	108	Stream 18	<0.01	05060002-160-050 See Additional Information	79	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 11	NO	None Found	Not Surveyed	None Found	Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 18A -&gt; Stream 18 -&gt; Candy Run -&gt; Scioto River (TNW)</b> 05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]												
Stream 18B	109	Stream 18	<0.01	05060002-160-050 See Additional Information	172	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 24	NO	None Found	Not Surveyed	None Found	Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 18 B -&gt; Stream 18 -&gt; Candy Run -&gt; Scioto River (TNW)</b> 05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]												
Stream 19	110, 111, 113	Candy Run	0.04	05060002-160-050 See Additional Information	940	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 37	NO	None Found	Not Surveyed	None Found	Class II PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 19 -&gt; Candy Run -&gt; Scioto River (TNW)</b> 05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]												
Stream 19A	112, 113	Stream 19	<0.01	05060002-160-050 See Additional Information	210	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 12	NO	None Found	Not Surveyed	None Found	Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 19A -&gt; Stream 19 -&gt; Candy Run -&gt; Scioto River (TNW)</b> 05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]												
Stream 19B	114, 115	Stream 19	<0.01	05060002-160-050 See Additional Information	665	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 27	NO	None Found	Not Surveyed	None Found	Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 19B -&gt; Stream 19 -&gt; Candy Run -&gt; Scioto River (TNW)</b> 05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]												

**CONSTRUCTION PHASE 2 STREAM TABLE : RESOURCES IDENTIFIED ON FIGURE(S) 11**

Stream Name/I.D.:	Photograph #(s):	Receiving Waters:	Drainage Area (mi <sup>2</sup> ):	14-Digit HUC:	Total Length Within Project Area (lin. ft.):	Is this Stream Captured within the Roadway Ditch:	Stream Hydrology Type:	USACE Flow Characteristics:	Habitat Assessment	Evidence of Mussels Present:	Biological Sampling Conducted			Ohio EPA Aquatic Life Use Designation (may be provisional based on qualitative data):	Anti-degradation Designation:	National or State Wild, Scenic, or NRI Stream, or within 1,000 ft. of a Wild or Scenic:	Within a HUC with an Approved or Pending TMDL:
											Salamanders Observed:	Fish Observed:	Aquatic Macro-invertebrates Observed:				
Stream 20	116, 117, 123	Candy Run	0.13	05060002-160-050 See Additional Information	1,013	NO	Intermittent	Relatively Permanent Water-Seasonal	HHEI 43	NO	None Found	None Found	None Found	Modified Class II PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 20-&gt; Candy Run -&gt; Scioto River (TNW)</b> 05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]												
Stream 20-1	119	Stream 20	<0.01	05060002-160-050 See Additional Information	204	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 12	NO	None Found	Not Surveyed	None Found	Modified Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 20-1-&gt;Stream 20-&gt; Candy Run -&gt; Scioto River (TNW)</b> 05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]												
Stream 21	124, 125	Stream 22	0.04	05060002-160-050 See Additional Information	715	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 41	NO	None Found	Not Surveyed	None Found	Modified Class II PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 21 -&gt; Stream 22-&gt;Unnamed Tributary -&gt; Candy Run -&gt; Scioto River (TNW)</b> 05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]												
Stream 21A	126, 127	Stream 21	<0.01	05060002-160-050 See Additional Information	102	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 12	NO	None Found	Not Surveyed	None Found	Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 21A -&gt; Stream 21 -&gt; Stream 22-&gt;Unnamed Tributary -&gt; Candy Run -&gt; Scioto River (TNW)</b> 05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]												
Stream 22	128, 129	UNT Candy Run	0.07	05060002-160-050 See Additional Information	911	NO	Intermittent	Relatively Permanent Water-Seasonal	HHEI 46	NO	None Found	Not Surveyed	None Found	Class II PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 22-&gt;Unnamed Tributary -&gt; Candy Run -&gt; Scioto River (TNW)</b> 05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]												

**CONSTRUCTION PHASE 2 STREAM TABLE : RESOURCES IDENTIFIED ON FIGURE(S) 11**

Stream Name/I.D.:	Photograph #(s):	Receiving Waters:	Drainage Area (mi <sup>2</sup> ):	14-Digit HUC:	Total Length Within Project Area (lin. ft.):	Is this Stream Captured within the Roadway Ditch:	Stream Hydrology Type:	USACE Flow Characteristics:	Habitat Assessment	Evidence of Mussels Present:	Biological Sampling Conducted			Ohio EPA Aquatic Life Use Designation (may be provisional based on qualitative data):	Anti-degradation Designation:	National or State Wild, Scenic, or NRI Stream, or within 1,000 ft. of a Wild or Scenic:	Within a HUC with an Approved or Pending TMDL:
											Salamanders Observed:	Fish Observed:	Aquatic Macro-invertebrates Observed:				
Stream 22A	No Photo	Stream 22	<0.01	05060002-160-050 See Additional Information	710	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 22	NO	None Found	Not Surveyed	None Found	Modified Class I PHW	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 22A-&gt; Stream 22-&gt;Unnamed Tributary -&gt; Candy Run -&gt; Scioto River (TNW) 05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												
Stream 22B	No Photo	Stream 22	<0.01	05060002-160-050 See Additional Information	191	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 12	NO	None Found	Not Surveyed	None Found	Modified Class I PHW	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 22B-&gt; Stream 22-&gt;Unnamed Tributary -&gt; Candy Run -&gt; Scioto River (TNW) 05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												
Stream 22C	131, 132	Stream 22	<0.01	05060002-160-050 See Additional Information	382	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 12	NO	None Found	Not Surveyed	None Found	Class I PHW	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 22 C-&gt; Stream 22-&gt;Unnamed Tributary -&gt; Candy Run -&gt; Scioto River (TNW) 05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												
Stream 23	136, 137	UNT Candy Run	0.09	05060002-160-050 See Additional Information	863	NO	Intermittent	Relatively Permanent Water-Seasonal	HHEI 46	NO	None Found	Not Surveyed	None Found	Class II PHW	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 23-&gt; Unnamed Tributary -&gt; Candy Run -&gt; Scioto River (TNW) 05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												
Stream 23A	134, 135	Stream 23	<0.01	05060002-160-050 See Additional Information	467	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 22	NO	None Found	Not Surveyed	None Found	Class I PHW	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 23A -&gt; Stream 23-&gt; Unnamed Tributary -&gt; Candy Run -&gt; Scioto River (TNW) 05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												

**CONSTRUCTION PHASE 2 STREAM TABLE : RESOURCES IDENTIFIED ON FIGURE(S) 11**

Stream Name/I.D.:	Photograph #(s):	Receiving Waters:	Drainage Area (mi <sup>2</sup> ):	14-Digit HUC:	Total Length Within Project Area (lin. ft.):	Is this Stream Captured within the Roadway Ditch:	Stream Hydrology Type:	USACE Flow Characteristics:	Habitat Assessment	Evidence of Mussels Present:	Biological Sampling Conducted			Ohio EPA Aquatic Life Use Designation (may be provisional based on qualitative data):	Anti-degradation Designation:	National or State Wild, Scenic, or NRI Stream, or within 1,000 ft. of a Wild or Scenic:	Within a HUC with an Approved or Pending TMDL:
											Salamanders Observed:	Fish Observed:	Aquatic Macro-invertebrates Observed:				
Stream 23B	138, 139	Stream 23	<0.01	05060002-160-050 See Additional Information	232	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 12	NO	None Found	Not Surveyed	None Found	Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 23B -&gt; Stream 23-&gt; Unnamed Tributary -&gt; Candy Run -&gt; Scioto River (TNW) 05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												
Stream 24	140, 141	Stream 23	<0.01	05060002-160-050 See Additional Information	775	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 46	NO	None Found	Not Surveyed	None Found	Class II PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 24 -&gt; Stream 23-&gt; Unnamed Tributary -&gt; Candy Run -&gt; Scioto River (TNW) 05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												
Stream 24A	No Photo	Stream 24	<0.01	05060002-160-050 See Additional Information	142	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 11	NO	None Found	Not Surveyed	None Found	Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 24A -&gt; Stream 24-&gt; Stream 23-&gt; Unnamed Tributary -&gt; Candy Run -&gt; Scioto River (TNW) 05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												
Stream 25	142, 143	UNT Candy Run	0.04	05060002-160-050 See Additional Information	297	NO	Intermittent	Relatively Permanent Water-Seasonal	HHEI 12	NO	None Found	Not Surveyed	None Found	Modified Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 25 -&gt; Unnamed Tributary -&gt; Candy Run -&gt; Scioto River (TNW) 05060002-160-050 Scioto River below Bear Creek to above Scioto Brush Creek [except Miller Run]</b>												
Stream 26	144	Stream 27	0.06	05090103-040-030 Long Run	932	NO	Intermittent	Relatively Permanent Water-Seasonal	HHEI 12	NO	None Found	Not Surveyed	None Found	Modified Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 26 -&gt; Stream 27 -&gt; Long Run -&gt; Rocky Fork Run -&gt; Little Scioto River (TNW Slackwater) -&gt; Ohio River (TNW)</b>												

**CONSTRUCTION PHASE 2 STREAM TABLE : RESOURCES IDENTIFIED ON FIGURE(S) 11**

Stream Name/I.D.:	Photograph #(s):	Receiving Waters:	Drainage Area (mi <sup>2</sup> ):	14-Digit HUC:	Total Length Within Project Area (lin. ft.):	Is this Stream Captured within the Roadway Ditch:	Stream Hydrology Type:	USACE Flow Characteristics:	Habitat Assessment	Evidence of Mussels Present:	Biological Sampling Conducted			Ohio EPA Aquatic Life Use Designation (may be provisional based on qualitative data):	Anti-degradation Designation:	National or State Wild, Scenic, or NRI Stream, or within 1,000 ft. of a Wild or Scenic:	Within a HUC with an Approved or Pending TMDL:
											Salamanders Observed:	Fish Observed:	Aquatic Macro-invertebrates Observed:				
Stream 26A	145	Stream 26	<0.01	05090103-040-030 Long Run	474	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 12	NO	None Found	Not Surveyed	None Found	Modified Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					Stream 26A -> Stream 26 -> Stream 27 -> Long Run -> Rocky Fork Run -> Little Scioto River (TNW Slackwater) -> Ohio River (TNW)												
Stream 27	149, 150, 153, 154	Long Run	0.15	05090103-040-030 Long Run	1,227	YES	Intermittent	Relatively Permanent Water-Seasonal	HHEI 46	NO	None Found	Not Surveyed	None Found	Modified Class II PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					Stream 27 -> Long Run -> Rocky Fork Run -> Little Scioto River (TNW Slackwater) -> Ohio River (TNW)												
Stream 27B	156	Stream 27	0.04	05090103-040-030 Long Run	655	NO	Intermittent	Relatively Permanent Water-Seasonal	HHEI 22	NO	None Found	Not Surveyed	None Found	Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					Stream 27B -> Stream 27 -> Long Run -> Rocky Fork Run -> Little Scioto River (TNW Slackwater) -> Ohio River (TNW)												
Stream 28	163, 164	UNT Long Run	0.01	05090103-040-030 Long Run	228	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 23	NO	None Found	Not Surveyed	None Found	Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					Stream 28 -> Unnamed Tributary -> Unnamed tributary -> Stream 27 -> Long Run -> Rocky Fork Run -> Little Scioto River (TNW Slackwater) -> Ohio River (TNW)												

**CONSTRUCTION PHASE 3 STREAM TABLE : RESOURCES IDENTIFIED ON FIGURE(S) 11**

Stream Name/I.D.:	Photograph #(s):	Receiving Waters:	Drainage Area (mi <sup>2</sup> ):	14-Digit HUC:	Total Length Within Project Area (lin. ft.):	Is this Stream Captured within the Roadway Ditch:	Stream Hydrology Type:	USACE Flow Characteristics:	Habitat Assessment	Evidence of Mussels Present:	Biological Sampling Conducted			Ohio EPA Aquatic Life Use Designation (may be provisional based on qualitative data):	Anti-degradation Designation:	National or State Wild, Scenic, or NRI Stream, or within 1,000 ft. of a Wild or Scenic:	Within a HUC with an Approved or Pending TMDL:
											Salamanders Observed:	Fish Observed:	Aquatic Macro-invertebrates Observed:				
Stream 29	167-169	Little Scioto River	0.48	05090103-040-050 See Additional Information	718	NO	Perennial (interstitial)	Relatively Permanent Water-Perennial	HHEI 83	NO	Class IIIA Species	None Found	HMFEI-Class II	Class IIIA PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 29 -&gt; Little Scioto River (TNW Slackwater) -&gt; Ohio River (TNW)</b> Two larval and three adult/juvenile two-lined salamanders observed. <b>05090103-040-050 Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]</b>												
Stream 30	171, 172	Little Scioto River	0.02	05090103-040-050 See Additional Information	444	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 38	NO	None Found	Not Surveyed	None Found	Class II PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 30-&gt; Little Scioto River (TNW Slackwater) -&gt; Ohio River (TNW)</b> <b>05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]</b>												
Stream 31	173, 174	Little Scioto River	<0.01	05090103-040-050 See Additional Information	511	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 52	NO	None Found	None Found	None Found	Modified Class II PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 31-&gt; Little Scioto River (TNW Slackwater) -&gt; Ohio River (TNW)</b> <b>05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]</b>												
Stream 31A	175	Stream 31	<0.01	05090103-040-050 See Additional Information	189	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 27	NO	None Found	Not Surveyed	None Found	Modified Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 31A -&gt; Stream 31-&gt; Little Scioto River (TNW Slackwater) -&gt; Ohio River (TNW)</b> <b>05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]</b>												



**CONSTRUCTION PHASE 3 STREAM TABLE : RESOURCES IDENTIFIED ON FIGURE(S) 11**

Stream Name/I.D.:	Photograph #(s):	Receiving Waters:	Drainage Area (mi <sup>2</sup> ):	14-Digit HUC:	Total Length Within Project Area (lin. ft.):	Is this Stream Captured within the Roadway Ditch:	Stream Hydrology Type:	USACE Flow Characteristics:	Habitat Assessment	Evidence of Mussels Present:	Biological Sampling Conducted			Ohio EPA Aquatic Life Use Designation (may be provisional based on qualitative data):	Anti-degradation Designation:	National or State Wild, Scenic, or NRI Stream, or within 1,000 ft. of a Wild or Scenic:	Within a HUC with an Approved or Pending TMDL:
											Salamanders Observed:	Fish Observed:	Aquatic Macro-invertebrates Observed:				
Stream 32	176-178	Little Scioto River	0.04	05090103-040-050 See Additional Information	830	NO	Intermittent*	Relatively Permanent Water-Seasonal	HHEI 32	NO	None Found	Not Surveyed	None Found	Class II PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					Stream 32 appears to end at Wetland 20 where the stream valley appears to have been cut off by the RR bed to the east. It is assumed that there is flow under the RR track to Little Scioto River. Invertebrate sampling was conducted in the upstream portion of the channel and not in the braided channel/Wetland 20. Stream 32-> Little Scioto River (TNW Slackwater) -> Ohio River (TNW) *Upstream of the confluence with Stream 32A, the stream hydrology type would be considered ephemeral. 05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]												
Stream 32A	179	Stream 32	<0.01	05090103-040-050 See Additional Information	160	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 24	NO	None Found	Not Surveyed	None Found	Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					Stream 32A -> Stream 32-> Stream 31-> Little Scioto River (TNW Slackwater) -> Ohio River (TNW) 05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]												
Stream 32B	180	Stream 32	<0.01	05090103-040-050 See Additional Information	142	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 13	NO	None Found	Not Surveyed	None Found	Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					Stream 32B-> Stream 32-> Stream 31-> Little Scioto River (TNW Slackwater) -> Ohio River (TNW) 05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]												
Stream 32C	181	Stream 32	<0.01	05090103-040-050 See Additional Information	186	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 24	NO	None Found	Not Surveyed	None Found	Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					Stream 32C-> Stream 32-> Stream 31-> Little Scioto River (TNW Slackwater) -> Ohio River (TNW) 05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]												

**CONSTRUCTION PHASE 3 STREAM TABLE : RESOURCES IDENTIFIED ON FIGURE(S) 11**

Stream Name/I.D.:	Photograph #(s):	Receiving Waters:	Drainage Area (mi <sup>2</sup> ):	14-Digit HUC:	Total Length Within Project Area (lin. ft.):	Is this Stream Captured within the Roadway Ditch:	Stream Hydrology Type:	USACE Flow Characteristics:	Habitat Assessment	Evidence of Mussels Present:	Biological Sampling Conducted			Ohio EPA Aquatic Life Use Designation (may be provisional based on qualitative data):	Anti-degradation Designation:	National or State Wild, Scenic, or NRI Stream, or within 1,000 ft. of a Wild or Scenic:	Within a HUC with an Approved or Pending TMDL:
											Salamanders Observed:	Fish Observed:	Aquatic Macro-invertebrates Observed:				
Stream 32D	182	Stream 32	<0.01	05090103-040-050 See Additional Information	245	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 22	NO	None Found	Not Surveyed	None Found	Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					Stream 32D-> Stream 32-> Stream 31-> Little Scioto River (TNW Slackwater) -> Ohio River (TNW) 05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]												
Stream 32D1	182	Stream 32D	<0.01	05090103-040-050 See Additional Information	246	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 22	NO	None Found	Not Surveyed	None Found	Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					Stream 32D1 -> Stream 32D-> Stream 32-> Stream 31-> Little Scioto River (TNW Slackwater) -> Ohio River (TNW) 05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]												
Stream 33	186, 188, 189	Stream 34	0.13	05090103-040-050 See Additional Information	1,000	NO	Intermittent	Relatively Permanent Water-Seasonal	HHEI 51	NO	None Found	Not Surveyed	None Found	Class II PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					Stream 33 ->Stream 34 -> Little Scioto River (TNW Slackwater) -> Ohio River (TNW) 05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]												
Stream 33A	184, 185	Stream 33	<0.01	05090103-040-050 See Additional Information	142	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 23	NO	None Found	Not Surveyed	None Found	Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					Stream 33A -> Stream 33 ->Stream 34 -> Little Scioto River (TNW Slackwater) -> Ohio River (TNW) 05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]												
Stream 33A2	185	Stream 33A	<0.01	05090103-040-050 See Additional Information	106	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 13	NO	None Found	Not Surveyed	None Found	Class I PHWH	General High Quality Waters	NO	NO

**CONSTRUCTION PHASE 3 STREAM TABLE : RESOURCES IDENTIFIED ON FIGURE(S) 11**

Stream Name/I.D.:	Photograph #(s):	Receiving Waters:	Drainage Area (mi <sup>2</sup> ):	14-Digit HUC:	Total Length Within Project Area (lin. ft.):	Is this Stream Captured within the Roadway Ditch:	Stream Hydrology Type:	USACE Flow Characteristics:	Habitat Assessment	Evidence of Mussels Present:	Biological Sampling Conducted			Ohio EPA Aquatic Life Use Designation (may be provisional based on qualitative data):	Anti-degradation Designation:	National or State Wild, Scenic, or NRI Stream, or within 1,000 ft. of a Wild or Scenic:	Within a HUC with an Approved or Pending TMDL:
											Salamanders Observed:	Fish Observed:	Aquatic Macro-invertebrates Observed:				
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					Stream 33A2 -> Stream 33A -> Stream 33 ->Stream 34 -> Little Scioto River (TNW Slackwater) -> Ohio River (TNW) 05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]												
Stream 33B	186	Stream 33	0.04	05090103-040-050 See Additional Information	38	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 12	NO	None Found	Not Surveyed	None Found	Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					Stream 33B -> Stream 33 ->Stream 34 -> Little Scioto River (TNW Slackwater) -> Ohio River (TNW) 05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]												
Stream 34	191, 194	Little Scioto River	1.53	05090103-040-050 See Additional Information	2,418	NO	Perennial (interstitial)	Relatively Permanent Water-Perennial	QHEI 65	NO	None Found	Not Surveyed * Observed	None Found	Warmwater Habitat	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					*Western blacknose dace ( <i>Rhinichthys obryus</i> ), creek chub ( <i>Semotilus atromaculatus</i> ), stripped shiner ( <i>Luxilus chrysocephalus</i> ), and fantail darter ( <i>Etheostoma flabellare</i> ) were collected/observed in an isolated pool during the QHEI assessment of the stream. Stream 34 -> Little Scioto River (TNW Slackwater) -> Ohio River (TNW) 05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]												
Stream 34A	195, 196	Stream 34	0.54	05090103-040-050 See Additional Information	402	NO	Intermittent	Relatively Permanent Water-Seasonal	HHEI 56	NO	None Found	None Found	None Found	Class II PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					Stream 34A ->Stream 34 -> Little Scioto River (TNW Slackwater) -> Ohio River (TNW) 05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]												
Stream 34B	197, 198	Stream 34	<0.01	05090103-040-050 See Additional Information	391	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 19	NO	None Found	Not Surveyed	None Found	Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					Stream 34B -> Stream 34 -> Little Scioto River (TNW Slackwater) -> Ohio River (TNW) 05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]												

**CONSTRUCTION PHASE 3 STREAM TABLE : RESOURCES IDENTIFIED ON FIGURE(S) 11**

Stream Name/I.D.:	Photograph #(s):	Receiving Waters:	Drainage Area (mi <sup>2</sup> ):	14-Digit HUC:	Total Length Within Project Area (lin. ft.):	Is this Stream Captured within the Roadway Ditch:	Stream Hydrology Type:	USACE Flow Characteristics:	Habitat Assessment	Evidence of Mussels Present:	Biological Sampling Conducted			Ohio EPA Aquatic Life Use Designation (may be provisional based on qualitative data):	Anti-degradation Designation:	National or State Wild, Scenic, or NRI Stream, or within 1,000 ft. of Wild or Scenic:	Within a HUC with an Approved or Pending TMDL:
											Salamanders Observed:	Fish Observed:	Aquatic Macro-invertebrates Observed:				
Stream 34B1	199	Stream 34B	<0.01	05090103-040-050 See Additional Information	348	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 13	NO	None Found	Not Surveyed	None Found	Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					Stream 34B1-> Stream 34B ->Stream 34 -> Little Scioto River (TNW Slackwater) -> Ohio River (TNW) 05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]												
Stream 34B2	200	Stream 34B	<0.01	05090103-040-050 See Additional Information	309	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 13	NO	None Found	Not Surveyed	None Found	Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					Stream 34B2-> Stream 34B ->Stream 34 -> Little Scioto River (TNW Slackwater) -> Ohio River (TNW) 05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]												
Stream 35A	204, 205	Stream 35/ Slab Run	<0.01	05090103-040-050 See Additional Information	439	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 33	NO	None Found	Not Surveyed	None Found	Class II PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					Stream 35A-> Slab Run -> Little Scioto River (TNW Slackwater) -> Ohio River (TNW) 05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]												
Stream 35A1	206	Stream 35A	<0.01	05090103-040-050 See Additional Information	111	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 10	NO	None Found	Not Surveyed	None Found	Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					Stream 35A1 -> Stream 35A- > Slab Run -> Little Scioto River (TNW Slackwater) -> Ohio River (TNW) 05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]												
Stream 36	214, 215, 217, 218	UNT Little Scioto River	0.64	05090103-040-050 See Additional Information	1,054	NO	Intermittent	Relatively Permanent Water-Seasonal	HHEI 50	NO	None Found	Not Surveyed	None Found	Class II PHWH	General High Quality Waters	NO	NO

**CONSTRUCTION PHASE 3 STREAM TABLE : RESOURCES IDENTIFIED ON FIGURE(S) 11**

Stream Name/I.D.:	Photograph #(s):	Receiving Waters:	Drainage Area (mi <sup>2</sup> ):	14-Digit HUC:	Total Length Within Project Area (lin. ft.):	Is this Stream Captured within the Roadway Ditch:	Stream Hydrology Type:	USACE Flow Characteristics:	Habitat Assessment	Evidence of Mussels Present:	Biological Sampling Conducted			Ohio EPA Aquatic Life Use Designation (may be provisional based on qualitative data):	Anti-degradation Designation:	National or State Wild, Scenic, or NRI Stream, or within 1,000 ft. of a Wild or Scenic:	Within a HUC with an Approved or Pending TMDL:
											Salamanders Observed:	Fish Observed:	Aquatic Macro-invertebrates Observed:				
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 36 -&gt; Unnamed Tributary -&gt; Little Scioto River (TNW Slackwater) -&gt; Ohio River (TNW)</b> <b>05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]</b>												
Stream 36A	211, 213	Stream 36	0.03	05090103-040-050 See Additional Information	1,233	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 21	NO	None Found	Not Surveyed	None Found	Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 36A -&gt; Stream 36 -&gt; Unnamed Tributary -&gt; Little Scioto River (TNW Slackwater) -&gt; Ohio River (TNW)</b> <b>05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]</b>												
Stream 36A1	212	Stream 36A	<0.01	05090103-040-050 See Additional Information	83	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 13	NO	None Found	Not Surveyed	None Found	Modified Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 36A1 -&gt; Stream 36A -&gt; Stream 36 -&gt; Unnamed Tributary -&gt; Little Scioto River (TNW Slackwater) -&gt; Ohio River (TNW)</b> <b>05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]</b>												
Stream 36C	219, 220	Stream 36	0.07	05090103-040-050 See Additional Information	1,143	NO	Intermittent	Relatively Permanent Water-Seasonal	HHEI 36	NO	None Found	Not Surveyed	None Found	Class II PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 36C -&gt; Stream 36 -&gt; Unnamed Tributary -&gt; Little Scioto River (TNW Slackwater) -&gt; Ohio River (TNW)</b> <b>05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]</b>												
Stream 36C2	222	Stream 36C	<0.01	05090103-040-050 See Additional Information	370	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 43	NO	None Found	Not Surveyed	None Found	Modified Class II PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 36C2 -&gt; Stream 36C -&gt; Stream 36 -&gt; Unnamed Tributary -&gt; Little Scioto River (TNW Slackwater) -&gt; Ohio River (TNW)</b> <b>05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]</b>												

**CONSTRUCTION PHASE 3 STREAM TABLE : RESOURCES IDENTIFIED ON FIGURE(S) 11**

Stream Name/I.D.:	Photograph #(s):	Receiving Waters:	Drainage Area (mi <sup>2</sup> ):	14-Digit HUC:	Total Length Within Project Area (lin. ft.):	Is this Stream Captured within the Roadway Ditch:	Stream Hydrology Type:	USACE Flow Characteristics:	Habitat Assessment	Evidence of Mussels Present:	Biological Sampling Conducted			Ohio EPA Aquatic Life Use Designation (may be provisional based on qualitative data):	Anti-degradation Designation:	National or State Wild, Scenic, or NRI Stream, or within 1,000 ft. of Wild or Scenic:	Within a HUC with an Approved or Pending TMDL:
											Salamanders Observed:	Fish Observed:	Aquatic Macro-invertebrates Observed:				
Stream 36C3	223	Stream 36C	<0.01	05090103-040-050 See Additional Information	184	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 24	NO	None Found	Not Surveyed	None Found	Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream36C3-&gt; Stream 36C -&gt; Stream 36 -&gt; Unnamed Tributary -&gt; Little Scioto River (TNW Slackwater) -&gt; Ohio River (TNW)</b> <b>05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]</b>												
Stream 36C4	221	Stream 36C	<0.01	05090103-040-050 See Additional Information	33	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 13	NO	None Found	Not Surveyed	None Found	Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream36C4 -&gt; Stream 36C2 -&gt; Stream 36C -&gt; Stream 36 -&gt; Unnamed Tributary -&gt; Little Scioto River (TNW Slackwater) -&gt; Ohio River (TNW)</b> <b>05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]</b>												
Stream 37	228, 229	Little Scioto River	0.13	05090103-040-050 See Additional Information	690	NO	Intermittent	Relatively Permanent Water-Seasonal	HHEI 32	NO	None Found	Not Surveyed	None Found	Class II PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 37 -&gt; Little Scioto River (TNW Slackwater) -&gt; Ohio River (TNW)</b> <b>05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]</b>												
Stream 37A	226, 227	Stream 37	<0.01	05090103-040-050 See Additional Information	548	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 19	NO	None Found	Not Surveyed	None Found	Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 37A-&gt; Stream 37 -&gt; Little Scioto River (TNW Slackwater) -&gt; Ohio River (TNW)</b> <b>05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]</b>												
Stream 38	237, 238, 240	Little Scioto River	0.24	05090103-040-050 See Additional Information	1,604	NO	Intermittent	Relatively Permanent Water-Seasonal	HHEI 48	NO	None Found	Not Surveyed	None Found	Class II PHWH	General High Quality Waters	NO	NO

**CONSTRUCTION PHASE 3 STREAM TABLE : RESOURCES IDENTIFIED ON FIGURE(S) 11**

Stream Name/I.D.:	Photograph #(s):	Receiving Waters:	Drainage Area (mi <sup>2</sup> ):	14-Digit HUC:	Total Length Within Project Area (lin. ft.):	Is this Stream Captured within the Roadway Ditch:	Stream Hydrology Type:	USACE Flow Characteristics:	Habitat Assessment	Evidence of Mussels Present:	Biological Sampling Conducted			Ohio EPA Aquatic Life Use Designation (may be provisional based on qualitative data):	Anti-degradation Designation:	National or State Wild, Scenic, or NRI Stream, or within 1,000 ft. of a Wild or Scenic:	Within a HUC with an Approved or Pending TMDL:
											Salamanders Observed:	Fish Observed:	Aquatic Macro-invertebrates Observed:				
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream38 -&gt; Little Scioto River (TNW Slackwater) -&gt; Ohio River (TNW)</b> <b>05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]</b>												
Stream 38A	230, 237	Stream 38	0.48	05090103-040-050 See Additional Information	1,755	NO	Intermittent	Relatively Permanent Water-Seasonal	HHEI 33	NO	None Found	Not Surveyed	None Found	Class II PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream38A -&gt; Stream38 -&gt; Little Scioto River (TNW Slackwater) -&gt; Ohio River (TNW)</b> <b>05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]</b>												
Stream 38A1	232	Stream 38A	<0.01	05090103-040-050 See Additional Information	247	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 12	NO	None Found	Not Surveyed	None Found	Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 38A1 -&gt; Stream38A -&gt; Stream38 -&gt; Little Scioto River (TNW Slackwater) -&gt; Ohio River (TNW)</b> <b>05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]</b>												
Stream 38A2	231	Stream 38A	<0.01	05090103-040-050 See Additional Information	72	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 11	NO	None Found	Not Surveyed	None Found	Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 38A2 -&gt; Stream38A -&gt; Stream38 -&gt; Little Scioto River (TNW Slackwater) -&gt; Ohio River (TNW)</b> <b>05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]</b>												
Stream 38A3	233	Stream 38A	<0.01	05090103-040-050 See Additional Information	111	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 12	NO	None Found	Not Surveyed	None Found	Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 38A3 -&gt; Stream38A -&gt; Stream38 -&gt; Little Scioto River (TNW Slackwater) -&gt; Ohio River (TNW)</b> <b>05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]</b>												

**CONSTRUCTION PHASE 3 STREAM TABLE : RESOURCES IDENTIFIED ON FIGURE(S) 11**

Stream Name/I.D.:	Photograph #(s):	Receiving Waters:	Drainage Area (mi <sup>2</sup> ):	14-Digit HUC:	Total Length Within Project Area (lin. ft.):	Is this Stream Captured within the Roadway Ditch:	Stream Hydrology Type:	USACE Flow Characteristics:	Habitat Assessment	Evidence of Mussels Present:	Biological Sampling Conducted			Ohio EPA Aquatic Life Use Designation (may be provisional based on qualitative data):	Anti-degradation Designation:	National or State Wild, Scenic, or NRI Stream, or within 1,000 ft. of Wild or Scenic:	Within a HUC with an Approved or Pending TMDL:
											Salamanders Observed:	Fish Observed:	Aquatic Macro-invertebrates Observed:				
Stream 38A4	234	Stream 38A	<0.01	05090103-040-050 See Additional Information	161	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 23	NO	None Found	Not Surveyed	None Found	Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					Stream 38A4 -> Stream38A -> Stream38 -> Little Scioto River (TNW Slackwater) -> Ohio River (TNW) 05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]												
Stream 38A5	235	Stream 38A	<0.01	05090103-040-050 See Additional Information	134	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 13	NO	None Found	Not Surveyed	None Found	Modified Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					Stream 38A5 -> Stream38A -> Stream38 -> Little Scioto River (TNW Slackwater) -> Ohio River (TNW) 05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]												
Stream 38A6	236	Stream 38A	<0.01	05090103-040-050 See Additional Information	107	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 12	NO	None Found	Not Surveyed	None Found	Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					Stream 38A6 -> Stream38A -> Stream38 -> Little Scioto River (TNW Slackwater) -> Ohio River (TNW) 05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]												
Stream 38B	242	Stream 38	0.01	05090103-040-050 See Additional Information	677	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 47	NO	None Found	Not Surveyed	None Found	Modified Class II PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					Stream 38B-> Stream38 -> Little Scioto River (TNW Slackwater) -> Ohio River (TNW) 05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]												
Stream 38B1	241, 243	Stream 38B	<0.01	05090103-040-050 See Additional Information	398	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 23	NO	None Found	Not Surveyed	None Found	Modified Class I PHWH	General High Quality Waters	NO	NO



**CONSTRUCTION PHASE 3 STREAM TABLE : RESOURCES IDENTIFIED ON FIGURE(S) 11**

Stream Name/I.D.:	Photograph #(s):	Receiving Waters:	Drainage Area (mi <sup>2</sup> ):	14-Digit HUC:	Total Length Within Project Area (lin. ft.):	Is this Stream Captured within the Roadway Ditch:	Stream Hydrology Type:	USACE Flow Characteristics:	Habitat Assessment	Evidence of Mussels Present:	Biological Sampling Conducted			Ohio EPA Aquatic Life Use Designation (may be provisional based on qualitative data):	Anti-degradation Designation:	National or State Wild, Scenic, or NRI Stream, or within 1,000 ft. of a Wild or Scenic:	Within a HUC with an Approved or Pending TMDL:	
											Salamanders Observed:	Fish Observed:	Aquatic Macro-invertebrates Observed:					
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 38B1-&gt; Stream38B -&gt; Stream 38 -&gt; Little Scioto River (TNW Slackwater) -&gt; Ohio River (TNW)</b> <b>05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]</b>													
Stream 38D	244, 245	Stream 38	<0.01	05090103-040-050 See Additional Information	548	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 32	NO	Not Surveyed	Not Surveyed	Not Surveyed	Modified Class II PHWH	General High Quality Waters	NO	NO	
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>This stream was not sampled due to the high amount of trash in the channel, including hypodermic needles and miscellaneous household debris. Stream38D -&gt; Stream38 -&gt; Little Scioto River (TNW Slackwater) -&gt; Ohio River (TNW)</b> <b>05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]</b>													
Stream 39	250-253	Little Scioto River	0.02	05090103-040-050 See Additional Information	1,095	NO	Intermittent	Relatively Permanent Water-Seasonal	HHEI 30	NO	None Found	Not Surveyed	None Found	Modified Class II PHWH	General High Quality Waters	NO	NO	
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 39-&gt; Little Scioto River (TNW Slackwater) -&gt; Ohio River (TNW)</b> <b>05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]</b>													
Stream 39A	256, 257	Stream 39	<0.01	05090103-040-050 See Additional Information	921	YES	Ephemeral	Non-Relatively Permanent Water	HHEI 12	NO	None Found	Not Surveyed	None Found	Modified Class I PHWH	General High Quality Waters	NO	NO	
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 39A -&gt; Stream 39-&gt; Little Scioto River (TNW Slackwater) -&gt; Ohio River (TNW)</b> <b>05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]</b>													
Little Scioto River	260, 261, 263	Ohio River	223	05090103-040-050 See Additional Information	480	NO	Perennial (suprafacial)	Relatively Permanent Water-Perennial	NONE	YES	Not Surveyed	Not Surveyed	Observed	Not Surveyed	Warmwater Habitat	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Little Scioto River designated SRW and WWH in OAC 3745-1-16. Unidentified fish were observed in the Little Scioto River, however no sampling was conducted. Little Scioto River (TNW Slackwater) -&gt; Ohio River (TNW)</b> <b>The Little Scioto River is designated Section 10 Slack Water (TNW) at this location.</b> <b>05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]</b>													

**CONSTRUCTION PHASE 3 STREAM TABLE : RESOURCES IDENTIFIED ON FIGURE(S) 11**

Stream Name/I.D.:	Photograph #(s):	Receiving Waters:	Drainage Area (mi <sup>2</sup> ):	14-Digit HUC:	Total Length Within Project Area (lin. ft.):	Is this Stream Captured within the Roadway Ditch:	Stream Hydrology Type:	USACE Flow Characteristics:	Habitat Assessment	Evidence of Mussels Present:	Biological Sampling Conducted			Ohio EPA Aquatic Life Use Designation (may be provisional based on qualitative data):	Anti-degradation Designation:	National or State Wild, Scenic, or NRI Stream, or within 1,000 ft. of a Wild or Scenic:	Within a HUC with an Approved or Pending TMDL:
											Salamanders Observed:	Fish Observed:	Aquatic Macro-invertebrates Observed:				
Stream 40	268, 269	Little Scioto River	0.04	05090103-040-050 See Additional Information	808	NO	Intermittent	Relatively Permanent Water-Seasonal	HHEI 14	NO	Not Surveyed	Not Surveyed	Not Surveyed	Class I PHW	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 40 exhibited very strong septic odors at the time of investigation and therefore no HMFEI sampling was conducted during the field investigation. Stream 40-&gt; Little Scioto River (TNW Slackwater) -&gt; Ohio River (TNW)</b> <b>05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]</b>												
Stream 40A	270	Stream 40	<0.01	05090103-040-050 See Additional Information	188	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 11	NO	Not Surveyed	Not Surveyed	Not Surveyed	Class I PHW	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 40A exhibited very strong septic odors at the time of investigation and therefore no HMFEI sampling was conducted during the field investigation. Stream 40A -&gt; Stream 40-&gt; Little Scioto River (TNW Slackwater) -&gt; Ohio River (TNW)</b> <b>05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]</b>												
Stream 40B	271	Stream 40	<0.01	05090103-040-050 See Additional Information	183	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 11	NO	Not Surveyed	Not Surveyed	Not Surveyed	Class I PHW	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 40B exhibited very strong septic odors at the time of investigation and therefore no HMFEI sampling was conducted during the field investigation. Stream 40B -&gt; Stream 40-&gt; Little Scioto River (TNW Slackwater) -&gt; Ohio River (TNW)</b> <b>05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]</b>												
Stream 41	274-276	Little Scioto River	0.04	05090103-040-050 See Additional Information	212	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 12	NO	None Found	Not Surveyed	None Found	Modified Class I PHW	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 41 -&gt; Impoundment/Pond 2/Wetland 26 -&gt; Stream 41 -&gt; Little Scioto River (TNW Slackwater) -&gt; Ohio River (TNW)</b> <b>05090103-040-060 - Ohio River below Pine Creek to above Scioto River [except Little Scioto River &amp; Tygarts Creek (KY)]</b>												
Stream 42	285	UNT Little Scioto River	0.05	05090103-040-050 See Additional Information	513	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 18	NO	Not Surveyed	Not Surveyed	Not Surveyed	Modified Class I PHW	General High Quality Waters	NO	NO

**CONSTRUCTION PHASE 3 STREAM TABLE : RESOURCES IDENTIFIED ON FIGURE(S) 11**

Stream Name/I.D.:	Photograph #(s):	Receiving Waters:	Drainage Area (mi <sup>2</sup> ):	14-Digit HUC:	Total Length Within Project Area (lin. ft.):	Is this Stream Captured within the Roadway Ditch:	Stream Hydrology Type:	USACE Flow Characteristics:	Habitat Assessment	Evidence of Mussels Present:	Biological Sampling Conducted			Ohio EPA Aquatic Life Use Designation (may be provisional based on qualitative data):	Anti-degradation Designation:	National or State Wild, Scenic, or NRI Stream, or within 1,000 ft. of a Wild or Scenic:	Within a HUC with an Approved or Pending TMDL:
											Salamanders Observed:	Fish Observed:	Aquatic Macro-invertebrates Observed:				
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>No HMFEI sampling was conducted at Stream 42 due to dry conditions and limited habitat due to presence of cattle. Stream 42 -&gt; Unnamed Tributary -&gt; Little Scioto River (TNW Slackwater) -&gt; Ohio River (TNW) 05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]</b>												
Stream 42A	290	Stream 42	<0.01	05090103-040-050 See Additional Information	147	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 10	NO	None Found	Not Surveyed	None Found	Modified Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 42A -&gt; Stream 42 -&gt; Unnamed Tributary -&gt; Little Scioto River (TNW Slackwater) -&gt; Ohio River (TNW) 05090103-040-050-Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]</b>												
Stream 43	295, 298, 299, 301	Stream 44	0.04	05090103-040-060 See Additional Information	1,029	NO	Intermittent	Relatively Permanent Water-Seasonal	HHEI 22	NO	None Found	Not Surveyed	None Found	Modified Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 43 -&gt; Stream 44 -&gt; Ohio River (TNW) 05090103-040-060 - Ohio River below Pine Creek to above Scioto River [except Little Scioto River &amp; Tygarts Creek (KY)]</b>												
Stream 44	300-302, 304, 306, 332	Ohio River	0.15	05090103-040-060 See Additional Information	1,281	NO	Intermittent	Relatively Permanent Water-Seasonal	HHEI 44	NO	None Found	Not Surveyed	None Found	Modified Class II PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 44 -&gt; Ohio River (TNW) 05090103-040-060 - Ohio River below Pine Creek to above Scioto River [except Little Scioto River &amp; Tygarts Creek (KY)]</b>												
Stream 45	303, 304	Stream 44	<0.01	05090103-040-060 See Additional Information	434	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 13	NO	None Found	Not Surveyed	None Found	Modified Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 45 -&gt; Stream 44 -&gt; Ohio River (TNW) 05090103-040-060 - Ohio River below Pine Creek to above Scioto River [except Little Scioto River &amp; Tygarts Creek (KY)]</b>												

**CONSTRUCTION PHASE 3 STREAM TABLE : RESOURCES IDENTIFIED ON FIGURE(S) 11**

Stream Name/I.D.:	Photograph #(s):	Receiving Waters:	Drainage Area (mi <sup>2</sup> ):	14-Digit HUC:	Total Length Within Project Area (lin. ft.):	Is this Stream Captured within the Roadway Ditch:	Stream Hydrology Type:	USACE Flow Characteristics:	Habitat Assessment	Evidence of Mussels Present:	Biological Sampling Conducted			Ohio EPA Aquatic Life Use Designation (may be provisional based on qualitative data):	Anti-degradation Designation:	National or State Wild, Scenic, or NRI Stream, or within 1,000 ft. of a Wild or Scenic:	Within a HUC with an Approved or Pending TMDL:
											Salamanders Observed:	Fish Observed:	Aquatic Macro-invertebrates Observed:				
Stream 46	307, 312	Stream 44	0.11	05090103-040-060 See Additional Information	1,093	YES	Perennial (interstitial)	Relatively Permanent Water-Seasonal	HHEI 57	NO	None Found	None Found	HMFEI-Class I	Class II PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 46 -&gt; Stream 44 -&gt; Ohio River (TNW)</b> Stream 46 attained an HMFEI score that equated to a Class I PHWH; however field observations at the time of sampling indicate that a provisional Class II PHWH designation is more appropriate due to the presence of surface hydrology. <b>05090103-040-060 - Ohio River below Pine Creek to above Scioto River [except Little Scioto River &amp; Tygarts Creek (KY)]</b>												
Stream 46A	310	Stream 46	<0.01	05090103-040-060 See Additional Information	203	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 12	NO	None Found	Not Surveyed	None Found	Modified Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 46A -&gt; Stream 46 -&gt; Stream 44 -&gt; Ohio River (TNW)</b> <b>05090103-040-060 - Ohio River below Pine Creek to above Scioto River [except Little Scioto River &amp; Tygarts Creek (KY)]</b>												
Stream 47	317, 318	Ohio River	<0.06	05090103-040-060 See Additional Information	268	YES	Intermittent	Relatively Permanent Water-Seasonal	HHEI 48	NO	Not Surveyed	Not Surveyed	Not Surveyed	Modified Class II PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>No HMFEI sampling conducted due to strong septic smell in stream.</b> <b>Stream 47 -&gt; Ohio River (TNW)</b> <b>05090103-040-060 - Ohio River below Pine Creek to above Scioto River [except Little Scioto River &amp; Tygarts Creek (KY)]</b>												
Stream 48	323-325	Ohio River	0.97	05090103-040-060 See Additional Information	255	NO	Perennial (supraficial)	Relatively Permanent Water-Perennial	QHEI 61.5	NO	Not Surveyed	Not Surveyed	Not Surveyed	Warmwater Habitat	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 48 -&gt; Ohio River (TNW)</b> Fish were observed in Stream 48, however no sampling was conducted. <b>05090103-040-060 - Ohio River below Pine Creek to above Scioto River [except Little Scioto River &amp; Tygarts Creek (KY)]</b>												

**CONSTRUCTION PHASE 3 STREAM TABLE : RESOURCES IDENTIFIED ON FIGURE(S) 11**

Stream Name/I.D.:	Photograph #(s):	Receiving Waters:	Drainage Area (mi <sup>2</sup> ):	14-Digit HUC:	Total Length Within Project Area (lin. ft.):	Is this Stream Captured within the Roadway Ditch:	Stream Hydrology Type:	USACE Flow Characteristics:	Habitat Assessment	Evidence of Mussels Present:	Biological Sampling Conducted			Ohio EPA Aquatic Life Use Designation (may be provisional based on qualitative data):	Anti-degradation Designation:	National or State Wild, Scenic, or NRI Stream, or within 1,000 ft. of a Wild or Scenic:	Within a HUC with an Approved or Pending TMDL:
											Salamanders Observed:	Fish Observed:	Aquatic Macro-invertebrates Observed:				
Stream 48A	321	Stream 48	0.04	05090103-040-060 See Additional Information	184	NO	Ephemeral	Non-Relatively Permanent Water	HHEI 17	NO	None Found	None Found	None Found	Modified Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 48A -&gt;Stream 48- &gt; Ohio River (TNW)</b> 05090103-040-060 - Ohio River below Pine Creek to above Scioto River [except Little Scioto River & Tygarts Creek (KY)]												
Stream 49	327	Stream 48	0.35	05090103-040-060 See Additional Information	346	NO	Intermittent	Relatively Permanent Water-Seasonal	HHEI 25	NO	Not Surveyed	Not Surveyed	Not Surveyed	Class I PHWH	General High Quality Waters	NO	NO
<b>Additional Information. List how the stream connects to a Traditional Navigable Water (TNW) and any other pertinent observations (such as water quality measurements if taken) :</b>					<b>Stream 49 -&gt; Stream 48 -&gt; Ohio River (TNW)</b> 05090103-040-060 - Ohio River below Pine Creek to above Scioto River [except Little Scioto River & Tygarts Creek (KY)]												

CONSTRUCTION PHASE 2 WETLAND TABLE : RESOURCES IDENTIFIED ON FIGURE(S) 11 & 12												
Wetland Name/I.D.:	Photograph #(s):	Hydrologic Connection:	Receiving Waters (if non-isolated):	14-Digit HUC Boundary the Wetland is Located within:	Located Within a Mapped Hydric Soil Unit(s):	Approximate Total Size (Ac.):	Wetland Area Located within the Project Area (Ac.):	ORAM Assessment Score:	Provisional Wetland Category (based on ORAM):	Known High Quality Wetland (from Natural Heritage Database):	Dominant Wetland Community(ies) Based on Cowardin (1979) Wetland Classifications:	Estimated Hydroperiod (Cowardin, 1979)
Wetland 1	11	Abutting	Stream 1	05060002-160-050 Scioto R. below Bear Cr. to above Scioto Brush Cr. [except Miller Run]	NO No, Ps, FcA	4.546	1.293	45	Category 2	NO	Palustrine - Emergent Wetland Persistent Palustrine - Scrub/Shrub Wetland (Choose Additional)	Semipermanently Flooded
<b>Additional Information. List How the wetland connects to a Traditional Navigable Water (TNW) if non-isolated, dominant plant species, and any other pertinent observations :</b>						<b>Wetland 1 -&gt; Stream 1 -&gt; Scioto River (TNW)</b> Wetland 1 is a historically excavated area that is predominately an emergent wetland with some pockets of shrub/scrub vegetation. Dominant species in this wetland included <i>Acer saccharinum</i> , <i>Fraxinus pennsylvanica</i> , <i>Populus deltoides</i> , <i>Rumex verticillatus</i> , and <i>Bidens frondosa</i> .						
Wetland 2	7, 9, 10	Abutting	Stream 2	05060002-160-050 Scioto R. below Bear Cr. to above Scioto Brush Cr. [except Miller Run]	NO No, EkB	0.268	0.268	21	Category 1	NO	Palustrine - Emergent Wetland Persistent (Choose Additional) (Choose Additional)	Seasonally Flooded
<b>Additional Information. List How the wetland connects to a Traditional Navigable Water (TNW) if non-isolated, dominant plant species, and any other pertinent observations :</b>						<b>Wetland 2 -&gt; Stream 2 -&gt; Stream 1 -&gt; Scioto River (TNW)</b> Wetland 2 is an emergent wetland associated with Stream 2 and extends into a portion of the active farm filed. During the ecological survey areas of stunted vegetation and indicators of inundation and hydric soils were observed. Dominant vegetation in the wetland sample plot for Wetland 2 consisted of <i>Sagittaria latifolia</i> .						
Wetland 3	16, 17	Adjacent	Roadside Drainage	05060002-160-050 Scioto R. below Bear Cr. to above Scioto Brush Cr. [except Miller Run]	NO FcA, SaB, OcB	0.610	0.610	30	Category 2	NO	Palustrine - Emergent Wetland Persistent (Choose Additional) (Choose Additional)	Seasonally Flooded
<b>Additional Information. List How the wetland connects to a Traditional Navigable Water (TNW) if non-isolated, dominant plant species, and any other pertinent observations :</b>						<b>Wetland 3 falls within the gray zone between Category 1 and Category 2 wetlands and was provisionally classified as a Category 2 wetland.</b> <b>Wetland 3 -&gt; Roadside Drainage -&gt; Stream 3 -&gt; Wetland 1 -&gt; Stream 1 -&gt; Scioto River (TNW)</b> Wetland 3 is associated with the roadside drainage of US 23 and is no longer contained within the confines of the channel. This wetland is dominated by <i>Phalaris arundinacea</i> and <i>Vitis riparia</i> .						
Wetland 4	35	Adjacent	Stream 6A	05060002-160-050 Scioto R. below Bear Cr. to above Scioto Brush Cr. [except Miller Run]	NO WfD	0.019	0.019	41	Modified Category 2	NO	Palustrine - Emergent Wetland Persistent (Choose Additional) (Choose Additional)	Saturated
<b>Additional Information. List How the wetland connects to a Traditional Navigable Water (TNW) if non-isolated, dominant plant species, and any other pertinent observations :</b>						<b>Wetland 4 -&gt; Stream 6A -&gt; Stream 6 -&gt; Stream 1 -&gt; Scioto River (TNW)</b> Wetland 4 is an emergent wetland dominated by <i>Scirpus hattorianus</i> and <i>Juncus effusus</i> . This wetland is associated with a maintained power line corridor.						
Wetland 5	36	Adjacent	Stream 6A	05060002-160-050 Scioto R. below Bear Cr. to above Scioto Brush Cr. [except Miller Run]	NO WfD	0.038	0.038	41	Modified Category 2	NO	Palustrine - Emergent Wetland Persistent (Choose Additional) (Choose Additional)	Saturated

**CONSTRUCTION PHASE 2 WETLAND TABLE : RESOURCES IDENTIFIED ON FIGURE(S) 11 & 12**

Wetland Name/I.D.:	Photograph #(s):	Hydrologic Connection:	Receiving Waters (if non-isolated):	14-Digit HUC Boundary the Wetland is Located within:	Located Within a Mapped Hydric Soil Unit(s):	Approximate Total Size (Ac.):	Wetland Area Located within the Project Area (Ac.):	ORAM Assessment Score:	Provisional Wetland Category (based on ORAM):	Known High Quality Wetland (from Natural Heritage Database):	Dominant Wetland Community(ies) Based on Cowardin (1979) Wetland Classifications:	Estimated Hydroperiod (Cowardin, 1979)
<b>Additional Information. List How the wetland connects to a Traditional Navigable Water (TNW) if non-isolated, dominant plant species, and any other pertinent observations :</b>						<b>Wetland 5 -&gt; Stream 6A -&gt; Stream 6 -&gt; Stream 1 -&gt; Scioto River (TNW)</b> <b>Wetland 5 is an emergent wetland dominated by <i>Scirpus hattorianus</i> and <i>Juncus effusus</i>. This wetland is associated with a maintained power line corridor.</b>						
Wetland 6	24	Abutting	Stream 5A	05060002-160-050 Scioto R. below Bear Cr. to above Scioto Brush Cr. [except Miller Run]	NO AfD	0.003	0.003	38	Modified Category 2	NO	Palustrine - Emergent Wetland Persistent (Choose Additional) (Choose Additional)	Saturated
<b>Additional Information. List How the wetland connects to a Traditional Navigable Water (TNW) if non-isolated, dominant plant species, and any other pertinent observations :</b>						<b>Wetland 6-&gt; Stream 5A -&gt; Stream 5 -&gt; Stream 6 -&gt; Stream 1 -&gt; Scioto River (TNW)</b> <b>Wetland 6 is an emergent wetland located in a low lying area of a hayfield. Dominant vegetation consisted of <i>Glyceria striata</i>.</b>						
Wetland 7	22	Abutting	Stream 1	05060002-160-050 Scioto R. below Bear Cr. to above Scioto Brush Cr. [except Miller Run]	NO EkB, FcA	0.195	0.190	24	Category 1	NO	Palustrine - Emergent Wetland Persistent (Choose Additional) (Choose Additional)	Seasonally Flooded
<b>Additional Information. List How the wetland connects to a Traditional Navigable Water (TNW) if non-isolated, dominant plant species, and any other pertinent observations :</b>						<b>Wetland 7 -&gt; Stream 1 -&gt; Scioto River -&gt; Ohio River</b> <b>Wetland 7 is an emergent wetland associated with a roadside ditch along US 23 that is subject to roadway maintenance. Dominant species included <i>Scirpus atrovirens</i> and <i>Agrostis gigantea</i>.</b>						
Wetland 9	20	Abutting	Stream 2	05060002-160-050 Scioto R. below Bear Cr. to above Scioto Brush Cr. [except Miller Run]	NO EkB	0.237	0.237	21	Category 1	NO	Palustrine - Emergent Wetland Persistent (Choose Additional) (Choose Additional)	Temporarily Flooded
<b>Additional Information. List How the wetland connects to a Traditional Navigable Water (TNW) if non-isolated, dominant plant species, and any other pertinent observations :</b>						<b>Wetland 9 -&gt; Stream 2 -&gt; Stream 1 -&gt; Scioto River (TNW)</b> <b>Wetland 9 is an emergent wetland associated with roadside drainage along US 23 and Stream 2. This wetland is located within the maintained ROW of US 23. Dominant vegetation included <i>Acorus calamus</i> and <i>Phalaris arundinacea</i>.</b>						
Wetland 10	32	Abutting	Stream 5	05060002-160-050 Scioto R. below Bear Cr. to above Scioto Brush Cr. [except Miller Run]	NO SfE, AfD	0.028	0.028	17	Category 1	NO	Palustrine - Emergent Wetland Persistent (Choose Additional) (Choose Additional)	Temporarily Flooded
<b>Additional Information. List How the wetland connects to a Traditional Navigable Water (TNW) if non-isolated, dominant plant species, and any other pertinent observations :</b>						<b>Wetland 10 -&gt; Stream 5C -&gt; Stream 5-&gt; Stream 6 -&gt; Stream 1 -&gt; Scioto River (TNW)</b> <b>Wetland 10 is an emergent wetland located in a pasture that was being actively grazed at the time of investigation. Dominant vegetation at this wetland included <i>Scirpus atrovirens</i>, <i>Eleocharis obtusa</i>, and <i>Persicaria hydropiper</i>.</b>						
Wetland 11	42	Adjacent	Stream 6B1	05060002-160-050 Scioto R. below Bear Cr. to above Scioto Brush Cr. [except Miller Run]	NO WfD	0.018	0.018	24	Category 1	NO	Palustrine - Emergent Wetland Persistent Palustrine - Scrub/Shrub Wetland (Choose Additional)	Saturated

CONSTRUCTION PHASE 2 WETLAND TABLE : RESOURCES IDENTIFIED ON FIGURE(S) 11 & 12												
Wetland Name/I.D.:	Photograph #(s):	Hydrologic Connection:	Receiving Waters (if non-isolated):	14-Digit HUC Boundary the Wetland is Located within:	Located Within a Mapped Hydric Soil Unit(s):	Approximate Total Size (Ac.):	Wetland Area Located within the Project Area (Ac.):	ORAM Assessment Score:	Provisional Wetland Category (based on ORAM):	Known High Quality Wetland (from Natural Heritage Database):	Dominant Wetland Community(ies) Based on Cowardin (1979) Wetland Classifications:	Estimated Hydroperiod (Cowardin, 1979)
<b>Additional Information. List How the wetland connects to a Traditional Navigable Water (TNW) if non-isolated, dominant plant species, and any other pertinent observations :</b>						<b>Wetland 11 -&gt; Stream 6B1 -&gt; Stream 6B -&gt; Stream 6 -&gt; Stream 1 -&gt; Scioto River (TNW)</b> Wetland 11 is an emergent shrub/scrub wetland located in a previously logged area. Dominant vegetation at this wetland included <i>Scirpus atrovirens</i> and <i>Schenoplectus tabernaemontani</i> .						
Wetland 12	55	Abutting	Stream 10	05060002-160-050 Scioto R. below Bear Cr. to above Scioto Brush Cr. [except Miller Run]	NO ScF	0.074	0.074	32	Category 2	NO	Palustrine - Emergent Wetland Persistent Palustrine - Scrub/Shrub Wetland (Choose Additional)	Seasonally Flooded
<b>Additional Information. List How the wetland connects to a Traditional Navigable Water (TNW) if non-isolated, dominant plant species, and any other pertinent observations :</b>						<b>The provisional ORAM score for Wetland 12 falls into Category 1/2 Gray Zone and has been provisionally classified as a Category 2 wetland.</b> Wetland 12 -> Stream 10 -> Stream 11 -> Lake Margaret -> UNT Candy Run -> Candy Run -> Scioto River (TNW) Wetland 12 is an emergent shrub/scrub wetland located in a previously logged area. Dominant vegetation at Wetland 12 consisted of <i>Scirpus atrovirens</i> .						
Wetland 13	90	Abutting	Stream 16	05060002-160-050 Scioto R. below Bear Cr. to above Scioto Brush Cr. [except Miller Run]	NO MoC2	0.013	0.013	43	Modified Category 2	NO	Palustrine - Emergent Wetland Persistent (Choose Additional) (Choose Additional)	Seasonally Flooded
<b>Additional Information. List How the wetland connects to a Traditional Navigable Water (TNW) if non-isolated, dominant plant species, and any other pertinent observations :</b>						<b>Wetland 13 -&gt; Stream 16 -&gt; Stream 11 -&gt; Lake Margaret -&gt; UNT Candy Run -&gt; Candy Run -&gt; Scioto River (TNW)</b> Wetland 13 is a small emergent wetland associated with Stream 16. Dominant vegetation at this wetland included <i>Lysimachia nummularia</i> , <i>Phalaris arundinacea</i> , and <i>Leersia oryzoides</i> .						
Wetland 14	91	Abutting	Stream 16	05060002-160-050 Scioto R. below Bear Cr. to above Scioto Brush Cr. [except Miller Run]	NO MoC2	0.004	0.004	41	Modified Category 2	NO	Palustrine - Emergent Wetland Persistent (Choose Additional) (Choose Additional)	Seasonally Flooded
<b>Additional Information. List How the wetland connects to a Traditional Navigable Water (TNW) if non-isolated, dominant plant species, and any other pertinent observations :</b>						<b>Wetland 14 -&gt; Stream 16 -&gt; Stream 11 -&gt; Lake Margaret -&gt; UNT Candy Run -&gt; Candy Run -&gt; Scioto River (TNW)</b> Wetland 14 is a small emergent wetland associated with Stream 16. Dominant vegetation at this wetland included <i>Leersia virginica</i> and <i>Dichanthelium clandestinum</i> .						
Wetland 15	116	Abutting	Stream 20	05060002-160-050 Scioto R. below Bear Cr. to above Scioto Brush Cr. [except Miller Run]	NO ScF	0.012	0.012	28	Category 1	NO	Palustrine - Emergent Wetland Persistent (Choose Additional) (Choose Additional)	Seasonally Flooded
<b>Additional Information. List How the wetland connects to a Traditional Navigable Water (TNW) if non-isolated, dominant plant species, and any other pertinent observations :</b>						<b>Wetland 15 -&gt; Stream 20 -&gt; Candy Run -&gt; Scioto River (TNW)</b> Wetland 15 is a small emergent wetland that abuts Stream 20. This wetland is located in an area that was clear cut and it was likely created from these activities. Dominant vegetation at Wetland 15 included <i>Platanus occidentalis</i> , <i>Juncus antheratus</i> , <i>Juncus marginatus</i> , and <i>Carex frankii</i> .						



CONSTRUCTION PHASE 2 WETLAND TABLE : RESOURCES IDENTIFIED ON FIGURE(S) 11 & 12													
Wetland Name/I.D.:	Photograph #(s):	Hydrologic Connection:	Receiving Waters (if non-isolated):	14-Digit HUC Boundary the Wetland is Located within:	Located Within a Mapped Hydric Soil Unit(s):	Approximate Total Size (Ac.):	Wetland Area Located within the Project Area (Ac.):	ORAM Assessment Score:	Provisional Wetland Category (based on ORAM):	Known High Quality Wetland (from Natural Heritage Database):	Dominant Wetland Community(ies) Based on Cowardin (1979) Wetland Classifications:	Estimated Hydroperiod (Cowardin, 1979)	
Wetland 16	121	Adjacent	Stream 20	05060002-160-050 Scioto R. below Bear Cr. to above Scioto Brush Cr. [except Miller Run]	NO ScF	0.051	0.051	31	Category 2	NO	Palustrine - Emergent Wetland Persistent (Choose Additional) (Choose Additional)	Saturated	
Additional Information. List How the wetland connects to a Traditional Navigable Water (TNW) if non-isolated, dominant plant species, and any other pertinent observations :						Wetland 16 -> Stream 20 -> Candy Run -> Scioto River (TNW) Wetland 16 attained an ORAM score in the Category 1/2 Gray Zone and is provisionally classified as a Category 2 wetland. Wetland 16 is an emergent wetland located on a terrace above Stream 20. This wetland is located in an area that was clear cut and it was likely created from these activities. Dominant vegetation at Wetland 16 consisted of <i>Carex frankii</i> and <i>Carex vulpinoidea</i> .							
Wetland 17	144	Abutting	Stream 26	05090103-040-030 Long Run	NO S/E	0.041	0.041	45.5	Category 2	NO	Palustrine - Emergent Wetland Persistent (Choose Additional) (Choose Additional)	Seasonally Flooded	
Additional Information. List How the wetland connects to a Traditional Navigable Water (TNW) if non-isolated, dominant plant species, and any other pertinent observations :						Wetland 17 -> Stream 26 -> Stream 27 -> Long Run -> Rocky Fork Run -> Little Scioto River (TNW Slackwater) -> Ohio River (TNW) Wetland 17 is an emergent wetland that abuts Stream 26. Wetland 17 was dominated by <i>Boehmeria cylindrica</i> .							
Wetland 18	155, 157	Abutting	Stream 27B	05090103-040-030 Long Run	NO S/E	0.827	0.827	51.5	Category 2	NO	Palustrine - Emergent Wetland Persistent Palustrine - Scrub/Shrub Wetland Palustrine - Forested Wetland	Saturated	
Additional Information. List How the wetland connects to a Traditional Navigable Water (TNW) if non-isolated, dominant plant species, and any other pertinent observations :						Wetland 18 -> Stream 27B -> Stream 27 -> Long Run -> Rocky Fork Run -> Little Scioto River (TNW Slackwater) -> Ohio River (TNW) Wetland 18 is an emergent, shrub/scrub, and forested wetland. The property owner indicated that the property was enrolled in a federal wetlands program, no further information was provided by the property owner. Dominant vegetation in Wetland 18 included <i>Leersia virginica</i> and <i>Toxicodendron radicans</i> .							
Wetland 19	159	Isolated	N/A	05090103-040-030 Long Run	NO S/E	0.024	0.024	38	Modified Category 2	NO	Palustrine - Emergent Wetland Persistent (Choose Additional) (Choose Additional)	Saturated	
Additional Information. List How the wetland connects to a Traditional Navigable Water (TNW) if non-isolated, dominant plant species, and any other pertinent observations :						Wetland 19 -> Stream 27B -> Stream 27 -> Long Run -> Rocky Fork Run -> Little Scioto River -> Ohio River Wetland 19 is an emergent wetland that has formed along a hillside. The wetland was formed from a seep and is located in a pasture. Dominant vegetation included <i>Agrostis gigantea</i> , <i>Eutrochium fistulosum</i> , and <i>Dichanthelium clandestinum</i> .							

CONSTRUCTION PHASE 3 WETLAND TABLE : RESOURCES IDENTIFIED ON FIGURE(S) 11 & 12												
Wetland Name/I.D.:	Photograph #(s):	Hydrologic Connection:	Receiving Waters (if non-isolated):	14-Digit HUC Boundary the Wetland is Located within:	Located Within a Mapped Hydric Soil Unit(s):	Approximate Total Size (Ac.):	Wetland Area Located within the Project Area (Ac.):	ORAM Assessment Score:	Provisional Wetland Category (based on ORAM):	Known High Quality Wetland (from Natural Heritage Database):	Dominant Wetland Community(ies) Based on Cowardin (1979) Wetland Classifications:	Estimated Hydroperiod (Cowardin, 1979)
Wetland 20	177, 178	Abutting	Stream 32	05090103-040-050 Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]	NO ScF	>0.06	0.057	53.5	Category 2	NO	Palustrine - Emergent Wetland Persistent Riverine - Aquatic Bed (Choose Additional)	Semipermanently Flooded
Additional Information. List How the wetland connects to a Traditional Navigable Water (TNW) if non-isolated, dominant plant species, and any other pertinent observations :						Wetland 20 -> Stream 32 -> Little Scioto River (TNW Slackwater) -> Ohio River (TNW) Wetland 20 is an emergent wetland that appears to have developed in the historic channel of Stream 32 when the railroad bed was constructed. The railroad bed crosses the Stream 32 Valley east of the wetland and appears to have partially dammed the channel. It was assumed that Wetland 20 drains under the railroad, however no outlet was observed during the field investigation. Dominant vegetation at Wetland 20 consisted of <i>Salix nigra</i> and <i>Boehmeria cylindrica</i> .						
Wetland 21	207	Isolated	N/A	05090103-040-050 Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]	NO ScF	0.014	0.014	43	Modified Category 2	NO	Palustrine - Aquatic Bed Palustrine - Emergent Wetland Persistent (Choose Additional)	Permanently Flooded
Additional Information. List How the wetland connects to a Traditional Navigable Water (TNW) if non-isolated, dominant plant species, and any other pertinent observations :						Wetland 21 is a small excavated area located in an area that was previously clear cut. This feature may have been constructed as part of the clear cutting activities. No outlet from Wetland 21 was observed during the field investigation and has been provisionally classified as an isolated wetland. Dominant vegetation at Wetland 21 included <i>Brasenia schreberi</i> and <i>Carex lurida</i> , and <i>Eleocharis erythropoda</i> .						
Wetland 22	208, 209	Adjacent	UNT Slab Run	05090103-040-050 Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]	NO ScF	0.031	0.031	43	Modified Category 2	NO	Lacustrine - Littoral Emergent Wetland Nonpersistent (Choose Additional) (Choose Additional)	Semipermanently Flooded
Additional Information. List How the wetland connects to a Traditional Navigable Water (TNW) if non-isolated, dominant plant species, and any other pertinent observations :						Wetland 22 -> Pond 1 -> Non-Jurisdictional erosional feature -> UNT Slab Run -> Slab Run -> Little Scioto River (TNW Slackwater) -> Ohio River (TNW) Wetland 22 is located around the fringe of Pond 1 and consists of emergent vegetation. Pond 1 outlets via an erosional channel that flows beyond the project limits. Pond 1 was likely excavated during the previous clear cutting activities. Dominant vegetation included <i>Scirpus atrovirens</i> , <i>Echinochloa muricata</i> , and <i>Eleocharis erythropoda</i> .						
Wetland 23	210	Adjacent	UNT Slab Run	05090103-040-050 Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]	NO ScF	0.010	0.010	27	Category 1	NO	Palustrine - Emergent Wetland Persistent (Choose Additional) (Choose Additional)	Saturated

CONSTRUCTION PHASE 3 WETLAND TABLE : RESOURCES IDENTIFIED ON FIGURE(S) 11 & 12												
Wetland Name/I.D.:	Photograph #(s):	Hydrologic Connection:	Receiving Waters (if non-isolated):	14-Digit HUC Boundary the Wetland is Located within:	Located Within a Mapped Hydric Soil Unit(s):	Approximate Total Size (Ac.):	Wetland Area Located within the Project Area (Ac.):	ORAM Assessment Score:	Provisional Wetland Category (based on ORAM):	Known High Quality Wetland (from Natural Heritage Database):	Dominant Wetland Community(ies) Based on Cowardin (1979) Wetland Classifications:	Estimated Hydroperiod (Cowardin, 1979)
Additional Information. List How the wetland connects to a Traditional Navigable Water (TNW) if non-isolated, dominant plant species, and any other pertinent observations :						Wetland 23 -> Non-Jurisdictional erosional feature -> UNT Slab Run -> Slab Run -> Little Scioto River (TNW Slackwater) -> Ohio River (TNW) Wetland 23 is an emergent wetland that appears to have formed on a terrace constructed during previous clear cutting activities. Hydrology for this wetland is supplied by precipitation and from the erosion channel that outlets from Pond 1. Dominant vegetation at this wetland consists of <i>Juncus effusus</i> and <i>Solidago gigantea</i> .						
Wetland 24	258	Adjacent	Little Scioto River	05090103-040-050 Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]	NO W	>0.15	0.112	65.5	Category 3	NO	Palustrine - Emergent Wetland Persistent (Choose Additional) (Choose Additional)	Seasonally Flooded
Additional Information. List How the wetland connects to a Traditional Navigable Water (TNW) if non-isolated, dominant plant species, and any other pertinent observations :						Wetland 24 -> Little Scioto River (TNW Slackwater) -> Ohio River (TNW) The Little Scioto River at this location is a designated Section 10 Slack Water (TNW) and the Wetland 24 complex would be considered adjacent to a TNW. Wetland 24 is located on a terrace above the northern bank on the Little Scioto River. Wetlands 24, 24A, and 24B were combined for ORAM scoring purposes. The presence of Riverbank paspalum ( <i>Paspalum repens</i> ), a state threatened species, automatically elevates the wetland to Category 3 status. Dominant vegetation in this wetland included <i>Panicum dichotomiflorum</i> and <i>Xanthium strumarium</i> .						
Wetland 24A	259	Adjacent	Little Scioto River	05090103-040-050 Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]	NO W	0.006	0.006	65.5	Category 3	NO	Palustrine - Emergent Wetland Persistent (Choose Additional) (Choose Additional)	Seasonally Flooded
Additional Information. List How the wetland connects to a Traditional Navigable Water (TNW) if non-isolated, dominant plant species, and any other pertinent observations :						Wetland 24A -> Little Scioto River (TNW Slackwater) -> Ohio River (TNW) The Little Scioto River at this location is a designated Section 10 Slack Water (TNW) and the Wetland 24 complex would be considered adjacent to a TNW. Wetland 24A formed on a sloughed bank of the Little Scioto River. Wetlands 24, 24A, and 24B were combined for ORAM scoring purposes. Dominant vegetation in this wetland included <i>Paspalum repens</i> , <i>Persicaria pensylvanica</i> , and <i>Bidens frondosa</i> . Riverbank paspalum ( <i>Paspalum repens</i> ) listed as a State Threatened species in Ohio. The presence of this threatened species automatically elevates this wetland to an ORAM Category 3 status.						
Wetland 24B	263, 264, 266	Adjacent	Little Scioto River	05090103-040-050 Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]	NO EKE	>1.16	0.973	65.5	Category 3	NO	Palustrine - Emergent Wetland Persistent (Choose Additional) (Choose Additional)	Seasonally Flooded

CONSTRUCTION PHASE 3 WETLAND TABLE : RESOURCES IDENTIFIED ON FIGURE(S) 11 & 12													
Wetland Name/I.D.:	Photograph #(s):	Hydrologic Connection:	Receiving Waters (if non-isolated):	14-Digit HUC Boundary the Wetland is Located within:	Located Within a Mapped Hydric Soil Unit(s):	Approximate Total Size (Ac.):	Wetland Area Located within the Project Area (Ac.):	ORAM Assessment Score:	Provisional Wetland Category (based on ORAM):	Known High Quality Wetland (from Natural Heritage Database):	Dominant Wetland Community(ies) Based on Cowardin (1979) Wetland Classifications:	Estimated Hydroperiod (Cowardin, 1979)	
Additional Information. List How the wetland connects to a Traditional Navigable Water (TNW) if non-isolated, dominant plant species, and any other pertinent observations :						Wetland 24B -> Little Scioto River (TNW Slackwater) -> Ohio River (TNW) The Little Scioto River at this location is a designated Section 10 Slack Water (TNW) and the Wetland 24 complex would be considered adjacent to a TNW. Wetland 24B is located on a terrace above the southern bank on the Little Scioto River. Wetlands 24, 24A, and 24B were combined for ORAM scoring purposes. The presence of Riverbank paspalum ( <i>Paspalum repens</i> ), a state threatened species, automatically elevates the wetland to Category 3 status. Dominant vegetation in this wetland included <i>Echinochloa muricata</i> , <i>Ludwigia palustris</i> , <i>Rubus allegheniensis</i> , <i>Symphytotrichum lateriflorum</i> , <i>Acer saccharinum</i> , and <i>Gleditsia tricanthos</i> .							
Wetland 25	268	Abutting	Stream 40	05090103-040-050 Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]	NO EkE	>0.20	0.171	53	Category 2	NO	Palustrine - Emergent Wetland Persistent Palustrine - Scrub/Shrub Wetland Palustrine - Forested Wetland	Seasonally Flooded	
Additional Information. List How the wetland connects to a Traditional Navigable Water (TNW) if non-isolated, dominant plant species, and any other pertinent observations :						Wetland 25 -> Stream 40 -> (TNW Slackwater) -> Ohio River (TNW) Wetland 25 is located along the "floodplain" of Stream 40. Wetland 25 and Wetland 25A were combined for ORAM scoring purposes. Dominant vegetation in this wetland included <i>Salix nigra</i> , <i>Acer saccharinum</i> , <i>Symphytotrichum lateriflorum</i> , and <i>Pilea pumila</i> .							
Wetland 25A	267	Abutting	Stream 40	05090103-040-050 Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]	NO EmB	0.041	0.041	53	Category 2	NO	Palustrine - Emergent Wetland Persistent Palustrine - Scrub/Shrub Wetland (Choose Additional)	Seasonally Flooded	
Additional Information. List How the wetland connects to a Traditional Navigable Water (TNW) if non-isolated, dominant plant species, and any other pertinent observations :						Wetland 25A -> Stream 40 -> Little Scioto River (TNW Slackwater) -> Ohio River (TNW) Wetland 25A is located along the "floodplain" of Stream 40 at the confluence of Stream 40 and Stream 40B. Wetland 25 and Wetland 25A were combined for ORAM scoring purposes. Wetland 25A was dominated by <i>Pilea pumila</i> , <i>Symphytotrichum lateriflorum</i> , and <i>Carex grayi</i> .							
Wetland 27	291	Adjacent	Stream 43	05090103-040-050 Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]	NO CpC	0.063	0.063	23	Category 1	NO	Palustrine - Emergent Wetland Persistent (Choose Additional) (Choose Additional)	Saturated	
Additional Information. List How the wetland connects to a Traditional Navigable Water (TNW) if non-isolated, dominant plant species, and any other pertinent observations :						Wetland 27 -> Stream 43 -> Stream 44 -> Ohio River (TNW) Wetland 27 is an emergent wetland located in an area that was previously logged and is currently open to intermittent cattle grazing. Dominant species in Wetland 27 included <i>Juncus effusus</i> and <i>Carex frankii</i> .							

**CONSTRUCTION PHASE 3 WETLAND TABLE : RESOURCES IDENTIFIED ON FIGURE(S) 11 & 12**

Wetland Name/I.D.:	Photograph #(s):	Hydrologic Connection:	Receiving Waters (if non-isolated):	14-Digit HUC Boundary the Wetland is Located within:	Located Within a Mapped Hydric Soil Unit(s):	Approximate Total Size (Ac.):	Wetland Area Located within the Project Area (Ac.):	ORAM Assessment Score:	Provisional Wetland Category (based on ORAM):	Known High Quality Wetland (from Natural Heritage Database):	Dominant Wetland Community(ies) Based on Cowardin (1979) Wetland Classifications:	Estimated Hydroperiod (Cowardin, 1979)
Wetlands 28A-D	288, 289	Adjacent	Stream 43	05090103-040-050 Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]	NO ScF, CpC	0.104	0.104	24	Category 1	NO	Palustrine - Emergent Wetland Persistent (Choose Additional) (Choose Additional)	Saturated
<b>Additional Information. List How the wetland connects to a Traditional Navigable Water (TNW) if non-isolated, dominant plant species, and any other pertinent observations :</b>						<b>Wetlands 28A-D -&gt; Stream 43 -&gt; Stream 44 -&gt; Ohio River (TNW)</b> The wetlands that make up the Wetland 28 complex (Wetlands 28A, B, C, and D) were combined for ORAM scoring purposes. The Wetland 28 complex consists of four emergent wetlands located in an area that was previously logged and is currently open to intermittent cattle grazing. Dominant species in the Wetland 28 complex included <i>Juncus effusus</i> and <i>Carex frankii</i> .						
Wetland 29	285	Abutting	Stream 42	05090103-040-050 Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]	NO SacB	0.297	0.276	36.5	Modified Category 2	NO	Palustrine - Emergent Wetland Persistent (Choose Additional) (Choose Additional)	Saturated
<b>Additional Information. List How the wetland connects to a Traditional Navigable Water (TNW) if non-isolated, dominant plant species, and any other pertinent observations :</b>						<b>Wetland 29 -&gt; Stream 42 -&gt; UNT Little Scioto River -&gt; Little Scioto River (TNW Slackwater) -&gt; Ohio River (TNW)</b> Wetland 29 is an emergent wetland located in an active cattle pasture. This pasture area that contains the wetland will likely need to be reevaluated for wetlands once the cattle are removed from the area, as the entire pasture was extensively grazed and likely influenced the species composition within the pasture. Dominant vegetation in Wetland 29 consisted of <i>Juncus effusus</i> and <i>Eleocharis erythropoda</i> .						
Wetland 30	296, 298	Abutting	Stream 43	05090103-040-060 Ohio River below Pine Creek to above Scioto River [except Little Scioto River & Tygarts Creek (KY)]	NO ScF	0.294	0.294	48.5	Category 2	NO	Palustrine - Emergent Wetland Persistent (Choose Additional) (Choose Additional)	Seasonally Flooded
<b>Additional Information. List How the wetland connects to a Traditional Navigable Water (TNW) if non-isolated, dominant plant species, and any other pertinent observations :</b>						<b>Wetland 30 -&gt; Stream 43 -&gt; Stream 44 -&gt; Ohio River (TNW)</b> Wetland 30 appears to be a man-made emergent wetland that was created by impounding Stream 43. Several Ohio Department of Natural Resources (ODNR) signs were observed during the field investigation and any impacts to this property will likely need to be coordinated with the ODNR. No coordination with ODNR was completed during the ecological survey. Dominant vegetation in Wetland 30 included <i>Carex lurida</i> and <i>Juncus effusus</i> .						
Wetland 31	297	Adjacent	Stream 43	05090103-040-060 Ohio River below Pine Creek to above Scioto River [except Little Scioto River & Tygarts Creek (KY)]	NO ScF	0.003	0.003	28.5	Category 1	NO	Palustrine - Emergent Wetland Persistent (Choose Additional) (Choose Additional)	Saturated

CONSTRUCTION PHASE 3 WETLAND TABLE : RESOURCES IDENTIFIED ON FIGURE(S) 11 & 12													
Wetland Name/I.D.:	Photograph #(s):	Hydrologic Connection:	Receiving Waters (if non-isolated):	14-Digit HUC Boundary the Wetland is Located within:	Located Within a Mapped Hydric Soil Unit(s):	Approximate Total Size (Ac.):	Wetland Area Located within the Project Area (Ac.):	ORAM Assessment Score:	Provisional Wetland Category (based on ORAM):	Known High Quality Wetland (from Natural Heritage Database):	Dominant Wetland Community(ies) Based on Cowardin (1979) Wetland Classifications:	Estimated Hydroperiod (Cowardin, 1979)	
Additional Information. List How the wetland connects to a Traditional Navigable Water (TNW) if non-isolated, dominant plant species, and any other pertinent observations :						Wetland 31 -> - Stream 43 -> Stream 44 -> Ohio River (TNW) Wetland 31 is a small emergent wetland located at the base of a small terrace in property that appears to be managed/owned by the ODNR. No coordination with ODNR was completed during the ecological survey. Dominant vegetation in Wetland 31 included <i>Carex lurida</i> , <i>Typha angustifolia</i> <i>Symphotrichum racemosum</i> , and <i>Juncus effusus</i> .							
Wetland 32	305	Isolated	N/A	05090103-040-060 Ohio River below Pine Creek to above Scioto River [except Little Scioto River & Tygarts Creek (KY)]	NO SbB	0.009	0.009	23.5	Category 1	NO	Palustrine - Emergent Wetland Persistent (Choose Additional) (Choose Additional)	Saturated	
Additional Information. List How the wetland connects to a Traditional Navigable Water (TNW) if non-isolated, dominant plant species, and any other pertinent observations :						Wetland 32 is a small cat-tail dominated emergent wetland located in a mowed area adjacent to the maintained ROW of SR 140. The wetland has formed in a depressional area with no obvious connection to a jurisdictional waterway. Dominant vegetation in Wetland 32 consisted of <i>Typha angustifolia</i> .							
Wetland 33	328	Adjacent	Pond 3 drainage to Oho River (TNW)	05090103-040-060 Ohio River below Pine Creek to above Scioto River [except Little Scioto River & Tygarts Creek. (KY)]	NO EmB	0.009	0.003	26.5	Category 1	NO	Palustrine - Emergent Wetland Persistent (Choose Additional) (Choose Additional)	Seasonally Flooded	
Additional Information. List How the wetland connects to a Traditional Navigable Water (TNW) if non-isolated, dominant plant species, and any other pertinent observations :						Wetland 33 -> Pond 3 outlet to Ohio River (TNW) No outlet from Pond 3 was observed during the ecological survey, but it is assumed that the pond does outlet and eventually drains into the Ohio River a TNW. Wetland 33 is an emergent wetland associated with the fringe around Pond 3 and a seep that originates from the road embankment from US 52 along the north/northeast side of the pond. Dominant vegetation in Wetland 33 included <i>Arthraxon hispidus</i> .							
Wetland 34	330, 331	Abutting	Stream 48	05090103-040-060 Ohio River below Pine Creek to above Scioto River [except Little Scioto River & Tygarts Creek. (KY)]	NO EmB	0.318	0.313	26	Category 1	NO	Palustrine - Emergent Wetland Persistent Palustrine - Scrub/Shrub Wetland (Choose Additional)	Seasonally Flooded	
Additional Information. List How the wetland connects to a Traditional Navigable Water (TNW) if non-isolated, dominant plant species, and any other pertinent observations :						Wetland 34 -> Stream 48 -> Ohio River (TNW) Wetland 34 is mainly an emergent wetland intermixed with some small patches of shrub/scrub species. This wetland is associated with some drainage ditches along US 52, to the north of Stream 49. Wetland vegetation is not contained within the channel and was determined to likely be a wetland. Dominant vegetation at Wetland 34 consisted of <i>Carex lurida</i> , <i>Leersia oryzoides</i> , and <i>Juncus effusus</i> ,							

CONSTRUCTION PHASE 3 WETLAND TABLE : RESOURCES IDENTIFIED ON FIGURE(S) 11 & 12												
Wetland Name/I.D.:	Photograph #(s):	Hydrologic Connection:	Receiving Waters (if non-isolated):	14-Digit HUC Boundary the Wetland is Located within:	Located Within a Mapped Hydric Soil Unit(s):	Approximate Total Size (Ac.):	Wetland Area Located within the Project Area (Ac.):	ORAM Assessment Score:	Provisional Wetland Category (based on ORAM):	Known High Quality Wetland (from Natural Heritage Database):	Dominant Wetland Community(ies) Based on Cowardin (1979) Wetland Classifications:	Estimated Hydroperiod (Cowardin, 1979)
Wetland 35	282 - 284	Adjacent	Railroad Drainage	05090103-040-050 Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]	NO SacB, ScF	0.801	0.791	25	Category 1	NO	Palustrine - Emergent Wetland Persistent (Choose Additional) (Choose Additional)	Intermittently Exposed
Additional Information. List How the wetland connects to a Traditional Navigable Water (TNW) if non-isolated, dominant plant species, and any other pertinent observations :						Wetland 35 -> Railroad Drainage -> UNT Little Scioto River -> Little Scioto River (TNW Slackwater) -> Ohio River (TNW) Wetland 35 is a large impounded emergent wetland impoundment located along the base of a bluff. The middle portion of the wetland contained standing water. This wetland is located within an active cattle pasture and is accessible to livestock. This pasture will likely need to be reevaluated once the cattle are excluded from the area as they have greatly influenced the species composition in the field. Dominant vegetation at Wetland 35 included <i>Leersia oryzoides</i> and <i>Scirpus cyperinus</i> .						
Wetland 36	286	Adjacent	Stream 42	05090103-040-050 Little Scioto River below Rocky Fork to Ohio River [except Frederick Creek]	NO SacB	0.011	0.011	19.5	Category 1	NO	Palustrine - Emergent Wetland Persistent (Choose Additional) (Choose Additional)	Saturated
Additional Information. List How the wetland connects to a Traditional Navigable Water (TNW) if non-isolated, dominant plant species, and any other pertinent observations :						Wetland 36 -> Stream 42 -> UNT Little Scioto River -> Little Scioto River (TNW Slackwater) -> Ohio River (TNW) Wetland 36 is a small emergent wetland located in an active cattle pasture. The wetland vegetation of this wetland has been influenced by cattle grazing. This area will likely need to be reevaluated once the cattle have been removed from the pasture. Dominant vegetation at this wetland included <i>Juncus effusus</i> and <i>Xanthium strumarium</i> .						

**POTENTIALLY JURISDICTIONAL DITCH TABLE : RESOURCES IDENTIFIED ON FIGURE(S) 11**

**(Warning:** ditches that acquire/possess an **ordinary high water mark** and become **relatively permanent waters** outside of right-of-way (upstream) should be assessed as streams and included on the **Stream Table**)

Ditch I.D.:	Photograph #(s):	Receiving Waters:	14-Digit HUC Boundary the Ditch is Located within:	USACE Flow Characteristics:	OHWM Present:	Constructed Through or Drains a wetland:	Constructed Through a Mapped Hydric Soil Unit(s):	Flows Between Two or More Potential Waters of the US:	Average Width of Wetted Perimeter Within Project Area (ft.)	Total Length Within Project Area (lin. ft.):
PJD 1	311, 312	Stream 46	05090103-040-060 - Ohio River below Pine Creek to above Scioto River [except Little Scioto River & Tygarts Creek (KY)]	Relatively Permanent Water-Seasonal	YES	NO	NO SbB, ScF	NO	2.5	218
<b>Additional Information. List How the ditch connects to a Traditional Navigable Water (TNW) and any other pertinent observations :</b>			PJD 1 -> Stream 46 -> Stream 44 -> Ohio River (TNW)							
PJD 2	329	Stream 49	05090103-040-060 - Ohio River below Pine Creek to above Scioto River [except Little Scioto River & Tygarts Creek (KY)]	Relatively Permanent Water-Seasonal	YES	NO	NO EmB	NO	2.5	409
<b>Additional Information. List How the ditch connects to a Traditional Navigable Water (TNW) and any other pertinent observations :</b>			PJD 2 -> Stream 49 -> Stream 48 -> Ohio River (TNW)							
PJD 3	None	Stream 27B	05090103-040-060 - Ohio River below Pine Creek to above Scioto River [except Little Scioto River & Tygarts Creek (KY)]	Relatively Permanent Water-Seasonal	YES	YES	NO SfE	YES	2.5	428
<b>Additional Information. List How the ditch connects to a Traditional Navigable Water (TNW) and any other pertinent observations :</b>			PJD 3 -> Stream 27B-> Stream 27 -> Long Run -> Rocky Fork Run -> Little Scioto River (TNW Slackwater) -> Ohio River (TNW)							



POND, LAKE, RESERVOIR TABLE : RESOURCES IDENTIFIED ON FIGURE(S) 11										
Pond I.D.	Photograph #(s):	Receiving Waters	14-Digit HUC Boundary the Water body is Located within:	Hydrologic Connection:	Type	Function	Functioning as Intended?	Located Within a Mapped Hydric Soil Unit(s):	Approximate Total Size (Ac.):	Pond Area Located within the Project Area (Ac.):
Pond 1	208, 209	Slab Run	05090103-040-050	Non-Isolated	Constructed	Abandoned (Borrow Pit/Quarry)	YES	NO ScF	0.140	0.140
<b>Additional Information. List How the water body connects to a Traditional Navigable Water (TNW) and any other pertinent observations :</b>			Pond 1 -> UNT to Slab Run -> Slab Run -> Little Scioto River (TNW Slackwater) -> Ohio River (TNW) Pond 1 is an abandoned borrow area likely constructed as part of logging activities that are evident in the surrounding area.							
Pond 3	328	Assumed to eventually drain to the Ohio River (TNW)	05090103-040-060	Non-Isolated	Constructed	Abandoned (Borrow Pit/Quarry)	YES	NO WmB	1.127	0.152
<b>Additional Information. List How the water body connects to a Traditional Navigable Water (TNW) and any other pertinent observations :</b>			Pond 3 -> Outlet to Ohio River (TNW) Pond 3 is likely a borrow area that was excavated in order to construct portions of US 52.							

FISH TABLE (Species Characteristics from <a href="#">OEPA 2008a</a> )								
Scientific Name	Common Name	Feeding Guild:	Breeding Guild:	Pollution Tolerance:	Federally Listed:	State Listed:	Declining Species ( <a href="#">OAC 3745-1-05, Table 5-2</a> ):	Observed in Stream(s) (Include Quantity) :
<i>Luxilus chrysocephalus</i>	Striped Shiner	Insectivore (I)	Simple Lithophil (S)	Intermediate Tolerance (Blank Code)	Not Listed	Not Listed	NO	Stream 34
<i>Rhinichthys obtusus</i>	Blacknose Dace	Generalized Insectivore (G)	Simple Lithophil (S)	Tolerant (T)	Not Listed	Not Listed	NO	Stream 34
<i>Semotilus atromaculatus</i>	Creek Chub	Generalized Insectivore (G)	Complex, No Parental Care (N)	Moderately Tolerant (P)	Not Listed	Not Listed	NO	Stream 34
<i>Etheostoma flabellare</i>	Fantail Darter	Insectivore (I)	Complex, Parental Care (C)	Intermediate Tolerance (Blank Code)	Not Listed	Not Listed	NO	Stream 34
<i>Gambusia affinis</i>	Western Mosquitofish	Insectivore (I)	Complex, No Parental Care (N)	Intermediate Tolerance (Blank Code)	Not Listed	Not Listed	NO	Streams 1 and 2

**General Fish Community Observations:**

No formal fish sampling was completed during the ecological survey for the project. Species identified were inadvertently collected and/or observed during HHEI and QHEI evaluations of the streams.

All collected and/or observed fish are commonly found in streams in Scioto County, Ohio.

<b>AQUATIC MACROINVERTEBRATE TABLE</b>	
Taxa Observed	Observed in Stream(s) (Include Quantity, when noted) :
<i>Anisoptera</i> – dragonfly nymphs	Stream 1 – Rare, 2 individuals, Stream 2
<i>Coleoptera</i> – other beetles	Stream 5 – common, Stream 6A – very abundant, Stream 6B, Stream 10 – very common, Stream 17
<i>Decapoda</i> – unidentified crayfish species	Stream 5 – Rare, Stream 10, Stream 11 – rare, Stream 20
<i>Dryopidae, Elmidae, Ptilodactylidae</i> – riffle beetles	Stream 10 – common, Stream 29 – rare
<i>Gastropoda</i> - snails	Stream 11 – rare
<i>Hemiptera</i> – water striders	Stream 1 – Abundant, Stream 6, Stream 17, Stream 20, Stream 29
<i>Isopoda</i> – aquatic sow bugs	Stream 5 – Common, Stream 29 – rare, Stream 46 – very abundant
<i>Psephenidae</i> – water penny beetles	Stream 5 – common, Stream 29 – common
<i>Plecoptera</i> – stonefly nymphs	Stream 29 – rare

**Additional Aquatic Macroinvertebrate Community Observations:**

Cursory macroinvertebrate investigations were conducted on all streams in the project area in conjunction with the HHEI and QHEI evaluations. Macroinvertebrate sampling consisted of either dip netting or manual picking organisms from substrates in areas of higher quality potential habitat, including larger rocks, any areas of accumulated moisture (hyporheic zone), riffle areas when present, and areas of accumulated coarse organic matter. Only a limited number of the investigated streams were found to contain aquatic macroinvertebrates. This can likely be attributed to the drought conditions experienced during the time of the survey and to the fact that many of the investigated streams are located in the upper reaches of their respective watersheds, and as such were often dominated by substrates not conducive to aquatic macroinvertebrates (hard pan and clay). The severe drought conditions experienced in Scioto County during the time of sampling are documented in the NOAA Long Term Palmer Drought Severity Index maps which are included in Appendix 4.

All identified macroinvertebrates are commonly found in streams in Scioto County, Ohio.

MUSSEL TABLE								
Scientific Name	Common Name	Federally Listed:	State Listed:	List All Stream Locations and Quantity by Condition				
				Stream I.D.	Live	Dead	Weathered Dead	Sub Fossil
<i>Strophitus undulates</i>	Creeper	Not Listed	Not Listed	Little Scioto River	0	1	0	0
<i>Amblema plicata</i>	Threeridge	Not Listed	Not Listed	Little Scioto River	0	1	0	0
<i>Quadrula quadrula</i>	Mapleleaf	Not Listed	Not Listed	Little Scioto River	2	3	0	0
<i>Quadrula pustulosa</i>	Pimpleback	Not Listed	Not Listed	Little Scioto River	0	1	0	0
<i>Leptodea fragilis</i>	Fragile Papershell	Not Listed	Not Listed	Little Scioto River	0	1	0	0
<i>Potamilus alatus</i>	Pink Heelsplitter	Not Listed	Not Listed	Little Scioto River	7	5	0	0
<i>Ligumia recta</i>	Black Sandshell	Not Listed	Threatened	Little Scioto River	2	1	0	0
<i>Lampsilis radiate luteola</i>	Fatmucket	Not Listed	Not Listed	Little Scioto River	0	1	0	0
<i>Lampsilis cardium</i>	Plain Pocketbook	Not Listed	Not Listed	Little Scioto River	5	3	0	0

**Additional Mussel Community Observations:**

Only 1 individual mapleleaf mussel (*Quadrula quadrula*) was found within the impact area for the proposed bridge over the Little Scioto River during the 2011 mussel survey. All other mussels were collected from either 100 feet upstream or 600 feet downstream of the proposed impact area.

A mussel survey was conducted at the proposed Little Scioto Bridge location during the summer of 2011 and was summarized in the "A report on a mussel survey of the Little Scioto River at the SCI-823-0.00/6.81 (Portsmouth Bypass) site" dated September 2, 2011.

**Terrestrial Ecology**

<b>VEGETATIVE COMMUNITIES</b>	
List the number of distinct vegetative communities identified within the project area	11
Were any unique or high quality terrestrial habitats identified within the project area?	<b>NO</b>

<b>TERRESTRIAL WILDLIFE</b>	
Were any mammals observed within the project area? (If NO, delete the <b>Mammal Table</b> )	<b>YES</b>
If yes, total number of species identified:	10
Were any birds observed within the project area? (If NO, delete the <b>Bird Table</b> )	<b>YES</b>
If yes, total number of bird species identified:	36
Were any reptiles observed within the project area? (If NO, delete the <b>Reptile Table</b> )	<b>YES</b>
If yes, total number of reptile species identified:	5
Were any amphibian communities sampled/observed within the project area? (If NO, delete the <b>Amphibian Table</b> )	<b>YES</b>
If yes, total number of amphibian species identified:	3

Vegetative Communities and Land Cover Table : Vegetation and Land Cover Areas Identified on Figure(s) 10			
Vegetative Communities and Land Cover found within the project area:	Degree of Man Induced Ecological Disturbance (based on descriptions in <a href="#">Andreas et al. 2004</a> )	Unique, Rare, or High Quality?	Acres
Upland Forest - UF - (uplands dominated by trees)	Intermediate Disturbance (dominated by plants that typify a stable phase of a native community that persists under some disturbance)	NO	685.42 (356.64 – Phase 2) (328.78 – Phase 3)
<b>Community Description (list dominant species, include Anderson (1982) community classification if applicable):</b>	The upland forest community within the project area generally consists of second growth forest in varying degrees of succession. All of the upland forest areas appear to have been either selectively logged or clear cut within the past 20 to 50 years. Typical canopy species in the upland forest community included <i>Quercus</i> sp., <i>Acer saccharinum</i> , <i>Fagus grandifolia</i> , and <i>Platanus occidentalis</i> . Typical understory species included <i>Smilax rotundifolia</i> , <i>Lonicera japonica</i> , <i>Rosa multiflora</i> , and <i>Rubus</i> sp. The upland forest community would be most closely associated with the Oak-Maple-Tuliptree Forests as described by Anderson (1982).		
Cultivated Crops - CC - (annual crops, all land being actively tilled, and perennial woody crops such as orchards and vineyards)	High Disturbance (dominated by widespread taxa not typical of a particular community)	NO	23.15 (23.15 – Phase 2) (0 – Phase 3)
<b>Community Description (list dominant species, include Anderson (1982) community classification if applicable):</b>	The cultivated crop community includes active agricultural areas that are or were recently used for the production of soybeans and corn. Anderson (1982) communities do not apply.		
Scrub/Shrub - SS - (true shrubs, and young trees in an early successional stage)	High Disturbance (dominated by widespread taxa not typical of a particular community)	NO	138.44 (92.37 – Phase 2) (46.07 – Phase 3)
<b>Community Description (list dominant species, include Anderson (1982) community classification if applicable):</b>	The scrub/shrub communities were associated with the early stages of ecological succession due to clear cutting activities that have occurred in the project area in the past 10 years. These areas typically included <i>Rosa multiflora</i> , <i>Rubus</i> sp., <i>Rhus</i> sp., and <i>Smilax</i> sp. Due to the man-induced disturbance of these areas, Anderson (1982) communities would not apply.		
Floodplain Forest - FF- (floodplain dominated by trees)	Low Disturbance (dominated by plants with a narrow range of ecological tolerances that typify a stable or near "climax" community)	NO	2.58 (0 – Phase 2) (2.58 – Phase 3)
<b>Community Description (list dominant species, include Anderson (1982) community classification if applicable):</b>	The floodplain forest community was observed within the project area along the Little Scioto River and its immediate tributaries. Dominant species in this community included <i>Fagus grandifolia</i> , <i>Acer saccharinum</i> , <i>Platanus occidentalis</i> , <i>Fraxinus pennsylvanica</i> , and <i>Ulmus americana</i> . This community is most closely associated with the Mixed Floodplain Forest Community, as described by Anderson (1982).		
Developed Open Space - DS - (mown right-of-way, large-lot single-family housing units, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes)	High Disturbance (dominated by widespread taxa not typical of a particular community)	NO	89.94 (47.02 – Phase 2) (42.92 – Phase 3)
<b>Community Description (list dominant species, include Anderson (1982) community classification if applicable):</b>	These areas consist of road right-of-way and maintained lawns associated with residential areas. Anderson (1982) communities do not apply.		
Barren Land (Rock/Sand/Clay) - Barren areas of bedrock, slides, sand dunes, strip mines, gravel pits and other accumulations of earthen material. Generally, vegetation accounts for less than 15% of total cover.	Extreme Disturbance/Ruderal Community (dominated by opportunistic invaders or native highly tolerant taxa)	NO	89.73 (79.06 – Phase 2) (10.67 – Phase 3)

Vegetative Communities and Land Cover Table : Vegetation and Land Cover Areas Identified on Figure(s) 10			
Vegetative Communities and Land Cover found within the project area:	Degree of Man Induced Ecological Disturbance (based on descriptions in <a href="#">Andreas et al. 2004</a> )	Unique, Rare, or High Quality?	Acres
<b>Community Description (list dominant species, include Anderson (1982) community classification if applicable):</b>	The barren land community consists of very recently logged/clear cut areas. These areas were generally logged in the past two years and are characterized by highly disturbed soils, exposed rocky areas, slag piles and logging waste. Prior to being logged these areas would have likely been considered Oak-Maple-Tuliptree Forests, as described by Anderson (1982).		
Grassland/Herbaceous - GH - (new fields, pastures, hay fields)	Intermediate Disturbance (dominated by plants that typify a stable phase of a native community that persists under some disturbance)	NO	23.18 (10.20 – Phase 2) (12.98 – Phase 3)
<b>Community Description (list dominant species, include Anderson (1982) community classification if applicable):</b>	These areas consist of either hayfields or pastures that did not appear to be recently used for grazing livestock. Typical species encountered in these areas included <i>Festuca</i> sp., <i>Poa pratensis</i> , <i>Solidago canadensis</i> , <i>Erigeron</i> sp., and <i>Panicum clandestinum</i> . Due to the high level of disturbance in this community, Anderson (1982) community types do not apply.		
Marsh - MA - (wetland dominated by submergent, floating, and/or emergent vegetation)	Intermediate Disturbance (dominated by plants that typify a stable phase of a native community that persists under some disturbance)	NO	6.26 (4.23 – Phase 2) (2.03 – Phase 3)
<b>Community Description (list dominant species, include Anderson (1982) community classification if applicable):</b>	The Marsh community identified within the project area generally consisted on areas dominated by emergent vegetation in various locations in the landscape. Typical species found in these areas included <i>Carex</i> sp., <i>Juncus</i> sp., <i>Scirpus</i> sp., <i>Aster</i> sp. and <i>Pilea pumila</i> . The Anderson (1982) community type most closely representing these areas would likely be the Mixed Emergent Marsh.		
Pasture/Hay (PH) - Areas of grasses, legumes, or grass-legume mixtures planted for livestock grazing or the production of seed or hay crops, typically on a perennial cycle. Pasture/hay vegetation accounts for greater than 20 % of total vegetation.	High Disturbance (dominated by widespread taxa not typical of a particular community)	NO	15.49 (5.43 – Phase 2) (10.06 – Phase 3)
<b>Community Description (list dominant species, include Anderson (1982) community classification if applicable):</b>	This community type includes those areas where evidence of livestock grazing was observed during the ecological survey. Typical species encountered in these areas included <i>Festuca elatior</i> , <i>Poa pratensis</i> , <i>Dactylis glomerata</i> , and <i>Trifolium</i> sp., Anderson (1982) communities would not apply to this community.		
Herbaceous Riverine Community - HR - (submergent, floating, and/or emergent vegetation along rivers and streams)	Intermediate Disturbance (dominated by plants that typify a stable phase of a native community that persists under some disturbance)	NO	0.68 (0 – Phase 2) (0.68 – Phase 3)
<b>Community Description (list dominant species, include Anderson (1982) community classification if applicable):</b>	The Herbaceous Riverine Community was identified along the banks of the Little Scioto River. Dominant vegetation in this community included <i>Bidens frondosa</i> , <i>Paspalum repens</i> , <i>Persicaria pensylvanica</i> , <i>Panicum dichotomiflorum</i> , <i>Echinochloa muricata</i> , and <i>Ludwigia palustris</i> . This community would be most closely associated with the Mixed Emergent Riverine Community as described by Anderson (1982).		
Open Water - All areas of open water, generally with less than 25% cover of vegetation or soil.	High Disturbance (dominated by widespread taxa not typical of a particular community)	NO	0.16 (0 – Phase 2) (0.16 – Phase 3)
<b>Community Description (list dominant species, include Anderson (1982) community classification if applicable):</b>	These areas consist of man-made ponds formed by excavation and/or impoundments. Anderson (1982) communities do not apply.		

VEGETATION TABLE						
Scientific Name:*	Common Name:	C of C:	Indicator Status:**	Federally Listed:	State Listed:	Location (use vegetative community codes):
<i>ABUTILON THEOPHRASTI</i>	VELVETLEAF	0	UPL	No	No	CC
<i>Acer negundo</i>	BOX ELDER	3	FAC+	No	No	SS, UF, FF, DS
<i>Acer nigrum</i>	BLACK MAPLE	5	UPL	No	No	FF, UF
<i>ACER PLATANOIDES</i>	NORWAY MAPLE	0	UPL	No	No	UF
<i>Acer rubrum</i>	RED MAPLE	2	FAC	No	No	SS, UF, FF, BL
<i>Acer saccharinum</i>	SILVER MAPLE	3	FACW	No	No	UF, BL, FF, BL, SS
<i>Acer saccharum</i>	SUGAR MAPLE	5	FACU-	No	No	UF, BL
<i>Achillea millefolium</i>	YARROW	1	FACU	No	No	GH, DS, BL, PH
<i>ACORUS CALAMUS</i>	SWEET-FLAG	0	OBL	No	No	MA, DS
<i>Actaea alba</i>	WHITE BANEERRY	7	UPL	No	No	UF
<i>Adiantum pedatum</i>	MAIDENHAIR FERN	6	FAC-	No	No	UF, SS
<i>Aesculus flava</i>	YELLOW BUCKEYE	7	UPL	No	No	UF
<i>AESCULUS HIPPOCASTANUM</i>	HORSE-CHESTNUT	0	UPL	No	No	DS
<i>Agalinis tenuifolia</i>	SLENDER FOXGLOVE	4	FAC	No	No	GH
<i>Agrimonia gryposepala</i>	TALL AGRIMONY	3	FACU	No	No	UF
<i>Agrimonia parviflora</i>	SMALL-FLOWERED AGRIMONY	2	FAC	No	No	GH, MA, SS
<i>AGROSTIS GIGANTEA</i>	REDTOP	0	FACW	No	No	GH, MA, DS, FF, PH
<i>AGROSTIS STOLONIFERA</i>	CREeping BENT GRASS	0	FACW	No	No	MA, DS
<i>AILANTHUS ALTISSIMA</i>	TREE-OF-HEAVEN	0	FACU-	No	No	UF, DS
<i>AJUGA REPTANS</i>	CARPET BUGLE-WEED	0	UPL	No	No	DS
<i>ALBIZIA JULIBRISSIN</i>	SILK-TREE	0	UPL	No	No	UF, SS
<i>Alisma subcordatum</i>	SOUTHERN WATER-PLANTAIN	2	OBL	No	No	MA, HR
<i>ALLIARIA PETIOLATA</i>	GARLIC MUSTARD	0	FACU-	No	No	UF, DS, SS
<i>Allium canadense</i>	WILD GARLIC	2	FACU	No	No	UF
<i>ALLIUM SCHOENOPRASUM</i>	CHIVES	0	FAC	No	No	CC
<i>ALLIUM VINEALE</i>	FIELD GARLIC	0	FACU-	No	No	DS, CC
<i>Alopecurus carolinianus</i>	CAROLINA FOXTAIL	1	FACW	No	No	CC
<i>AMARANTHUS RETROFLEXUS</i>	REDROOT	0	FACU	No	No	DS, CC
<i>Ambrosia artemisiifolia</i>	COMMON RAGWEED	0	FACU	No	No	GH, BL, DS, SS
<i>Ambrosia trifida</i>	GIANT RAGWEED	0	FAC	No	No	CC, FF
<i>Amelanchier arborea</i>	DOWNY SERVICEBERRY	5	FAC-	No	No	UF
<i>Ammannia robusta</i>	SESSILE TOOTH-CUP	7	OBL	No	No	MA
<i>Ampelamus albidus</i>	SAND-VINE	1	FAC	No	No	SS, DS
<i>Amphicarpaea bracteata</i>	HOG-PEANUT	4	FAC	No	No	UF, FF
<i>ANAGALLIS ARVENSIS</i>	SCARLET PIMPERNEL	0	FACU	No	No	DS, BL, SS
<i>Andropogon virginicus</i>	COMMON BROOM-SEDGE	3	FACU	No	No	GH, DS, SS, BL, PH
<i>Anemone virginiana</i>	WOODLAND THIMBLEWEED	3	FACU	No	No	UF, SS
<i>Antennaria plantaginifolia</i>	PLANTAIN-LEAVED PUSSY-TOES	1	UPL	No	No	UF, BL, SS
<i>ANTHOXANTHUM ODORATUM</i>	SWEET VERNAL GRASS	0	FACU	No	No	GH
<i>Apios americana</i>	COMMON GROUNDNUT	3	FACW	No	No	MA
<i>Apocynum cannabinum</i>	INDIAN HEMP	1	FACU	No	No	DS, GH
<i>Aralia racemosa</i>	SPIKENARD	5	UPL	No	No	UF
<i>Aralia spinosa</i>	DEVIL'S WALKINGSTICK	5	FAC	No	No	BL, SS
<i>ARCTIUM MINUS</i>	COMMON BURDOCK	0	FACU-	No	No	GH, DS, CC, UF
<i>ARENARIA SERPYLLIFOLIA</i>	THYME-LEAVED SANDWORT	0	FAC	No	No	DS
<i>Arisaema triphyllum subsp. triphyllum</i>	JACK-IN-THE-PULPIT	3	FACU-	No	No	UF
<i>Aristida dichotoma</i>	POVERTY GRASS	1	UPL	No	No	BL, SS
<i>Aristida oligantha</i>	PLAINS THREE-AWNEED GRASS	1	UPL	No	No	BL, SS
<i>Aristolochia serpentaria</i>	VIRGINIA SNAKEROOT	7	UPL	No	No	UF
<i>ARTEMISIA VULGARIS</i>	COMMON MUGWORT	0	FACU-	No	No	DS, UF
<i>ARTHRAOXON HISPIDUS</i>	HAIRY JOINT GRASS	0	FAC	No	No	GH, DS, SS
<i>Aruncus dioicus</i>	GOAT'S-BEARD	6	FACU	No	No	UF, SS
<i>Arundinaria gigantea</i>	GIANT CANE	7	FACW	No	No	FF



VEGETATION TABLE						
Scientific Name:*	Common Name:	C of C:	Indicator Status:**	Federally Listed:	State Listed:	Location (use vegetative community codes):
<i>Asarum canadense</i>	WILD GINGER	6	FACU-	No	No	UF
<i>Asclepias incarnata</i>	SWAMP MILKWEED	4	OBL	No	No	MA
<i>Asclepias syriaca</i>	COMMON MILKWEED	1	FACU-	No	No	GH, CC, DS, PH
<i>Asclepias tuberosa</i>	BUTTERFLY-WEED	4	UPL	No	No	GH, DS
<i>Asimina triloba</i>	PAWPAW	6	FACU+	No	No	UF, FF
<i>Asplenium platyneuron</i>	EBONY SPLEENWORT	3	FACU	No	No	UF
<i>Aster cordifolius</i>	BLUE WOOD ASTER	4	UPL	No	No	UF
<i>Aster divaricatus</i>	WHITE WOOD ASTER	5	UPL	No	No	UF
<i>Aster lateriflorus</i>	CALICO ASTER	2	FACW-	No	No	UF, HR, FF, FS
<i>Aster novae-angliae</i>	NEW ENGLAND ASTER	2	FACW-	No	No	DS, GH, SS
<i>Aster pilosus</i>	AWL ASTER	1	UPL	No	No	DS, GH, SS, PH
<i>Aster prenanthoides</i>	ZIGZAG ASTER	4	FAC	No	No	MA, FF
<i>Aster racemosus</i>	SMALL-HEADED ASTER	2	FACW	No	No	GH, MA
<i>Aster sagittifolius</i>	ARROW-LEAVED ASTER	3	UPL	No	No	UF, SS
<i>Aster schreberi</i>	LARGE-LEAVED ASTER	5	FACU+	No	No	UF
<i>Athyrium filix-femina</i>	LADY FERN	5	FAC	No	No	UF
<i>Athyrium pycnocarpon</i>	NARROW-LEAVED GLADE FERN	8	FAC	No	No	UF
<i>Athyrium thelypteroides</i>	SILVERY GLADE FERN	6	FAC	No	No	UF
<i>BARBAREA VULGARIS</i>	YELLOW ROCKET	0	FACU	No	No	GH, DS, CC
<i>BERBERIS THUNBERGII</i>	JAPANESE BARBERRY	0	FACU	No	No	UF, SS
<i>Betula lenta</i>	SWEET BIRCH	7	FACU	No	No	UF
<i>Bidens bipinnata</i>	SPANISH-NEEDLES	2	FACU	No	No	DS, SS, BL
<i>Bidens frondosa</i>	DEVIL'S BEGGAR'S-TICK	2	FACW	No	No	BL, GH, UF, DS
<i>BIDENS POLYLEPIS</i>	OZARK TICKSEED-SUNFLOWER	0	FACW	No	No	DS, GH
<i>Blephilia hirsuta</i>	HAIRY WOODMINT	4	FACU-	No	No	UF, FF
<i>Boehmeria cylindrica</i>	FALSE NETTLE	4	FACW+	No	No	FF, MA, FS
<i>Botrychium virginianum</i>	RATTLESNAKE FERN	4	FACU	No	No	UF
<i>Brachyelytrum erectum</i>	LONG-AWNED WOOD GRASS	5	UPL	No	No	UF
<i>Brasenia schreberi</i>	WATER-SHIELD	7	OBL	No	No	MA
<i>BRASSICA NIGRA</i>	BLACK MUSTARD	0	UPL	No	No	CC
<i>BROMUS COMMUTATUS</i>	HAIRY CHESS	0	UPL	No	No	CC, DS
<i>BROMUS INERMIS</i>	HUNGARIAN BROME	0	UPL	No	No	GH, DS, PH
<i>Bromus pubescens</i>	CANADA BROME	4	FACU	No	No	UF
<i>BROUSSONETIA PAPYRIFERA</i>	PAPER-MULBERRY	0	UPL	No	No	UF, SS
<i>BUTOMUS UMBELLATUS</i>	FLOWERING-RUSH	0	OBL	No	No	CC
<i>Cacalia atriplicifolia</i>	PALE INDIAN-PLANTAIN	6	UPL	No	No	UF, SS
<i>Calystegia sepium</i>	HEDGE BINDWEED	1	FAC-	No	No	MA, UF
<i>Campanula americana</i>	TALL BELLFLOWER	4	FAC	No	No	UF, FF, SS
<i>Campsis radicans</i>	TRUMPET-CREEPER	1	FAC	No	No	MA, DS, FF
<i>CAPSELLA BURSA-PASTORIS</i>	SHEPHERD'S-PURSE	0	FACU	No	No	CC, DS
<i>CARDAMINE HIRSUTA</i>	HOARY BITTER CRESS	0	FACU	No	No	UF, DS
<i>CARDUUS NUTANS</i>	NODDING THISTLE	0	UPL	No	No	GH, DS
<i>Carex albursina</i>	WING-STEMMED WOOD SEDGE	6	UPL	No	No	UF
<i>Carex blanda</i>	COMMON WOOD SEDGE	1	FAC	No	No	UF, DS
<i>Carex communis</i>	BEECH SEDGE	4	UPL	No	No	UF
<i>Carex cristatella</i>	CRESTED SEDGE	3	FACW	No	No	MA, FF
<i>Carex digitalis</i>	SLENDER WOOD SEDGE	4	UPL	No	No	UF
<i>Carex frankii</i>	FRANK'S SEDGE	2	OBL	No	No	MA, DS
<i>Carex glaucoidea</i>	BLUE-GREEN SEDGE	5	FAC	No	No	GH, UF, SS
<i>Carex granularis</i>	MEADOW SEDGE	3	FACW+	No	No	MA
<i>Carex grayi</i>	GRAY'S SEDGE	5	FACW+	No	No	FF, MA, FS
<i>Carex hirsutella</i>	HIRSUTE SEDGE	2	FACU	No	No	GH, DS
<i>Carex hirtifolia</i>	HAIRY-LEAVED SEDGE	3	UPL	No	No	UF
<i>Carex laxiculmis</i>	SPREADING SEDGE	3	UPL	No	No	UF
<i>Carex lurida</i>	BOTTLEBRUSH SEDGE	3	OBL	No	No	MA, DS
<i>Carex normalis</i>	LARGE STRAW SEDGE	4	FACU	No	No	DS
<i>Carex radiata</i>	RADIATE SEDGE	6	FAC	No	No	UF

VEGETATION TABLE						
Scientific Name:*	Common Name:	C of C:	Indicator Status:**	Federally Listed:	State Listed:	Location (use vegetative community codes):
<i>Carex rosea</i>	ROSE SEDGE	3	UPL	No	No	UF
<i>Carex sparganioides</i>	BUR-REED SEDGE	3	FACU	No	No	UF
<i>Carex squarrosa</i>	SQUARROSE SEDGE	4	FACW	No	No	DS, MA, FF
<i>Carex stipata</i>	CROWDED SEDGE	2	OBL	No	No	DS, MA
<i>Carex swanii</i>	SWAN'S SEDGE	4	FACU	No	No	UF
<i>Carex tribuloides</i>	BLUNT BROOM SEDGE	4	FACW+	No	No	DS, MA
<i>Carex virescens</i>	GREENISH SEDGE	6	FACU	No	No	UF
<i>Carex vulpinoidea</i>	FOX SEDGE	1	OBL	No	No	DS, MA
<i>Carex willdenowii</i>	WILLDENOW'S SEDGE	6	UPL	No	No	UF
<i>Carex woodii</i>	WOOD'S SEDGE	7	UPL	No	No	UF
<i>Carya cordiformis</i>	BITTERNUT HICKORY	5	FACU+	No	No	UF
<i>Carya glabra</i>	PIGNUT HICKORY	5	FACU-	No	No	UF
<i>Carya ovata</i>	SHAGBARK HICKORY	6	FACU-	No	No	UF
CATALPA SPECIOSA	NORTHERN CATALPA	0	FAC	No	No	UF, DS
CELASTRUS ORBICULATUS	ORIENTAL BITTERSWEET	0	FACU	No	No	UF, SS, BL
<i>Celtis occidentalis</i>	HACKBERRY	4	FACU	No	No	UF, FF
CENTAUREA MACULOSA	SPOTTED KNAPWEED	0	UPL	No	No	BL, SS, DS
<i>Cephalanthus occidentalis</i>	BUTTONBUSH	6	OBL	No	No	MA
<i>Cercis canadensis</i>	REDBUD	3	FACU-	No	No	UF, SS, BL
<i>Chamaecrista nictitans</i>	WILD SENSITIVE PLANT	4	FACU-	No	No	SS, UF
<i>Chasmanthium latifolium</i>	WILD RIVER OATS	7	FACU	No	No	FF
CHENOPODIUM GLAUCUM	OAK-LEAVED GOOSEFOOT	0	FACW-	No	No	MA, HR
CHRYSANTHEMUM LEUCANTHEMUM	OX-EYE DAISY	0	UPL	No	No	GH, SS, BL, DS
CICHORIUM INTYBUS	CHICORY	0	UPL	No	No	DS
<i>Cimicifuga racemosa</i>	BLACK SNAKEROOT	7	FACU	No	No	UF
<i>Cinna arundinacea</i>	COMMON WOOD-REED	4	FACW	No	No	UF, FS, FF
<i>Circaea lutetiana</i>	ENCHANTER'S-NIGHTSHADE	3	FACU	No	No	UF
<i>Cirsium altissimum</i>	TALL THISTLE	4	UPL	No	No	SS
CIRSIIUM ARVENSE	CANADA THISTLE	0	FACU	No	No	DS, CC, GH
<i>Cirsium discolor</i>	FIELD THISTLE	4	UPL	No	No	DS, CC, GH
CIRSIIUM VULGARE	BULL THISTLE	0	FACU-	No	No	CC, DS
<i>Clematis viorna</i>	LEATHER-FLOWER	6	FAC-	No	No	UF, SS
<i>Clematis virginiana</i>	VIRGIN'S-BOWER	3	FAC	No	No	SS, DS
<i>Clinopodium vulgare</i>	WILD BASIL	2	UPL	No	No	UF, SS
<i>Collinsonia canadensis</i>	RICH WEED	5	FAC+	No	No	UF
COMMELINA COMMUNIS	COMMON DAY-FLOWER	0	FAC-	No	No	UF
<i>Commelina virginica</i>	VIRGINIA DAY-FLOWER	6	FACW	No	No	HR
CONIUM MACULATUM	POISON-HEMLOCK	0	FACW	No	No	GH, DS, CC
<i>Conopholis americana</i>	SQUAWROOT	7	UPL	No	No	UF
<i>Conyza canadensis</i>	HORSEWEED	0	UPL	No	No	GH, CC, DS, PH
<i>Comus florida</i>	FLOWERING DOGWOOD	5	FACU-	No	No	UF, BL, SS
CORONILLA VARIA	CROWN-VETCH	0	UPL	No	No	DS, SS
<i>Corylus americana</i>	AMERICAN HAZEL	4	FACU-	No	No	UF, SS, BL
<i>Crataegus sp.</i>	HAWTHORN	*	ND	No	No	UF, SS
<i>Cryptotaenia canadensis</i>	HONEWORT	3	FAC	No	No	UF, FF
<i>Cunila origanoides</i>	DITTANY	6	UPL	No	No	UF, SS
<i>Cuscuta gronovii</i>	COMMON DODDER	3	FACW+	No	No	SS, MA
<i>Cyperus esculentus</i>	YELLOW NUT-SEDE	0	FACW	No	No	MA, HR, DS
<i>Cyperus flavescens</i>	YELLOW UMBRELLA-SEDE	3	OBL	No	No	HR
<i>Cyperus squarrosus</i>	AWNED UMBRELLA-SEDE	3	FACW+	No	No	HR
<i>Cyperus strigosus</i>	STRAW-COLORED UMBRELLA-SEDE	1	FACW	No	No	MA, HR, DS
DACTYLIS GLOMERATA	ORCHARD GRASS	0	FACU	No	No	GH, CC, DS, UF, PH
<i>Danthonia spicata</i>	POVERTY OAT GRASS	4	UPL	No	No	UF, BL, SS
<i>Dasistoma macrophylla</i>	MULLEIN-FOXGLOVE	5	FACU	No	No	UF, SS
DAUCUS CAROTA	QUEEN-ANNE'S-LACE	0	UPL	No	No	BL, DS
<i>Dennstaedtia punctilobula</i>	HAY-SCENTED FERN	6	UPL	No	No	UF, SS
<i>Desmodium paniculatum</i>	SHOWY TICK-TREFOIL	3	UPL	No	No	UF

## LV2 ESR REPORT

VEGETATION TABLE						
Scientific Name:*	Common Name:	C of C:	Indicator Status:**	Federally Listed:	State Listed:	Location (use vegetative community codes):
<i>DIANTHUS ARMERIA</i>	DEPTFORD-PINK	0	UPL	No	No	SS, GH, BL
<i>Diarrhena americana</i>	AMERICAN BEAK GRASS	7	FAC+	No	No	UF
<i>DIGITARIA SANGUINALIS</i>	NORTHERN CRAB GRASS	0	FACU-	No	No	CC, DS
<i>Diodia teres</i>	ROUGH BUTTONWEED	3	UPL	No	No	BL, SS, DS
<i>DIOSCOREA BATATAS</i>	CINNAMON-VINE	0	FACU	No	No	DS, FF
<i>Dioscorea quaternata</i>	WHORLED-LEAVED YAM	5	FACU	No	No	UF
<i>Diospyros virginiana</i>	PERSIMMON	4	FAC-	No	No	SS, GH, UF
<i>Diphysastrum digitatum</i>	GROUND-PINE	1	FACU-	No	No	UF, SS
<i>DIPSACUS FULLONUM</i>	WILD TEASEL	0	FACU-	No	No	CC, DS
<i>Dryopteris carthusiana</i>	SPINULOSE WOOD FERN	5	FAC+	No	No	UF
<i>Dryopteris intermedia</i>	EVERGREEN WOOD FERN	6	FACU	No	No	UF
<i>Dryopteris marginalis</i>	MARGINAL WOOD FERN	5	FACU-	No	No	UF
<i>DUCHESNEA INDICA</i>	INDIAN-STRAWBERRY	0	FACU-	No	No	UF, DS
<i>ECHINOCHLOA CRUSGALLI</i>	BARNYARD GRASS	0	FACU	No	No	MA, DS
<i>Echinochloa muricata</i>	ROUGH BARNYARD GRASS	3	FACW+	No	No	MA, DS
<i>Eclipta prostrata</i>	YERBA-DE-TAJO	3	FAC	No	No	MA, FF
<i>ELAEAGNUS UMBELLATA</i>	AUTUMN-OLIVE	0	FACU	No	No	SS, DS
<i>Eleocharis acicularis</i>	NEEDLE SPIKE-RUSH	5	OBL	No	No	MA
<i>Eleocharis erythropoda</i>	RED-FOOTED SPIKE-RUSH	4	OBL	No	No	MA
<i>Eleocharis obtusa</i>	BLUNT SPIKE-RUSH	1	OBL	No	No	MA
<i>Elephantopus carolinianus</i>	ELEPHANT'S-FOOT	4	FACU	No	No	UF
<i>ELEUSINE INDICA</i>	GOOSE GRASS	0	FACU-	No	No	CC, DS, SS
<i>Elodea canadensis</i>	COMMON WATERWEED	3	OBL	No	No	MA
<i>Elymus hystrix</i>	BOTTLEBRUSH GRASS	4	UPL	No	No	UF, SS
<i>Elymus villosus</i>	HAIRY WILD RYE	4	FACU-	No	No	UF, SS
<i>Elymus virginicus</i>	VIRGINIA WILD RYE	3	FACW-	No	No	UF, FF
<i>ELYTRIGIA REPENS</i>	QUACKGRASS	0	FACU-	No	No	GH, CC, DS, UF
<i>Epifagus virginiana</i>	BEECH DROPS	10	UPL	No	No	UF
<i>Epigaea repens</i>	TRAILING ARBUTUS	8	UPL	No	No	UF
<i>Epilobium coloratum</i>	PURPLE-LEAVED WILLOW-HERB	1	OBL	No	No	MA, DS
<i>EPILOBIUM PARVIFLORUM</i>	SMALL-FLOWERED WILLOW-HERB	0	FACW	No	No	MA
<i>Equisetum arvense</i>	FIELD HORSETAIL	0	FAC	No	No	MA, DS
<i>Eragrostis pectinacea</i>	CAROLINA LOVE GRASS	1	FAC	No	No	CC, DS
<i>Eragrostis spectabilis</i>	PURPLE LOVE GRASS	2	UPL	No	No	GH, DS, BL
<i>Erechtites hieracifolia</i>	PILEWORT	2	FACU	No	No	SS, MA
<i>Erigeron annuus</i>	DAISY FLEABANE	0	FACU	No	No	DS, SS, GH
<i>Erigeron philadelphicus</i>	PHILADELPHIA FLEABANE	2	FACU	No	No	FF, SS, UF, GH
<i>Erigeron strigosus</i>	ROUGH FLEABANE	1	FACU+	No	No	SS, BL, GH
<i>EUONYMUS ALATUS</i>	WINGED WAHOO	0	UPL	No	No	UF
<i>EUONYMUS FORTUNEI</i>	WINTERCREEPER	0	UPL	No	No	FF
<i>Eupatorium coelestinum</i>	MISTFLOWER	3	FAC	No	No	MA, GH, FF
<i>Eupatorium fistulosum</i>	HOLLOW-STEMMED JOE-PYE W.	6	FACW	No	No	MA, DS
<i>Eupatorium perfoliatum</i>	COMMON BONESET	3	FACW+	No	No	MA, FF
<i>Eupatorium rotundifolium</i>	ROUND-LEAVED THOROUGHWORT	6	FAC-	No	No	SS
<i>Eupatorium rugosum</i>	WHITE SNAKEROOT	3	FACU	No	No	UF, SS, FF
<i>Eupatorium serotinum</i>	LATE-FLOWERING BONESET	2	FAC-	No	No	SS, GH
<i>Eupatorium sessilifolium</i>	UPLAND BONESET	4	UPL	No	No	UF
<i>Euphorbia corollata</i>	FLOWERING SPURGE	4	UPL	No	No	SS
<i>Euthamia graminifolia</i>	FLAT-TOPPED GOLDENROD	2	FAC	No	No	MA, DS, FF
<i>Fagus grandifolia</i>	AMERICAN BEECH	7	FACU	No	No	UF, SS
<i>FESTUCA ELATIOR</i>	TALL FESCUE	0	FACU	No	No	GH, DS, UF, PH
<i>FESTUCA PRATENSIS</i>	MEADOW FESCUE	0	FACU-	No	No	GH, DS, PH
<i>FESTUCA RUBRA</i>	RED FESCUE	0	FACU	No	No	DS, GH
<i>Fimbristylis autumnalis</i>	AUTUMN SEDGE	5	FACW+	No	No	MA, HR
<i>Fragaria virginiana</i>	WILD STRAWBERRY	1	FACU	No	No	SS, BL
<i>Fraxinus americana</i>	WHITE ASH	6	FACU	No	No	UF, SS

VEGETATION TABLE						
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<i>Fraxinus pennsylvanica</i>	GREEN ASH	3	FACW	No	No	FF, FS
<i>GALEOPSIS TETRAHIT</i>	HEMP-NETTLE	0	UPL	No	No	UF
<i>Galium aparine</i>	CLEAVERS	0	FACU	No	No	FF, CC, UF
<i>Galium circaezans</i>	WILD LICORICE	4	UPL	No	No	UF
<i>Galium concinnum</i>	SHINING BEDSTRAW	5	UPL	No	No	UF
<i>GALIUM MOLLUGO</i>	WHITE BEDSTRAW	0	UPL	No	No	DS, CC
<i>Galium pilosum</i>	HAIRY BEDSTRAW	4	UPL	No	No	UF, SS
<i>Galium tinctorium</i>	SMALL THREE-LOBED BEDSTRAW	4	OBL	No	No	MA
<i>Galium triflorum</i>	SWEET-SCENTED BEDSTRAW	4	FACU	No	No	UF
<i>Gaultheria procumbens</i>	TEABERRY	5	FACU	No	No	UF
<i>Gaylussacia baccata</i>	HUCKLEBERRY	6	FACU	No	No	UF, SS
<i>Gentiana andrewsii</i>	BOTTLE GENTIAN	5	FACW	No	No	DS, MA
<i>Geranium maculatum</i>	WILD GERANIUM	4	FACU	No	No	UF
<i>Geum canadense</i>	WHITE AVENS	2	FACU	No	No	UF, SS, FF
<i>Geum laciniatum</i>	ROUGH AVENS	2	FAC+	No	No	MA
<i>GLECHOMA HEDERACEA</i>	GROUND IVY	0	FACU	No	No	UF, DS
<i>Gleditsia triacanthos</i>	HONEY LOCUST	4	FAC-	No	No	UF, FF, MA
<i>Glyceria striata</i>	FOWL MANNA GRASS	2	OBL	No	No	UF, FF, FS
<i>Gnaphalium obtusifolium</i>	FRAGRANT CUDWEED	2	UPL	No	No	GH, SS, BL
<i>Gnaphalium purpureum</i>	PURPLE CUDWEED	3	FACU	No	No	SS, BL
<i>Goodyera pubescens</i>	DOWNY RATTLESNAKE-PLANTAIN	6	FACU-	No	No	UF
<i>Hackelia virginiana</i>	VIRGINIA STICKSEED	2	FACU	No	No	UF, SS
<i>Hamamelis virginiana</i>	WITCH-HAZEL	5	FAC-	No	No	UF
<i>Hedeoma pulegioides</i>	AMERICAN PENNYROYAL	2	UPL	No	No	UF, SS, BL
<i>HEDERA HELIX</i>	ENGLISH IVY	0	UPL	No	No	DS, UF, FF
<i>Hedyotis caerulea</i>	BLUETS	3	FACU	No	No	SS, UF
<i>HELENIUM FLEXUOSUM</i>	NAKED SNEEZEWEED	0	FAC-	No	No	SS
<i>Helianthus divaricatus</i>	WOODLAND SUNFLOWER	4	UPL	No	No	SS, UF
<i>Helianthus tuberosus</i>	JERUSALEM-ARTICHOKE	3	FAC	No	No	MA
<i>HEMEROCALLIS FULVA</i>	ORANGE DAY-LILY	0	UPL	No	No	DS, CC
<i>Hepatica acutiloba</i>	SHARP-LOBED HEPATICA	5	UPL	No	No	UF
<i>Heuchera americana</i>	COMMON ALUM-ROOT	4	FACU-	No	No	UF
<i>HIBISCUS SYRIACUS</i>	ROSE OF SHARON	0	UPL	No	No	UF, SS
<i>Hieracium paniculatum</i>	PANICLED HAWKWEED	6	UPL	No	No	UF
<i>HOLCUS LANATUS</i>	VELVET GRASS	0	FACU	No	No	GH
<i>HUMULUS JAPONICUS</i>	JAPANESE HOPS	0	FACU	No	No	HR
<i>Hydrangea arborescens</i>	WILD HYDRANGEA	7	FACU	No	No	UF
<i>Hydrastis canadensis</i>	GOLDENSEAL	7	UPL	No	No	UF
<i>Hypericum hypericoides</i>	ST. ANDREW'S CROSS	6	UPL	No	No	UF, BL
<i>Hypericum mutilum</i>	SLENDER ST. JOHN'S-WORT	3	FACW	No	No	SS, MA
<i>HYPERICUM PERFORATUM</i>	COMMON ST. JOHN'S-WORT	0	UPL	No	No	DS, SS, BL
<i>Hypericum punctatum</i>	SPOTTED ST. JOHN'S-WORT	2	FAC-	No	No	UF, SS
<i>ILEX OPACA</i>	AMERICAN HOLLY	0	FACU+	No	No	UF, SS
<i>Impatiens capensis</i>	SPOTTED TOUCH-ME-NOT	2	FACW	No	No	MA, DS
<i>Ipomoea lacunosa</i>	WHITE MORNING-GLORY	4	FACW	No	No	HR
<i>Iris cristata</i>	DWARF CRESTED IRIS	5	UPL	No	No	UF
<i>IRIS PSEUDACORUS</i>	YELLOW FLAG	0	OBL	No	No	MA
<i>Juglans nigra</i>	BLACK WALNUT	5	FACU	No	No	UF, FF
<i>Juncus acuminatus</i>	SHARP-FRUITED RUSH	4	OBL	No	No	MA, GH
<i>Juncus antheratus</i>	BRANCHED RUSH	4	FAC-	No	No	GH, MA, PH
<i>Juncus brachycarpus</i>	SHORT-FRUITED RUSH	5	FACW	No	No	MA
<i>Juncus dudleyi</i>	DUDLEY'S RUSH	3	FACW-	No	No	MA
<i>Juncus effusus</i>	SOFT RUSH	1	FACW+	No	No	MA, DS
<i>Juncus marginatus</i>	GRASS-LEAVED RUSH	4	FACW	No	No	MA
<i>Juncus tenuis</i>	PATH RUSH	1	FAC-	No	No	SS, UF, MA, BL
<i>Juniperus virginiana</i>	EASTERN RED CEDAR	3	FACU	No	No	SS, DS
<i>Krigia biflora</i>	ORANGE DWARF-DANDELION	5	FACU	No	No	UF
<i>Kyllinga pumila</i>	THIN-LEAVED UMBRELLA-	4	FACW	No	No	HR

VEGETATION TABLE						
Scientific Name:*	Common Name:	C of C:	Indicator Status:**	Federally Listed:	State Listed:	Location (use vegetative community codes):
	SEDGE					
<i>Lactuca biennis</i>	TALL BLUE LETTUCE	1	FACU	No	No	UF, SS
<i>Laportea canadensis</i>	WOOD-NETTLE	5	FACW	No	No	UF, FF, FS
<i>Lechea racemulosa</i>	RACEMED PINWEED	5	UPL	No	No	UF, BL
<i>Leersia oryzoides</i>	RICE CUT GRASS	1	OBL	No	No	MA, DS
<i>Leersia virginica</i>	WHITE GRASS	4	FACW	No	No	UF, FF, FS
<i>Lemna minor</i>	COMMON DUCKWEED	3	OBL	No	No	MA
<i>LEPIDIUM CAMPESTRE</i>	FIELD PEPPER-GRASS	0	UPL	No	No	DS, CC
<i>LEPIDIUM DENSIFLORUM</i>	PRAIRIE PEPPER-GRASS	0	FAC	No	No	DS
<i>LESPEDEZA CUNEATA</i>	CHINESE BUSH-CLOVER	0	FACU-	No	No	SS, GH
<i>Lespedeza hirta</i>	HAIRY BUSH-CLOVER	5	UPL	No	No	SS, UF
<i>Lespedeza procumbens</i>	TRAILING BUSH-CLOVER	5	UPL	No	No	UF
<i>Lespedeza repens</i>	SMALL TRAILING BUSH-CLOVER	6	UPL	No	No	SS, BL
<i>LESPEDEZA STRIATA</i>	JAPANESE-CLOVER	0	FACU	No	No	DS, BL, SS
<i>LINARIA VULGARIS</i>	BUTTER-AND-EGGS	0	UPL	No	No	DS
<i>Lindera benzoin</i>	SPICEBUSH	5	FACW-	No	No	UF, FS, FF
<i>Lindernia dubia</i>	FALSE PIMPERNEL	2	OBL	No	No	HR, MA
<i>Linum virginianum</i>	SLENDER YELLOW FLAX	4	FACU	No	No	SS, GH
<i>Liquidambar styraciflua</i>	SWEETGUM	6	FAC	No	No	UF, FF
<i>Liriodendron tulipifera</i>	TULIP TREE	6	FACU	No	No	UF, FF, SS
<i>Lobelia inflata</i>	INDIAN-TOBACCO	1	FACU	No	No	UF, SS, BL
<i>Lobelia puberula</i>	DOWNY LOBELIA	5	FACW-	No	No	SS
<i>Lobelia spicata</i>	PALE-SPIKE LOBELIA	5	FAC-	No	No	SS
<i>LOLIUM PERENNE</i>	PERENNIAL RYEGRASS	0	FACU-	No	No	GH, DS, PH
<i>LONICERA JAPONICA</i>	JAPANESE HONEYSUCKLE	0	FAC-	No	No	UF, BL, DS, SS, GH, FF
<i>LONICERA MAACKII</i>	AMUR HONEYSUCKLE	0	UPL	No	No	UF, SS, GH
<i>LONICERA TATARICA</i>	TATARIAN HONEYSUCKLE	0	FACU	No	No	DS, UF
<i>Ludwigia alternifolia</i>	SEEDBOX	3	FACW+	No	No	FF, MA
<i>Ludwigia palustris</i>	WATER-PURSLANE	3	OBL	No	No	HR, MA, FF, DS
<i>Luzula acuminata</i>	HAIRY WOODRUSH	6	FAC	No	No	UF
<i>Luzula multiflora</i>	COMMON WOODRUSH	3	FACU	No	No	UF
<i>Lycopus americanus</i>	AMERICAN WATER-HOREHOUND	3	OBL	No	No	MA
<i>Lycopus virginicus</i>	VIRGINIA BUGLE-WEED	3	OBL	No	No	FF, FS
<i>LYSIMACHIA NUMMULARIA</i>	MONEYWORT	0	OBL	No	No	MA, DS, FF
<i>Lysimachia quadrifolia</i>	WHORLED LOOSESTRIFE	5	FACU-	No	No	UF, SS
<i>Maianthemum racemosum</i>	FALSE SOLOMON'S-SEAL	4	FACU-	No	No	UF
<i>MATRICARIA MATRICARIOIDES</i>	PINEAPPLE-WEED	0	FACU	No	No	DS
<i>MAZUS PUMILUS</i>	MAZUS	0	FACU-	No	No	HR
<i>Medeola virginiana</i>	INDIAN CUCUMBER-ROOT	6	UPL	No	No	UF
<i>MEDICAGO LUPULINA</i>	BLACK MEDICK	0	UPL	No	No	DS, SS, BL
<i>MELILOTUS ALBA</i>	WHITE SWEET-CLOVER	0	FACU-	No	No	DS, BL, SS
<i>MELILOTUS OFFICINALIS</i>	YELLOW SWEET-CLOVER	0	FACU-	No	No	DS, BL, SS
<i>Menispermum canadense</i>	CANADA MOONSEED	5	FACU	No	No	SS, UF
<i>Mentha arvensis</i>	FIELD MINT	2	FACW	No	No	MA
<i>MICROSTEGIUM VIMINEUM</i>	RECLINING EULALIA	0	FAC	No	No	FF, FS, DS, UF, SS
<i>Mimulus alatus</i>	WINGED MONKEY-FLOWER	6	OBL	No	No	SS, FS, UF
<i>Mimulus ringens</i>	COMMON MONKEY-FLOWER	4	OBL	No	No	MA
<i>MISCANTHUS SINENSIS</i>	EULALIA	0	FACU	No	No	UF, SS
<i>Mitchella repens</i>	PARTRIDGE-BERRY	5	FACU	No	No	UF
<i>Monarda clinopodia</i>	BASIL BEE-BALM	4	FAC+	No	No	UF
<i>MORUS ALBA</i>	WHITE MULBERRY	0	UPL	No	No	UF, FF, DS
<i>Muhlenbergia tenuiflora</i>	SLENDER SATIN GRASS	6	UPL	No	No	UF
<i>Myosotis verna</i>	SPRING FORGET-ME-NOT	4	FAC-	No	No	UF, SS
<i>Nyssa sylvatica</i>	BLACK-GUM	7	FAC	No	No	UF, SS
<i>Obolaria virginica</i>	PENNYWORT	7	UPL	No	No	UF
<i>Oenothera biennis</i>	COMMON EVENING-	1	FACU-	No	No	SS, DS, BL

VEGETATION TABLE						
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	PRIMROSE					
<i>Onoclea sensibilis</i>	SENSITIVE FERN	2	FACW	No	No	MA
<i>Orchis spectabilis</i>	SHOWY ORCHIS	7	UPL	No	No	UF
<i>Osmorhiza claytonii</i>	WOOLLY SWEET CICELY	4	FACU-	No	No	UF
<i>Osmunda claytoniana</i>	INTERRUPTED FERN	6	FAC	No	No	UF
<i>Ostrya virginiana</i>	HOP-HORNBEAM	5	FACU-	No	No	UF, SS
<i>Oxalis dillenii</i>	SOUTHERN YELLOW WOOD-SORREL	0	FACU	No	No	SS, BL
<i>Oxalis grandis</i>	GREAT YELLOW WOOD-SORREL	7	UPL	No	No	UF
<i>Oxalis stricta</i>	COMMON YELLOW WOOD-SORREL	0	UPL	No	No	UF, DS, CC
<i>Oxalis violacea</i>	VIOLET WOOD-SORREL	6	UPL	No	No	UF
<i>Oxydendron arboreum</i>	SOURWOOD	7	UPL	No	No	UF, SS
<i>Panax quinquefolius</i>	GINSENG	6	UPL	No	No	UF
<i>Panicum boscii</i>	BOSC'S PANIC GRASS	6	UPL	No	No	UF
<i>Panicum clandestinum</i>	DEER'S-TONGUE PANIC GRASS	2	FAC+	No	No	UF, FF, GH, MA
<i>Panicum dichotomiflorum</i>	FALL PANIC GRASS	0	FACW-	No	No	CC, DS, MA, HR, FF
<i>Panicum lanuginosum</i>	WESTERN PANIC GRASS	3	FAC	No	No	GH, UF
<i>Panicum latifolium</i>	BROAD-LEAVED PANIC GRASS	4	FACU-	No	No	UF
<i>Panicum microcarpon</i>	SMALL-FRUITED PANIC GRASS	5	FACU	No	No	UF, FF, BL, SS
<i>Panicum polyanthes</i>	MANY-FLOWERED PANIC GRASS	3	FACU	No	No	UF
<i>Panicum rigidulum</i>	RIGID PANIC GRASS	5	FACW+	No	No	GH, MA
<i>Panicum virgatum</i>	SWITCH GRASS	4	FAC	No	No	DS, SS
<i>Paronychia canadensis</i>	FORKED-CHICKWEED	5	UPL	No	No	UF
<i>Parthenocissus quinquefolia</i>	VIRGINIA CREEPER	2	FACU	No	No	UF, SS, DS
<i>Paspalum repens</i>	RIVERBANK PASPALUM	9	OBL	No	Yes	HR
<i>Paspalum setaceum</i>	THIN PASPALUM	2	FACU+	No	No	DS, SS
<i>Passiflora lutea</i>	YELLOW PASSION-FLOWER	4	UPL	No	No	SS
PAULOWNIA TOMENTOSA	PRINCESS TREE	0	UPL	No	No	BL, SS
<i>Penstemon digitalis</i>	FOXGLOVE BEARD-TONGUE	2	FAC	No	No	UF
<i>Penthorum sedoides</i>	DITCH-STONECROP	2	OBL	No	No	MA
PERILLA FRUTESCENS	BEEFSTEAK-PLANT	0	FACU+	No	No	UF, SS
PHALARIS ARUNDINACEA	REED CANARY GRASS	0	FACW+	No	No	MA, DS, FF
<i>Phlox paniculata</i>	GARDEN PHLOX	2	FACU	No	No	SS, UF
PHLEUM PRATENSE	TIMOTHY	0	FACU	No	No	GH, SS, PH
<i>Phyma leptostachya</i>	LOPSEED	5	FACU-	No	No	UF
<i>Phyla lanceolata</i>	FOG-FRUIT	3	OBL	No	No	MA
<i>Phytolacca americana</i>	POKEWEED	1	FACU+	No	No	DS, UF, SS
<i>Pilea pumila</i>	CLEARWEED	2	FACW	No	No	UF, FF, FS, MA
<i>Pinus echinata</i>	SHORTLEAF PINE	8	UPL	No	No	UF, SS, BL
<i>Pinus virginiana</i>	VIRGINIA PINE	3	UPL	No	No	UF, SS, BL
PLANTAGO ARISTATA	BRACTED PLANTAIN	0	UPL	No	No	BL, SS
PLANTAGO LANCEOLATA	ENGLISH PLANTAIN	0	UPL	No	No	GH, DS, PH
<i>Plantago rugelii</i>	RUGEL'S PLANTAIN	0	FACU	No	No	CC, DS
<i>Plantago virginica</i>	VIRGINIA PLANTAIN	1	UPL	No	No	SS
<i>Platanthera lacera</i>	RAGGED FRINGED ORCHID	3	FACW	No	No	UF, GH
<i>Platanus occidentalis</i>	SYCAMORE	7	FACW-	No	No	UF, FF, GH, FS
POA ANNUA	ANNUAL BLUEGRASS	0	FACU	No	No	CC, DS
POA COMPRESSA	CANADA BLUEGRASS	0	FACU	No	No	UF, SS, GH, BL, PH
POA PRATENSIS	KENTUCKY BLUEGRASS	0	FACU	No	No	GH, SS, DS, PH
POA TRIVIALIS	ROUGH BLUEGRASS	0	FACW	No	No	MA, DS
<i>Podophyllum peltatum</i>	MAYAPPLE	4	FACU	No	No	UF
<i>Polemonium reptans</i>	SPREADING JACOB'S LADDER	5	FACU	No	No	UF
<i>Polygala sanguinea</i>	FIELD MILKWORT	2	FACU	No	No	SS, GH, BL
<i>Polygala verticillata</i>	WHORLED MILKWORT	2	UPL	No	No	SS

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<i>Polygonatum biflorum</i>	SMOOTH SOLOMON'S-SEAL	4	FACU	No	No	UF
<i>POLYGONUM ARENASTRUM</i>	DOORYARD KNOTWEED	0	[UPL]	No	No	BL, DS, SS
<i>POLYGONUM CESPITOSUM</i>	LONG-BRISTLED SMARTWEED	0	FACU-	No	No	FF, SS, UF
<i>Polygonum coccineum</i>	WILD HEARTEASE	4	OBL	No	No	MA
<i>POLYGONUM CUSPIDATUM</i>	JAPANESE KNOTWEED	0	FACU-	No	No	FF, DS
<i>Polygonum hydropiper</i>	WATER-PEPPER	1	OBL	No	No	MA, FS, DS
<i>Polygonum lapathifolium</i>	DOCK-LEAVED SMARTWEED	1	FACW+	No	No	MA
<i>POLYGONUM PERSICARIA</i>	LADY'S THUMB	0	FACW	No	No	CC
<i>Polygonum sagittatum</i>	ARROW-LEAVED TEARTHUMB	2	OBL	No	No	MA, FF, FS
<i>Polymnia uvedalia</i>	LARGE-FLOWERED LEAFCUP	7	UPL	No	No	UF
<i>Polystichum acrostichoides</i>	CHRISTMAS FERN	3	FACU-	No	No	UF, SS
<i>Populus deltoides</i>	EASTERN COTTONWOOD	3	FAC	No	No	CC, MA, FF
<i>Populus grandidentata</i>	BIG-TOOTH ASPEN	2	FACU-	No	No	UF, SS
<i>Porteranthus stipulatus</i>	AMERICAN IPECAC	6	UPL	No	No	UF, SS
<i>PORTULACA OLERACEA</i>	COMMON PURSLANE	0	FAC	No	No	CC, DS
<i>Potentilla canadensis</i>	RUNNING CINQUEFOIL	3	UPL	No	No	BL, SS
<i>Potentilla norvegica</i>	STRAWBERRY-WEED	1	FACU	No	No	SS, CC
<i>Potentilla simplex</i>	OLD FIELD CINQUEFOIL	1	FACU-	No	No	SS, GH, UF
<i>Prenanthes alba</i>	WHITE RATTLESNAKE-ROOT	5	FACU	No	No	UF
<i>Prenanthes altissima</i>	TALL RATTLESNAKE-ROOT	4	FACU-	No	No	UF
<i>Prosartes lanuginosa</i>	YELLOW MANDARIN	7	UPL	No	No	UF
<i>Prunella vulgaris</i>	SELF-HEAL	0	FACU+	No	No	UF, DS, FF, SS
<i>Prunus serotina</i>	BLACK CHERRY	3	FACU	No	No	UF, SS
<i>Prunus virginiana</i>	CHOKE CHERRY	2	FACU	No	No	UF
<i>Pteridium aquilinum</i>	BRACKEN FERN	1	FACU	No	No	SS, UF
<i>Pycnanthemum pycnanthemoides</i>	SOUTHERN MOUNTAIN-MINT	6	UPL	No	No	UF, SS
<i>Pycnanthemum tenuifolium</i>	NARROW-LEAVED MOUNTAIN-MINT	4	FACW	No	No	MA, GH
<i>PYRUS CALLIERYANA</i>	CALLIERY PEAR	0	UPL	No	No	UF, SS, DS
<i>Quercus alba</i>	WHITE OAK	6	FACU-	No	No	UF, BL, SS
<i>Quercus coccinea</i>	SCARLET OAK	6	UPL	No	No	UF
<i>Quercus imbricaria</i>	SHINGLE OAK	5	FAC	No	No	UF
<i>Quercus prinus</i>	ROCK CHESTNUT OAK	7	UPL	No	No	UF, BL, SS
<i>Quercus rubra</i>	RED OAK	6	FACU-	No	No	UF, SS
<i>Quercus velutina</i>	BLACK OAK	7	UPL	No	No	UF, BL, SS
<i>Ranunculus recurvatus</i>	HOOKEED CROWFOOT	3	FAC+	No	No	UF, MA
<i>Rhus copallinum</i>	WINGED SUMAC	4	FACU-	No	No	BL, SS
<i>Rhus glabra</i>	SMOOTH SUMAC	2	UPL	No	No	SS
<i>Rhus typhina</i>	STAGHORN SUMAC	2	UPL	No	No	SS, DS
<i>ROBINIA HISPIDA</i>	BRISTLY LOCUST	0	UPL	No	No	DS, SS
<i>Robinia pseudoacacia</i>	BLACK LOCUST	0	FACU-	No	No	FF, SS, UF
<i>RORIPPA NASTURTIUM-AQUATICUM</i>	WATERCRESS	0	OBL	No	No	MA
<i>Rorippa palustris</i>	YELLOW CRESS	2	OBL	No	No	MA, CC
<i>RORIPPA SYLVESTRIS</i>	CREEPING YELLOW CRESS	0	FACW	No	No	MA, FF
<i>Rosa carolina</i>	PASTURE ROSE	4	UPL	No	No	SS, UF
<i>ROSA MULTIFLORA</i>	MULTIFLORA ROSE	0	FACU	No	No	UF, FF, GH, DS, BL, SS
<i>Rubus allegheniensis</i>	COMMON BLACKBERRY	1	FACU-	No	No	BL, DS, SS, UF
<i>Rubus occidentalis</i>	BLACK RASPBERRY	1	UPL	No	No	BL, UF, SS, UF
<i>Rubus pensylvanicus</i>	PENNSYLVANIA BLACKBERRY	1	FACU	No	No	UF, BL, SS
<i>RUBUS PHOENICOLASIUS</i>	WINEBERRY	0	UPL	No	No	SS, UF
<i>Rudbeckia fulgida</i>	ORANGE CONEFLOWER	6	FAC	No	No	UF
<i>Rudbeckia hirta</i>	BLACK-EYED SUSAN	1	FACU-	No	No	DS, GH, BL, SS
<i>Rudbeckia laciniata</i>	GREEN-HEADED CONEFLOWER	6	FACW	No	No	FF, FS, MA
<i>RUMEX CRISPUS</i>	CURLY DOCK	0	FACU	No	No	DS
<i>RUMEX OBTUSIFOLIUS</i>	BITTER DOCK	0	FACU-	No	No	DS, GH
<i>Rumex verticillatus</i>	SWAMP DOCK	6	OBL	No	No	MA
<i>Sabatia angularis</i>	ROSE-PINK	4	FAC+	No	No	DS, SS

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<i>Sagittaria latifolia</i>	COMMON ARROWHEAD	1	OBL	No	No	MA, CC
<i>Salix exigua</i>	SANDBAR WILLOW	1	OBL	No	No	MA, FF, FS, SH
<i>SALIX FRAGILIS</i>	CRACK WILLOW	0	FAC+	No	No	FS
<i>Salix nigra</i>	BLACK WILLOW	2	FACW+	No	No	FF, FS, MA
<i>Salvia lyrata</i>	LYRE-LEAVED SAGE	3	UPL	No	No	SS, GH, DS
<i>Sambucus canadensis</i>	COMMON ELDERBERRY	3	FACW-	No	No	MA
<i>Samolus floribundus</i>	WATER-PIMPERNEL	4	OBL	No	No	MA
<i>Sanguinaria canadensis</i>	BLOODROOT	5	UPL	No	No	UF
<i>Sanicula canadensis</i>	SHORT-STYLED SNAKEROOT	3	UPL	No	No	UF
<i>Sanicula gregaria</i>	CLUSTERED SNAKEROOT	3	FACU	No	No	UF, FF
<i>Sassafras albidum</i>	SASSAFRAS	3	FACU-	No	No	UF, SS
<i>Schizachyrium scoparium</i>	LITTLE BLUESTEM	5	FACU-	No	No	SS
<i>Schoenoplectus tabernaemontani</i>	SOFT-STEMMED BULRUSH	2	OBL	No	No	MA
<i>Scirpus atrovirens</i>	GREEN BULRUSH	1	OBL	No	No	MA, DS
<i>Scirpus cyperinus</i>	WOOL-GRASS	1	FACW+	No	No	MA, SS
<i>Scirpus hattorianus</i>	SMOOTH-LVD. DARK GREEN BULR.	1	OBL	No	No	MA, DS
<i>Scrophularia marilandica</i>	MARYLAND FIGWORT	4	FACU-	No	No	SS
<i>Scutellaria elliptica</i>	HAIRY SKULLCAP	5	UPL	No	No	UF
<i>Scutellaria incana</i>	DOWNY SKULLCAP	4	UPL	No	No	UF, SS
<i>Scutellaria lateriflora</i>	MAD-DOG SKULLCAP	3	FACW+	No	No	FF, FS, MA
<i>Scutellaria nervosa</i>	VEINED SKULLCAP	6	FAC	No	No	UF
<i>Sedum ternatum</i>	WILD STONECROP	5	UPL	No	No	UF
<i>Senecio aureus</i>	GOLDEN RAGWORT	4	FACW	No	No	FS, MA
<i>SENECIO GLABELLUS</i>	BUTTERWEED	0	OBL	No	No	DS, FF
<i>SETARIA FABERI</i>	GIANT FOXTAIL GRASS	0	UPL	No	No	CC
<i>SIDA SPINOSA</i>	PRICKLY SIDA	0	UPL	No	No	CC, DS, BL, SS
<i>Silphium trifoliatum</i>	WHORLED ROSIN-WEED	5	FAC	No	No	GH, SS
<i>SISYMBRIUM ALTISSIMUM</i>	TALL TUMBLE MUSTARD	0	FACU-	No	No	SS, CC
<i>Sisyrinchium angustifolium</i>	STOUT BLUE-EYED-GRASS	2	FACW-	No	No	SS, UF, GH
<i>Smilax glauca</i>	CAT GREENBRIER	5	FACU	No	No	GH, UF, SS
<i>Smilax rotundifolia</i>	COMMON GREENBRIER	4	FAC	No	No	UF, BL, SS
<i>SOLANUM CAROLINENSE</i>	HORSE NETTLE	0	UPL	No	No	UF, CC, DS
<i>Solidago caesia</i>	BLUE-STEMMED GOLDENROD	5	FACU	No	No	UF
<i>Solidago canadensis</i>	CANADA GOLDENROD	1	FACU	No	No	GH, DS, SS
<i>Solidago flexicaulis</i>	ZIGZAG GOLDENROD	5	FACU	No	No	UF
<i>Solidago gigantea</i>	SMOOTH GOLDENROD	3	FACW	No	No	FF, MA, UF
<i>Solidago juncea</i>	PLUME GOLDENROD	2	UPL	No	No	SS, UF
<i>Solidago nemoralis</i>	GRAY GOLDENROD	2	UPL	No	No	SS, BL, GH
<i>Solidago ulmifolia</i>	ELM-LEAVED GOLDENROD	5	UPL	No	No	UF
<i>SONCHUS ASPER</i>	PRICKLY SOW-THISTLE	0	FAC	No	No	DS
<i>SORGHUM HALEPENSE</i>	JOHNSON GRASS	0	FACU	No	No	CC, GH, DS, SS
<i>Sphenopholis obtusata var. major</i>	SLENDER WEDGE GRASS	4	FAC	No	No	MA, CC, UF
<i>SPIRAEA JAPONICA</i>	JAPANESE SPIRAEA	0	FACU-	No	No	UF, SS
<i>Sporobolus asper</i>	TALL DROPSEED	2	UPL	No	No	DS
<i>Sporobolus neglectus</i>	SMALL RUSH GRASS	2	FACU-	No	No	DS
<i>Stachys cordata</i>	HEART-LEAVED HEDGE-NETTLE	4	FAC	No	No	UF
<i>Stachys tenuifolia</i>	SMOOTH HEDGE-NETTLE	4	FACW+	No	No	MA, GH
<i>STELLARIA AQUATICA</i>	WATER CHICKWEED	0	FACW	No	No	FF, HR
<i>STELLARIA MEDIA</i>	COMMON CHICKWEED	0	UPL	No	No	CC, UF, SS
<i>Stellaria pubera</i>	STAR CHICKWEED	5	UPL	No	No	UF
<i>TARAXACUM OFFICINALE</i>	COMMON DANDELION	0	FACU-	No	No	DS, CC, GH
<i>Teucrium canadense</i>	AMERICAN GERMANDER	3	FACW-	No	No	MA
<i>Thalictrum dasycarpum</i>	PURPLE MEADOW-RUE	4	FACW	No	No	UF, FF
<i>Thalictrum dioicum</i>	EARLY MEADOW-RUE	5	FAC	No	No	UF
<i>Thelypteris hexagonaptera</i>	BROAD BEECH-FERN	7	FAC	No	No	UF
<i>Thelypteris noveboracensis</i>	NEW YORK FERN	4	FAC	No	No	UF
<i>THLASPI ARVENSE</i>	FIELD PENNY CRESS	0	UPL	No	No	CC, DS
<i>Tiarella cordifolia</i>	FOAMFLOWER	6	FAC-	No	No	UF



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<i>Tilia americana</i>	AMERICAN BASSWOOD	6	FACU	No	No	UF
<i>Tipularia discolor</i>	CRANE-FLY ORCHID	6	FACU	No	No	UF
<i>Toxicodendron radicans</i>	POISON-IVY	1	FAC	No	No	UF, FF, SS, BL, DS
<i>TRAGOPOGON DUBIUS</i>	FIELD GOAT'S-BEARD	0	UPL	No	No	DS, SS
<i>Tridens flavus</i>	GREASE GRASS	1	FACU	No	No	GH, DS
<i>TRIFOLIUM CAMPESTRE</i>	PINNATE HOP CLOVER	0	0	No	No	DS, CC, GH, PH
<i>TRIFOLIUM HYBRIDUM</i>	ALSIKE CLOVER	0	FACU-	No	No	DS, CC
<i>TRIFOLIUM PRATENSE</i>	RED CLOVER	0	FACU-	No	No	GH, DS, UF, SS, PH
<i>TRIFOLIUM REPENS</i>	WHITE CLOVER	0	FACU-	No	No	GH, UF, SS, DS, PH
<i>Trillium grandiflorum</i>	LARGE-FLOWERED TRILLIUM	5	UPL	No	No	UF
<i>Triodanis perfoliata</i>	VENUS'-LOOKING-GLASS	2	FAC	No	No	BL, SS, CC
<i>TUSSILAGO FARFARA</i>	COLTSFOOT	0	FACU	No	No	DS
<i>TYPHA ANGUSTIFOLIA</i>	NARROW-LEAVED CAT-TAIL	0	OBL	No	No	MA, DS
<i>Typha latifolia</i>	BROAD-LEAVED CAT-TAIL	1	OBL	No	No	MA, DS
<i>Ulmus americana</i>	AMERICAN ELM	2	FACW-	No	No	UF, FF
<i>Ulmus rubra</i>	SLIPPERY ELM	3	FAC	No	No	UF, FF, SS
<i>Urtica dioica var. procera</i>	AMERICAN STINGING NETTLE	1	FAC-	No	No	FF
<i>Uvularia grandiflora</i>	LARGE-FLOWERED BELLWORT	5	UPL	No	No	UF
<i>Vaccinium pallidum</i>	LOW BLUEBERRY	6	UPL	No	No	UF
<i>Vaccinium stamineum</i>	DEERBERRY	6	FACU-	No	No	UF
<i>Verbena urticifolia</i>	WHITE VERVAIN	3	FACU	No	No	BL, FF, DS
<i>Verbesina alternifolia</i>	WINGSTEM	5	FAC	No	No	UF, SS, MA
<i>Vernonia gigantea</i>	TALL IRONWEED	2	FAC	No	No	GH, MA
<i>VERONICA OFFICINALIS</i>	COMMON SPEEDWELL	0	FACU-	No	No	UF, BL, SS
<i>Viburnum acerifolium</i>	MAPLE-LEAVED VIBURNUM	6	UPL	No	No	UF
<i>Viburnum prunifolium</i>	BLACK-HAW	4	FACU	No	No	UF
<i>VICIA VILLOSA</i>	HAIRY VETCH	0	UPL	No	No	GH, DS
<i>Viola palmata var. palmata</i>	PALMATE-LEAVED VIOLET	4	FACW	No	No	UF
<i>Viola primulifolia</i>	PRIMROSE-LEAVED VIOLET	8	FAC+	No	Yes	UF, SS
<i>Viola pubescens</i>	DOWNY YELLOW VIOLET	4	FACU-	No	No	UF
<i>Viola sororia</i>	COMMON BLUE VIOLET	1	FAC-	No	No	UF, DS, FF, MA
<i>Viola striata</i>	STRIPED CREAMY VIOLET	5	FACW	No	No	UF
<i>Vitis aestivalis</i>	SUMMER GRAPE	4	FACU	No	No	UF, SS
<i>Vitis riparia</i>	RIVERBANK GRAPE	3	FACW	No	No	UF, SS, GH, DS
<i>Vitis vulpina</i>	FROST GRAPE	3	FAC	No	No	UF
<i>Wolffia columbiana</i>	COMMON WATER-MEAL	3	OBL	No	No	MA
<i>XANTHIUM STRUMARIUM</i>	COMMON COCKLEBUR	0	FAC	No	No	DS, FF, HR, MA
<i>ZEA MAYS</i>	CORN	0	UPL	No	No	CC

\* Latin names that are all capitalized indicate the species is not considered native to the State of Ohio.

\*\* The Indicator status for each species listed in this table is from the *Floristic Quality Assessment Index (FQAI) for Vascular Plants and Mosses for the State of Ohio* (Andreas, et al. 2004). The wetland indicator status for species included in the wetland delineation forms were taken from the *Eastern Mountain and Piedmont 2012 Final Regional Wetland Plant List*, and are provided in Appendix 3.

#### Additional Vegetation Observations:

Two state-listed species were identified during the ecological survey for Phases 2 and 3 of the Portsmouth Bypass Project. Species identified included the state endangered *Viola primulifolia* and the state threatened *Paspalum repens*. All of the other identified species are commonly found throughout the project area and southern Ohio.

MAMMAL TABLE				
Scientific Name	Common Name	Federally Listed:	State Listed:	Location (use vegetative community codes):
<i>Mephitis mephitis</i>	Striped Skunk	Not Listed	Not Listed	DS, CC
<i>Canis latrans</i>	Coyote	Not Listed	Not Listed	CC, MA
<i>Sciurus niger</i>	Eastern Fox Squirrel	Not Listed	Not Listed	UF, DS, FF
<i>Didelphis marsupialis</i>	Opossum	Not Listed	Not Listed	UF, DS
<i>Marmota monax</i>	Woodchuck	Not Listed	Not Listed	CC, DS
<i>Odocoileus virginianus</i>	Whitetail Deer	Not Listed	Not Listed	UF, CC, GH, PH
<i>Procyon lotor</i>	Raccoon	Not Listed	Not Listed	UF, DS
<i>Sciurus griseus</i>	Eastern Gray Squirrel	Not Listed	Not Listed	UF, DS, FF
<i>Sylvilagus floridanus</i>	Eastern Cottontail	Not Listed	Not Listed	DS, GH, PH
<i>Tamias striatus</i>	Eastern Chipmunk	Not Listed	Not Listed	UF

Additional Mammal Observations:
<b>All of the identified mammals are common throughout southern Ohio.</b>

## LV2 ESR REPORT

BIRD TABLE						
Scientific Name	Common Name	Date of Observation	<a href="#">Typical Ohio Range</a>	Federally Listed:	State Listed:	Location (use vegetative community codes):
<i>Agelaius phoeniceus</i>	Red Winged Blackbird	6/25/2012	Year-Round Resident	Not Listed	Not Listed	MA
<i>Archilochus colubris</i>	Ruby Throated Hummingbird	8/29/2012	Breeding Season Resident	Not Listed	Not Listed	DS
<i>Ardea herodias</i>	Great Blue Heron	6/25/2012	Year-Round Resident	Not Listed	Not Listed	MA, PH
<i>Baeolophus bicolor</i>	Tufted Titmouse	7/23/2012	Year-Round Resident	Not Listed	Not Listed	UF
<i>Buteo jamaicensis</i>	Red Tailed Hawk	6/26/2012	Year-Round Resident	Not Listed	Not Listed	PH, GH, DS, CC
<i>Cardinalis cardinalis</i>	Northern Cardinal	6/27/2012	Year-Round Resident	Not Listed	Not Listed	DS, UF
<i>Cathartes aura</i>	Turkey Vulture	6/25/2012	Year-Round Resident	Not Listed	Not Listed	CC, PH, GH
<i>Charadrius vociferus</i>	Killdeer	6/25/2012	Year-Round Resident	Not Listed	Not Listed	CC
<i>Coccyzus erythrophthalmus</i>	Black Billed Cuckoo	6/27/2012	Breeding Season Resident	Not Listed	Not Listed	UF
<i>Colaptes auratus</i>	Northern Flicker	8/7/2012	Year-Round Resident	Not Listed	Not Listed	UF
<i>Contopus virens</i>	Eastern Wood Pewee	9/17/2012	Breeding Season Resident	Not Listed	Not Listed	UF
<i>Corvus brachyrhynchos</i>	American Crow	6/26/2012	Year-Round Resident	Not Listed	Not Listed	PH, GH, DS
<i>Cyanocitta cristata</i>	Bluejay	7/10/2012	Year-Round Resident	Not Listed	Not Listed	DS, GH, SS
<i>Dryocopus pileatus</i>	Pileated Woodpecker	10/11/2012	Year-Round Resident	Not Listed	Not Listed	UF
<i>Dumetella carolinensis</i>	Gray Catbird	7/10/2012	Breeding Season Resident	Not Listed	Not Listed	UF, PH, GH
<i>Empidonax vireescens</i>	Acadian Flycatcher	6/27/2012	Breeding Season Resident	Not Listed	Not Listed	UF
<i>Hirundo rustica</i>	Barn Swallow	6/25/2012	Breeding Season Resident	Not Listed	Not Listed	PH, DS

BIRD TABLE						
Scientific Name	Common Name	Date of Observation	<a href="#">Typical Ohio Range</a>	Federally Listed:	State Listed:	Location (use vegetative community codes):
<i>Hylocichla mustelina</i>	Wood Thrush	7/9/2012	Breeding Season Resident	Not Listed	Not Listed	UF
<i>Megasceryle alcyon</i>	Belted Kingfisher	10/16/2012	Year-Round Resident	Not Listed	Not Listed	HR, FF
<i>Melanerpes erythrocephalus</i>	Red-headed Woodpecker	6/27/2012	Year-Round Resident	Not Listed	Not Listed	UF
<i>Meleagris gallopavo</i>	Turkey	6/27/2012	Year-Round Resident	Not Listed	Not Listed	UF, GH
<i>Melospiza melodia</i>	Song Sparrow	6/25/2012	Year-Round Resident	Not Listed	Not Listed	PH, GH
<i>Mimus polyglottos</i>	Northern Mockingbird	6/26/2012	Year-Round Resident	Not Listed	Not Listed	PH, GH
<i>Passerina cyanea</i>	Indigo Bunting	7/10/2012	Breeding Season Resident	Not Listed	Not Listed	PH, GH
<i>Picoides pubescens</i>	Downy Woodpecker	8/7/2012	Year-Round Resident	Not Listed	Not Listed	UF
<i>Pipilo erythrophthalmus</i>	Eastern Towhee	7/23/2012	Year-Round Resident	Not Listed	Not Listed	UF, GH
<i>Poecile carolinensis</i>	Carolina Chickadee	6/27/2012	Year-Round Resident	Not Listed	Not Listed	UF
<i>Scolopax minor</i>	American Woodcock	10/11/2012	Breeding Season Resident	Not Listed	Not Listed	UF
<i>Seiurus aurocapillus</i>	Ovenbird	6/27/2012	Breeding Season Resident	Not Listed	Not Listed	UF
<i>Sitta carolinensis</i>	Nuthatch	10/24/2012	Year-Round Resident	Not Listed	Not Listed	UF
<i>Spinus tristis</i>	American Goldfinch	10/16/2012	Year-Round Resident	Not Listed	Not Listed	UF, GH, DS
<i>Sturnus vulgaris</i>	European Starling	6/25/2012	Year-Round Resident	Not Listed	Not Listed	CC, PH, DS
<i>Tachycineta bicolor</i>	Tree Swallow	8/29/2012	Breeding Season Resident	Not Listed	Not Listed	PH, GH
<i>Tyrannus tyrannus</i>	Eastern Kingbird	8/7/2012	Breeding Season Resident	Not Listed	Not Listed	SS, UF

BIRD TABLE						
Scientific Name	Common Name	Date of Observation	<a href="#">Typical Ohio Range</a>	Federally Listed:	State Listed:	Location (use vegetative community codes):
<i>Turdus migratorius</i>	American Robin	6/25/2012	Year-Round Resident	Not Listed	Not Listed	PH, GH, UF, DS
<i>Zenaida macroura</i>	Mourning Dove	6/26/2012	Year-Round Resident	Not Listed	Not Listed	PH, CC

**Additional Bird Observations:**

All of the identified birds are common throughout southern Ohio.

REPTILE TABLE				
Scientific Name	Common Name	Federally Listed:	State Listed:	Location (use vegetative community codes):
<i>Pantherophis alleghaniensis</i>	Eastern Rat Snake	Not Listed	Not Listed	UF
<i>Plestiodon fasciatus</i>	Common Five-lined Skink	Not Listed	Not Listed	UF
<i>Sceloporus undulatus</i>	Eastern Fence Lizard	Not Listed	Not Listed	UF
<i>Terrapene carolina carolina</i>	Eastern Box Turtle	Not Listed	Species of Concern	UF
<i>Thamnophis sirtalis sirtalis</i>	Eastern Garter Snake	Not Listed	Species of Concern	UF, DS

Additional Reptile Observations:
All of the identified reptiles are common throughout southern Ohio.

AMPHIBIAN TABLE				
Scientific Name	Common Name	Federally Listed:	State Listed:	Location (use vegetative community codes):
<i>Bufo americanus americanus</i>	Eastern American Toad	Not Listed	Not Listed	UF
<i>Eurycea b. cirrigera</i>	Southern Two-lined Salamander	Not Listed	Not Listed	UF
<i>Lithobates sylvatica</i>	Wood Frog	Not Listed	Not Listed	UF

**Additional Amphibian Observations:**

**All of the identified amphibians are common throughout southern Ohio. In addition to the listed species above, several unidentified frogs were observed in various stream and pond habitats.**

**Listed Species**

<b>FEDERALLY LISTED SPECIES</b>	
Were any federally listed species observed within the project area?	<b>NO</b>
Were any suitable habitats for federally listed species (known to be within the range of the project area) observed within the project area?	<b>YES</b>
Were any <b>designated critical habitats</b> for federally listed species present within the project area?	<b>NO</b>
Additional summary observations on federally listed species:	
<p>Surveys for the federally threatened running buffalo clover (<i>Trifolium stoloniferum</i>) and small whorled pogonia (<i>Isotria medeoloides</i>) were conducted during May and June 2011, as part of the reevaluation of Phase 1 of the Portsmouth Bypass Project. No individuals of either listed species were identified within the Phase 2 or Phase 3 project area. Habitat of varying degrees of quality was identified within the project areas. Areas of potential habitat were intensively surveyed during the field investigation and failed to identify any individuals.</p> <p>Mist-net surveys for the Indiana bat were conducted between July 1 and August 15, 2011. No Indiana bats were captured during the survey. Potential roosting habitat was prevalent throughout the corridor, as forested areas are common throughout the project area.</p> <p>The Little Scioto River was the only stream in the Phase 2 and Phase 3 project area where evidence of mussels were observed. The Little Scioto River was surveyed for federally listed mussels during the summer of 2011. Potential habitat for federally threatened mussels was identified in the Little Scioto River in the project area. No other streams within the project area exhibited any evidence of mussels, live or dead, during the ecological investigation of the remaining streams within the Phase 2 and Phase 3 project area.</p> <p>A habitat survey for the eastern hellbender (<i>Cryptobranchus alleganiensis</i>) in the Little Scioto River was conducted on August 16, 2011. Although the eastern hellbender is known to inhabit the Little Scioto River, no suitable habitat for this species was identified in the project area.</p>	

<b>STATE-LISTED SPECIES</b>	
Are any state-listed species known to be within 1 mile of the project area?	<b>YES</b>
Were any state-listed species observed within the project area?	<b>YES</b>
If any state-listed species are known to be within a mile of the project area (Natural Heritage Database record or other), was suitable habitat for the species observed within the project area?	<b>YES</b>



**STATE-LISTED SPECIES**

Additional summary observations on state-listed species:

Nineteen Natural Heritage Database records located within 1-mile of the Portsmouth Bypass Project were returned, which are listed below on the State-Listed Species Table and depicted on Figure 2. A copy of the correspondence is provided in Appendix 4.

Two state-listed plant species were identified during the ecological survey for the project.

Several individuals of the state endangered primrose-leaved violet (*Viola primulifolia*) were identified within the project area (Figure 2).

Several individuals of the state threatened riverbank paspalum (*Paspalum repens*) were identified along the Little Scioto River at the Wetland 24 complex (Figure 2).

Several individuals of the state species of concern eastern box turtle (*Terrapene carolina carolina*) were encountered throughout the project area during the ecological survey (Figure 2).

Several individuals of the state species of concern eastern garter snake (*Thamnophis sirtalis sirtalis*) were encountered during the ecological survey (Figure 2).

None of the other reported species were identified in the project area during the ecological survey.

Federally Listed Species Table: All species observed within the project area, or known to be within the county(ies) the project is located within			
Scientific Name	Common Name	Listing	Discuss Presence of Suitable Habitat(s) (note designated critical habitat if present)
<i>Myotis sodalis</i>	Indiana Bat	Endangered	<p><b>Complete Attached Bat Habitat Worksheet in Appendix C. Include Figure(s) indicating the location of potential Indiana Bat habitat trees when feasible.</b></p> <p>Potential habitat for the Indiana bat is abundant throughout the project area, as much of the project area consists of forest. As of November 6, 2012, the project area is not located within 5 miles of a capture record, or within 10 miles of a suspected hibernacula record. This project will impact trees that are part of forested areas greater than 100 acres and several perennial and intermittent streams are located within and in close proximity to the project area.</p> <p>No Indiana bats were captured during the 2011 mist-net survey for the project.</p>
<i>Trifolium stoloniferum</i>	Running Buffalo Clover	Endangered	Potential habitat is located within the project area; however, a survey for the running buffalo clover conducted in 2011 did not locate the species within the project area.
<i>Pleurobema clava</i>	Clubshell	Endangered	Suitable habitat was identified within the project area at the Little Scioto River. This species was not collected during the mussel survey at this location in 2011.
<i>Cyprogenia stegaria</i>	Fanshell	Endangered	Suitable habitat was identified within the project area at the Little Scioto River. This species was not collected during the mussel survey at this location in 2011.
<i>Epioblasma torulosa rangiana</i>	Northern Riffleshell	Endangered	Suitable habitat was identified within the project area at the Little Scioto River. This species was not collected during the mussel survey at this location in 2011.
<i>Lampsilis orbiculata</i> (= <i>L. abrupta</i> )	Pink Mucket Pearly Mussel	Endangered	Suitable habitat was identified within the project area at the Little Scioto River. This species was not collected during the mussel survey at this location in 2011.
<i>Villosa fabalis</i>	Rayed Bean	Proposed Endangered	Suitable habitat was identified within the project area at the Little Scioto River. This species was not collected during the mussel survey at this location in 2011.
<i>Plethobasus cyphus</i>	Sheepnose	Proposed Endangered	Suitable habitat was identified within the project area at the Little Scioto River. This species was not collected during the mussel survey at this location in 2011.
<i>Epioblasma triquetra</i>	Snuffbox	Proposed Endangered	Suitable habitat was identified within the project area at the Little Scioto River. This species was not collected during the mussel survey at this location in 2011.
<i>Isotria medeoloides</i>	Small Whorled Pogonia	Threatened	Potential habitat is located within the project area; however, a 2011 survey for the small whorled pogonia did not locate the species within the project area.
<i>Spiraea virginiana</i>	Virginia Spiraea	Threatened	No potential habitat for this species was located during the ecological survey. In addition, no individuals were identified during the ecological survey of the project area.
<i>Haliaeetus leucocephalus</i>	Bald Eagle	Species of Concern	This project is not within ½ mile of known nesting activity, as of January 30, 2013. The nearest nest is located approximately 5 miles southwest of Phase 2 and approximately 9 miles west of the northern terminus of Phase 3 of the Portsmouth Bypass project.
<i>Cryptobranchus alleganiensis</i>	Eastern Hellbender	Species of Concern	A survey for this species at the Little Scioto River in 2011 did not identify suitable habitat for this species. No additional potentially suitable habitat for this species was identified during the ecological survey.
<i>Crotalus horridus</i>	Timber Rattlesnake	Species of Concern	Potential habitat for the timber rattlesnake was found within the project area.

State-Listed Species Table: All species observed within the project area, or known to be within 1 mile of the project area			
Scientific Name	Common Name	Listing	Discuss Presence of Suitable Habitat(s)
<i>Cycleptus elongatus</i>	Blue Sucker	Threatened	A record from 2005 for the blue sucker ( <i>Cycleptus elongatus</i> ) was reported from the Scioto River, east of the project area (Figure 2). Suitable habitat for this species is not likely present in the project area as their preferred habitat includes deep swiftly flowing chutes or channels of large rivers.
<i>Ellipsaria lineolata</i>	Butterfly	Endangered	A record from 2002 for the butterfly mussel ( <i>Ellipsaria lineolata</i> ) was reported from the Ohio River (Figure 2). This mussel's preferred habitat includes sand and gravel in large rivers. Suitable habitat may be present in the Little Scioto River if it is determined to be large enough. This species was not collected during the mussel survey in 2011.
<i>Elliptio crassidens</i>	Elephant-ear	Endangered	A record from 2002 for the elephant-ear mussel ( <i>Elliptio crassidens</i> ) was reported from the Ohio River (Figure 2). Suitable habitat was likely identified within the project area at the Little Scioto River. This species was not collected during the mussel survey at this location in 2011.
<i>Fusconaia ebenus</i>	EbonysHELL	Endangered	A record from 2002 for the ebonysHELL mussel ( <i>Fusconaia ebenus</i> ) was reported from the Ohio River (Figure 2). Suitable habitat was likely identified within the project area at the Little Scioto River. This species was not collected during the mussel survey at this location in 2011.
<i>Ligumia recta</i>	Black Sandshell	Threatened	A record from 2002 for the black sandshell mussel ( <i>Ligumia recta</i> ) was reported from the Ohio River (Figure 2). Suitable habitat was identified at the Little Scioto River. The 2011 mussel survey of the Little Scioto River collected one live specimen upstream of the proposed impact area and one live and one dead specimen downstream of the proposed impact area.
<i>Magnolia tripetala</i>	Umbrella Magnolia	Potentially Threatened	The umbrella magnolia was observed during the T&E survey in 2011 by representatives of ASC Group in a second growth upland forest (Figure 2). Suitable habitat for this species is abundant throughout the area.
<i>Megaloniaias nervosa</i>	Washboard	Endangered	A record from 2002 for the washboard mussel ( <i>Megaloniaias nervosa</i> ) was reported from the Ohio River (Figure 2). Suitable habitat was likely identified within the project area at the Little Scioto River. This species was not collected during the mussel survey at this location in 2011.
<i>Moxostoma carinatum</i>	River Redhorse	Concern	The river redhorse was collected in the Scioto River, east of the project area in 1970 (Figure 2). Suitable habitat for this species is not likely present in the project area as the river redhorse are found in only the largest rivers of the Ohio River drainage systems. They are typically found in deep pools with moderate current over bedrock or gravel substrate.
<i>Obliquaria reflexa</i>	Threehorn Wartyback	Threatened	A record from 2002 for the threehorn wartyback mussel ( <i>Obliquaria reflexa</i> ) was reported from the Ohio River (Figure 2). Suitable habitat was likely identified within the project area at the Little Scioto River. This species was not collected during the mussel survey at this location in 2011.
<i>Paspalum repens</i>	Riverbank Paspalum	Threatened	Suitable habitat for this species includes shallow water or wet muddy soils along the margins of temporary pools, riverbanks and riverine woodlands. This species was identified along the Little Scioto River in and around Wetlands 24, 24A, and 24B (Figure 2).

State-Listed Species Table: All species observed within the project area, or known to be within 1 mile of the project area			
Scientific Name	Common Name	Listing	Discuss Presence of Suitable Habitat(s)
<i>Phacelia bipinnatifida</i>	Fern-leaved Scorpion-weed	Potentially Threatened	The fern-leaved scorpion-weed was collected east of the project area in 1990 (Figure 2). The most common habitat of this plant is in deciduous alluvial woods, generally on basic soils. However, Ohio collections have also been made from fields and roadsides. Suitable habitat for this specie is abundant throughout the project area.
<i>Plethobasus cyphus</i>	Sheepnose	Endangered	A record from 2002 for the sheepnose mussel ( <i>Plethobasus cyphus</i> ) was reported from the Ohio River (Figure 2). Suitable habitat was likely identified within the project area at the Little Scioto River. This species was not collected during the mussel survey at this location in 2011.
<i>Pleurobema cordatum</i>	Ohio Pigtoe	Endangered	A record from 2002 for the Ohio pigtoe mussel ( <i>Pleurobema cordatum</i> ) was reported from the Ohio River (Figure 2). Potentially suitable habitat was identified within the project area at the Little Scioto River. This species was not collected during the mussel survey at this location in 2011.
<i>Quadrula metanevra</i>	Monkeyface	Endangered	A record from 2002 for the monkeyface mussel ( <i>Quadrula metanevra</i> ) was reported from the Ohio River (Figure 2). Suitable habitat was likely identified within the project area at the Little Scioto River. This species was not collected during the mussel survey at this location in 2011.
<i>Quercus falcata</i>	Spanish Oak	Threatened	A 2005 record of this species was reported to exist within 1 mile of the project area (Figure 2). This species is usually found in dry upland woods and less frequently in alluvial woods. Suitable habitat for this species is common throughout the project area.
<i>Simpsonaias ambigua</i>	Salamander Mussel	Concern	A record from 1987 for the salamander mussel ( <i>Simpsonaias ambigua</i> ) was reported east of the project area (Figure 2). Potentially suitable habitat was identified within the project area at the Little Scioto River. This species was not collected during the mussel survey at this location in 2011.
<i>Stenanthium gramineum</i>	Feather-bells	Potentially Threatened	A 1976 record of feather-bells ( <i>Stenanthium gramineum</i> ) was reported just west of the project area (Figure 2). The habitat preference for this species includes moist rocky woods and rich wooded slopes; most frequent on acid soils. Potential habitat for this species is present within the project area.
<i>Terrapene carolina carolina</i>	Eastern Box Turtle	Concern	Several individuals were encountered throughout the project area during the ecological survey (Figure 2).
<i>Truncilla truncata</i>	Deertoe	Concern	A record from 1987 for the deertoe mussel ( <i>Truncilla truncata</i> ) was reported from the Little Scioto River, just downstream of the proposed bridge crossing (Figure 2). Suitable habitat was identified within the project area at the Little Scioto River. This species was not collected during the mussel survey at this location in 2011.
<i>Thamnophis sirtalis sirtalis</i>	Eastern Garter snake	Concern	The eastern garter snake occupies a variety of habitats including pond and stream edges, wetlands, forests, fields, rocky hillsides, and residential areas. Suitable habitat is located throughout the project area and was identified during the survey (Figure 2).
<i>Viola pedata</i>	Birdfoot Violet	Threatened	Two records from 2000 were reported south of the Phase 2 project area for the birdfoot violet (Figure 2). Preferred habitat for this species includes well-drained, sunny, open situations, on rocky or sandy, often acidic, soil: open woods, fields, prairie remnants, along paths and roadsides, especially on road cuts through shale and sandstones. Potential habitat for this species is common in the project area.

<b>State-Listed Species Table:</b>			
<b>All species observed within the project area, or known to be within 1 mile of the project area</b>			
<b>Scientific Name</b>	<b>Common Name</b>	<b>Listing</b>	<b>Discuss Presence of Suitable Habitat(s)</b>
<i>Viola primulifolia</i>	Primrose-leaved Violet	Endangered	Habitat for this species includes moist, open situations, usually on sandy soil: meadows, edges of ponds, streams, marshes, and swamps. Several populations of this species were observed during the ecological survey (Figure 2). Populations of this species were observed generally along old logging roads/ATV trails and were typically found at higher elevations.

**IMPACT SUMMARY**

<b>PHASE 2 STREAMS IMPACTS</b>	
Will any streams be impacts by the project? (If NO, delete the <b>Stream Impact Table</b> )	<b>YES</b>
Total number of streams impacted by the project (list multiple alignments separately):	66
Total length of streams impacted by the project (feet):	38,985

<b>Phase 2 Stream Impacts Table</b>			<b>Alternative Impacts (ft.)</b>
<b>Stream I.D.</b>	<b>Use Designation</b>	<b>USACE Flow Characteristics</b>	<b>Alternative 1</b>
Stream 1	Modified Class II PHWH	Relatively Permanent Water-Seasonal	2,190
Stream 2	Modified Class I PHWH	Relatively Permanent Water-Seasonal	1,479
Stream 3	Modified Class II PHWH	Relatively Permanent Water-Seasonal	1,100
Stream 4	Modified Class II PHWH	Relatively Permanent Water-Seasonal	213
Stream 5	Modified Class IIIA PHWH	Relatively Permanent Water-Perennial	599
Stream 5A	Class I PHWH	Relatively Permanent Water-Seasonal	237
Stream 5B	Class I PHWH	Non-Relatively Permanent Water	248
Stream 5C	Modified Class I PHWH	Non-Relatively Permanent Water	153
Stream 6	Class II PHWH	Relatively Permanent Water-Perennial	862
Stream 6A	Class II PHWH	Relatively Permanent Water-Seasonal	623
Stream 6B	Class IIIA PHWH	Relatively Permanent Water-Seasonal	927
Stream 6B1	Class I PHWH	Non-Relatively Permanent Water	198

Phase 2 Stream Impacts Table			Alternative Impacts (ft.)
Stream I.D.	Use Designation	USACE Flow Characteristics	Alternative 1
Stream 6B2	Class I PHWH	Non-Relatively Permanent Water	297
Stream 7	Modified Class I PHWH	Relatively Permanent Water-Seasonal	441
Stream 8	Modified Class I PHWH	Relatively Permanent Water-Seasonal	1,177
Stream 9	Class II PHWH	Relatively Permanent Water-Seasonal	781
Stream 10	Modified Class II PHWH	Relatively Permanent Water-Seasonal	1,025
Stream 10A	Modified Class I PHWH	Non-Relatively Permanent Water	229
Stream 10B	Modified Class I PHWH	Non-Relatively Permanent Water	708
Stream 10C	Modified Class I PHWH	Non-Relatively Permanent Water	112
Stream 10D	Modified Class I PHWH	Non-Relatively Permanent Water	128
Stream 11	Class II PHWH	Relatively Permanent Water-Seasonal	1,082
Stream 11A	Class I PHWH	Non-Relatively Permanent Water	606
Stream 11B	Class I PHWH	Non-Relatively Permanent Water	379
Stream 11C	Class I PHWH	Non-Relatively Permanent Water	431
Stream 11D	Class I PHWH	Non-Relatively Permanent Water	580
Stream 11E	Class II PHWH	Non-Relatively Permanent Water	324
Stream 11F	Class I PHWH	Non-Relatively Permanent Water	757
Stream 12	Class II PHWH	Relatively Permanent Water-Seasonal	696
Stream 13	Class II PHWH	Non-Relatively Permanent Water	628

Phase 2 Stream Impacts Table			Alternative Impacts (ft.)
Stream I.D.	Use Designation	USACE Flow Characteristics	Alternative 1
Stream 14	Modified Class I PHWH	Non-Relatively Permanent Water	706
Stream 15	Class I PHWH	Non-Relatively Permanent Water	1,040
Stream 15A	Class I PHWH	Non-Relatively Permanent Water	339
Stream 15B	Class I PHWH	Non-Relatively Permanent Water	317
Stream 16	Class II PHWH	Relatively Permanent Water-Seasonal	1,040
Stream 16A	Modified Class I PHWH	Non-Relatively Permanent Water	310
Stream 17	Class II PHWH	Relatively Permanent Water-Seasonal	1,046
Stream 17A	Class I PHWH	Non-Relatively Permanent Water	122
Stream 17B	Class II PHWH	Non-Relatively Permanent Water	870
Stream 17C	Class II PHWH	Non-Relatively Permanent Water	553
Stream 17C1	Class I PHWH	Non-Relatively Permanent Water	130
Stream 18	Class II PHWH	Non-Relatively Permanent Water	716
Stream 18A	Class I PHWH	Non-Relatively Permanent Water	79
Stream 18B	Class I PHWH	Non-Relatively Permanent Water	172
Stream 19	Class II PHWH	Non-Relatively Permanent Water	940
Stream 19A	Class I PHWH	Non-Relatively Permanent Water	210
Stream 19B	Class I PHWH	Non-Relatively Permanent Water	665
Stream 20	Modified Class II PHWH	Relatively Permanent Water-Seasonal	1,013
Stream 20-1	Modified Class I PHWH	Non-Relatively Permanent Water	204



Phase 2 Stream Impacts Table			Alternative Impacts (ft.)
Stream I.D.	Use Designation	USACE Flow Characteristics	Alternative 1
Stream 21	Modified Class II PHWH	Non-Relatively Permanent Water	715
Stream 21A	Class I PHWH	Non-Relatively Permanent Water	102
Stream 22	Class II PHWH	Relatively Permanent Water-Seasonal	911
Stream 22A	Modified Class I PHWH	Non-Relatively Permanent Water	710
Stream 22B	Modified Class I PHWH	Non-Relatively Permanent Water	191
Stream 22C	Class I PHWH	Non-Relatively Permanent Water	382
Stream 23	Class II PHWH	Relatively Permanent Water-Seasonal	863
Stream 23A	Class I PHWH	Non-Relatively Permanent Water	467
Stream 23B	Class I PHWH	Non-Relatively Permanent Water	232
Stream 24	Class II PHWH	Non-Relatively Permanent Water	775
Stream 24A	Class I PHWH	Non-Relatively Permanent Water	142
Stream 25	Modified Class I PHWH	Relatively Permanent Water-Seasonal	297
Stream 26	Modified Class I PHWH	Relatively Permanent Water-Seasonal	932
Stream 26A	Modified Class I PHWH	Non-Relatively Permanent Water	474
Stream 27	Modified Class II PHWH	Relatively Permanent Water-Seasonal	1,227
Stream 27B	Class I PHWH	Relatively Permanent Water-Seasonal	655
Stream 28	Class I PHWH	Non-Relatively Permanent Water	228

<b>Total Phase 2 Impacts (ft)</b>
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<b>38,985</b>
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Discuss the type of impact(s) expected to each stream. If a stream is impacted at multiple locations, discuss each location separately and include the distance (stream length) from other impacted locations.

Stream 1 will likely be filled and/or relocated.  
Stream 2 will likely be culverted.  
Stream 3 will likely be culverted.  
Stream 4 will likely be filled and/or relocated.  
Stream 5 will likely be filled and/or relocated.  
Stream 5A will likely be culverted.  
Stream 5B will likely be filled and/or relocated.  
Stream 5C will likely be filled and/or relocated.  
Stream 6 will likely be culverted.  
Stream 6A will likely be culverted.  
Stream 6B will likely be filled and/or relocated.  
Stream 6B1 will likely be filled and/or relocated.  
Stream 6B2 will likely be filled and/or relocated.  
Stream 7 will likely be culverted.  
Stream 8 will likely be culverted.  
Stream 9 will likely be culverted.  
Stream 10 will likely be culverted.  
Stream 10A will likely be culverted.  
Stream 10B will likely be culverted.  
Stream 10C will likely be filled and/or relocated.  
Stream 10D will likely be filled and/or relocated.  
Stream 11 will likely be culverted.  
Stream 11A will likely be filled and/or relocated.  
Stream 11B will likely be filled and/or relocated.  
Stream 11C will likely be filled and/or relocated.  
Stream 11D will likely be filled and/or relocated.  
Stream 11E will likely be filled and/or relocated.  
Stream 11F will likely be filled and/or relocated.  
Stream 12 will likely be filled and/or relocated.  
Stream 13 will likely be filled and/or relocated.  
Stream 14 will likely be filled and/or relocated.  
Stream 15 will likely be filled and/or relocated.  
Stream 15A will likely be filled and/or relocated.  
Stream 15B will likely be filled and/or relocated.  
Stream 16 will likely be culverted.  
Stream 16A will likely be filled and/or relocated.  
Stream 17 will likely be culverted.  
Stream 17A will likely be filled and/or relocated.

Stream 17B will likely be culverted.  
Stream 17C will likely be filled and/or relocated.  
Stream 17C1 will likely be filled and/or relocated.  
Stream 18 will likely be filled and/or relocated.  
Stream 18A will likely be filled and/or relocated.  
Stream 18B will likely be filled and/or relocated.  
Stream 19 will likely be culverted.  
Stream 19A will likely be filled and/or relocated.  
Stream 19B will likely be filled and/or relocated.  
Stream 20 will likely be culverted.  
Stream 20-1 will likely be filled and/or relocated.  
Stream 21 will likely be filled and/or relocated.  
Stream 21A will likely be filled and/or relocated.  
Stream 22 will likely be culverted.  
Stream 22A will likely be filled and/or relocated.  
Stream 22B will likely be filled and/or relocated.  
Stream 22C will likely be filled and/or relocated.  
Stream 23 will likely be culverted.  
Stream 23A will likely be filled and/or relocated.  
Stream 23B will likely be filled and/or relocated.  
Stream 24 will likely be culverted.  
Stream 24A will likely be filled and/or relocated.  
Stream 25 will likely be culverted.  
Stream 26 will likely be culverted.  
Stream 26A will likely be filled and/or relocated.  
Stream 27 will likely be filled and/or relocated.  
Stream 27B will likely be filled and/or relocated.  
Stream 28 will likely be filled and/or relocated.

<b>PHASE 3 STREAMS IMPACTS</b>	
Will any streams be impacted by the project? (If NO, delete the Stream Impact Table)	<b>YES</b>
Total number of streams impacted by the project (list multiple alignments separately):	<b>59</b>
Total length of streams impacted by the project (feet):	<b>30,167</b>

<b>Phase 3 Stream Impacts Table</b>			<b>Alternative Impacts (ft.)</b>
<b>Stream I.D.</b>	<b>Use Designation</b>	<b>USACE Flow Characteristics</b>	<b>Alternative 1</b>
Stream 29	Class IIIA PHWH	Relatively Permanent Water-Perennial	718
Stream 30	Class II PHWH	Non-Relatively Permanent Water	444
Stream 31	Modified Class II PHWH	Non-Relatively Permanent Water	511
Stream 31A	Modified Class I PHWH	Non-Relatively Permanent Water	189
Stream 32	Class II PHWH	Relatively Permanent Water-Seasonal	830
Stream 32A	Class I PHWH	Non-Relatively Permanent Water	160
Stream 32B	Class I PHWH	Non-Relatively Permanent Water	142
Stream 32C	Class I PHWH	Non-Relatively Permanent Water	186
Stream 32D	Class I PHWH	Non-Relatively Permanent Water	245
Stream 32D1	Class I PHWH	Non-Relatively Permanent Water	246
Stream 33	Class II PHWH	Relatively Permanent Water-Seasonal	1,000
Stream 33A	Class I PHWH	Non-Relatively Permanent Water	142
Stream 33A2	Class I PHWH	Non-Relatively Permanent Water	106
Stream 33B	Class I PHWH	Non-Relatively Permanent Water	38
Stream 34	Warmwater Habitat	Relatively Permanent Water-Perennial	2,418
Stream 34A	Class II PHWH	Relatively Permanent Water-Seasonal	402
Stream 34B	Class I PHWH	Non-Relatively Permanent Water	391
Stream 34B1	Class I PHWH	Non-Relatively Permanent Water	348
Stream 34B2	Class I PHWH	Non-Relatively Permanent Water	309
Stream 35A	Class II PHWH	Non-Relatively Permanent Water	439
Stream 35A1	Class I PHWH	Non-Relatively Permanent Water	111
Stream 36	Class II PHWH	Relatively Permanent Water-Seasonal	1,054

Phase 3 Stream Impacts Table			Alternative Impacts (ft.)
Stream I.D.	Use Designation	USACE Flow Characteristics	Alternative 1
Stream 36A	Class I PHWH	Non-Relatively Permanent Water	1,233
Stream 36A1	Modified Class I PHWH	Non-Relatively Permanent Water	83
Stream 36C	Class II PHWH	Relatively Permanent Water-Seasonal	1,143
Stream 36C2	Modified Class II PHWH	Non-Relatively Permanent Water	370
Stream 36C3	Class I PHWH	Non-Relatively Permanent Water	184
Stream 36C4	Class I PHWH	Non-Relatively Permanent Water	33
Stream 37	Class II PHWH	Relatively Permanent Water-Seasonal	690
Stream 37A	Class I PHWH	Non-Relatively Permanent Water	548
Stream 38	Class II PHWH	Relatively Permanent Water-Seasonal	1,604
Stream 38A	Class II PHWH	Relatively Permanent Water-Seasonal	1,755
Stream 38A1	Class I PHWH	Non-Relatively Permanent Water	247
Stream 38A2	Class I PHWH	Non-Relatively Permanent Water	72
Stream 38A3	Class I PHWH	Non-Relatively Permanent Water	111
Stream 38A4	Class I PHWH	Non-Relatively Permanent Water	161
Stream 38A5	Modified Class I PHWH	Non-Relatively Permanent Water	134
Stream 38A6	Class I PHWH	Non-Relatively Permanent Water	107
Stream 38B	Modified Class II PHWH	Non-Relatively Permanent Water	677
Stream 38B1	Modified Class I PHWH	Non-Relatively Permanent Water	398
Stream 38D	Modified Class II PHWH	Non-Relatively Permanent Water	548
Stream 39	Modified Class II PHWH	Relatively Permanent Water-Seasonal	1,095
Stream 39A	Modified Class I PHWH	Non-Relatively Permanent Water	921
Little Scioto River	Warmwater Habitat	Relatively Permanent Water-Perennial	480
Stream 40	Class I PHWH	Relatively Permanent Water-Seasonal	808
Stream 40A	Class I PHWH	Non-Relatively Permanent Water	188
Stream 40B	Class I PHWH	Non-Relatively Permanent Water	183
Stream 41	Modified Class I PHWH	Non-Relatively Permanent Water	212

Phase 3 Stream Impacts Table			Alternative Impacts (ft.)
Stream I.D.	Use Designation	USACE Flow Characteristics	Alternative 1
Stream 42	Modified Class I PHWH	Non-Relatively Permanent Water	513
Stream 42A	Modified Class I PHWH	Non-Relatively Permanent Water	147
Stream 43	Modified Class I PHWH	Relatively Permanent Water-Seasonal	1,029
Stream 44	Modified Class II PHWH	Relatively Permanent Water-Seasonal	1,281
Stream 45	Modified Class I PHWH	Non-Relatively Permanent Water	434
Stream 46	Class II PHWH	Relatively Permanent Water-Seasonal	1,093
Stream 46A	Modified Class I PHWH	Non-Relatively Permanent Water	203
Stream 47	Modified Class II PHWH	Relatively Permanent Water-Seasonal	268
Stream 48	Warmwater Habitat	Relatively Permanent Water-Perennial	255
Stream 48A	Modified Class I PHWH	Non-Relatively Permanent Water	184
Stream 49	Class I PHWH	Relatively Permanent Water-Seasonal	346

<b>Total Phase 3 Impacts (ft)</b>	<b>30,167</b>
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**Discuss the type of impact(s) expected to each stream. If a stream is impacted at multiple locations, discuss each location separately and include the distance (stream length) from other impacted locations.**

Stream 29 will likely be culverted.  
 Stream 30 will likely be filled and/or relocated.  
 Stream 31 will likely be culverted.  
 Stream 31A will likely be filled and/or relocated.  
 Stream 32 will likely be filled and/or relocated.  
 Stream 32A will likely be filled and/or relocated.  
 Stream 32B will likely be filled and/or relocated.  
 Stream 32C will likely be filled and/or relocated.  
 Stream 32D will likely be filled and/or relocated.  
 Stream 32D1 will likely be filled and/or relocated.  
 Stream 33 will likely be culverted.  
 Stream 33A will likely be filled and/or relocated.  
 Stream 33A2 will likely be filled and/or relocated.  
 Stream 33B will likely be filled and/or relocated.  
 Stream 34 will likely be filled and/or relocated.  
 Stream 34A will likely be filled and/or relocated.  
 Stream 34B will likely be filled and/or relocated.  
 Stream 34B1 will likely be filled and/or relocated.  
 Stream 34B2 will likely be filled and/or relocated.  
 Stream 35A will likely be filled and/or relocated.  
 Stream 35A1 will likely be filled and/or relocated.  
 Stream 36 will likely be culverted.  
 Stream 36A will likely be filled and/or relocated.  
 Stream 36A1 will likely be filled and/or relocated.  
 Stream 36C will likely be culverted.  
 Stream 36C2 will likely be filled and/or relocated.  
 Stream 36C3 will likely be filled and/or relocated.  
 Stream 36C4 will likely be filled and/or relocated.  
 Stream 37 will likely be culverted.  
 Stream 37A will likely be filled and/or relocated.  
 Stream 38 will likely be culverted.  
 Stream 38A will likely be filled and/or relocated.  
 Stream 38A1 will likely be filled and/or relocated.  
 Stream 38A2 will likely be filled and/or relocated.  
 Stream 38A3 will likely be filled and/or relocated.  
 Stream 38A4 will likely be filled and/or relocated.  
 Stream 38A5 will likely be filled and/or relocated.  
 Stream 38A6 will likely be filled and/or relocated.  
 Stream 38B will likely be culverted.  
 Stream 38B1 will likely be filled and/or relocated.  
 Stream 38D will likely be culverted.  
 Stream 39 will likely be culverted.  
 Stream 39A will likely be filled and/or relocated.  
 The Little Scioto River will be bridged.  
 Stream 40 will likely be culverted.  
 Stream 40A will likely be filled and/or relocated.  
 Stream 40B will likely be filled and/or relocated.  
 Stream 41 will likely be culverted.  
 Stream 42 will likely be filled and/or relocated.  
 Stream 42A will likely be filled and/or relocated.  
 Stream 43 will likely be culverted.  
 Stream 44 will likely be culverted.  
 Stream 45 will likely be culverted.

**Discuss the type of impact(s) expected to each stream. If a stream is impacted at multiple locations, discuss each location separately and include the distance (stream length) from other impacted locations.**

Stream 46 will likely be culverted.  
Stream 46A will likely be filled and/or relocated.  
Stream 47 will likely be culverted.  
Stream 48 will likely be culverted.  
Stream 48A will likely be filled and/or relocated.  
Stream 49 will likely be culverted.



<b>PHASE 2 WETLAND IMPACTS</b>	
Will any wetlands be impacted by the project? (If NO, delete the <b>Wetland Impact Table</b> )	<b>YES</b>
Total number of wetlands impacted by the project	18
Total area of wetlands impacted by the project (acres):	3.750

<b>Phase 2 Wetland Impacts Table</b>			<b>Alternative Impacts (ac)</b>
<b>Wetland I.D.</b>	<b>Provisional Wetland Category</b>	<b>Hydrologic Connection</b>	<b>Alternative 1</b>
Wetland 1	Category 2	Abutting	1.293
Wetland 2	Category 1	Abutting	0.268
Wetland 3	Category 2	Adjacent	0.610
Wetland 4	Modified Category 2	Adjacent	0.019
Wetland 5	Modified Category 2	Adjacent	0.038
Wetland 6	Modified Category 2	Abutting	0.003
Wetland 7	Category 1	Abutting	0.190
Wetland 9	Category 1	Abutting	0.237
Wetland 10	Category 1	Abutting	0.028
Wetland 11	Category 1	Adjacent	0.018
Wetland 12	Category 2	Abutting	0.074
Wetland 13	Modified Category 2	Abutting	0.013
Wetland 14	Modified Category 2	Abutting	0.004
Wetland 15	Category 1	Abutting	0.012
Wetland 16	Category 2	Adjacent	0.051
Wetland 17	Category 2	Abutting	0.041
Wetland 18	Category 2	Abutting	0.827
Wetland 19	Modified Category 2	Isolated	0.024

<b>Total Phase 2 Impacts (ac)</b>	<b>3.750</b>
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Discuss the types of impact(s) expected to each wetland.

Wetland 1 will likely be filled.

Wetland 2 will likely be filled.

Wetland 3 will likely be filled.

Wetland 4 will likely be filled.

Wetland 5 will likely be filled.

Wetland 6 will likely be filled.

Wetland 7 will likely be filled.

Wetland 9 will likely be filled.

Wetland 10 will likely be filled.

Wetland 11 will likely be filled.

Wetland 12 will likely be filled.

Wetland 13 will likely be filled.

Wetland 14 will likely be filled.

Wetland 15 will likely be filled.

Wetland 16 will likely be filled.

Wetland 17 will likely be filled.

Wetland 18 will likely be filled.

Wetland 19 will likely be filled.

<b>PHASE 3 WETLAND IMPACTS</b>	
<b>Will any wetlands be impacted by the project? (If NO, delete the Wetland Impact Table)</b>	<b>YES</b>
<b>Total number of wetlands impacted by the project</b>	<b>22</b>
<b>Total area of wetlands impacted by the project (acres):</b>	<b>3.282</b>

<b>Phase 3 Wetland Impacts Table</b>			<b>Alternative Impacts (ac)</b>
<b>Wetland I.D.</b>	<b>Provisional Wetland Category</b>	<b>Hydrologic Connection</b>	<b>Alternative 1</b>
Wetland 20	Category 2	Abutting	0.057
Wetland 21	Modified Category 2	Isolated	0.014
Wetland 22	Modified Category 2	Adjacent	0.031
Wetland 23	Category 1	Adjacent	0.010
Wetland 24	Category 3	Adjacent	0.112
Wetland 24A	Category 3	Adjacent	0.006
Wetland 24B	Category 3	Adjacent	0.973
Wetland 25	Category 2	Abutting	0.171
Wetland 25A	Category 2	Abutting	0.041
Wetland 27	Category 1	Adjacent	0.063
Wetland 28A	Category 1	Adjacent	0.009
Wetland 28B	Category 1	Adjacent	0.027
Wetland 28C	Category 1	Adjacent	0.031
Wetland 28D	Category 1	Adjacent	0.037
Wetland 29	Modified Category 2	Abutting	0.276
Wetland 30	Category 2	Abutting	0.294
Wetland 31	Category 1	Adjacent	0.003
Wetland 32	Category 1	Isolated	0.009
Wetland 33	Category 1	Adjacent	0.003
Wetland 34	Category 1	Abutting	0.313
Wetland 35	Category 1	Adjacent	0.791
Wetland 36	Category 1	Adjacent	0.011

<b>Total Phase 3 Impacts (ac)</b>	<b>3.282</b>
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**Discuss the types of impact(s) expected to each wetland.**

Wetland 20 will likely be filled.  
Wetland 21 will likely be filled.  
Wetland 22 will likely be filled.  
Wetland 23 will likely be filled.  
Wetland 24 will likely be filled.  
Wetland 24A will likely be filled.  
Wetland 24B will likely be filled.  
Wetland 25 will likely be filled.  
Wetland 25A will likely be filled.  
Wetland 27 will likely be filled.  
Wetlands 28A-D will likely be filled.  
Wetland 29 will likely be filled.  
Wetland 30 will likely be filled.  
Wetland 31 will likely be filled.  
Wetland 32 will likely be filled.  
Wetland 33 will likely be filled.  
Wetland 34 will likely be filled.  
Wetland 35 will likely be filled.  
Wetland 36 will likely be filled.

<b>POTENTIALLY JURISDICTIONAL DITCH IMPACTS</b>	
Will any potentially jurisdictional ditches be impacted by the project? (If NO, delete the <b>Potentially Jurisdictional Ditch Impact Table</b> )	<b>YES</b>
Total number of potentially jurisdictional ditches impacted by the project:	3
Total area of potentially jurisdictional ditches impacted by the project (acres):	0.062

<b>Potentially Jurisdictional Ditch Impact Table</b>			<b>Alternative Impacts - Acre (feet)</b>
<b>Ditch I.D.</b>	<b>Receiving Waters</b>	<b>USACE Flow Characteristics</b>	<b>Alternative 1</b>
<b>PHASE II</b>			
PJD 3	Stream 27	Relatively Permanent Water- Seasonal	0.025 (428)
<b>PHASE III</b>			
PJD 1	Stream 46	Relatively Permanent Water- Seasonal	0.013 (218)
PJD 2	Stream 49	Relatively Permanent Water- Seasonal	0.024 (409)

<b>Total impacts – Acre (feet)</b>	<b>0.062 (1,055)</b>
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Discuss the types of impact(s) expected to each potentially jurisdictional ditch.
Ditches are typical roadside ditches and all three are approximately 2.5 feet wide. Each of the ditches will be impacted by the proposed bypass project. Ditch 1 will likely be partially relocated and culverted, Ditch 2 will likely be relocated, and Ditch 3 will likely be partially relocated and culverted.

<b>POND, LAKE, RESERVOIR IMPACTS</b>	
Will any ponds, lakes, or reservoirs be impacted by the project? (If NO, delete the <b>Pond Impact Table</b> )	<b>YES</b>
Total number of ponds, lakes or reservoirs impacted by the project:	2
Total area of ponds, lakes or reservoirs impacted by the project (acres):	0.152

<b>Pond, Lake, Reservoir Impacts Table</b>			<b>Alternative Impacts (ac)</b>
<b>Water Body I.D.</b>	<b>Receiving Waters</b>	<b>Hydrologic Connection</b>	<b>Alternative 1</b>
Pond 1	Slab Run	Non-Isolated	0.140
Pond 3	Assumed to eventually drain to the Ohio River	Non-Isolated	0.012

<b>Total impacts (ac)</b>	<b>0.152</b>
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Discuss the types of impact(s) expected to each pond, lake, or reservoir.
Pond 1 will likely be excavated. Pond 3 will likely be partially filled.

### IMPACTS TO AQUATIC LIFE

Discuss the expected impacts to aquatic fauna (fish, mussels, and aquatic macroinvertebrates). Specific stream locations should be referenced when appropriate.

Aquatic fauna that inhabit streams that will be relocated will likely be adversely impacted by the construction of the proposed project. Aquatic fauna that are mobile will be able to migrate up or downstream of the proposed relocation. However, impacts to less mobile fauna will likely result in permanent impacts to these species. It is expected that aquatic fauna will begin to recolonize the relocated portion of the streams upon the completion of construction as the new channel will likely be tied back into existing waterways.

Aquatic fauna that inhabit streams that will be culverted will likely be adversely impacted by the construction of the proposed project. The installation of the proposed culverts will permanently alter these streams, making them less suitable for some aquatic organisms. Aquatic fauna that are mobile will be able to migrate up or downstream of the proposed relocation. However, impacts to less mobile fauna may result in permanent impacts to these species.

Aquatic fauna that inhabit streams that will be bridged will likely be minimally impacted as a result of the construction of these bridge structures. These bridges have been designed to minimize the amount of in-stream work. Localized permanent impacts, including the installation of piers and erosion control in the form of riprap, will likely impact less mobile aquatic fauna. Aquatic fauna with the ability to migrate upstream and downstream of the proposed structures will likely be temporarily impacted as they will be able to recolonize the areas around the new structures upon the completion of the structure.

Mussels were only identified in the project area at the Little Scioto River. One live mussel was collected at the potential area of impact at the proposed bridge crossing of the river. An additional nine individual mussels (three species) were collected downstream of the proposed bridge crossing. Potential impacts to mussels include direct impacts to mussels within the location of the proposed bridge crossing. Potential indirect impacts to mussels located downstream of the proposed bridge include sedimentation. Impacts to mussels will be minimized through the use of construction BMPs designed to minimize sedimentation and pollutants from entering the river.

### OTHER WATER QUALITY IMPACTS

Discuss potential short term and long term water quality impacts that are likely expect to occur as a result of the proposed project.

The proposed project will permanently and temporarily impact Waters of the US, which will potentially result in the lowering of water quality, which may possibly affect aquatic life and wildlife. Impacts include the placement of culverts, permanent erosion control, bridging, and the relocation of existing channels as part of the proposed project. During the installation of these culverts, aquatic organisms at the impact site and downstream of the impacts could be adversely affected by the temporary increase in sediments in the water column from the construction activities. These temporary impacts are expected to be minor and localized around the areas of impact. All impacts to water quality will be minimized through the use of construction best management practices (BMPs) for sediment and erosion controls that include the installation of silt fencing and adherence to the project's Stormwater Pollution Prevention Plan (SWPPP). Proposed culverts have been designed so as not to impede flow or alter the stream's ability to transport sediments. All proposed bridge structures were designed using BMPs and will be installed above the OHWM of the streams when feasible, so as not to impact these features. The project will be designed using standard ODOT design procedures that provide culverts that are wide enough to accommodate the connection of ecological systems, as the proposed culverts were designed using culverts that are 1-foot diameter larger than what is typically specified. In addition, the proposed culverts have been designed for a 50-year flood, but will allow the conveyance of a 100-year flood without causing any significant damage.

**OTHER WATER QUALITY IMPACTS**

Discuss how the project will be implemented to minimize these water quality impacts.

Short-term water quality impacts resulting from runoff from disturbed areas during construction will be minimized through the use of sediment and erosion controls in accordance with the ODOT *Construction and Materials Specifications*. Longer duration water quality impacts associated with roadway runoff will be minimized through the implementation of post-construction best management practices in accordance with the ODOT *Location and Design Manual*.



<b>VEGETATIVE COMMUNITY AND LAND COVER IMPACTS</b>	
Will any vegetative communities be impacted by the project? (If NO, delete the <b>Vegetative Community Impact Table</b> )	<b>YES</b>
Total number of vegetative communities impacted by the project:	<b>11</b>
Total area of vegetative communities impacted by the project (acres):	<b>1,075</b>
Describe any impacts to vegetative communities (with emphasis on rare or unique communities) from an ecological perspective:	
No rare or unique vegetative communities or habitats exist within Phases 2 and 3 of the Portsmouth Bypass.	

Vegetative Community and Land Cover Impacts Table			Alternative Impacts (ac)
Vegetative Community	Disturbance Level	Unique, Rare, or High Quality	Alternative 1
Upland Forest	Intermediate Disturbance	NO	Phase II = 356.64 Phase III = 328.78 Total = 685.42
Cultivated Crops	High Disturbance	NO	Phase II = 23.15 Phase III = 0.00 Total = 23.15
Scrub/Shrub	Intermediate Disturbance	NO	Phase II = 92.37 Phase III = 46.07 Total = 138.44
Floodplain Forest	Low Disturbance	NO	Phase II = 0.00 Phase III = 2.58 Total = 2.58
Developed Open Space	High Disturbance	NO	Phase II = 47.02 Phase III = 42.92 Total = 89.94
Barren Land (Rock/Sand/Clay)	Extreme Disturbance/Ruderal Community	NO	Phase II = 79.06 Phase III = 10.67 Total = 89.73
Grassland/Herbaceous	Intermediate Disturbance	NO	Phase II = 10.20 Phase III = 12.98 Total = 23.18
Marsh	Intermediate Disturbance	NO	Phase II = 4.23 Phase III = 2.03 Total = 6.26
Pasture/Hay	Intermediate Disturbance	NO	Phase II = 5.43 Phase III = 10.06 Total = 15.49
Open Water	High Disturbance	NO	Phase II = 0.00 Phase III = 0.16 Total = 0.16

Vegetative Community and Land Cover Impacts Table			Alternative Impacts (ac)
Vegetative Community	Disturbance Level	Unique, Rare, or High Quality	Alternative 1
Herbaceous Riverine Community	Intermediate Disturbance	NO	Phase II = 0.00 Phase III = 0.68 Total = 0.68

<b>Total impacts</b>	<b>Phase II = 618.10 Phase III = 456.93 Total = 1,075.03</b>
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<b>IMPACTS TO TERRESTRIAL WILDLIFE</b>
Discuss any terrestrial habitat alternations that may result from construction activities:
The previous table summarizes the expected terrestrial habitat impacts for all of the terrestrial habitats identified within the project area. It is expected that all habitat not converted to pavement will likely be maintained as ODOT ROW, which would likely be considered DS habitat. The loss of the other habitats should not result in local or statewide decline of the identified habitats, as these habitats are abundant within the immediate vicinity of the project. In addition, species that utilize these habitats would not be expected to be permanently impacted by the project, as suitable habitat is abundant throughout the area.
Discuss the expected duration of the impacts (temporary/short term or permanent/long-term):
Impacts to terrestrial habitat within the construction limits and permanent ROW will be permanent. Areas not under pavement as a result of this project will likely be converted into DS. Areas of temporary ROW will also likely be converted to DS.
Discuss if the project impacts would result in the likely extirpation of any taxa from the area:
<p>Because of the level of disturbance found in the majority of the habitats within the project area, and because the vast majority of the identified species are common throughout Ohio, this project will likely not result in the extirpation of these common species.</p> <p>One state endangered and one state threatened species were found within the project area. This included the state endangered primrose-leaved violet (<i>Viola primulifolia</i>) and the state threatened riverbank paspalum (<i>Paspalum repens</i>). It is unlikely that this project will cause the extirpation of either of these species, as suitable habitat for these species is found throughout Scioto County and southern Ohio in general.</p> <p>Two state species of concern, the eastern box turtle (<i>Terrapene carolina carolina</i>) and eastern garter snake (<i>Thamnophis sirtalis sirtalis</i>), were encountered throughout the project area. The box turtle is common throughout the project area and would not be extirpated due to the construction of this project. The eastern garter snake, while listed in the state of Ohio, is reported to be the most abundant snake in Ohio by the ODNR and would not become extirpated due to the construction of the project (<a href="http://www.dnr.state.oh.us/Home/species_a_to_z/SpeciesGuideIndex/easterngartersnake/tabid/6608/Default.aspx">http://www.dnr.state.oh.us/Home/species_a_to_z/SpeciesGuideIndex/easterngartersnake/tabid/6608/Default.aspx</a>).</p>
Include a general discussion of impacts to terrestrial fauna (mammals, birds, reptiles, and amphibians):
All animal species within the project area will have to relocate from the limits of the project area. Since large amounts of similar habitat are available in the immediate vicinity of the project and because all identified animal species are common throughout southern Ohio, no long-term adverse impacts to populations of these species are expected as a result of this project.

FEDERALLY LISTED SPECIES IMPACTS	
Will any federally listed species or suitable habitat for federally listed potentially be impacted by the project? (If NO, delete the <b>Federally Listed Species Impact Table</b> )	YES
Will any <b>designated critical habitats</b> potentially be impacted by the project?	NO

Federally Endangered Indiana Bat ( <i>Myotis sodalis</i> ) Impact Table				
Alternative I.D.	Potential Maternity Roost Tree Impacts (#)	Potential Roost Tree Impacts (#)	Total Forest Habitat Impacts (ac)	Anticipated Impacts
Alternative 1	Unknown	Unknown	Phase II = 356.64 (UF) Phase III = 331.36 (UF +FF) Total = 688.00	Not Likely
Discussion of Impacts: A mist net survey for the Indiana bat was conducted during 2011 for the entire Portsmouth Bypass Project area. No Indiana bats were captured during this survey. In a letter dated March 12, 2012, the USFWS determined that the proposed project <b>may affect but it is not likely to adversely affect</b> the Indiana Bat. A copy of the USFWS letter is provided in Appendix 4.				

Federally Listed Species Impact Summary Table (List Each Species Within the County/Range)			Anticipated Impacts
Scientific Name	Common Name	Listing	Alternative 1
<i>Trifolium stoloniferum</i>	Running Buffalo Clover	Endangered	Not Likely
<i>Pleurobema clava</i>	Clubshell	Endangered	None
<i>Cyprogenia stegaria</i>	Fanshell	Endangered	None
<i>Epioblasma torulosa rangiana</i>	Northern Riffleshell	Endangered	None
<i>Lampsilis orbiculata</i> (= <i>L. abrupta</i> )	Pink Mucket Pearly Mussel	Endangered	None
<i>Villosa fabalis</i>	Rayed Bean	Proposed Endangered	Not Likely
<i>Plethobasus cyphus</i>	Sheepnose	Proposed Endangered	None
<i>Epioblasma triquetra</i>	Snuffbox	Proposed Endangered	None
<i>Isotria medeoloides</i>	Small Whorled Pogonia	Threatened	Not Likely
<i>Spiraea virginiana</i>	Virginia Spiraea	Threatened	Not Likely
<i>Cryptobranchus alleganiensis</i>	Eastern Hellbender	Species of Concern	None
<i>Crotalus horridus</i>	Timber Rattlesnake	Species of Concern	Not Likely
<i>Haliaeetus leucocephalus</i>	Bald Eagle	Species of Concern	Not Likely

**For each species discuss the presence of, and anticipated impacts to, suitable habitats. The discussion should justify the level of anticipated impact.**

Correspondence from the USFWS regarding impacts to Threatened and Endangered Species for the Portsmouth Bypass is included in Appendix 4. A summary of their findings is presented below.

**Bald eagle** (*Haliaeetus leucocephalus*) - The bald eagle is protected under the Bald and Golden Eagle Protection Act, which prohibits taking bald eagles, including disturbance. The preferred habitat includes mature forests adjacent to open water for nesting and foraging. No nests for this species were encountered during any of the ecological surveys. Additionally, the only area of potential habitat is located along the Little Scioto River and is of marginal quality. As of January 30, 2013, the nearest active bald eagle nest location is located approximately five miles southwest of the center of the Phase 2 project area and approximately nine miles west of the northern terminus of the Phase 3 project area. As such, the project is expected to have **no effect** on this species.

**Clubshell mussel** (*Pleurobema clava*) – The clubshell mussel prefers clean, loose sand and gravel in medium to small rivers and streams. This mussel will bury itself in the bottom substrate to depths of up to four inches. Within Scioto County the species is known from the Ohio River. While the Little Scioto River may provide potentially suitable habitat for this species, it is not known within the drainage. This species was not encountered during any mussel surveys conducted within the proposed project area, including the survey of the Little Scioto River. As a result, the proposed project should have **no effect** on the species.

**Eastern hellbender** (*Cryptobranchus alleghaniensis*) – The eastern hellbender inhabits well-oxygenated flowing waters where large rocks are available for shelter and nesting. Within the proposed project area it was determined that the only stream with potentially suitable habitat for the species was the Little Scioto River. Additionally, the eastern hellbender is known from the Little Scioto River, with capture records for the species as recent as 2009. During 2011, Ohio herpetologist Gregory Lipps conducted a survey for the eastern hellbender and its habitat within the Little Scioto River at the location of the proposed bridge crossing for the project. The survey did not find any individuals of the species, and determined that this segment of the Little Scioto River did not contain suitable habitat for the species. Due to the lack of suitable habitat for the species within the proposed project area, it is anticipated that the project will have **no effect** on the species.

**Fanshell mussel** (*Cyprogenia stegaria*) – The fanshell mussel is found in shallow to deep water living on a coarse sand and gravel substrate in swift currents. The species appears to be restricted to free flowing reaches of medium to large rivers. Within Scioto County the species is only known from the Ohio River. This species was not encountered during any mussel surveys conducted within the proposed project area, and no suitable habitat for this species was encountered within the proposed project area. As a result, the proposed project should have **no effect** on the species.

**Indiana bat** (*Myotis sodalis*) – The Indiana bat life cycle requires suitable summer roosting and brood rearing habitat (which includes living or standing dead trees or snags with exfoliating, peeling or loose bark, split trunks and/or branches, or cavities) and suitable hibernacula during the winter months (typically caves or abandoned mines that provide cool, humid, stable conditions for hibernation). The nearest known record for the Indiana bat was a suspected hibernacula located approximately 5.75 miles from the project area. No caves, mine portals, or other features that could be acting as potential Indiana bat hibernacula were found within the project area. Approximately 493 acres of successional, second growth, and mature forested habitats will be impacted by the proposed project (all three phases). Mist net surveys for Indiana bats were conducted in 2003 within the preliminary project alternatives (21 net sites), and again in 2011 within the selected alternative for the project (19 net sites). No Indiana bats were captured during either survey. Although the proposed project will result in the removal of multiple acres of trees possessing potential Indiana bat roost and maternity roost habitat characteristics, the results of the surveys suggest that Indiana bats were not present in the project area, or were present in very low numbers. To avoid direct take of bats, trees will be cleared for the project only between 30 September and 1 April. Based on the results of the survey, and the commitment to avoid the direct take of Indiana bats by implementing seasonal cutting restrictions, it is reasonable to conclude this project **may affect, but is not likely to adversely affect** the Indiana bat.

**Northern riffleshell mussel** (*Epioblasma torulosa rangiana*) – This species prefers riffles composed of firmly packed fine gravel in swift flowing shallow water. Within Scioto County the species is only known

from the Scioto River. This species was not encountered during any mussel surveys conducted within the proposed project area, and no suitable habitat for this species was encountered within the proposed project area. As a result, the proposed project should have **no effect** on the species.

**Pink mucket pearly mussel** (*Lampsilis abrupta*) - The pink mucket pearly mussel is a moderate to large river species that is generally found in gravel-cobble-boulder substrates associated with riffle and run habitats. Within Scioto County the species is only known from the Ohio River. This species was not encountered during any mussel surveys conducted within the proposed project area, and no suitable habitat for this species was encountered within the proposed project area. As a result, the proposed project should have **no effect** on the species.

**Rayed bean mussel** (*Villosa fabalis*) –The rayed bean generally lives in smaller, headwater creeks, but they are sometimes found in large rivers and wave-washed areas of glacial lakes, including Lake Erie. They prefer gravel or sand substrates, and are often found in and around roots of aquatic vegetation. Within Scioto County the species is known from the Scioto River and the Scioto Brush Creek. However, the species is considered potentially present within any streams in the county that possess its preferred habitat, including the Little Scioto River. Although suitable habitat for the species was present, no specimens of rayed bean were found during the survey of the Little Scioto River or any other mussel surveys conducted during the ecological surveys of the project area. It is unlikely that the species is present within the proposed project area and that it will be impacted by proposed construction activities. As a result, the proposed project **may affect, but is not likely to adversely affect** the species.

**Running buffalo clover** (*Trifolium stoloniferum*) – Running buffalo requires periodic disturbance and a somewhat open habitat to successfully flourish, but it cannot tolerate full sun, full shade, or severe disturbance. Potential areas of running buffalo clover habitat include partially shaded woodlots, periodically mown areas (lawns, parks, cemeteries), and partially shaded woods along streams and trails. The nearest record for the running buffalo clover is located approximately 11 miles from the project area within Lawrence County. A survey for this species was conducted in 2011. Although this species was not identified within the project study area during any of the survey, suitable habitats for the species, including partially shaded woodlots along streams and maintained lawns and trails, were present within the project area. Due to the absence of the species, but the presence of potentially suitable habitat within the project area, ODOT believes that the project **may affect but is not likely to adversely affect** the running buffalo clover.

**Sheepnose mussel** (*Plethobasus cyphus*) – The sheepnose mussel lives in larger rivers and streams where they are usually found in shallow areas with moderate to swift currents flowing over coarse sand and gravel. Sheepnose have also been found in mud, cobble, and boulders. In larger rivers they may be found in deep runs. Within Scioto County the species is only known from the Ohio River. This species was not encountered during any mussel surveys conducted within the proposed project area, and no suitable habitat for this species was encountered within the proposed project area. As a result, the proposed project should have **no effect** on the species.

**Small whorled pogonia** (*Isotria medeoloides*) –The small whorled pogonia prefers “upland sites in mixed-deciduous or mixed deciduous/coniferous forests that are generally in second- or third-growth successional stages,” in areas that “include sparse to moderate ground cover in the species’ microhabitat, a relatively open understory canopy, and proximity to features that create long persisting breaks in the forest canopy” (*Small Whorled Pogonia Recovery Plan*, von Oettingen 1992). This species typically flowers from mid-May through mid-June; however, flowering occurs only for a period of about one week, and the plant may not flower on an annual basis. In addition, it is believed that this species may be capable of extended periods of dormancy, and that it may not emerge within a given year. The inconsistent, sporadic nature of this species, as well as the similarity in morphological appearance to large-whorled pogonia (*I. verticillata*) and sterile individuals of the abundant Indian cucumber-root (*Medeola virginiana*), make it difficult to survey for within the project area. Records for the small whorled pogonia within Scioto County are located approximately 17.5 miles west of the proposed project study area. Surveys for this species were conducted in 2003, 2004, and 2011. While the species was not found within the project study area during any of the field surveys, suitable habitats for *I. medeoloides*

were observed. Due to the presence of potentially suitable habitat for the species, the proximity to a known location for the plant, and the potential difficulties associated with surveying for this species (short flowering period, similarity in appearance to sterile plants of Indian cucumber-root, and potential periods of dormancy) the species cannot be completely discounted from being present within the study area. As a result, USFWS determined that the proposed project **may affect, but is not likely to adversely affect** the species.

**Snuffbox mussel** (*Epioblasma triquetra*) - The snuffbox mussel is usually found in small to medium-sized creeks in areas with a swift current, although it is also found in Lake Erie and some larger rivers. Adults often burrow deep in sand, gravel or cobble substrates, except when they are spawning or the females are attempting to attract host fish. Within Scioto County the species is known from the Ohio River, Scioto Brush Creek, and the South Fork Scioto Brush Creek. While the Little Scioto River may provide potentially suitable habitat for this species, it is not known within the drainage. This species was not encountered during any mussel surveys conducted within the proposed project area. As a result, the proposed project should have **no effect** on the species.

**Timber rattlesnake** (*Crotalus horridus horridus*) - These snakes are a woodland species. In addition to using wooded areas, timber rattlesnakes also utilize sunlit gaps in the canopy for basking and deep rock crevices for overwintering (den sites). Individuals may make larger movements between various sites in the summer. A survey for this species was conducted by herpetologist Doug Wynn during 2003. The USFWS and Doug Wynn both concurred that updated surveys for this species were unnecessary to make an effect determination for this species. The 2003 survey found that suitable habitat for this species is present within the proposed project area; however, signs of major human disturbance were common, and it was determined to be very unlikely that the species inhabits or utilizes the surveyed area. This species was not encountered during the species specific survey (conducted in 2003) or during any of the previous or updated ecological surveys. Due to the presence of suitable habitat for the species, but the lack of evidence of timber rattlesnakes using the habitat, the proposed project **may affect, but is not likely to adversely affect** the species.

**Virginia spiraea** (*Spiraea virginiana*) – Habitat for the Virginia spiraea is usually rocky, flood-scoured banks of high energy (high gradient) streams or rivers. This species is currently only known in Scioto County along Scioto Brush Creek, west of the Scioto River. During the 2003 ecological survey (as well as the 2011 ecological survey on Phase 1), each perennial stream located within the proposed project area was reviewed for habitat for the Virginia spiraea. The conditions along the Little Scioto River at the proposed crossing did not appear suitable for the plant. While several of the other perennial streams within the project area appeared to have satisfactory habitat conditions for this shrub species, none of the plants were found. Due to the presence of suitable habitat for the species, but the lack of evidence that the plant is within the proposed project area, the proposed project **may affect, but is not likely to adversely affect** the species.

<b>STATE-LISTED SPECIES IMPACTS</b>	
Will any state-listed species potentially be impacted by the project? (If NO, delete the <b>State-Listed Species Impact Table</b> )	YES

<b>State-Listed Species Impact Table</b> (List Each Species Found Within or Known to be Within 1 Mile of the Project Area)			<b>Anticipated Impacts</b>
Scientific Name	Common Name	Listing	Alternative 1
<i>Cycleptus elongatus</i>	Blue Sucker	Threatened	Not Likely
<i>Ellipsaria lineolata</i>	Butterfly	Endangered	Not Likely
<i>Elliptio crassidens</i>	Elephant-ear	Endangered	Not Likely
<i>Fusconaia ebenus</i>	Ebonysnail	Endangered	Not Likely
<i>Ligumia recta</i>	Black Sandshell	Threatened	Likely
<i>Magnolia tripetala</i>	Umbrella Magnolia	Potentially Threatened	Not Likely
<i>Megaloniais nervosa</i>	Washboard	Endangered	Not Likely
<i>Moxostoma carinatum</i>	River Redhorse	Concern	Not Likely
<i>Obliquaria reflexa</i>	Threehorn Wartyback	Threatened	Not Likely
<i>Paspalum repens</i>	Riverbank Paspalum	Threatened	Likely
<i>Phacelia bipinnatifida</i>	Fern-leaved Scorpion-weed	Potentially Threatened	Not Likely
<i>Plethobasus cyphus</i>	Sheepnose	Endangered	Not Likely
<i>Pleurobema cordatum</i>	Ohio Pigtoe	Endangered	Not Likely
<i>Quadrula metanevra</i>	Monkeyface	Endangered	Not Likely
<i>Quercus falcata</i>	Spanish Oak	Threatened	None
<i>Simpsonia ambigua</i>	Salamander Mussel	Concern	Not Likely
<i>Stenanthium gramineum</i>	Feather-bells	Potentially Threatened	Not Likely
<i>Terrapene carolina carolina</i>	Eastern Box Turtle	Concern	Likely
<i>Truncilla truncata</i>	Deertoe	Concern	Not Likely
<i>Thamnophis sirtalis sirtalis</i>	Eastern Garter Snake	Concern	Likely
<i>Viola pedata</i>	Birdfoot Violet	Threatened	Not Likely
<i>Viola primulifolia</i>	Primrose-leaved Violet	Endangered	Likely

**For each species discuss the presence of, and anticipated impacts to, suitable habitats. The discussion should justify the level of anticipated impact.**

Several individuals of the **primrose-leaved violet (*Viola primulifolia*)** were identified during the ecological investigation for the proposed project. The violet was found along the edges of several logging



roads that are prevalent throughout the project area. This species was also found in areas adjacent to the project area that will not be impacted by this project. Locations of species found during the ecological survey of the area are presented on Figure 2.

Several individuals of the state species of concern **eastern box turtle (*Terrapene carolina carolina*)** were encountered throughout the project area. Impacts to individuals will likely occur as a result of this project. However, impacts to the overall population of this species would likely be negligible as they are abundant throughout the project area and southern Ohio.

Several individuals of the state threatened **riverbank paspalum (*Paspalum repens*)** were identified in the Wetland 24 complex along the Little Scioto River. Southern Ohio is the northern extent of this species. The preferred habitat for the riverbank paspalum includes shallow water or wet muddy soils along the margins of temporary pools, riverbanks, and riverine woodlands. Impacts to individuals will likely occur where the project crosses the Little Scioto River; however, there is suitable habitat in the immediate vicinity of the crossing. Locations of species found during the ecological survey of the area are presented on Figure 2.

Two live specimens and one dead specimen of the state-threatened **black sandshell mussel (*Ligumia recta*)** were collected upstream and downstream of the proposed Little Scioto River bridge crossing during the 2011 mussel survey. The presence of this species is a new record for the Little Scioto River. The mussel survey report indicates that this “*species appears to be increasing its range and abundance in the state, apparently including its distribution in the Little Scioto River.*” Impacts to individuals and habitat may occur as a result of this project; however, due to the increasing abundance of this species in Ohio and amount of potentially suitable habitat for this species upstream and downstream of the impact area, these impacts would likely be insignificant.

Several individuals of the state species of concern **eastern garter snake (*Thamnophis sirtalis sirtalis*)** were observed in the project area during the ecological survey. According to the ODNR Division of Wildlife, the eastern garter snake is the most abundant snake in Ohio. Impacts to habitat for this species are expected as a result of this project; however, due to the abundance of suitable habitat and the overall abundance of this snake in Ohio impacts are expected to be negligible.

The state threatened **blue sucker (*Cycleptus elongatus*)** was reported from the Scioto River, east of the project area. Suitable habitat for this species is not likely present in the project area as their preferred habitat includes deep, swiftly flowing chutes or channels of large rivers.

The state endangered **butterfly mussel’s (*Ellipsaria lineolata*)** preferred habitat includes sand and gravel in large rivers. Suitable habitat may be present in the Little Scioto River if it is determined to be large enough. This species was not collected during the mussel survey in 2011.

Suitable habitat for the state endangered **elephant-ear mussel (*Elliptio crassidens*)** includes mud, sand, or fine gravel in large rivers. Potentially suitable habitat was identified within the project area at the Little Scioto River. This species was not collected during the 2011 mussel survey of the project area.

Suitable habitat for the state endangered **ebonyshell mussel (*Fusconaia ebenus*)** includes sand and gravel in large rivers. Suitable habitat may be present within the project area at the Little Scioto River. This species was not collected during the 2011 mussel survey.

The state potentially threatened **umbrella magnolia (*Magnolia tripetala*)** was observed during the T&E survey in 2011 by representatives of ASC Group in a second-growth upland forest. Suitable habitat for this species is abundant throughout the area.

Suitable habitat for the state endangered **washboard mussel (*Megaloniais nervosa*)** includes mud, sand, or gravel primarily in large rivers or medium-sized streams with a good current. Suitable habitat may be present in the project area at the Little Scioto River. However, this species was not collected during the 2011 mussel survey.

The state species of concern **river redhorse (*Moxostoma carinatum*)** was reported from the Scioto River, east of the project area. Suitable habitat for this species is not likely present in the project area as the river redhorse mussels are found in only the largest rivers of the Ohio River drainage systems. They are typically found in deep pools with moderate current over bedrock or gravel substrate. The Little Scioto River within the project area did not appear to provide suitable habitat for this species.

Suitable habitat for the state threatened **threehorn wartyback mussel (*Obliquaria reflexa*)** includes sand and gravel in large rivers. Suitable habitat may be present within the project area at the Little Scioto River. However, this species was not collected during the 2011 mussel survey.

The most common habitat of the state potentially threatened **fern-leaved scorpion-weed (*Phacelia bipinnatifida*)** is deciduous alluvial woods, generally on basic soils. However, Ohio collections have also been made from fields and roadsides. Suitable habitat for this species is abundant throughout the project area.

Suitable habitat for the state endangered **sheepnose mussel (*Plethobasus cyphus*)** includes gravel or mixed sand and gravel substrates in medium to large rivers. Potential habitat may be present within the project area at the Little Scioto River. However, this species was not collected during the mussel survey at this location in 2011.

Suitable habitat for the state endangered **Ohio pigtoe mussel (*Pleurobema cordatum*)** includes medium to large rivers in sand or gravel in areas with moderate flow. Potentially suitable habitat is likely present within the project area at the Little Scioto River. This species was not collected during the 2011 mussel survey.

Suitable habitat for the state endangered **monkeyface mussel (*Quadrula metanevra*)** consists of mud, sand, or gravel substrates in medium to large rivers. Potential habitat is likely present within the project area at the Little Scioto River. This species was not collected during the mussel survey at this location in 2011.

A record of the state threatened **Spanish oak (*Quercus falcata*)** was reported to exist within 1 mile of the Portsmouth Bypass project area. This species is usually found in dry upland woods and less frequently in alluvial woods. Suitable habitat for this species is common throughout the project area; however, no individuals were identified during the ecological survey of the area.

Suitable habitat for the state species of concern **salamander mussel (*Simpsonaias ambigua*)** includes mud or gravel bars in medium to large rivers. Potential habitat is likely present in the project area at the Little Scioto River. However, this species was not collected during the mussel survey at this location in 2011.

The habitat preference for the state potentially threatened **feather-bells (*Stenanthium gramineum*)** includes moist rocky woods and rich wooded slopes; it is most frequently found on acid soils. Potential habitat for this species is present within the project area; however, it was not identified during the ecological survey of the project area.

Suitable habitat for the state species of concern **deertoe mussel (*Truncilla truncata*)** includes mud, sand, or gravel substrates in medium to large rivers. Potential habitat is likely present in the project area at the Little Scioto River. This species was not collected during the 2011 mussel survey.

Preferred habitat for the state threatened **birdfoot violet (*Viola pedata*)** includes well-drained, sunny, open situations, on rocky or sandy, often acidic, soil; open woods, fields, prairie remnants; along paths and roadsides, especially on road cuts through shale and sandstones. Potential habitat for this species is common in the project area; however, this species was not identified during the ecological survey of the project area.

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## APPENDICIES

### 1- Figures

- Project Location Mapping
- Literature Review Mapping Results
- Ecological Resource Mapping
- Other (List):

### 2 - Photographs

- Photograph Location Map
- Photographs

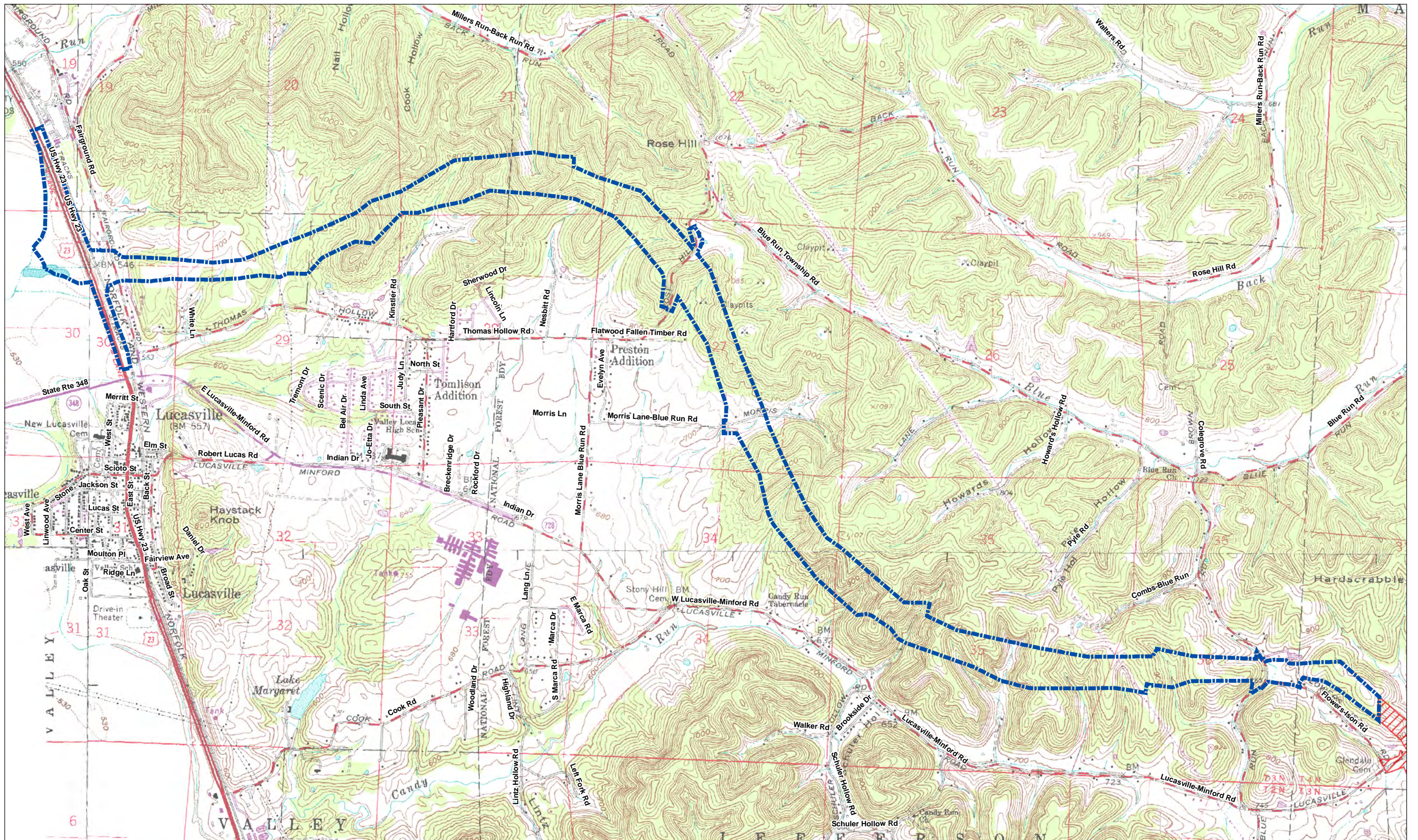
### 3 - Data Forms

- Stream Characterization/Assessment Data Forms
- Wetland Characterization/Assessment Data Forms
- Indiana Bat Habitat Characterization Worksheet
- Other (List):

### 4 – Agency Data Requests

- ODNR, Division of Natural Areas and Preserves – Natural Heritage Database Information Request
- USFWS – Federally Listed Species Information Request
- Other (List): NOAA – Palmer Drought Severity Maps

**APPENDIX 1**  
**Figures**



  Phase 2 project area  
   Phase 3 project area  
   Approximate Phase 1 construction limits

Base: 1998 Lucasville, 1990 Minford, 1991 Wakefield, Ohio,  
 1988 New Boston, 1985 Wheelersburg, OH-KY,  
 and 1975 Portsmouth KY-OH  
 USGS 7.5' series quadrangles

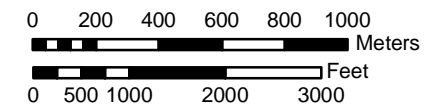
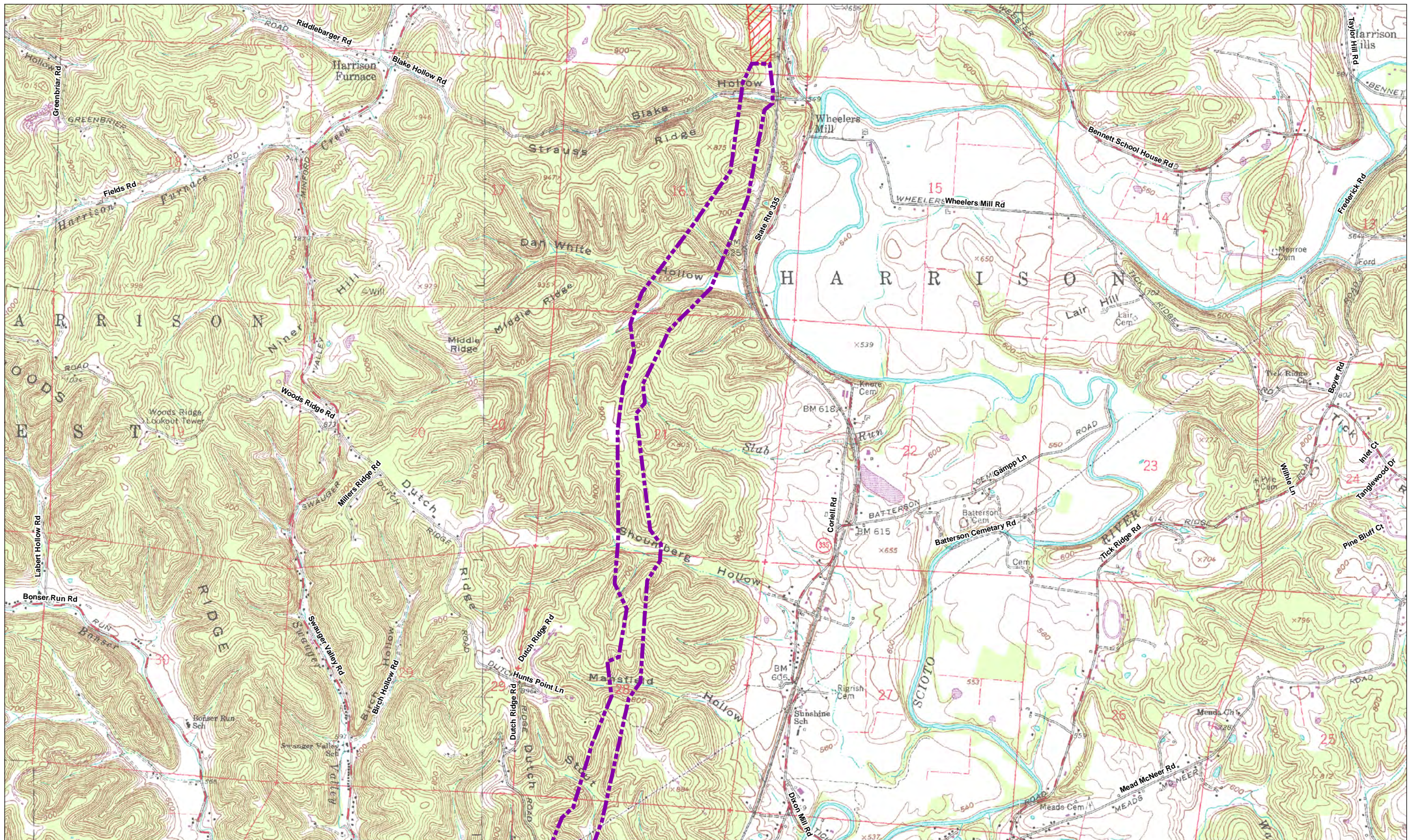


Figure 1. USGS 7.5' topographic maps.



  Phase 2 project area  
   Phase 3 project area  
   Approximate Phase 1 construction limits

Base: 1998 Lucasville, 1990 Minford, 1991 Wakefield, Ohio,  
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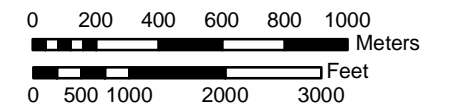
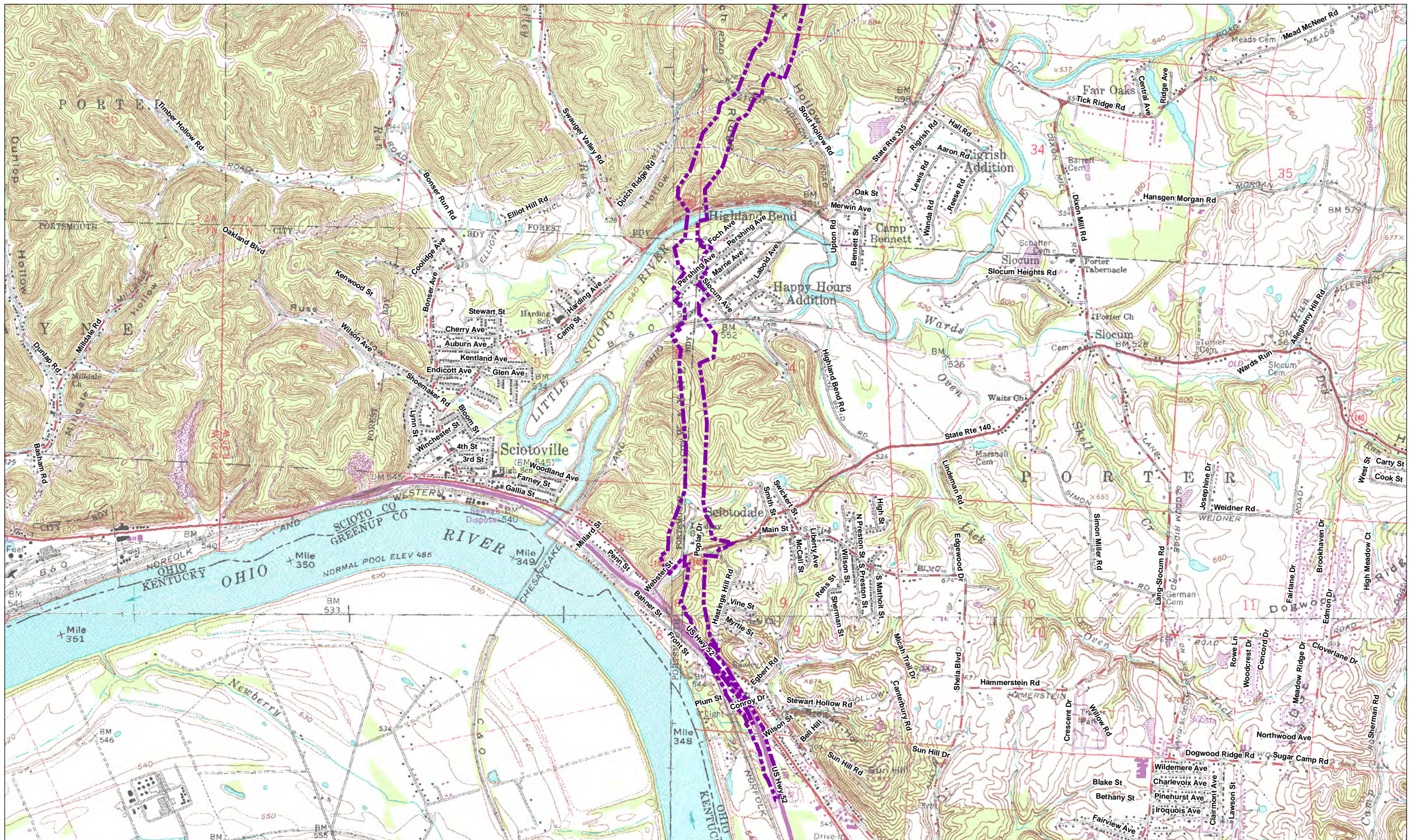


Figure 1. USGS 7.5' topographic maps.



Phase 2 project area
  Phase 3 project area
  Approximate Phase 1 construction limits

Base: 1998 Lucasville, 1990 Minford, 1991 Wakefield, Ohio,  
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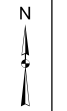
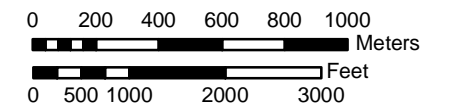


Figure 1. USGS 7.5' topographic maps.



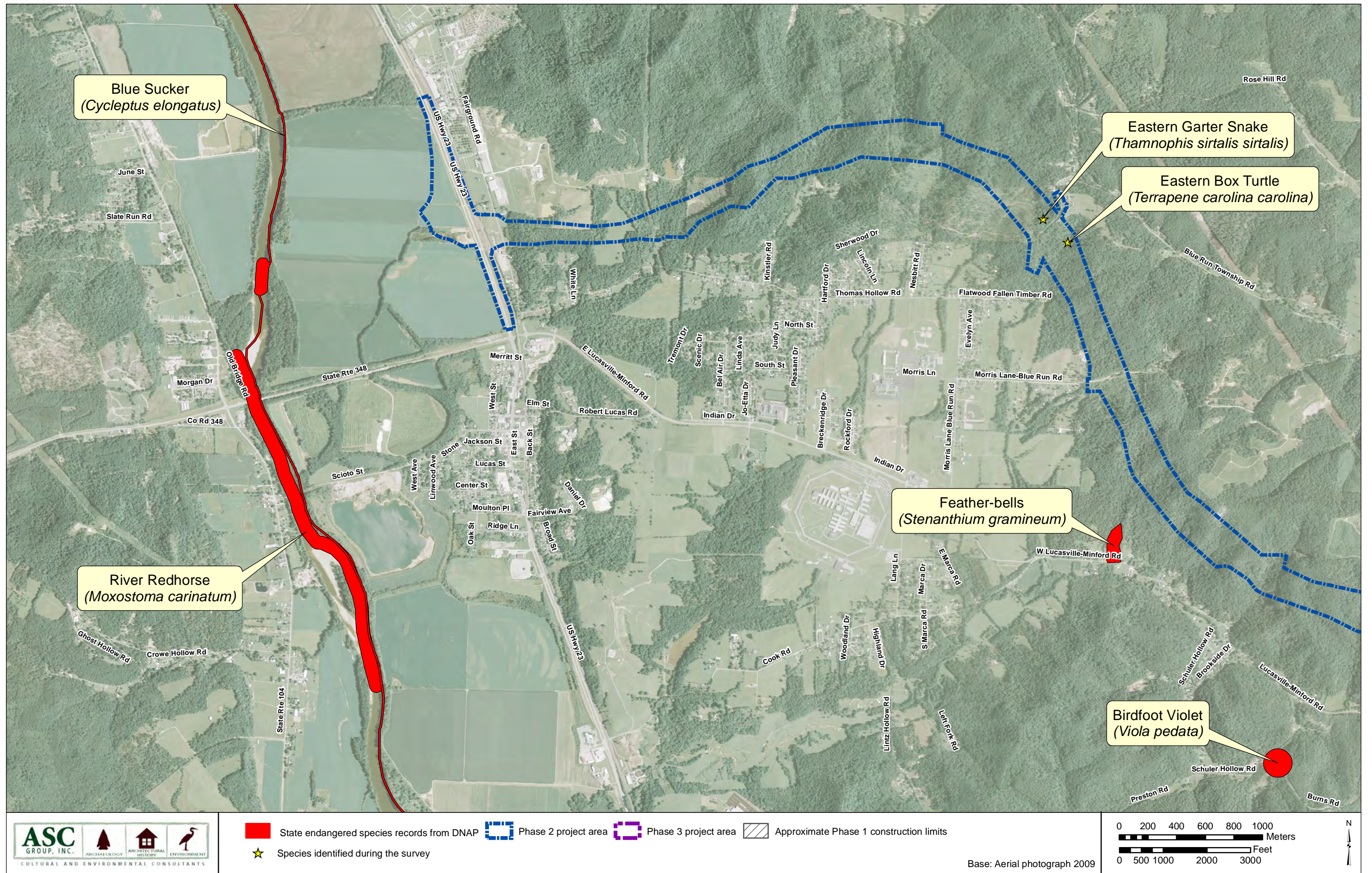


Figure 2. State endangered species map from DNAP GIS shapefiles and ecological survey.

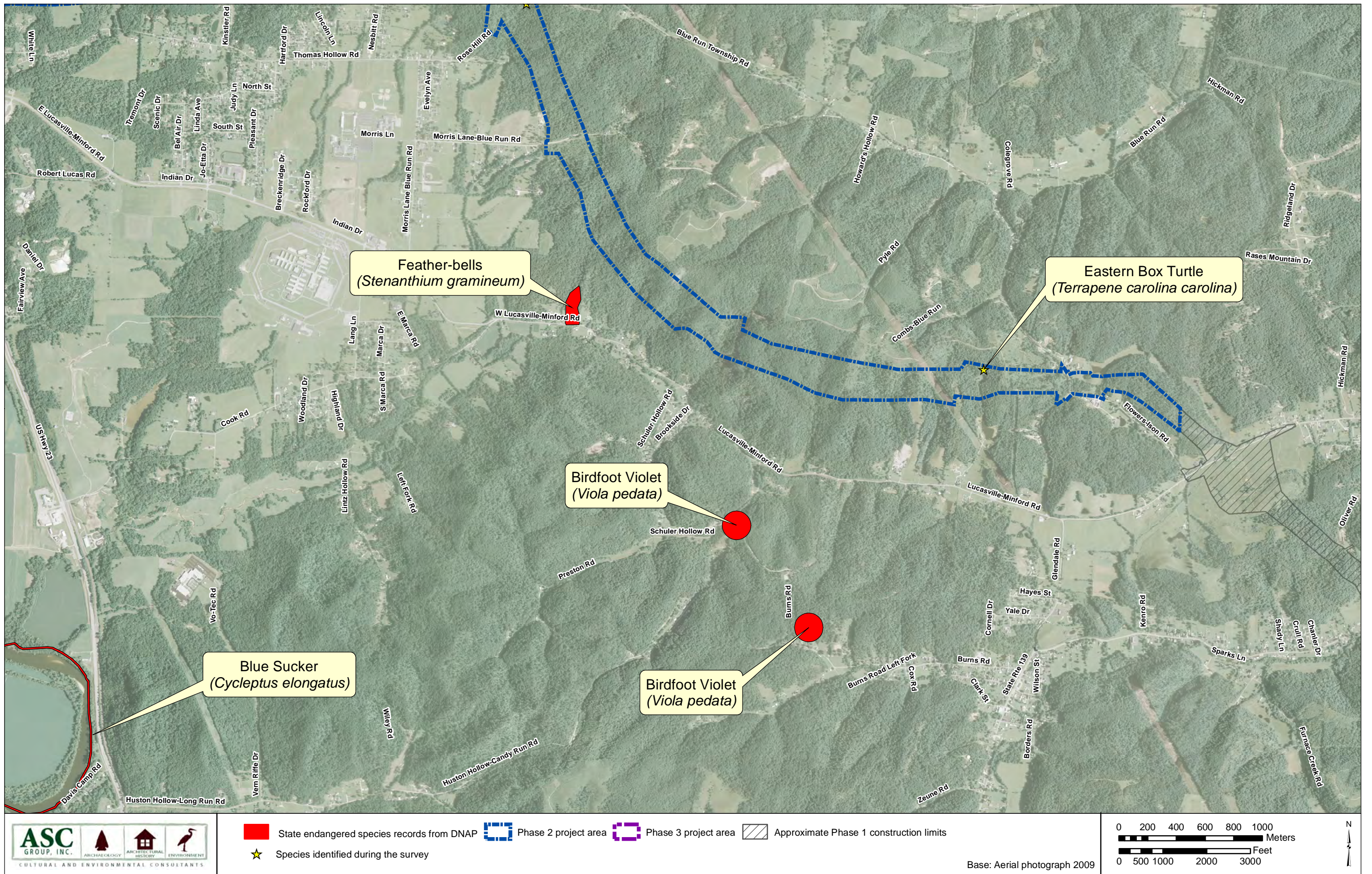


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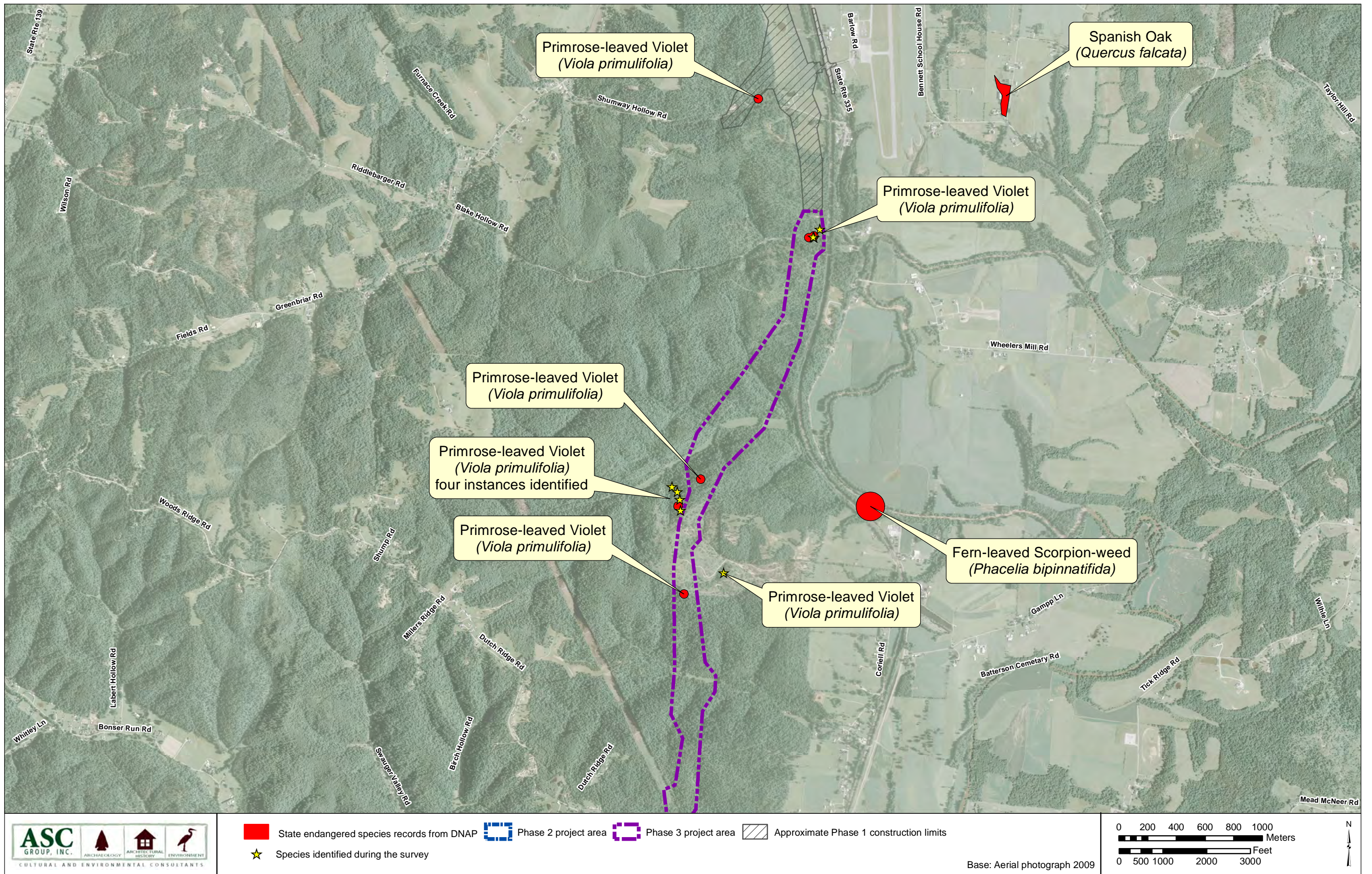


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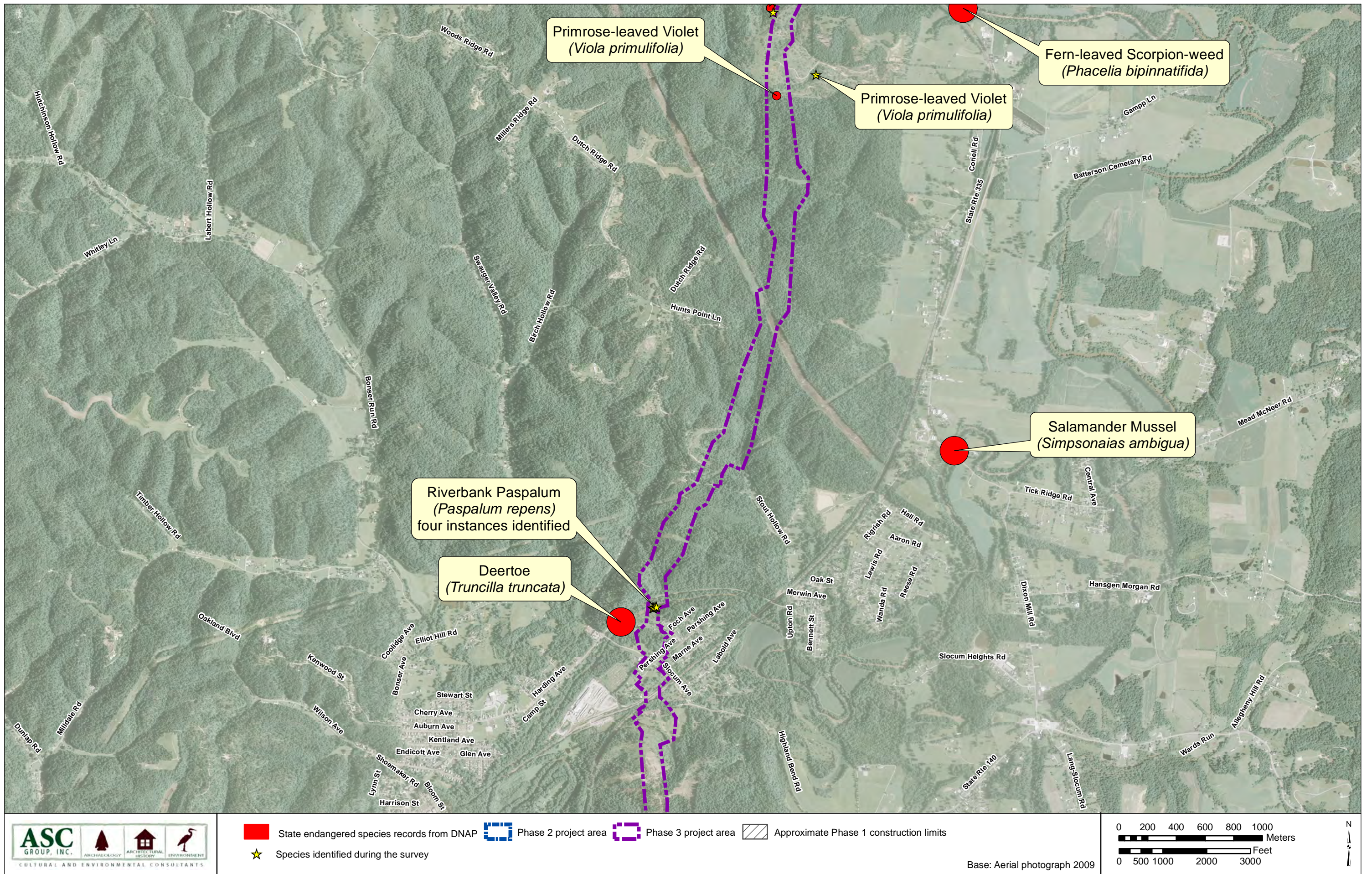


Figure 2. State endangered species map from DNAP GIS shapefiles and ecological survey.

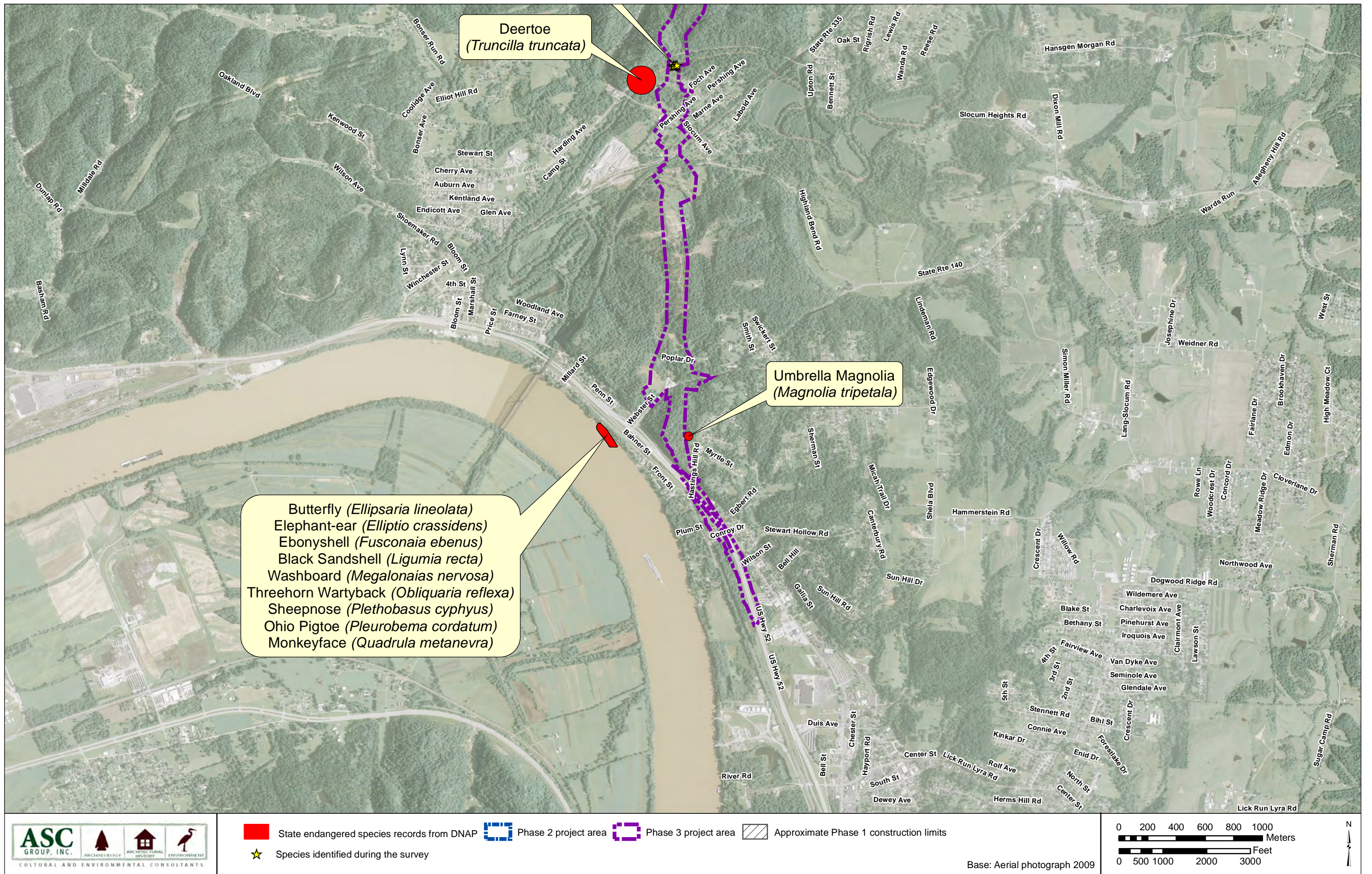


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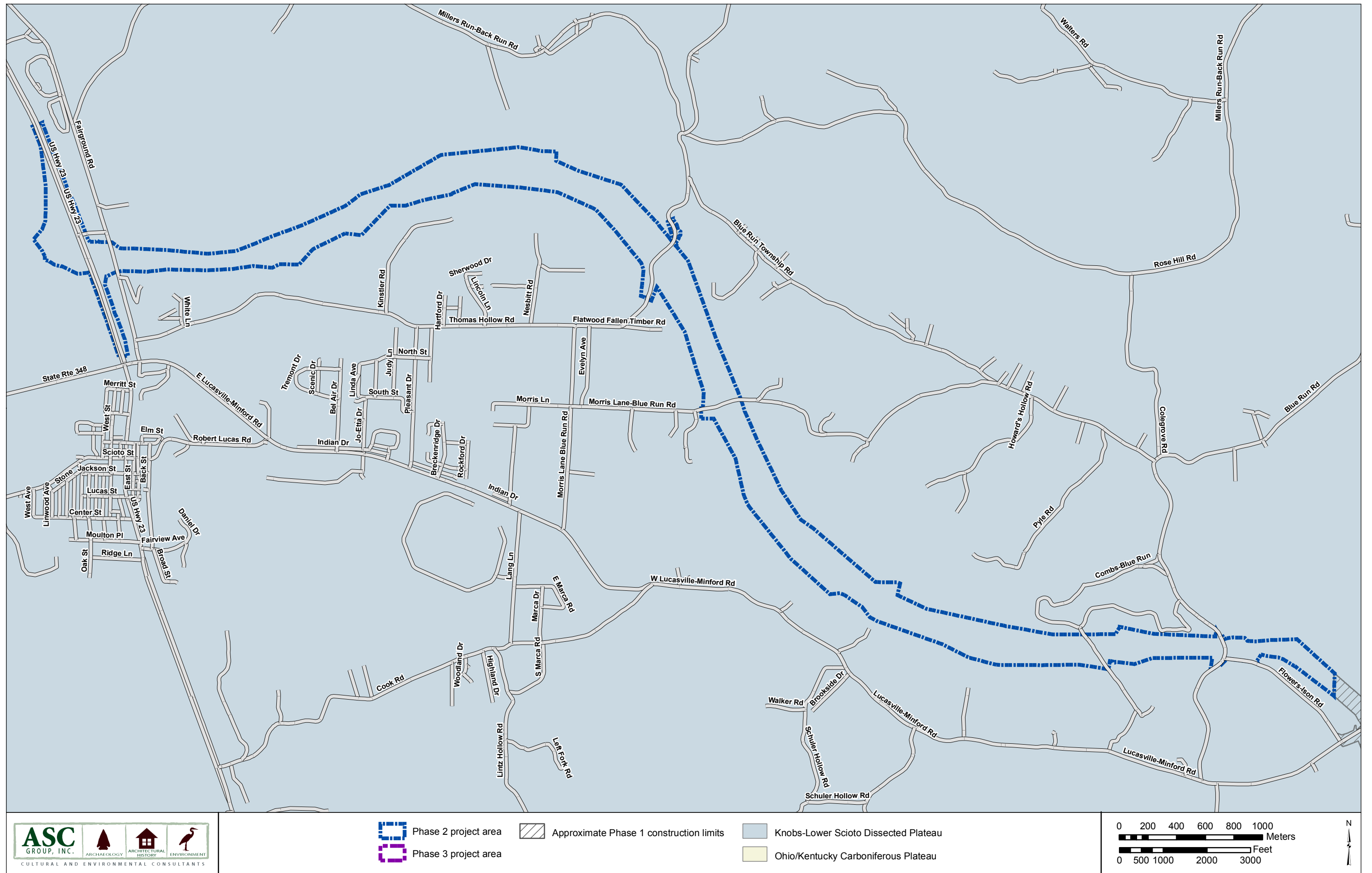


Figure 3. Ecoregion map.

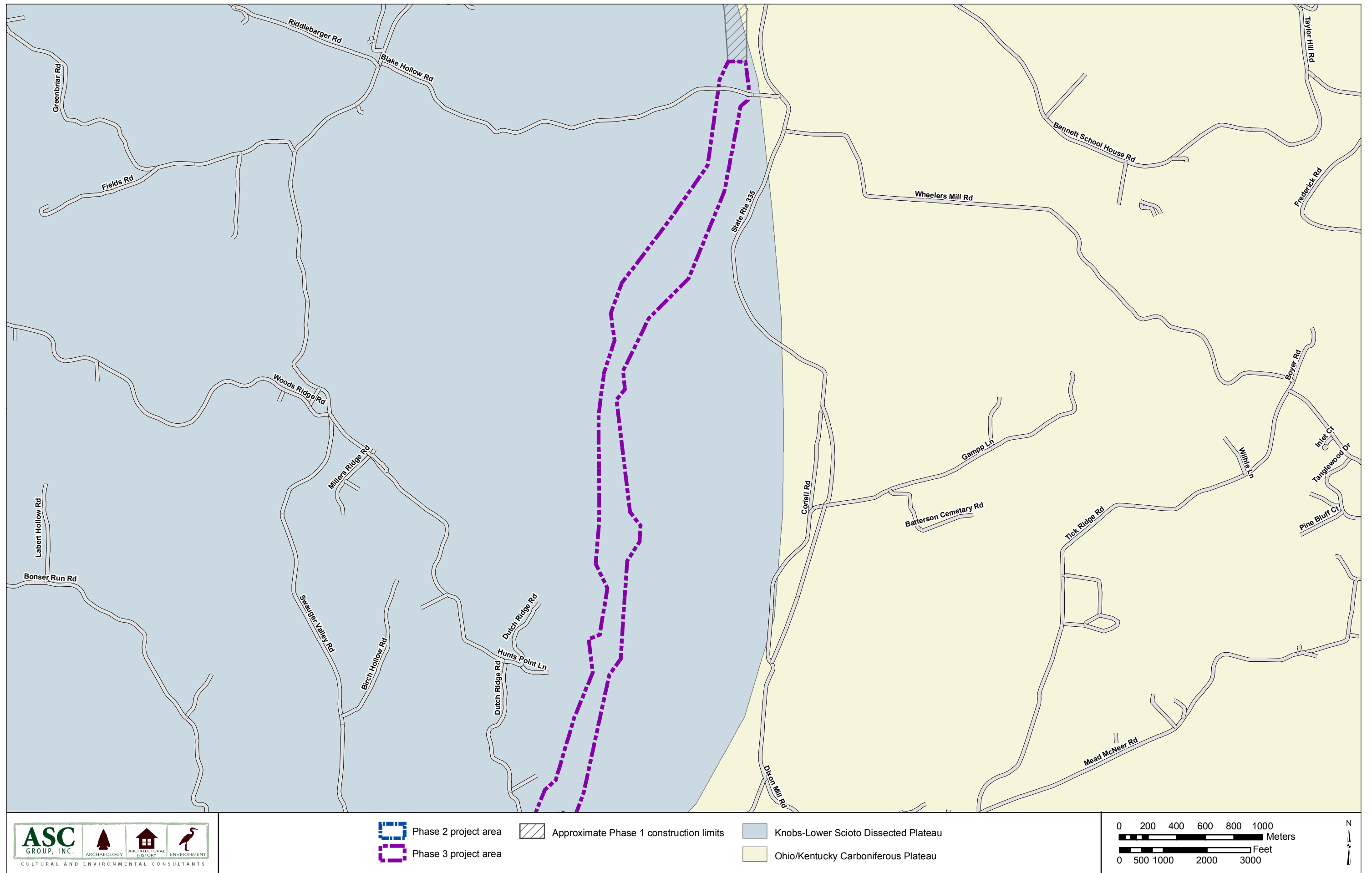
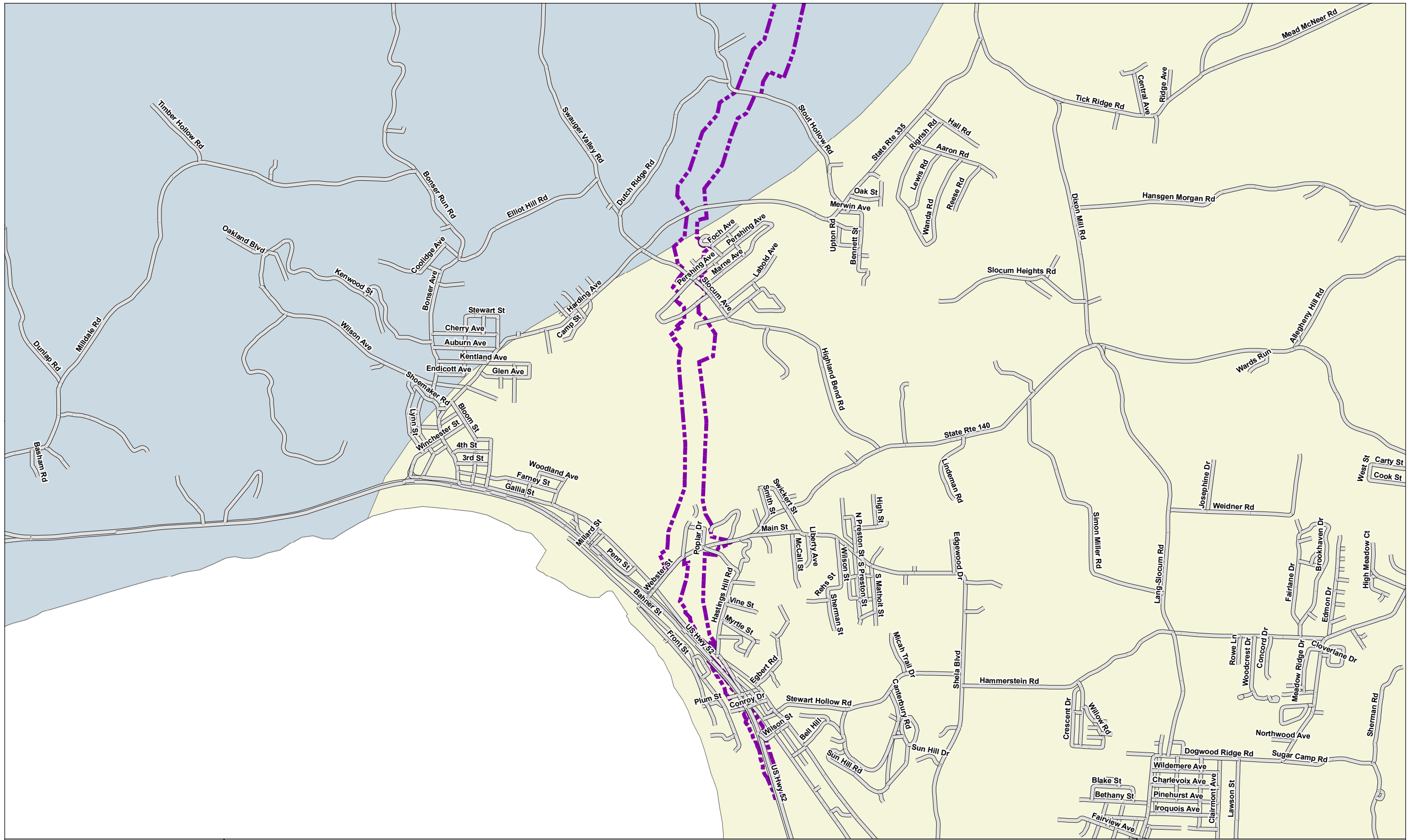


Figure 3. Ecoregion map.



- Phase 2 project area
- Phase 3 project area
- Approximate Phase 1 construction limits
- Knobs-Lower Scioto Dissected Plateau
- Ohio/Kentucky Carboniferous Plateau

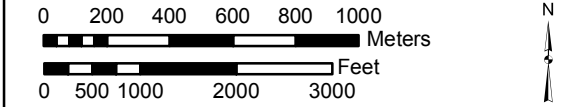
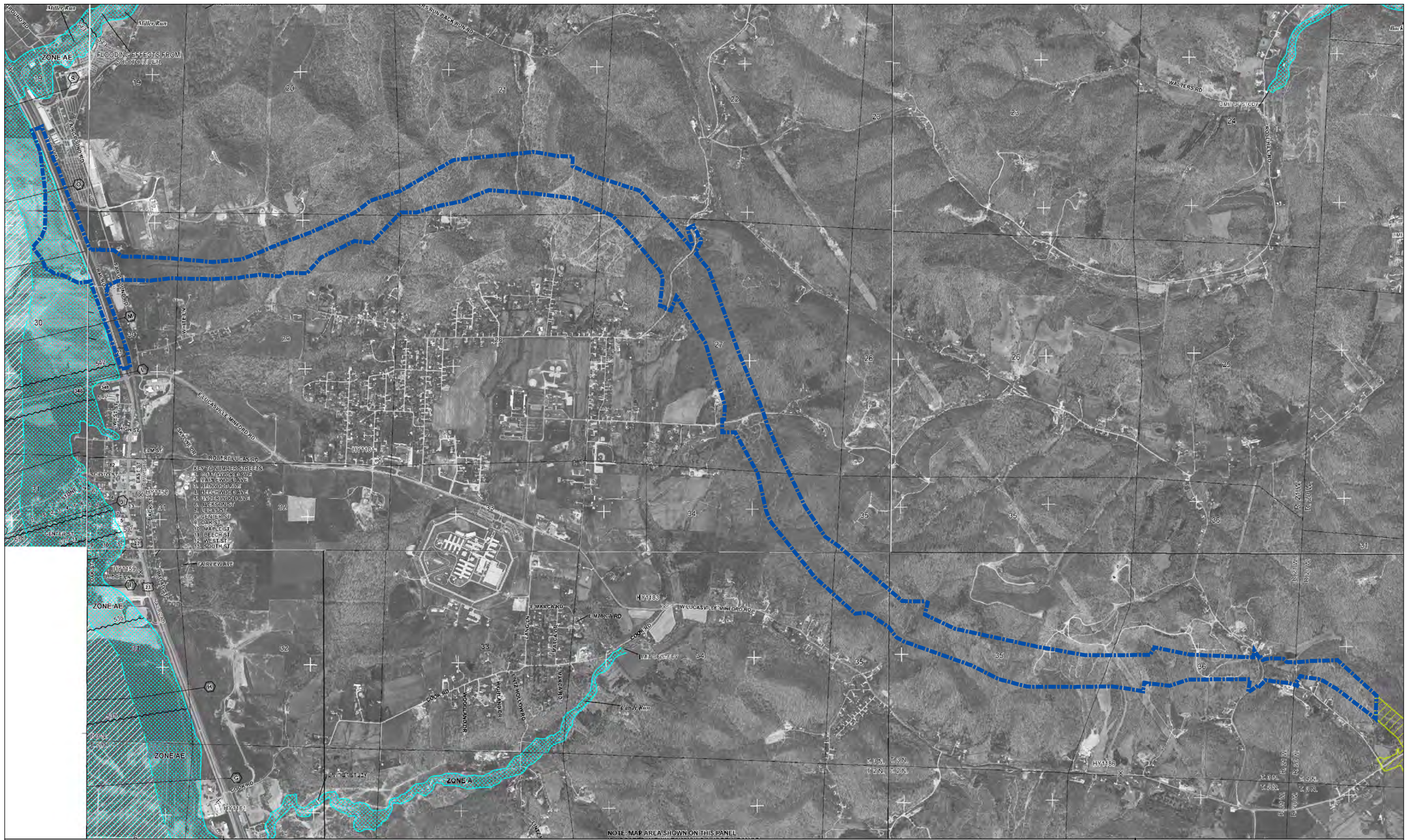



Figure 3. Ecoregion map.





 Phase 2 project area
  Approximate Phase 1 construction limits  
 Phase 3 project area

 Special Flood Hazard Areas (SFHAs) Subject to inundation by the 1% annual chance flood

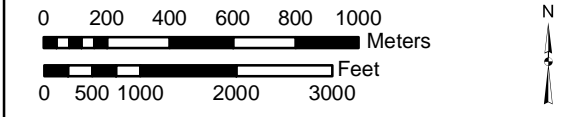
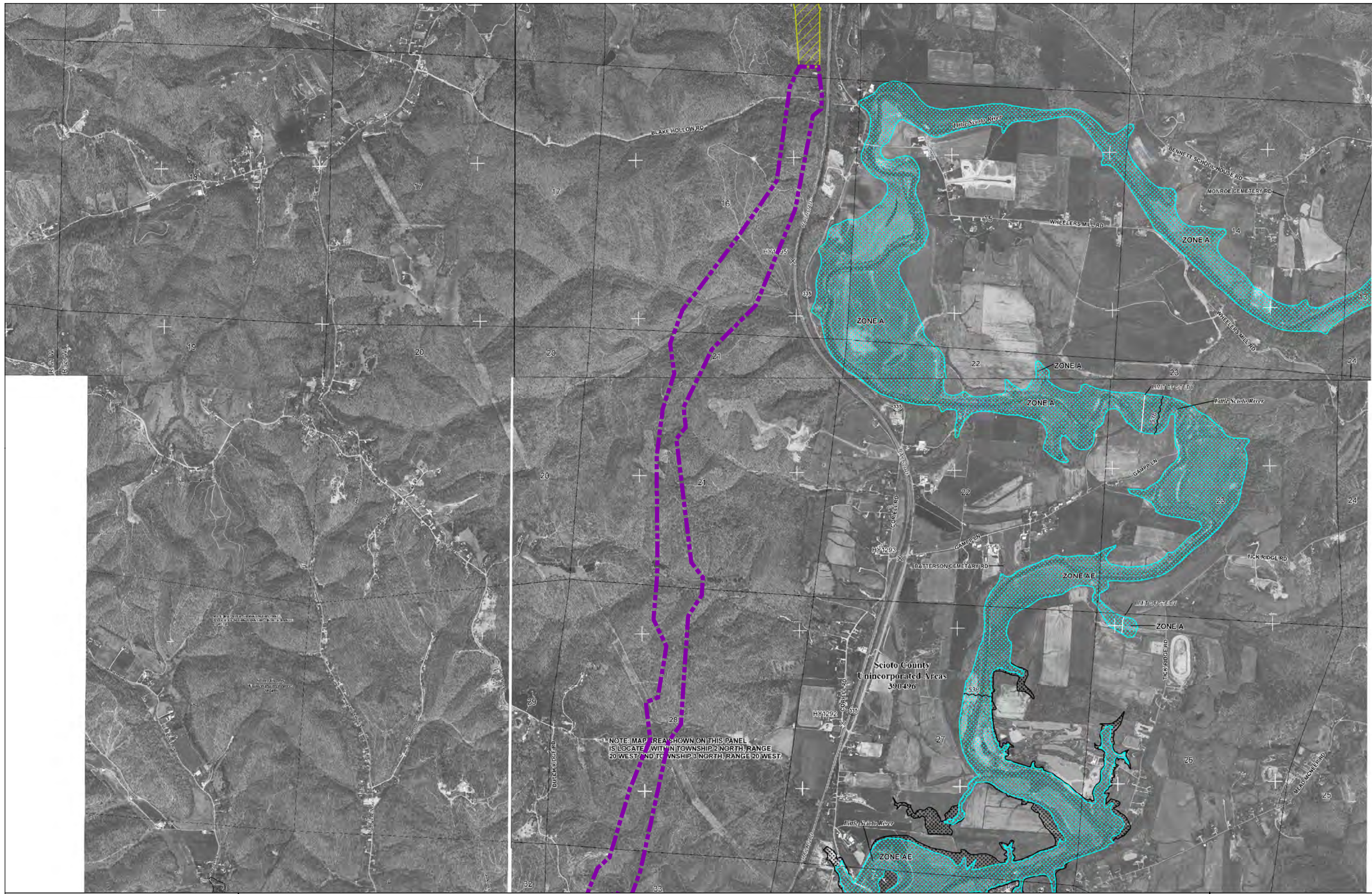


Figure 4. FEMA map.



	Phase 2 project area Phase 3 project area	Approximate Phase 1 construction limits	Special Flood Hazard Areas (SFHAs) Subject to inundation by the 1% annual chance flood	
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Figure 4. FEMA map.



  Phase 2 project area    
   Phase 3 project area    
   Approximate Phase 1 construction limits

  Special Flood Hazard Areas (SFHAs) Subject to inundation by the 1% annual chance flood

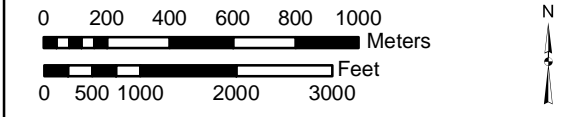


Figure 4. FEMA map.

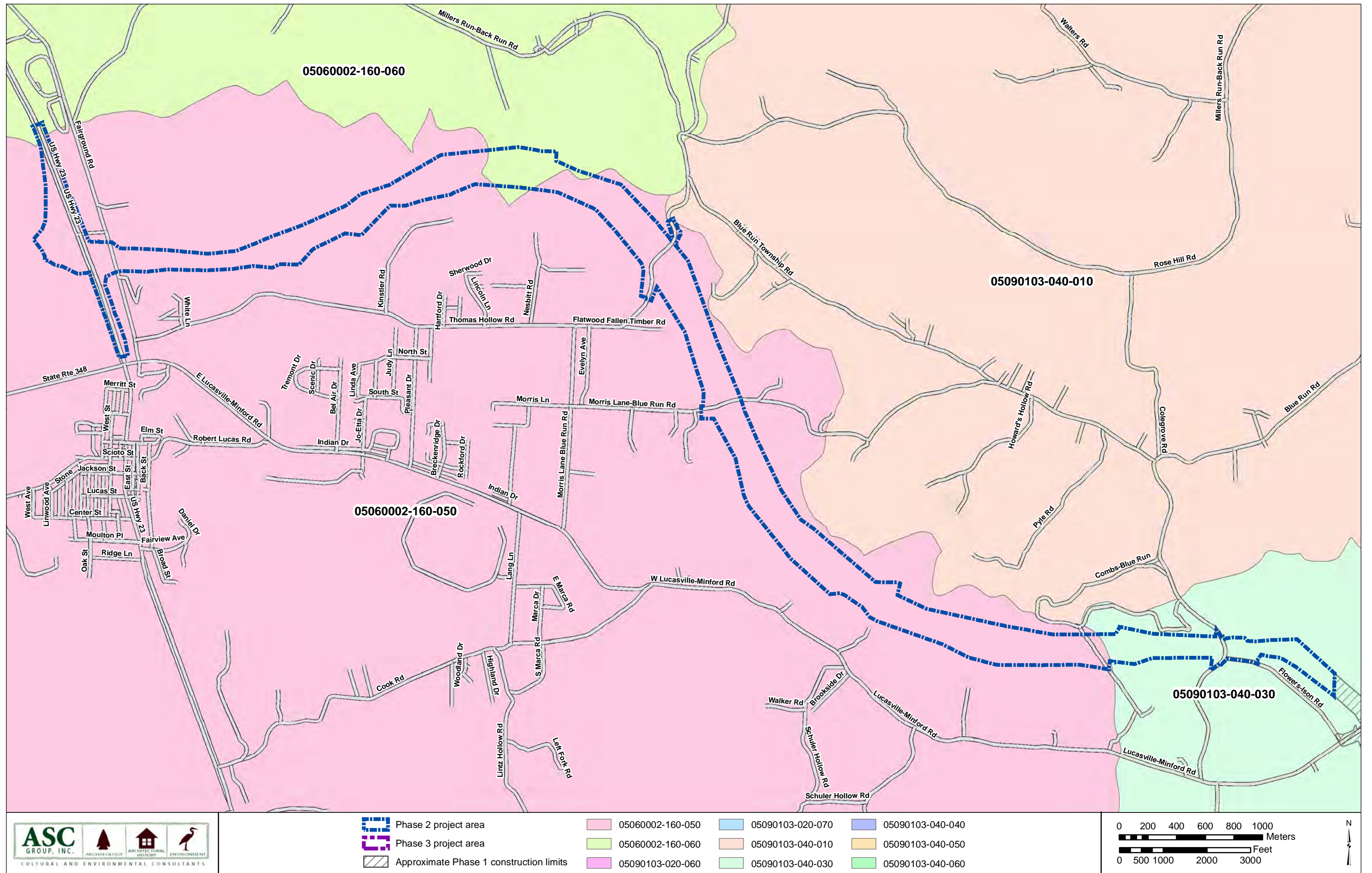


Figure 5. HUC.

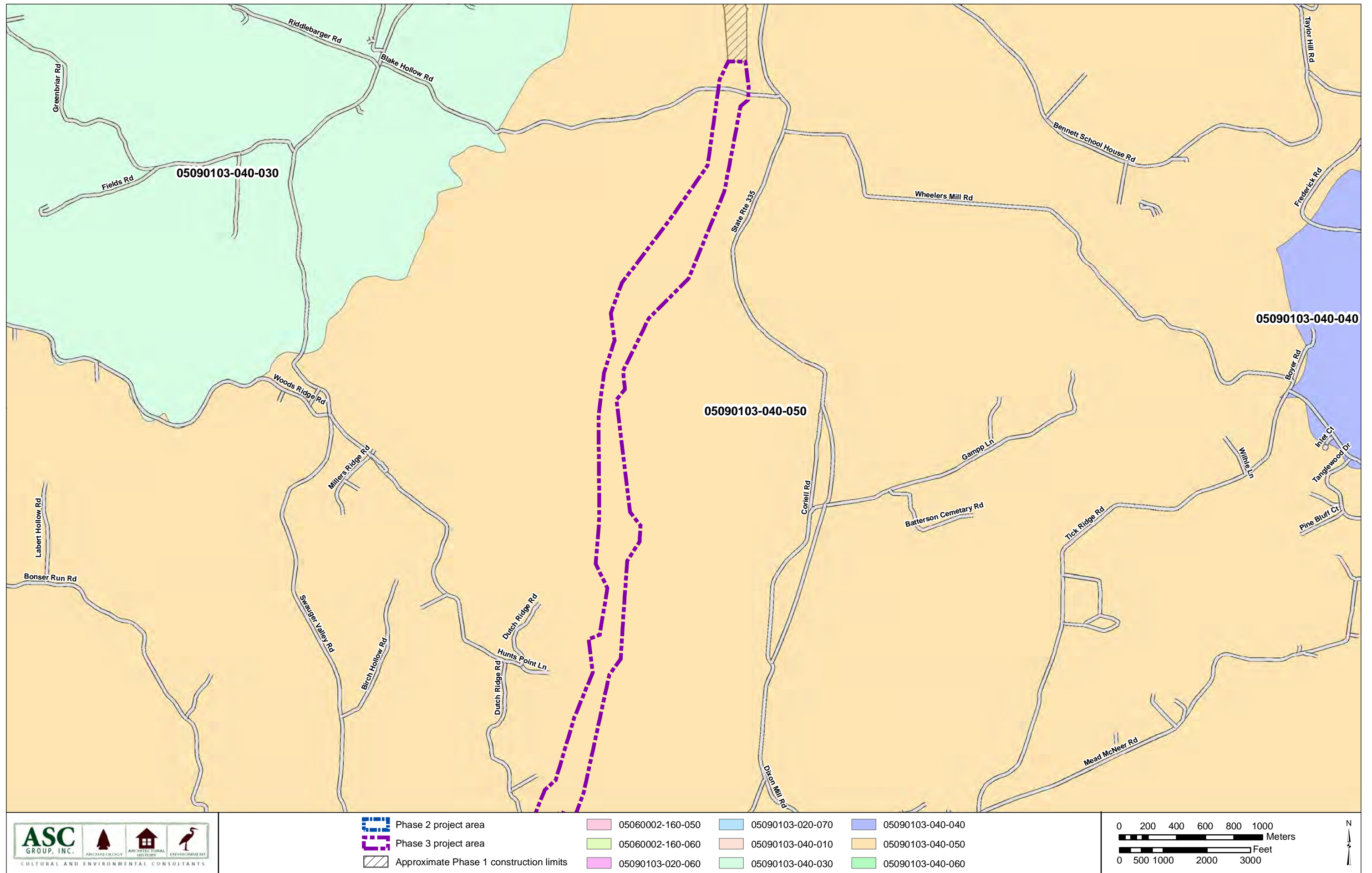


Figure 5. HUC.

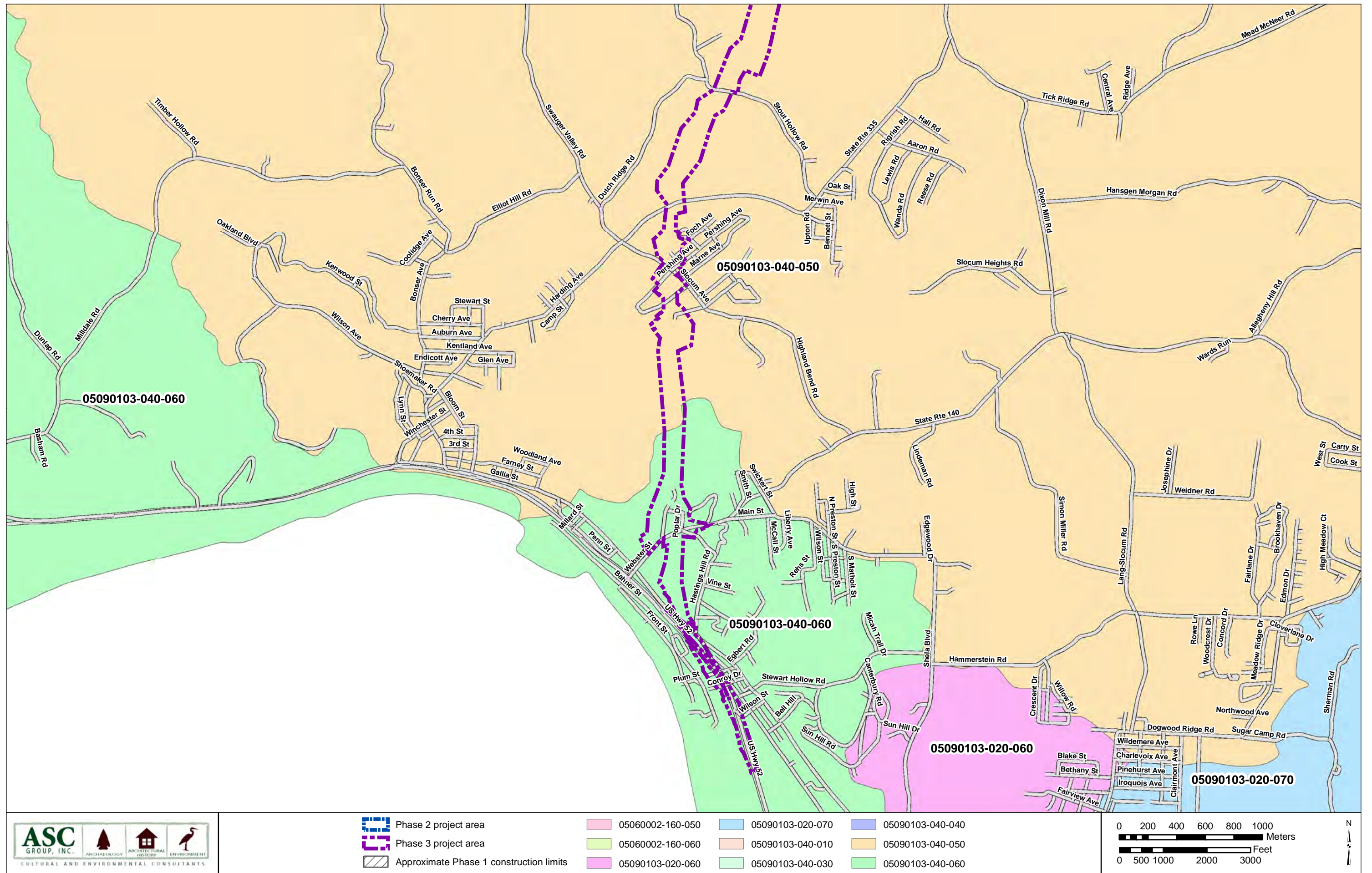


Figure 5. HUC.

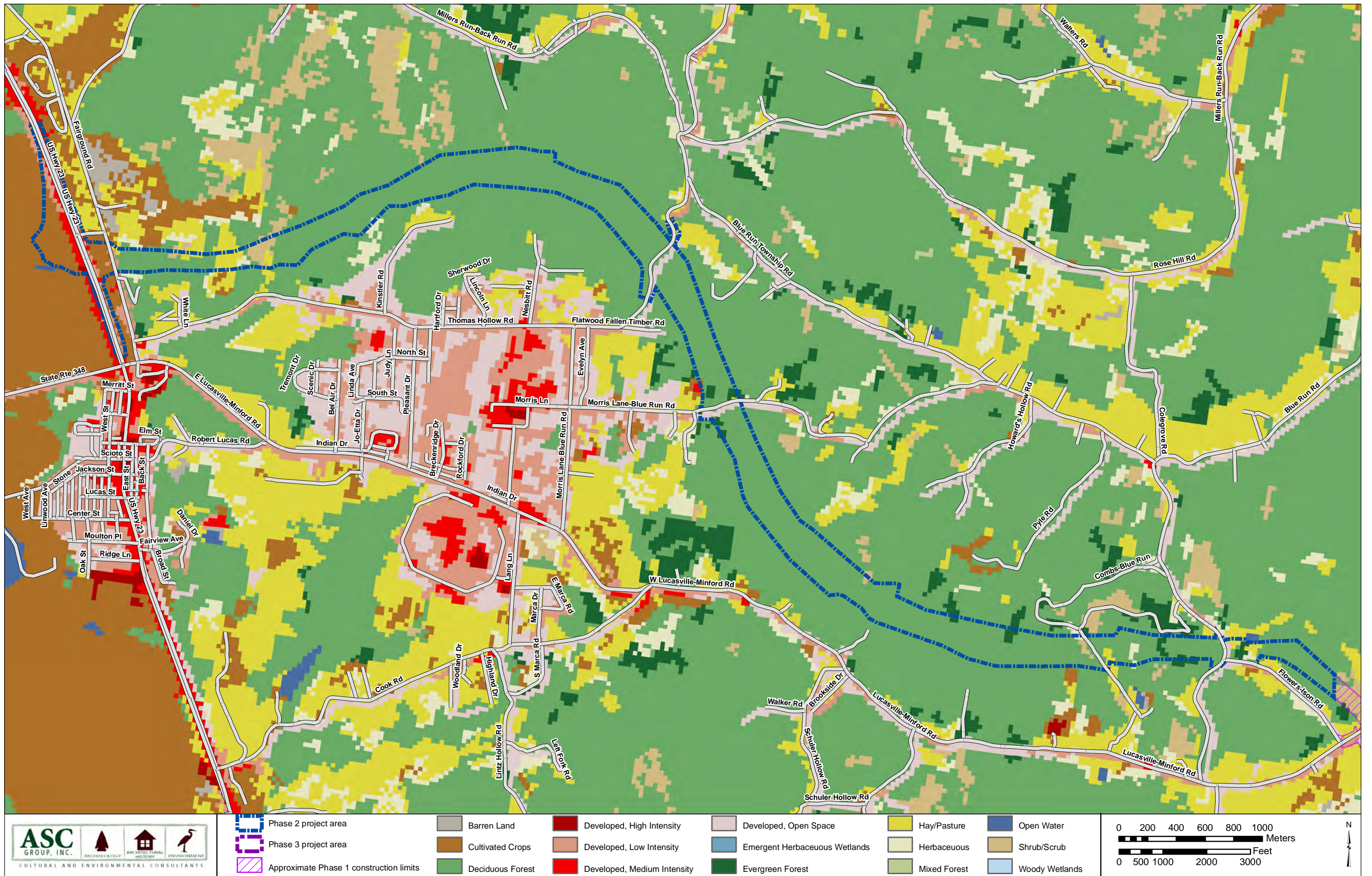


Figure 6. National Land Cover Dataset.

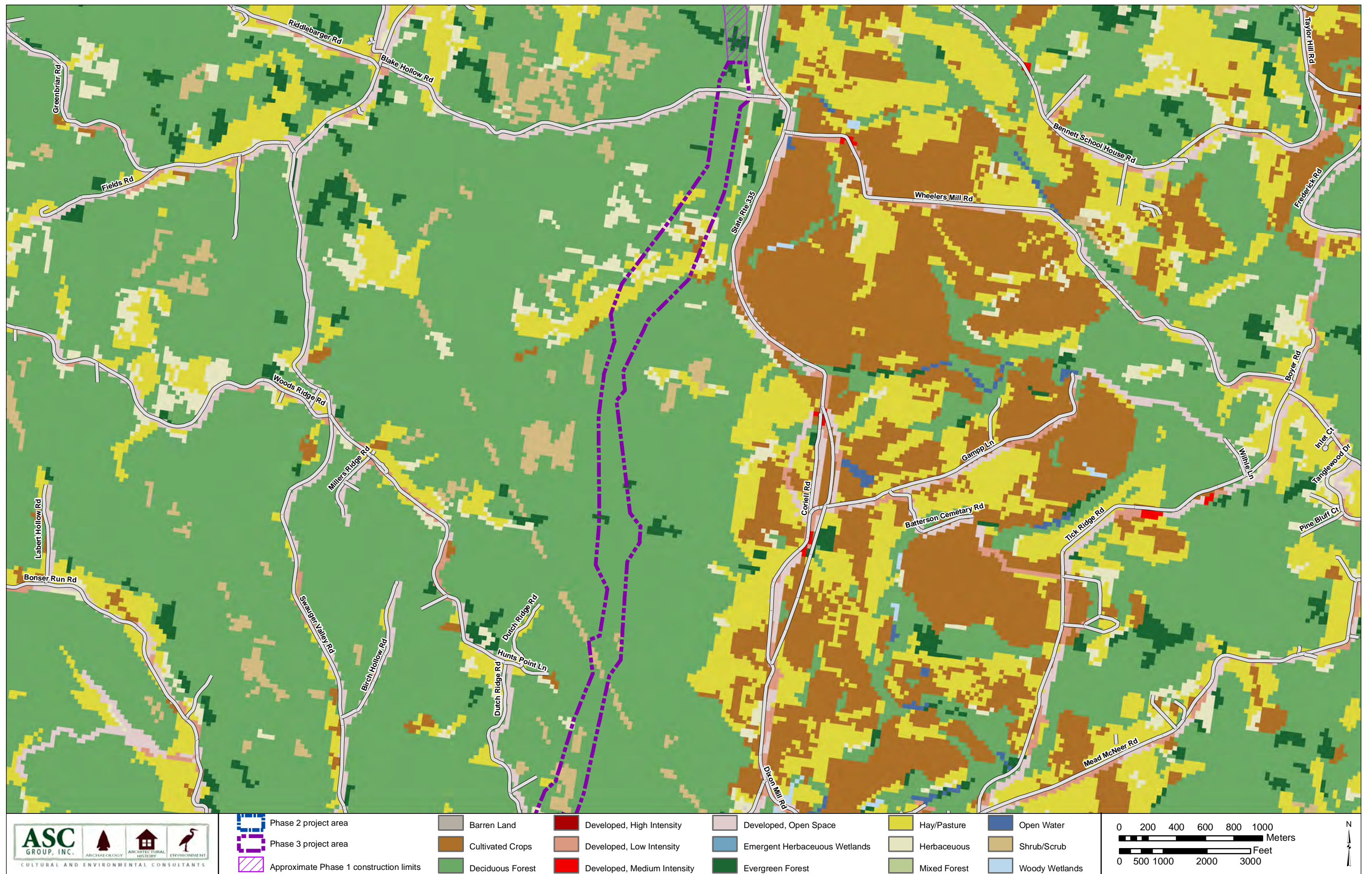


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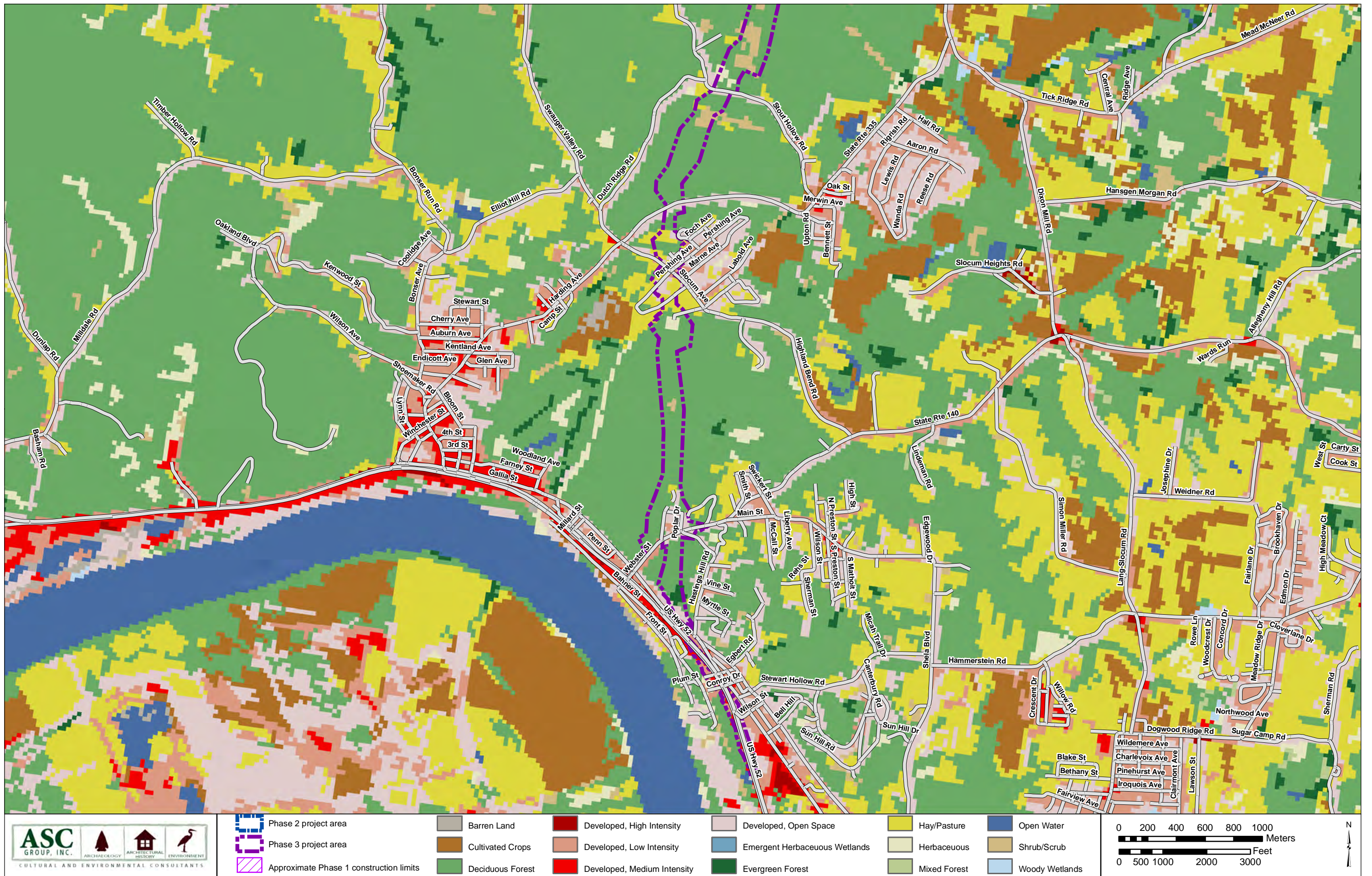


Figure 6. National Land Cover Dataset.

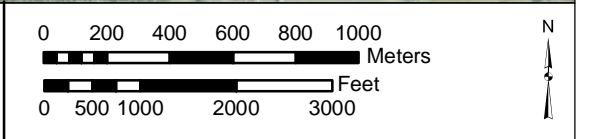
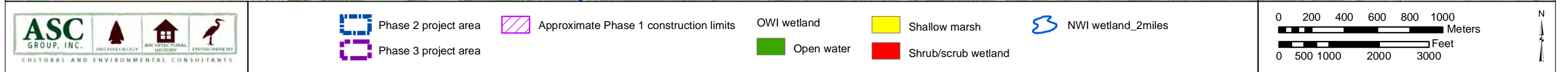
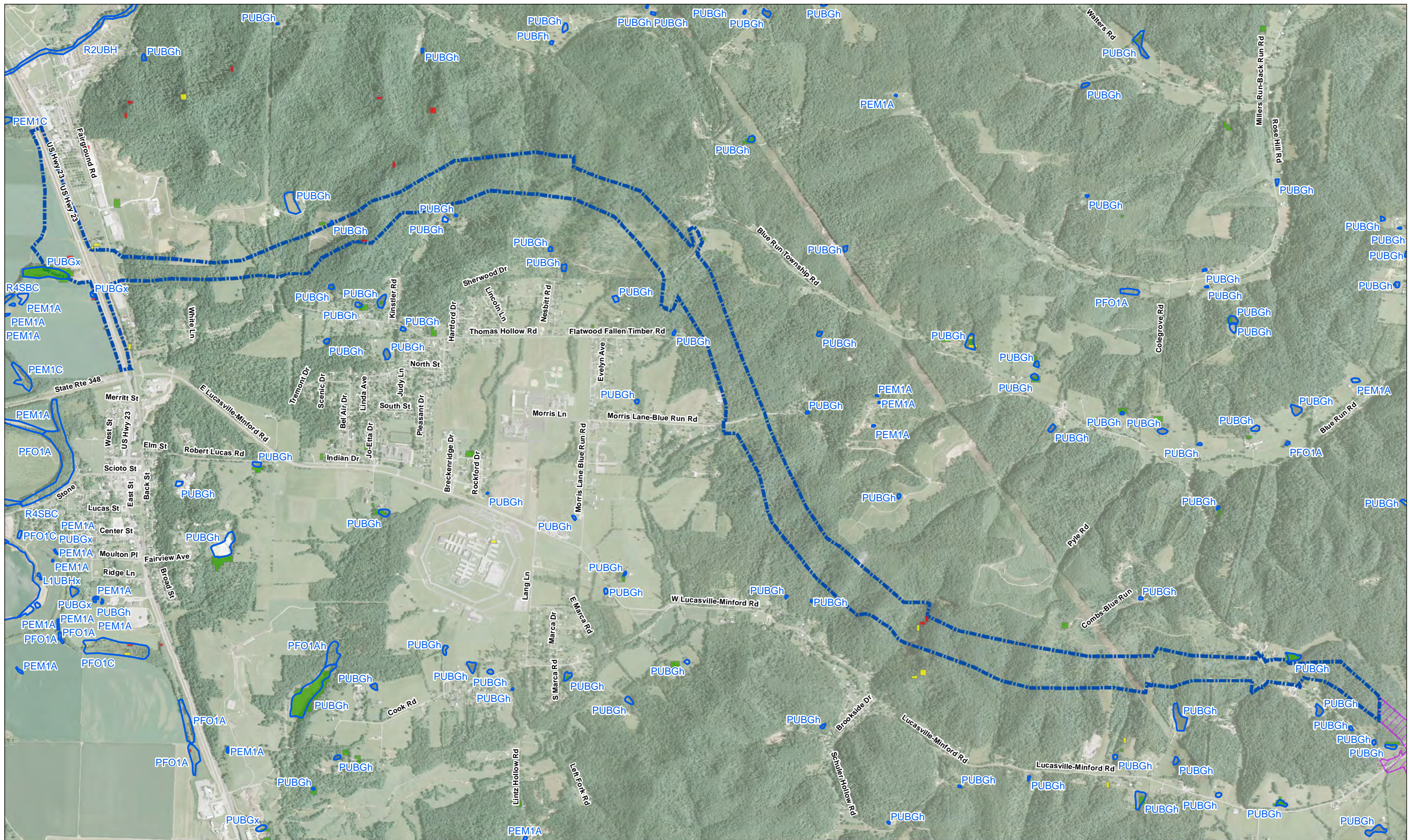


Figure 7. NWI and OWI wetlands.

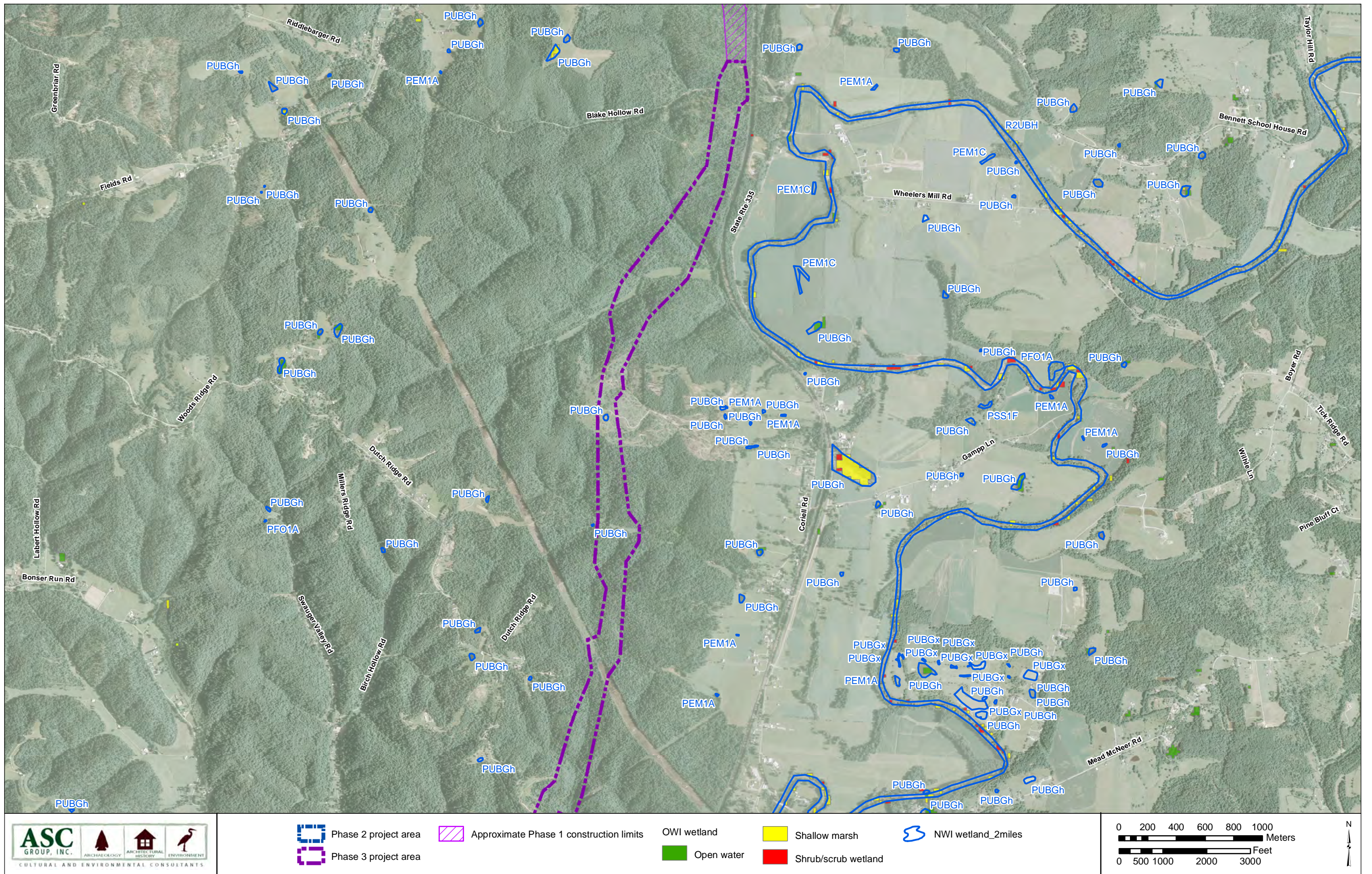


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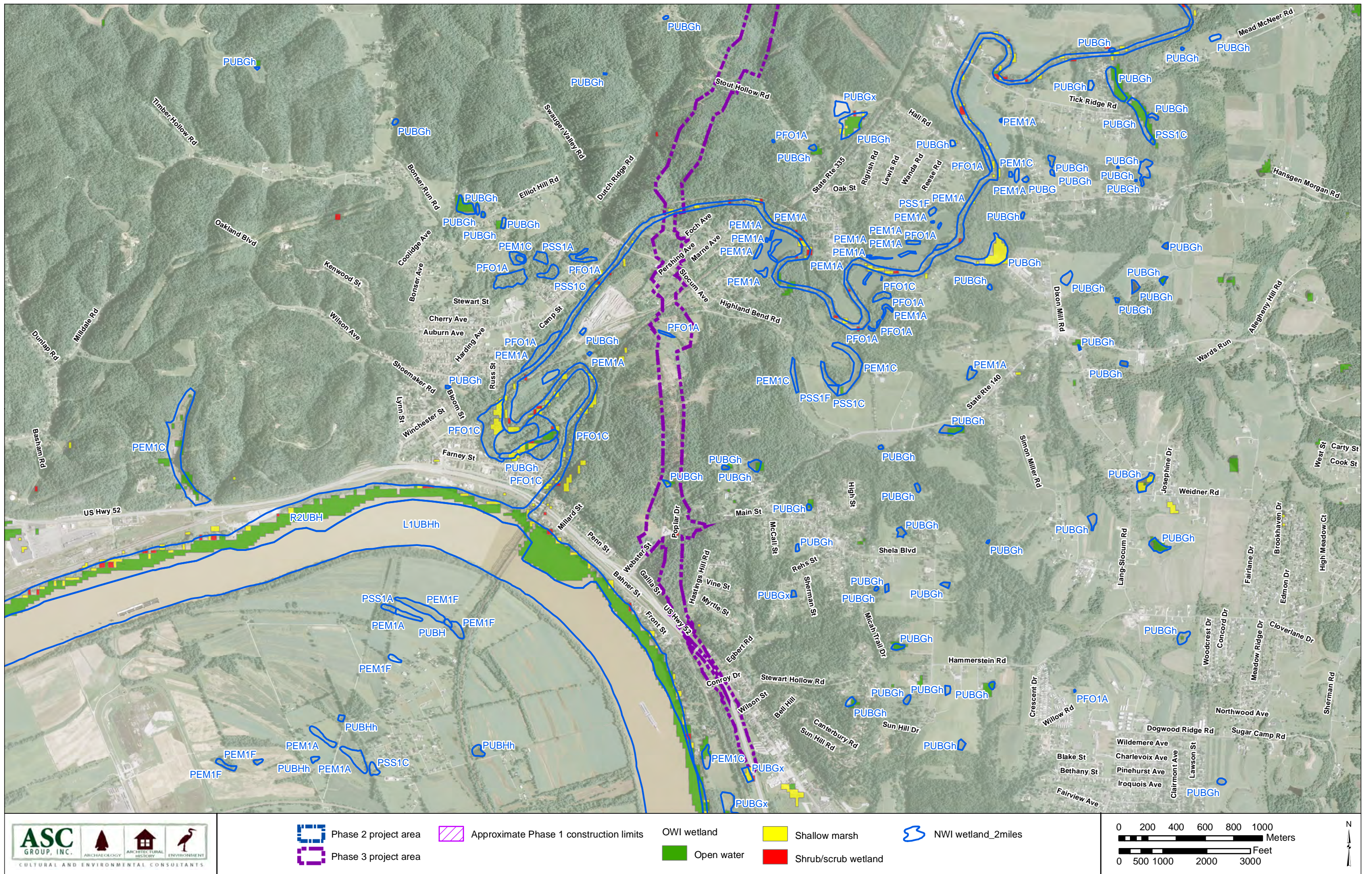


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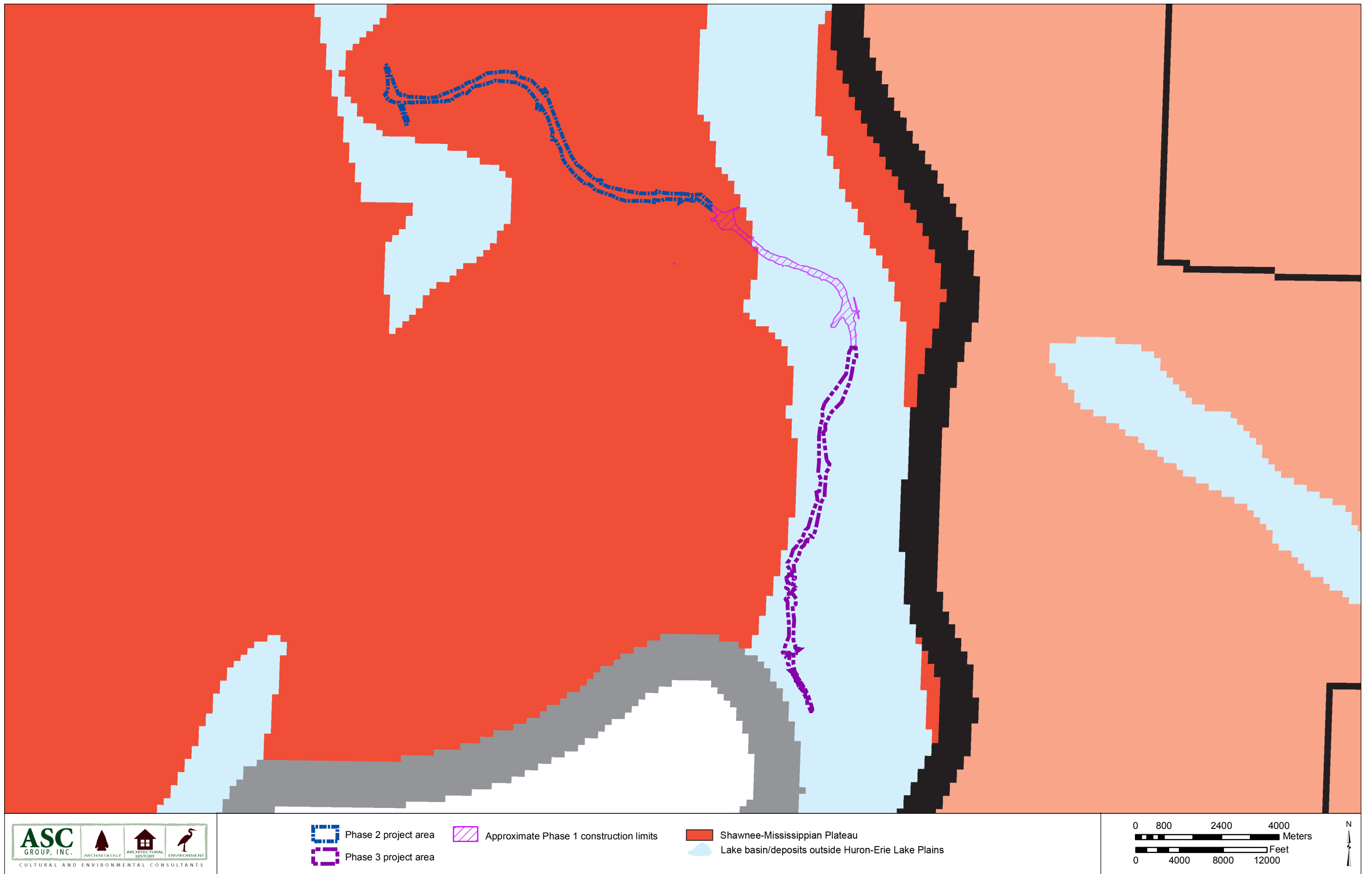


Figure 8. Physiographic regions map.

Figure 8

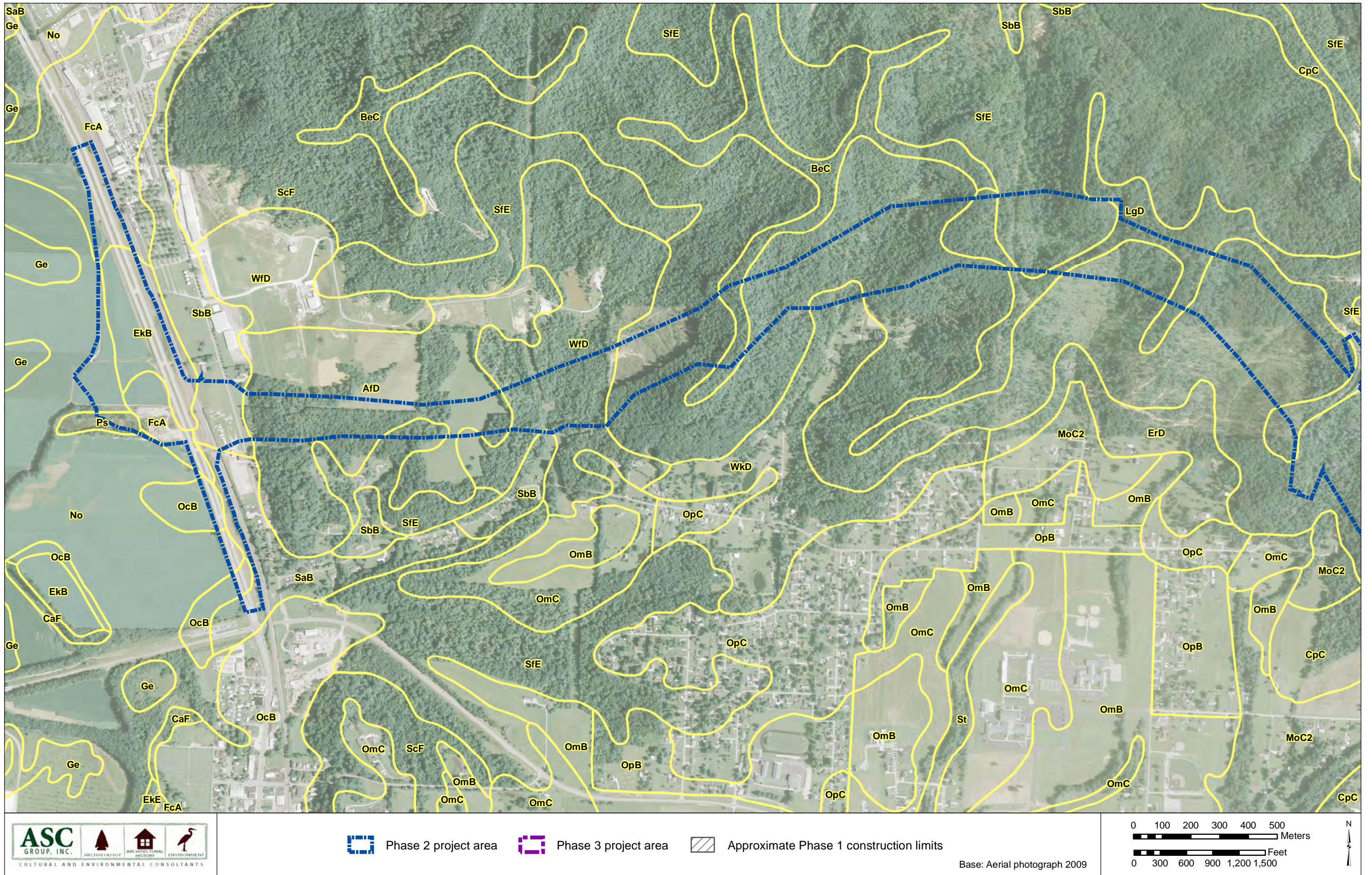
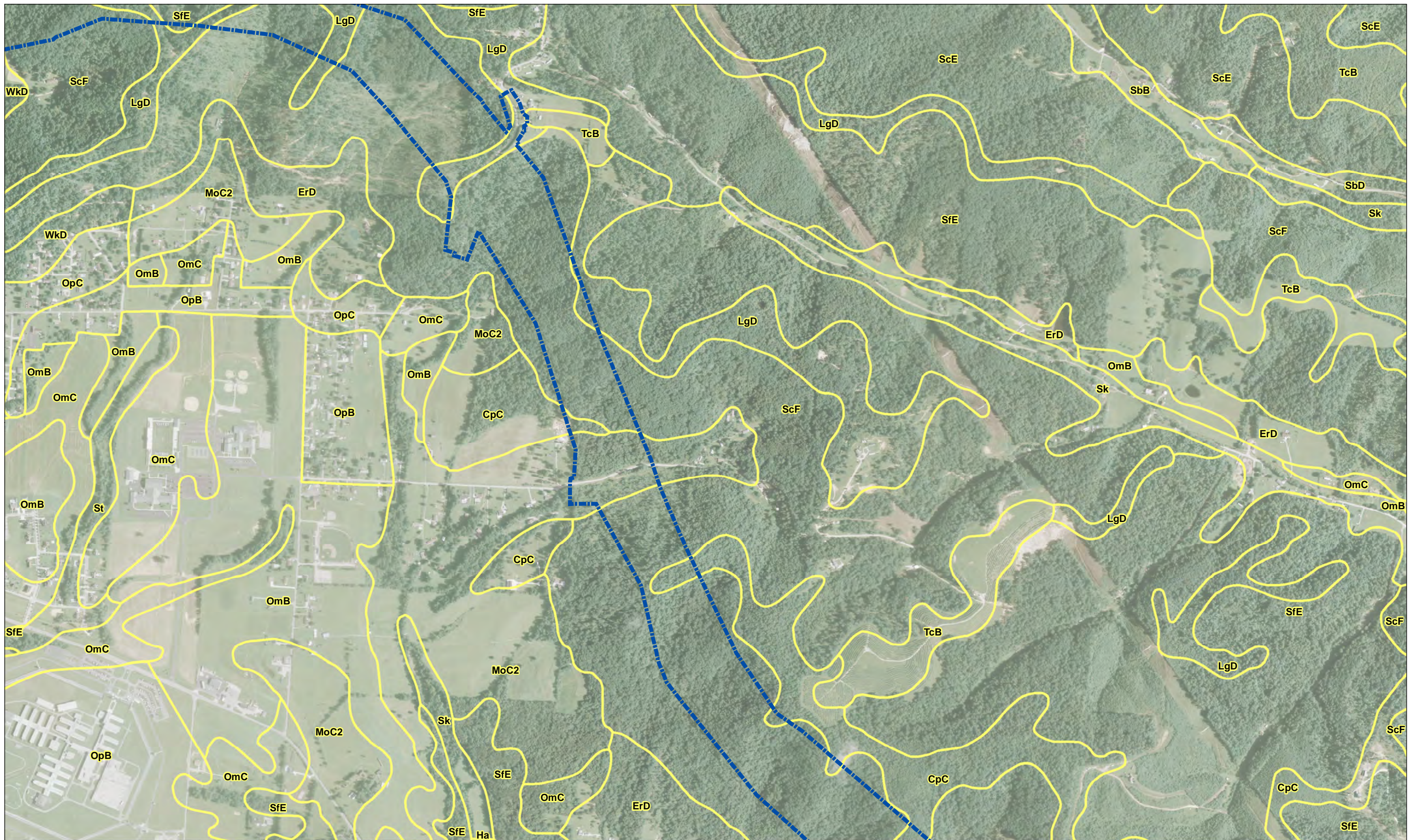


Figure 9. Soils



  Phase 2 project area    
   Phase 3 project area    
   Approximate Phase 1 construction limits

Base: Aerial photograph 2009

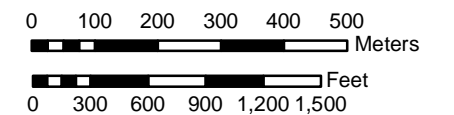


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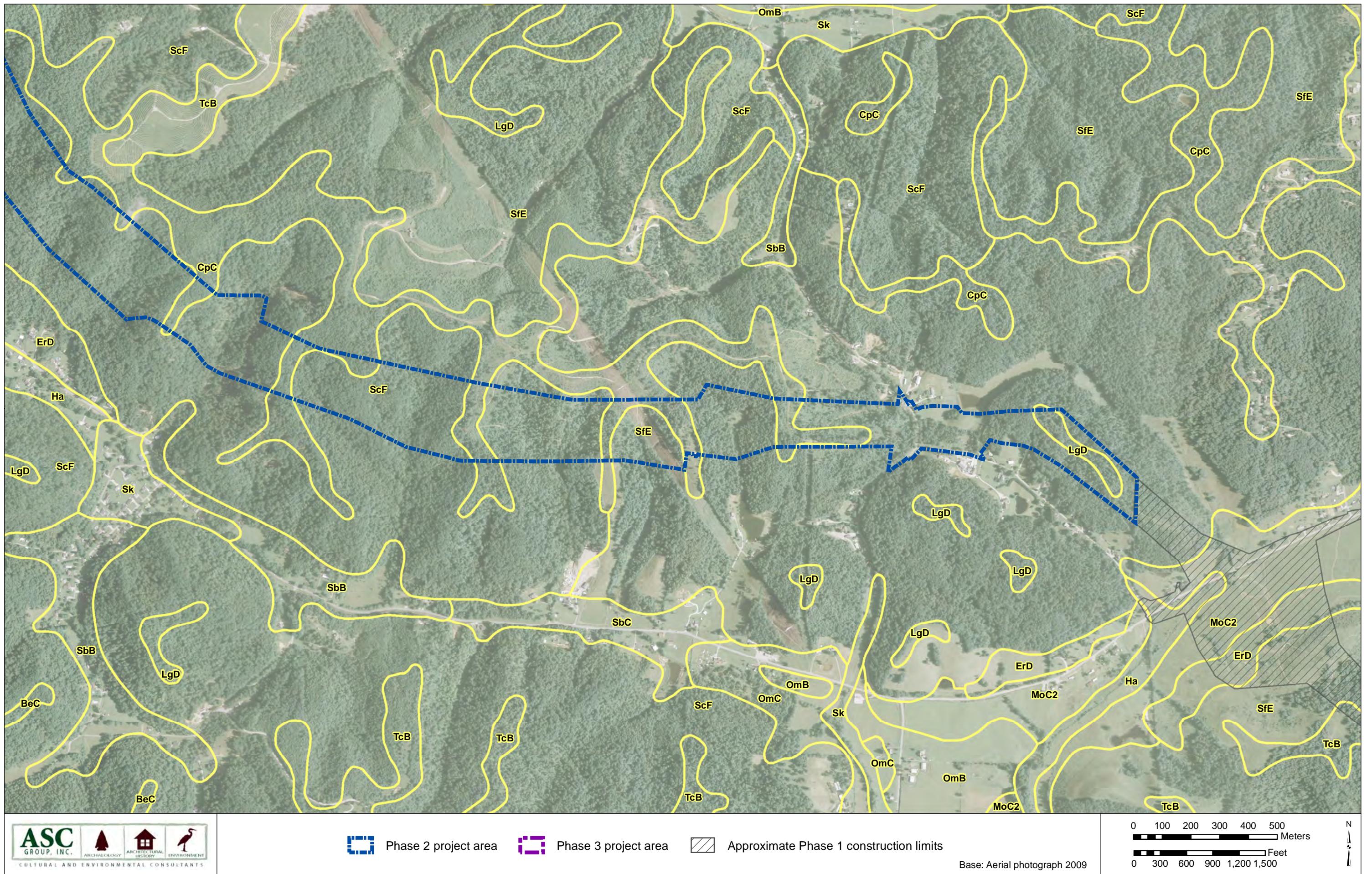
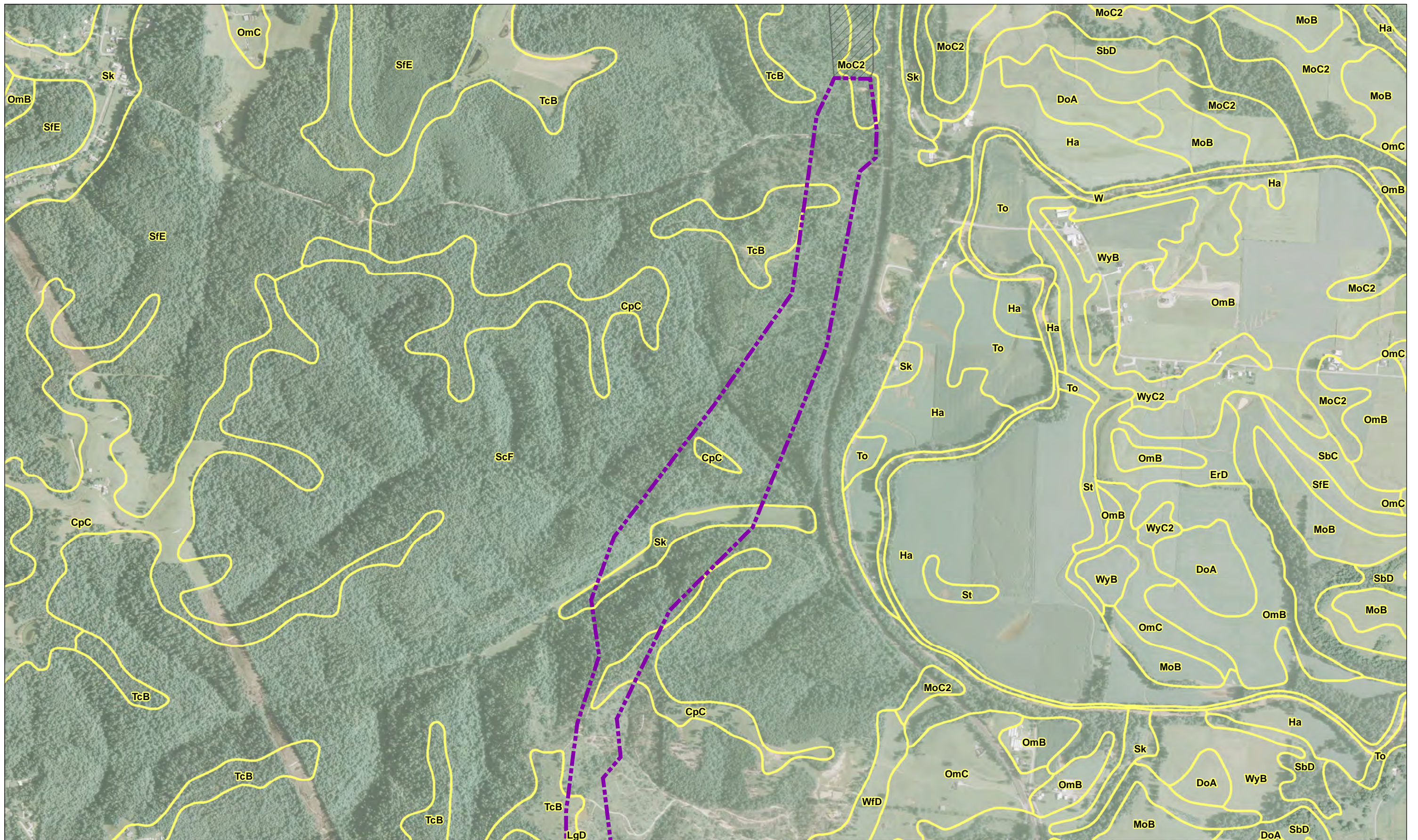


Figure 9. Soils





Phase 2 project area



Phase 3 project area



Approximate Phase 1 construction limits

Base: Aerial photograph 2009

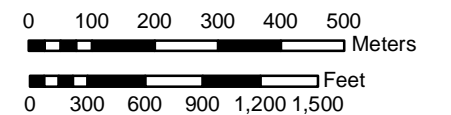
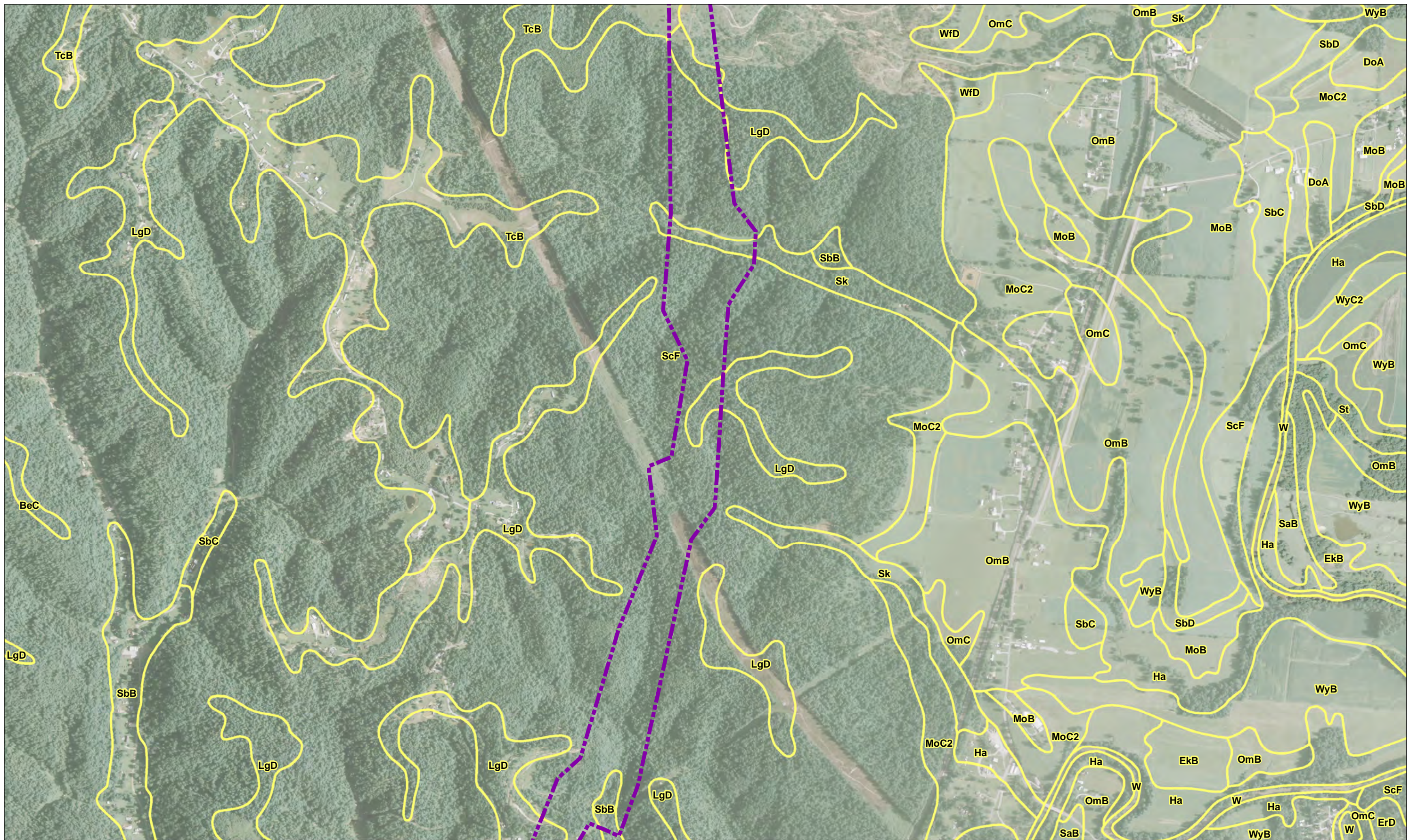


Figure 9. Soils



Phase 2 project area



Phase 3 project area



Approximate Phase 1 construction limits

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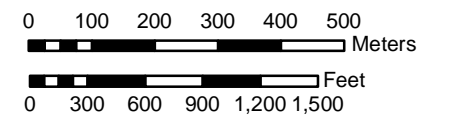
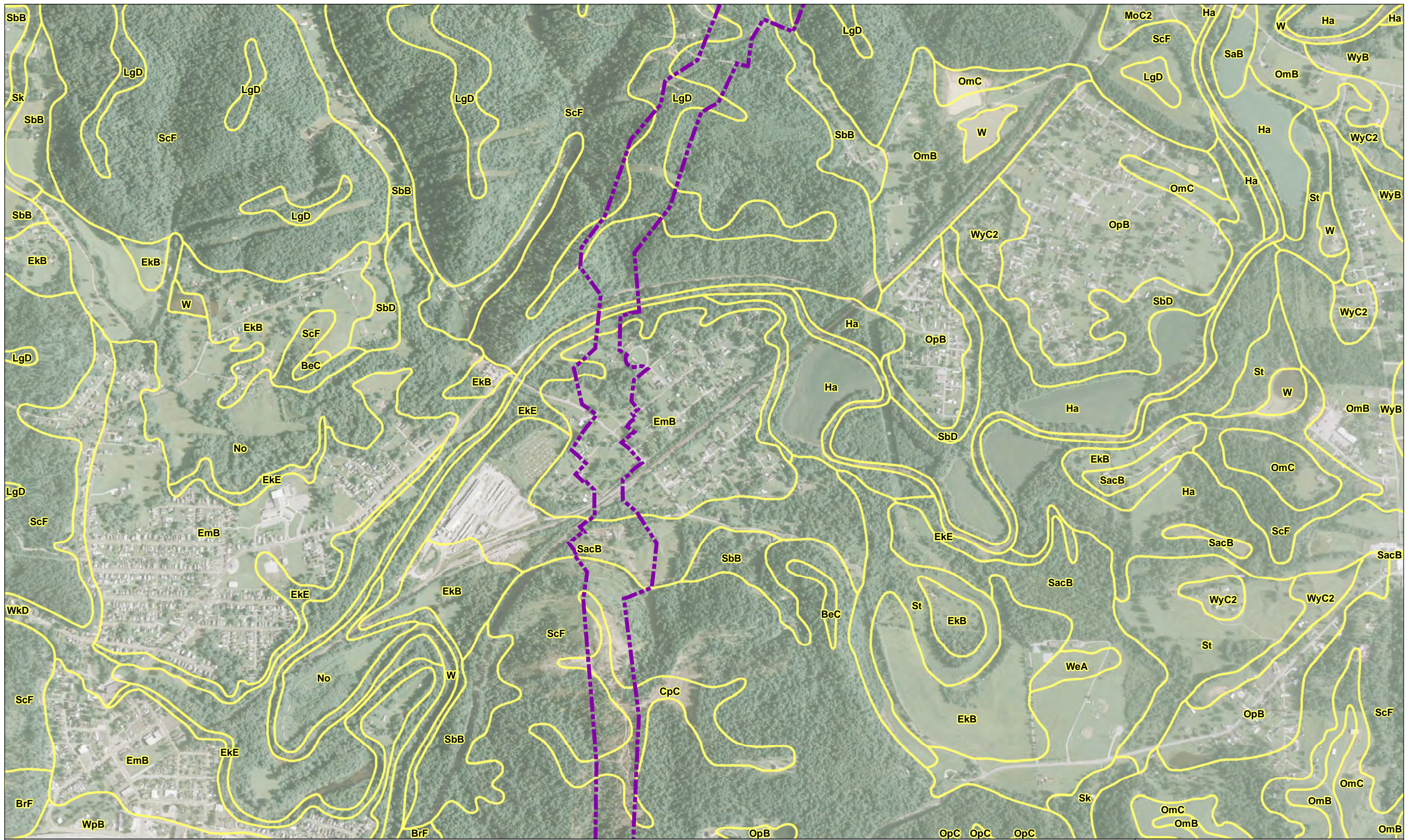


Figure 9. Soils



Phase 2 project area



Phase 3 project area



Approximate Phase 1 construction limits

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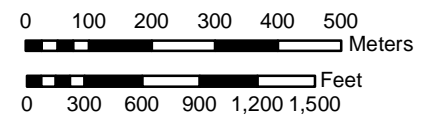


Figure 9. Soils



Phase 2 project area



Phase 3 project area



Approximate Phase 1 construction limits

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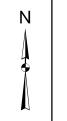
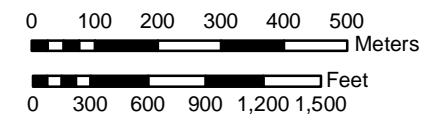


Figure 9. Soils

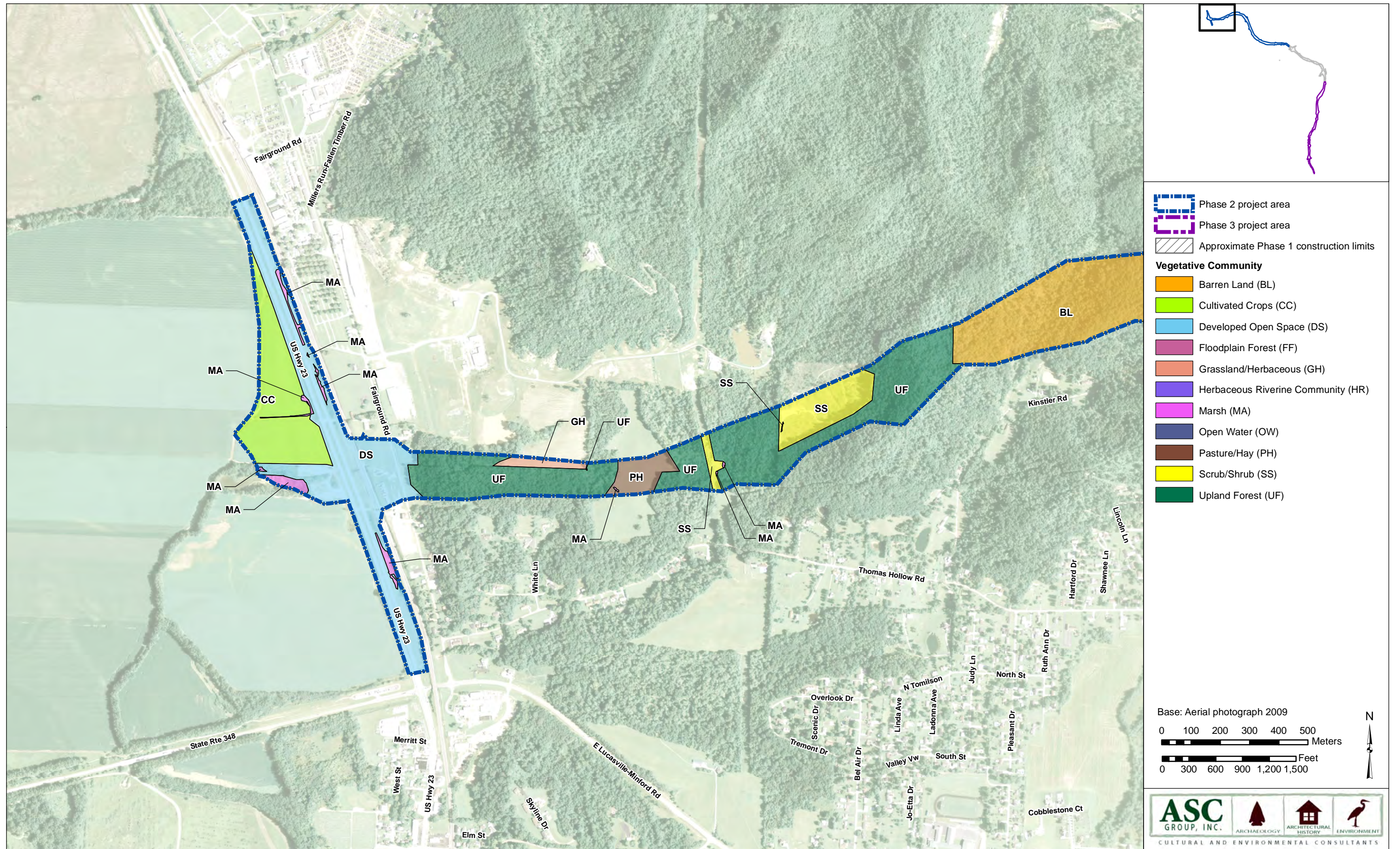


Figure 10. Vegetative communities.



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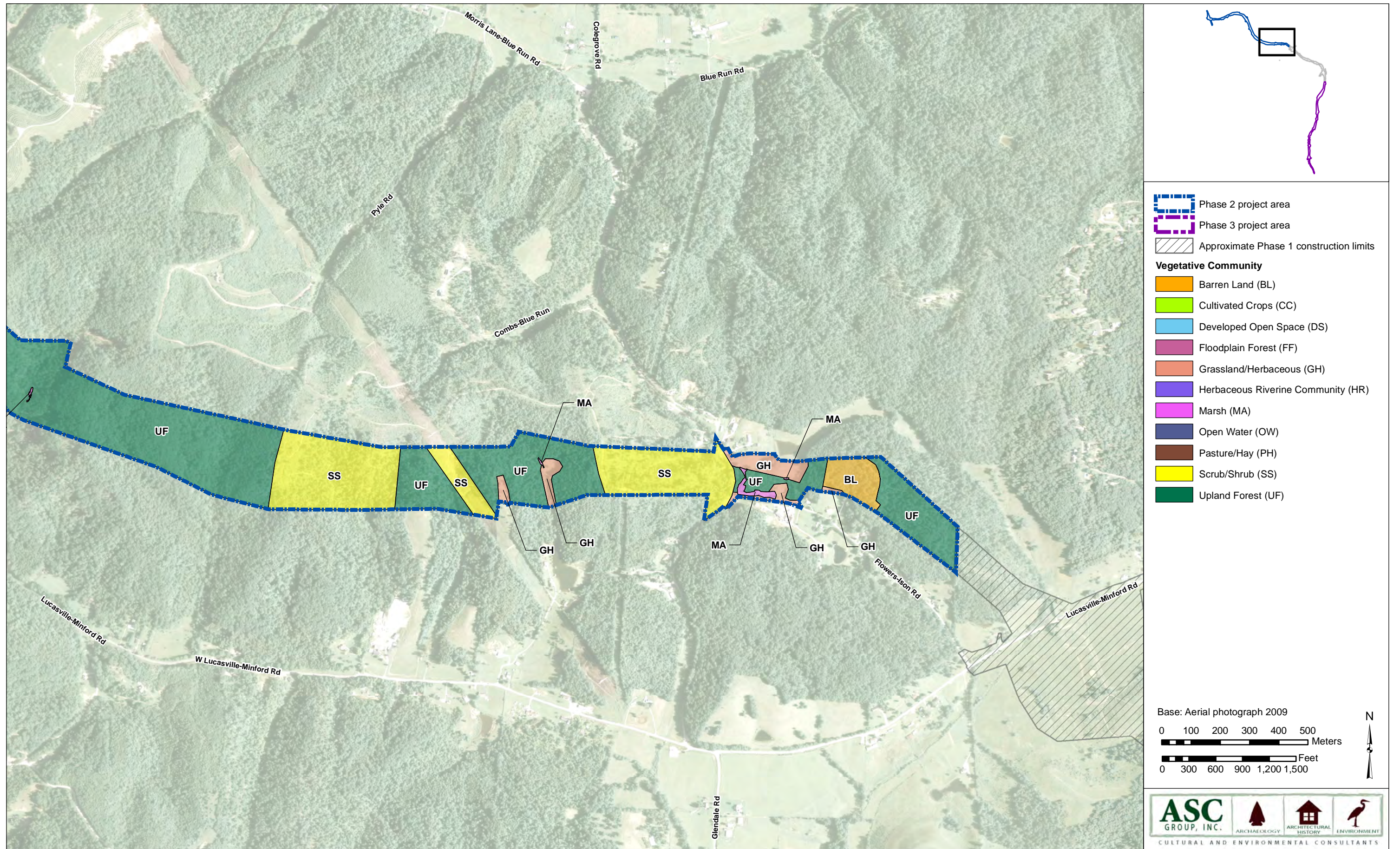


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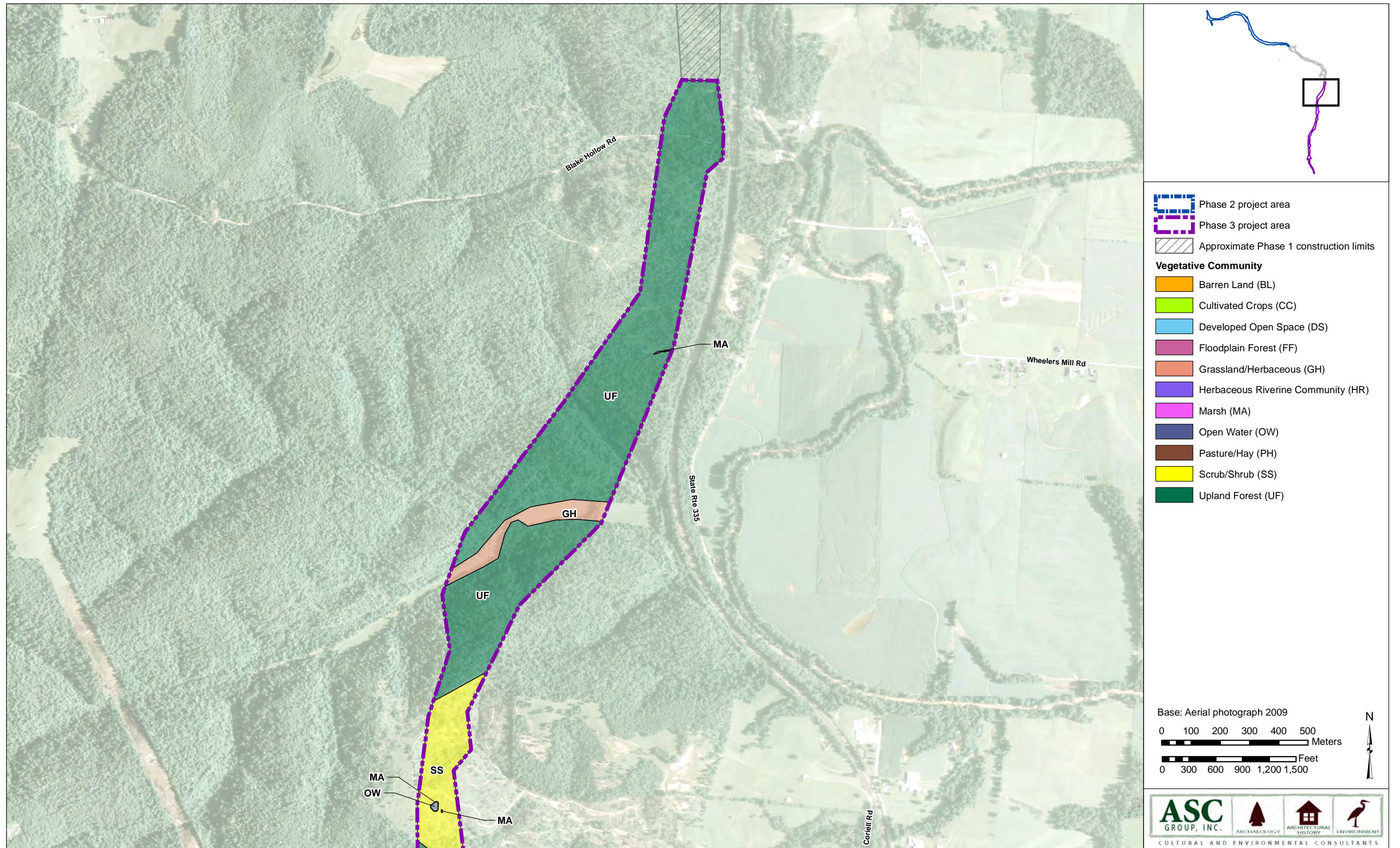


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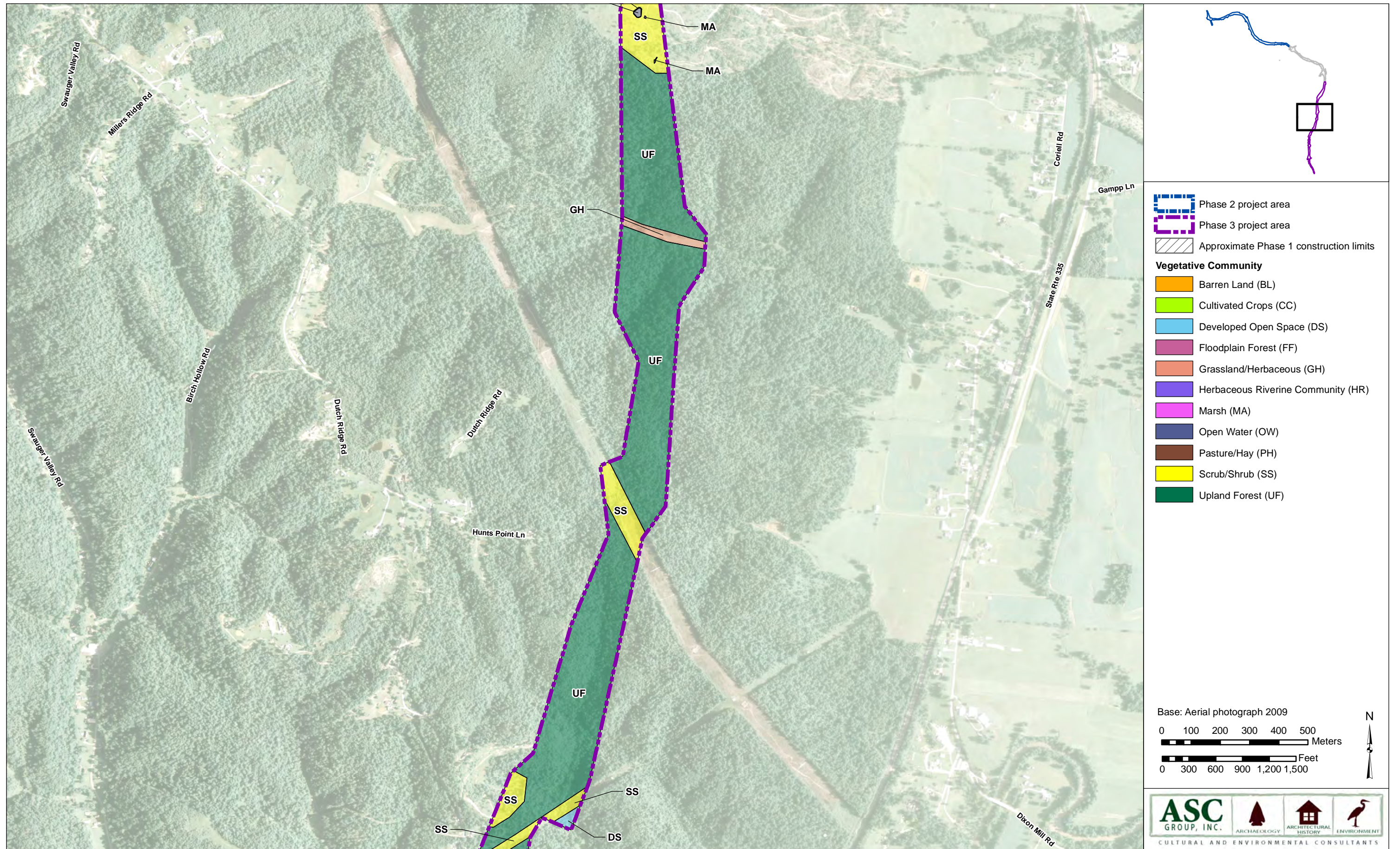


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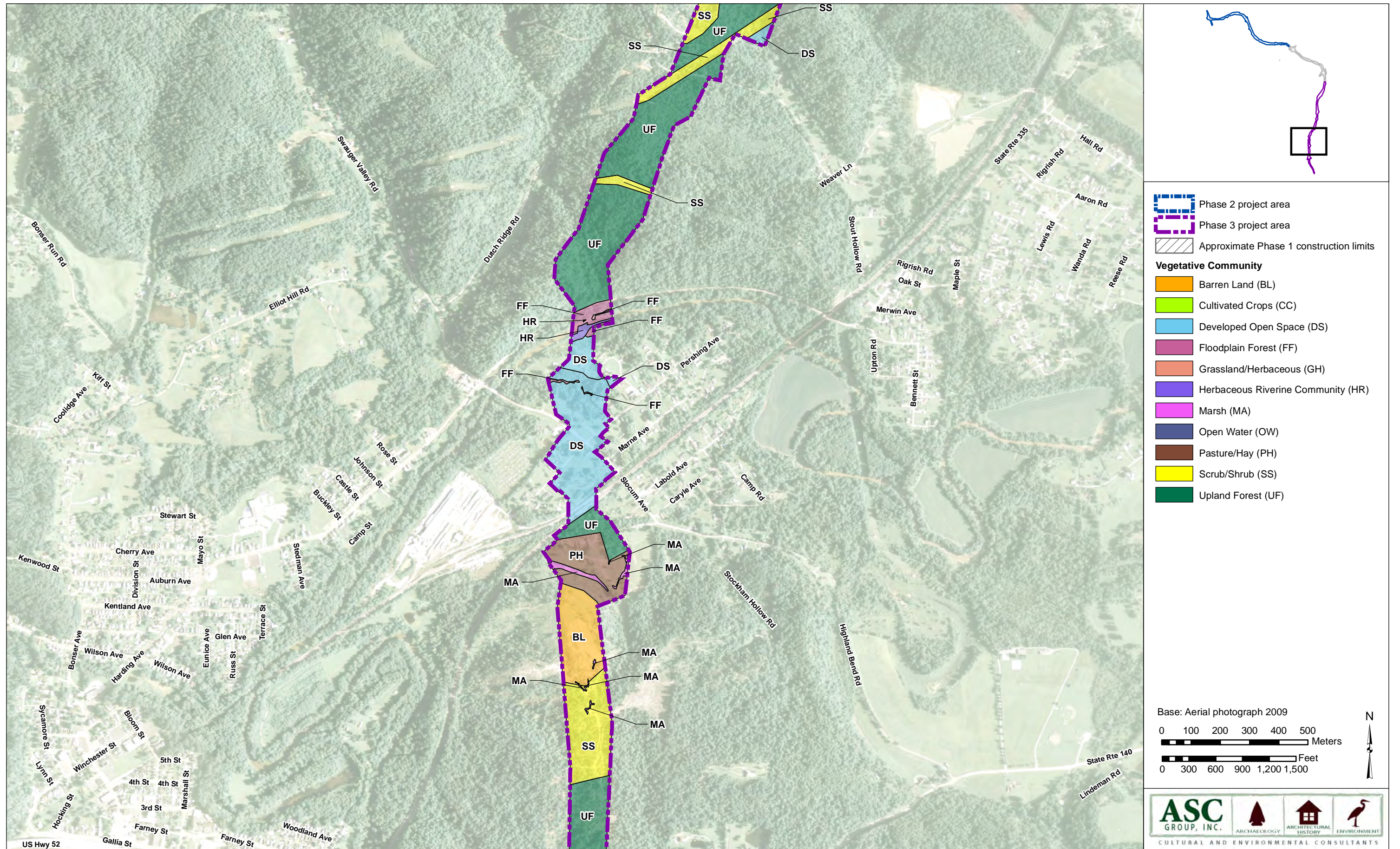


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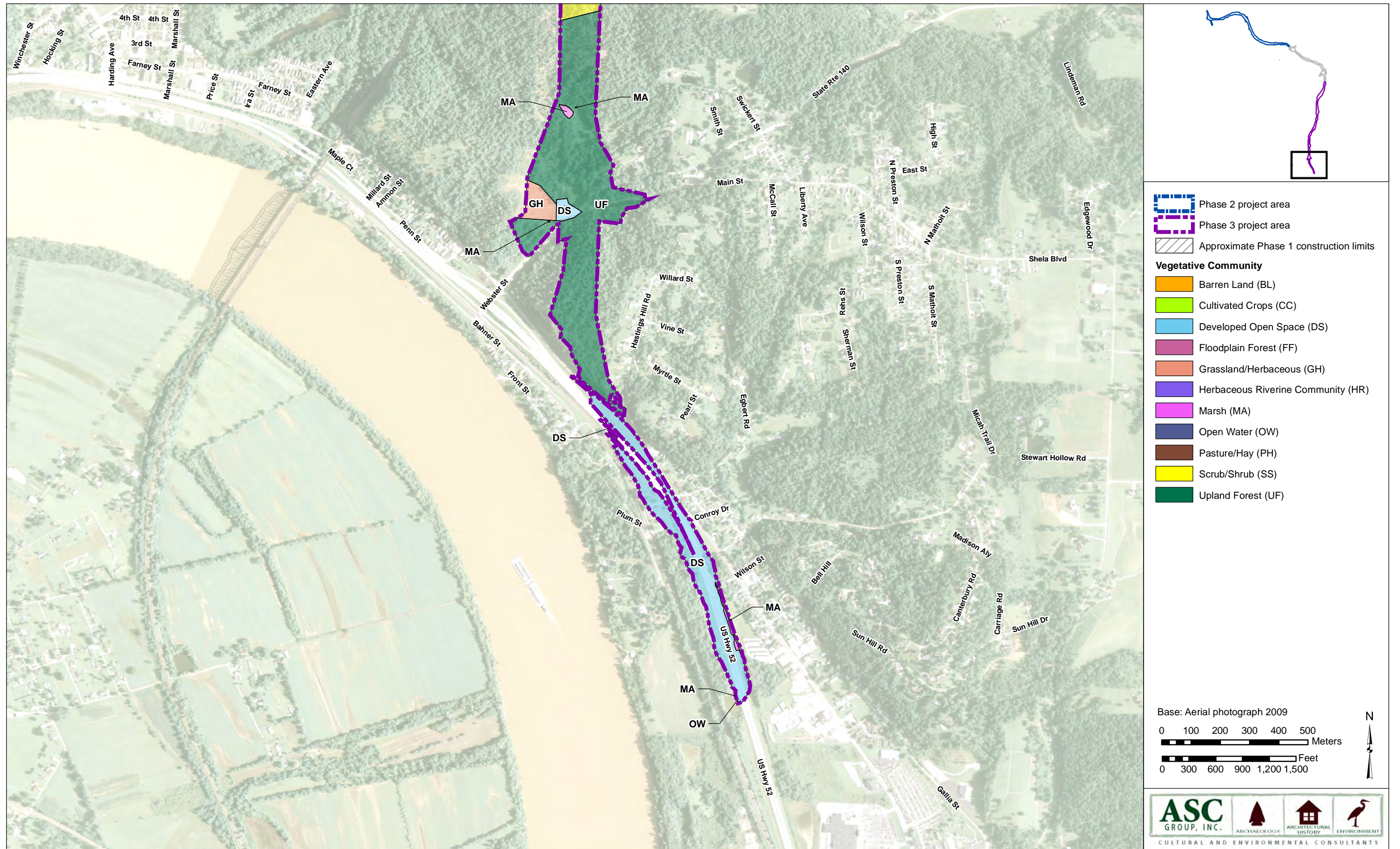


Figure 10. Vegetative communities.

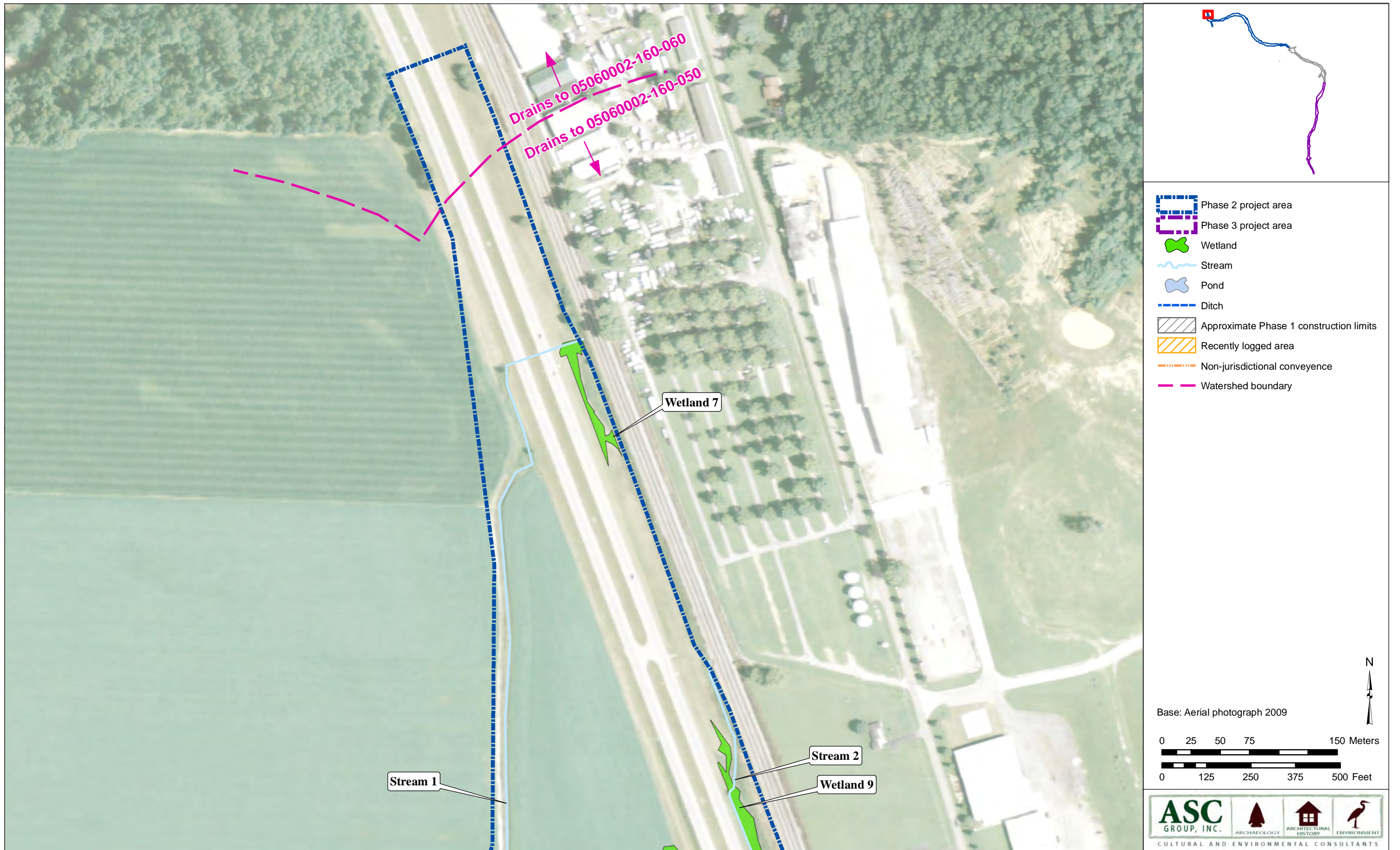


Figure 11. Survey Results. (30 sheets)



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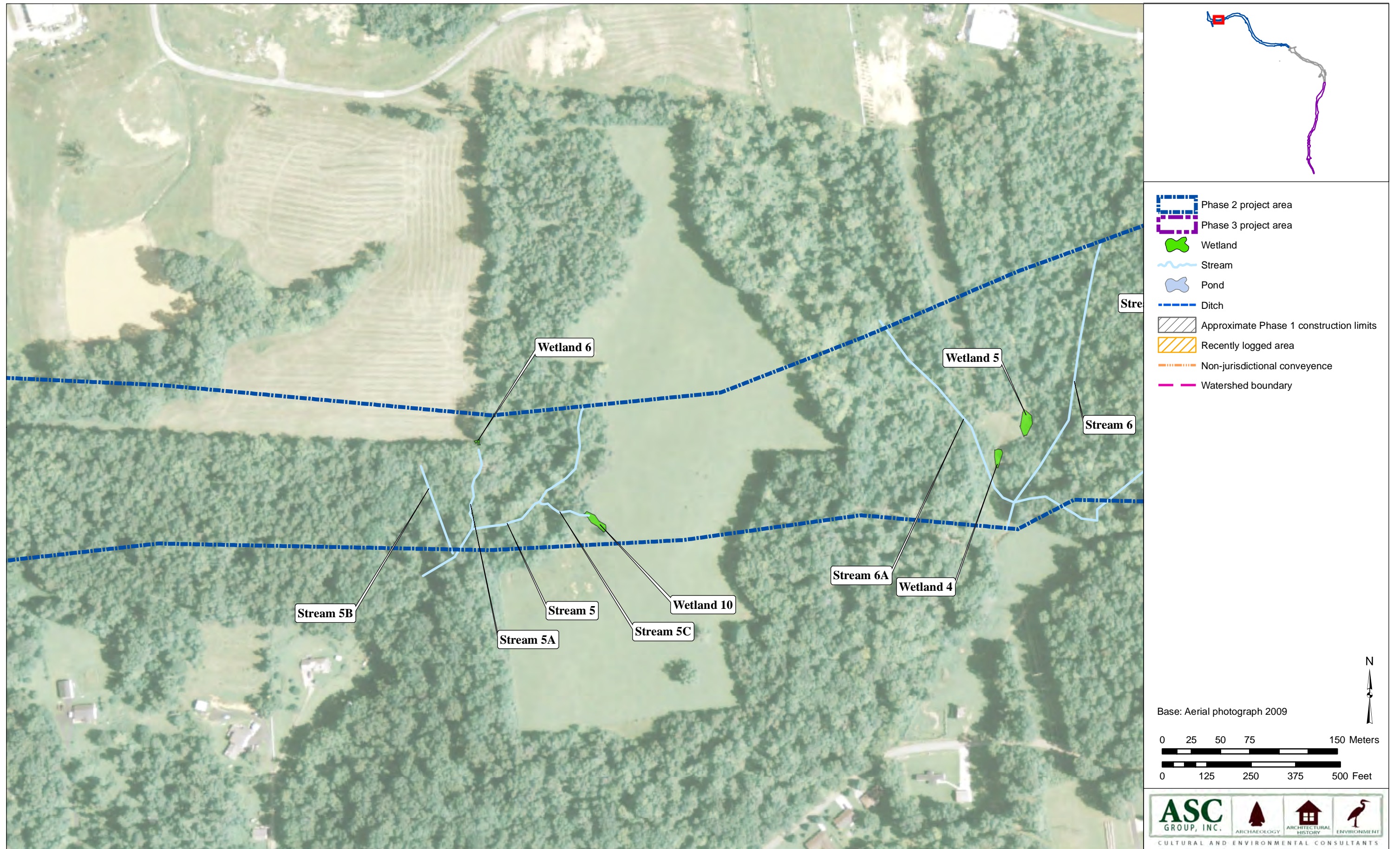


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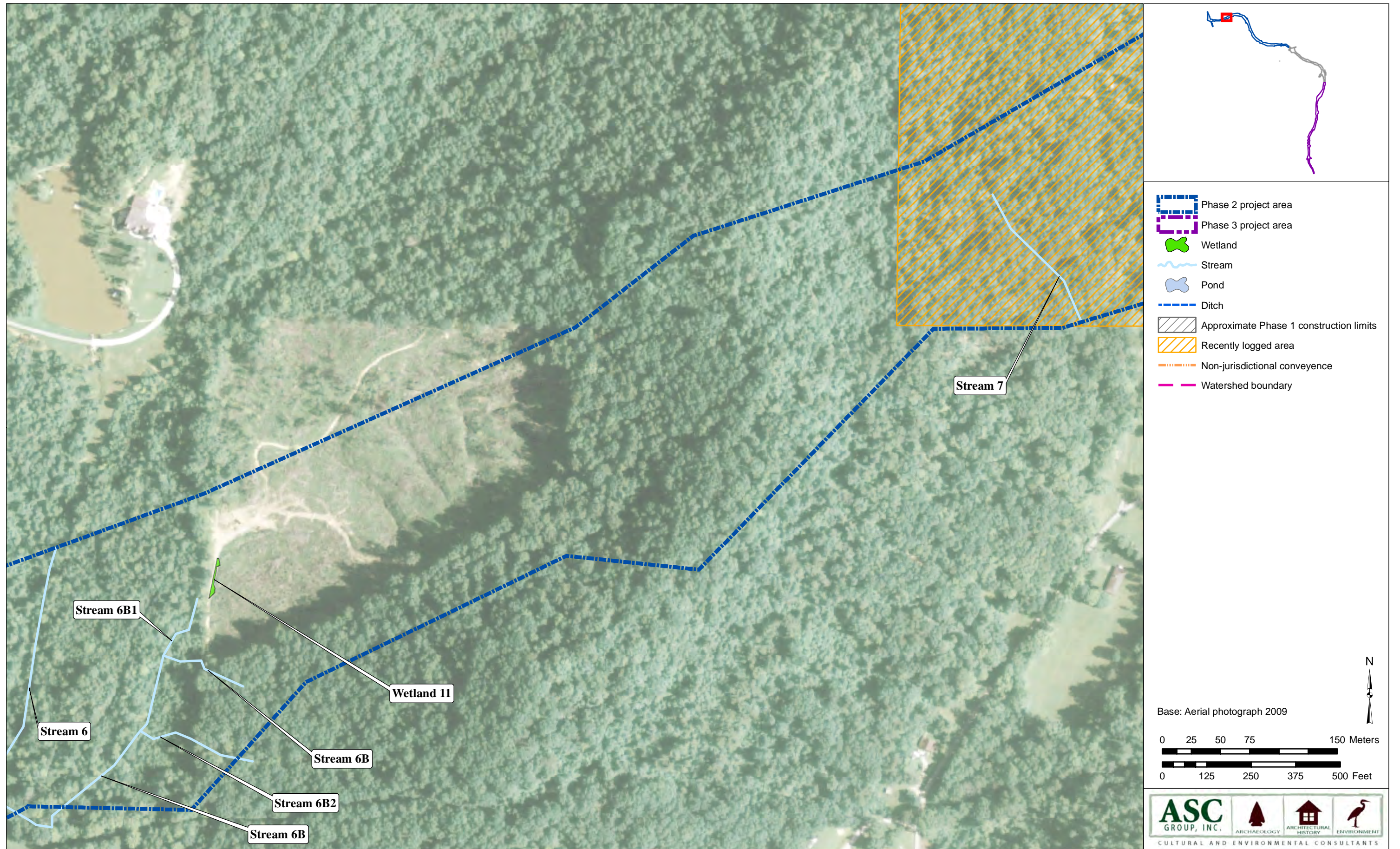


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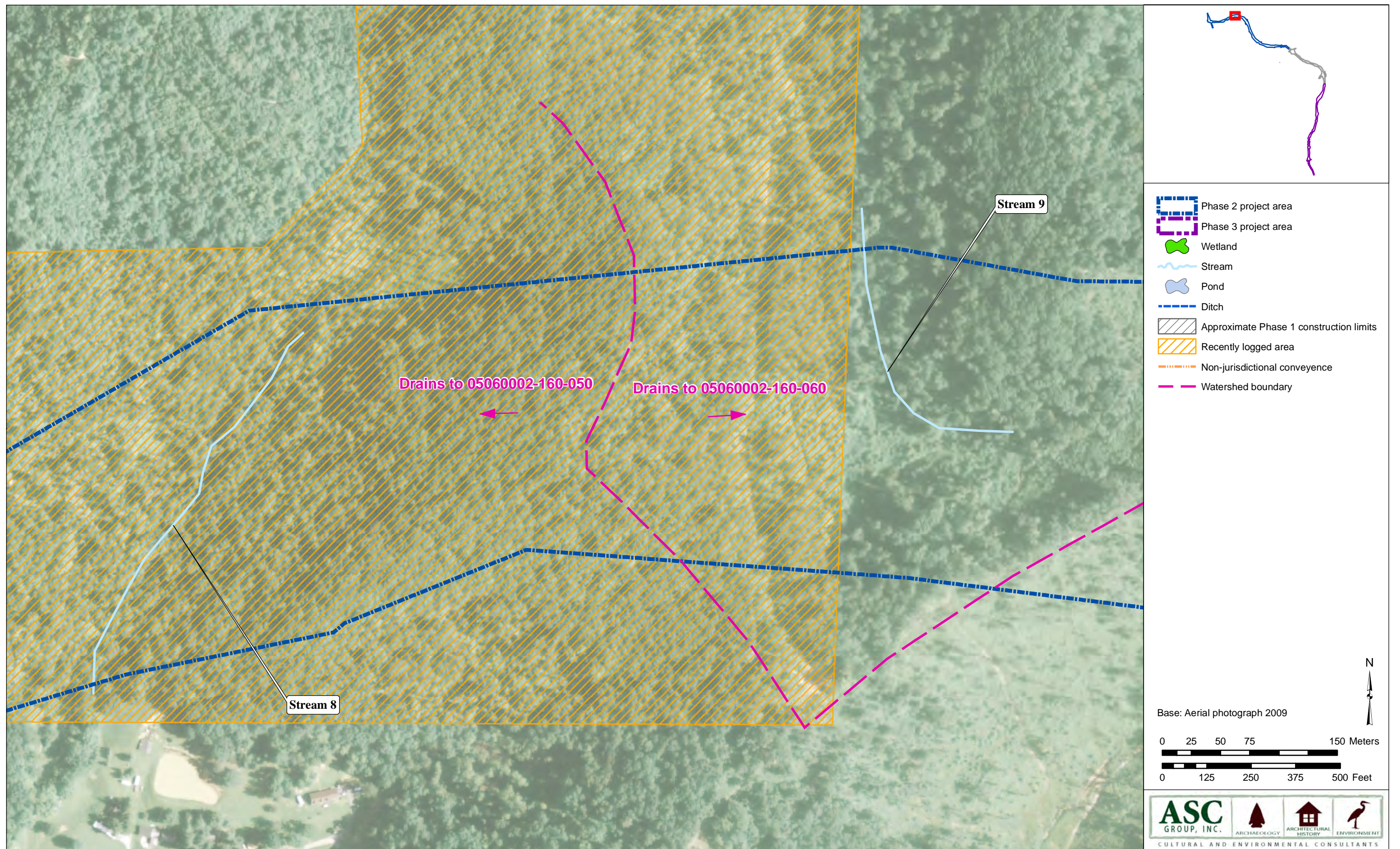


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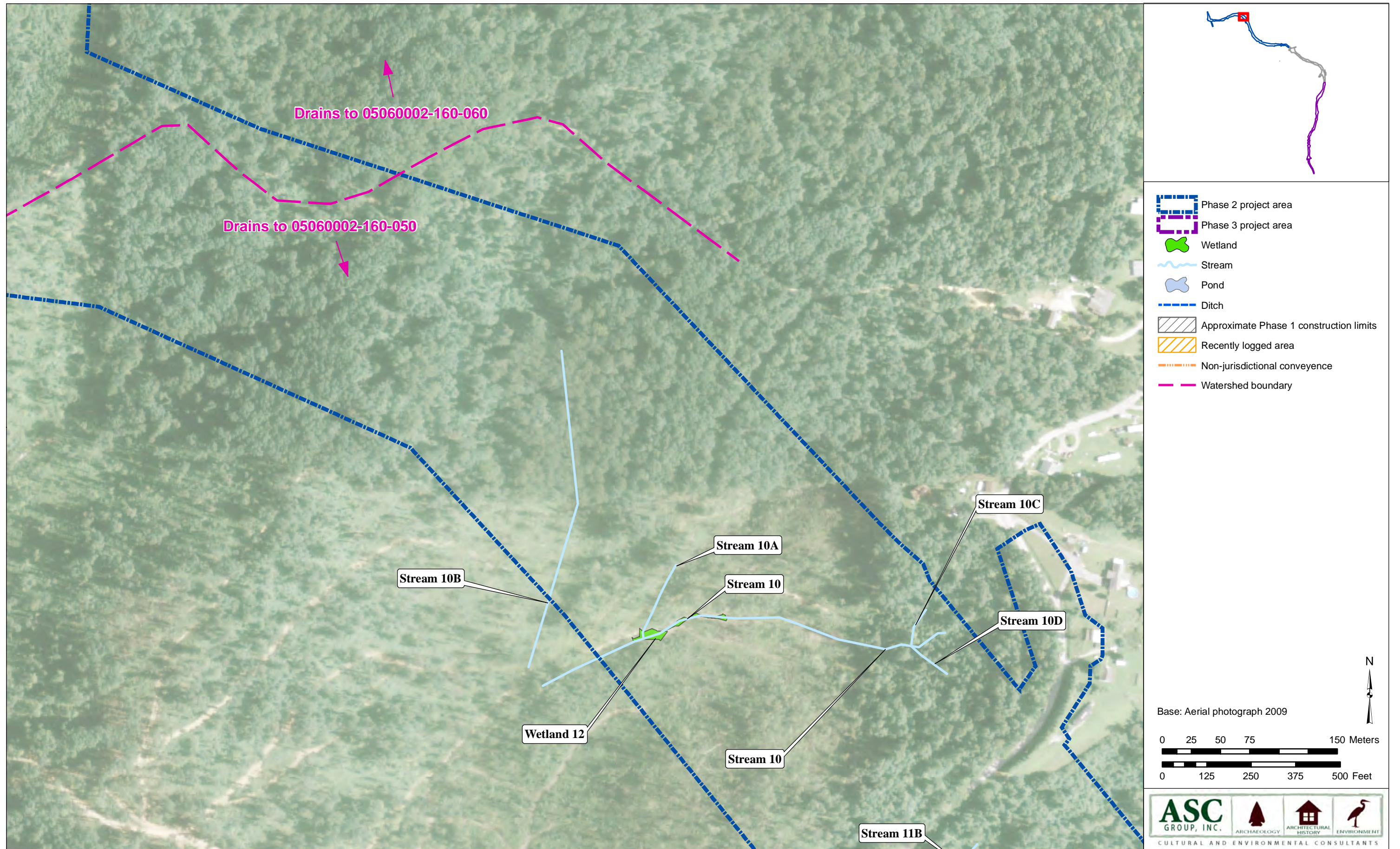


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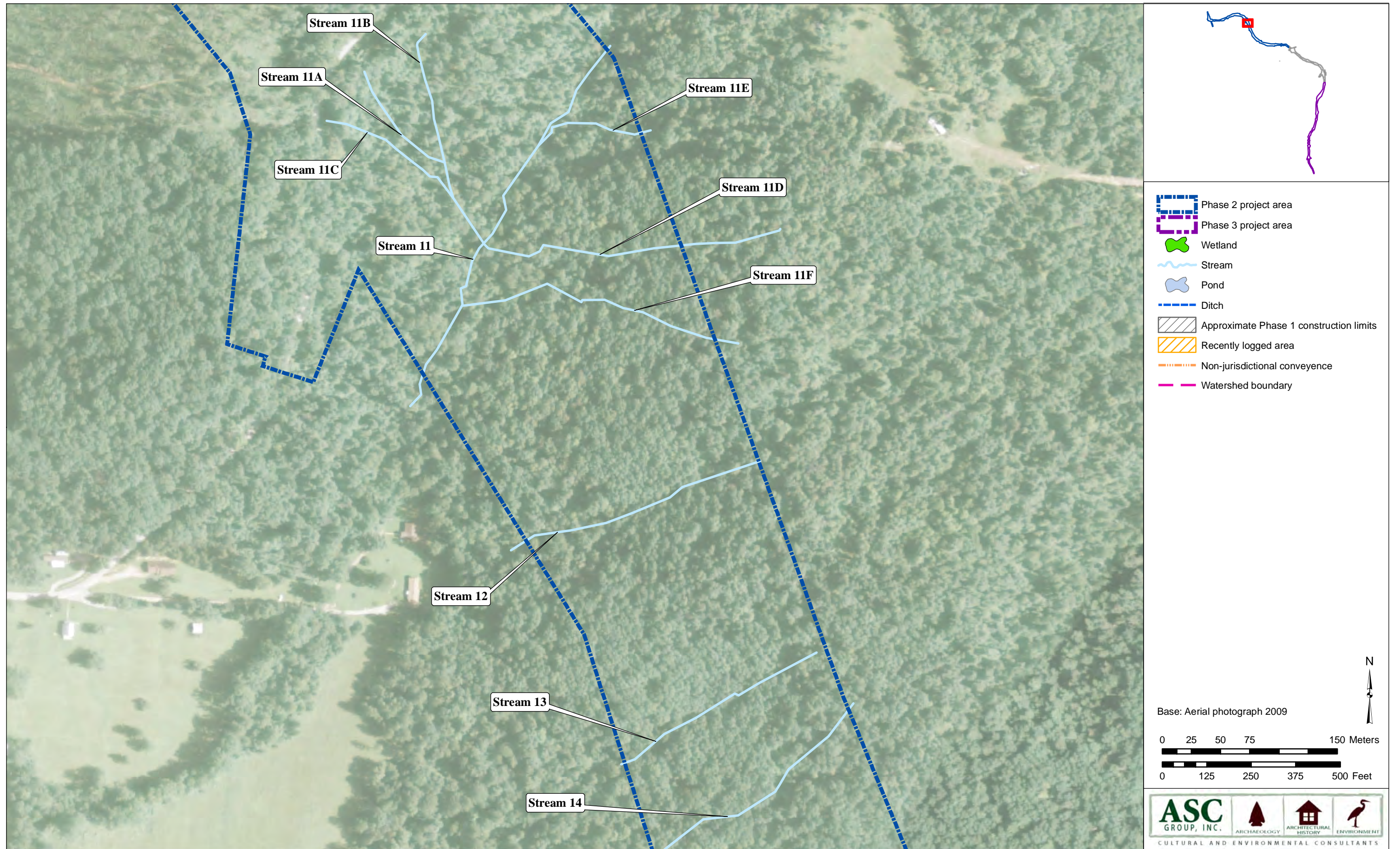


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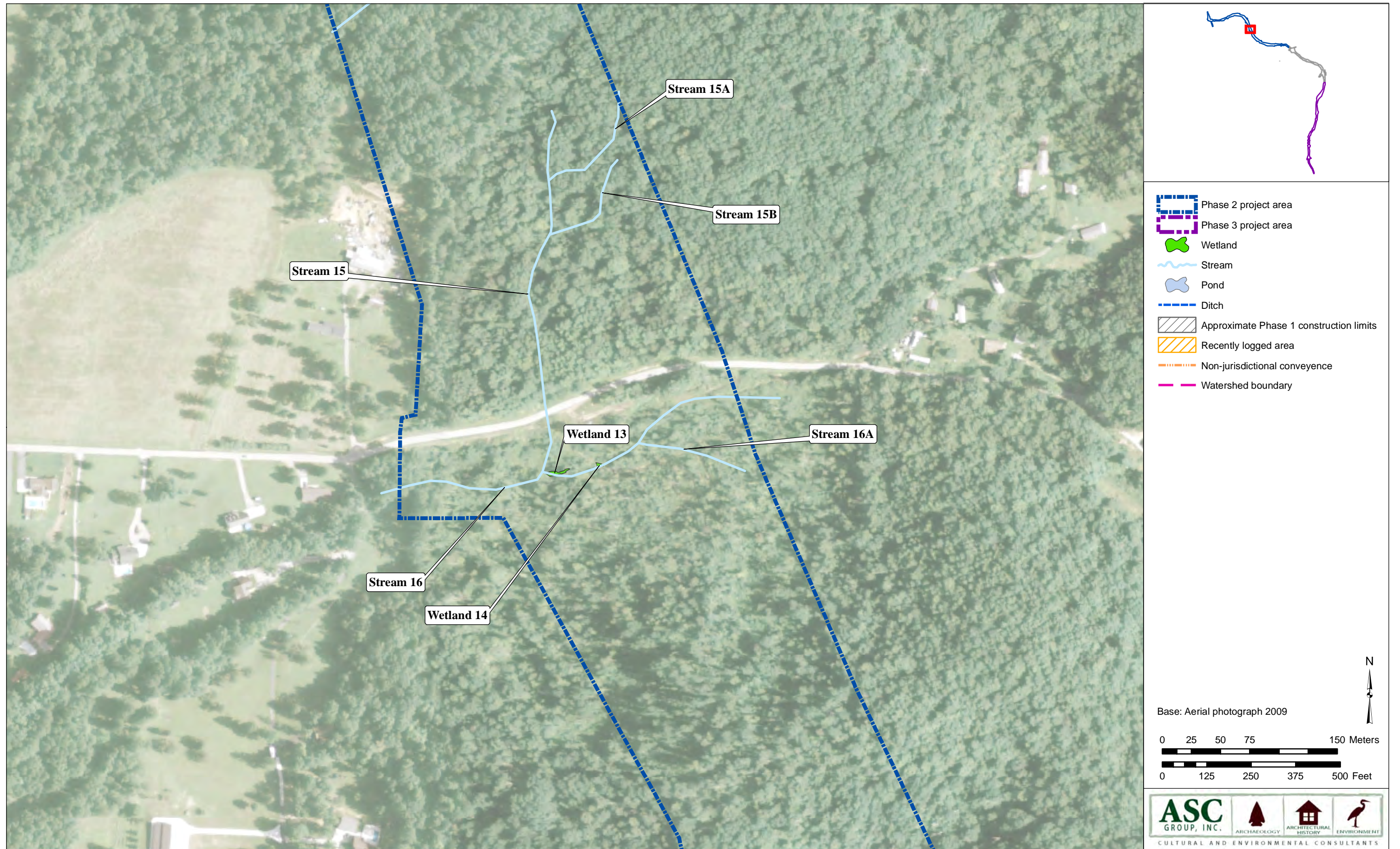


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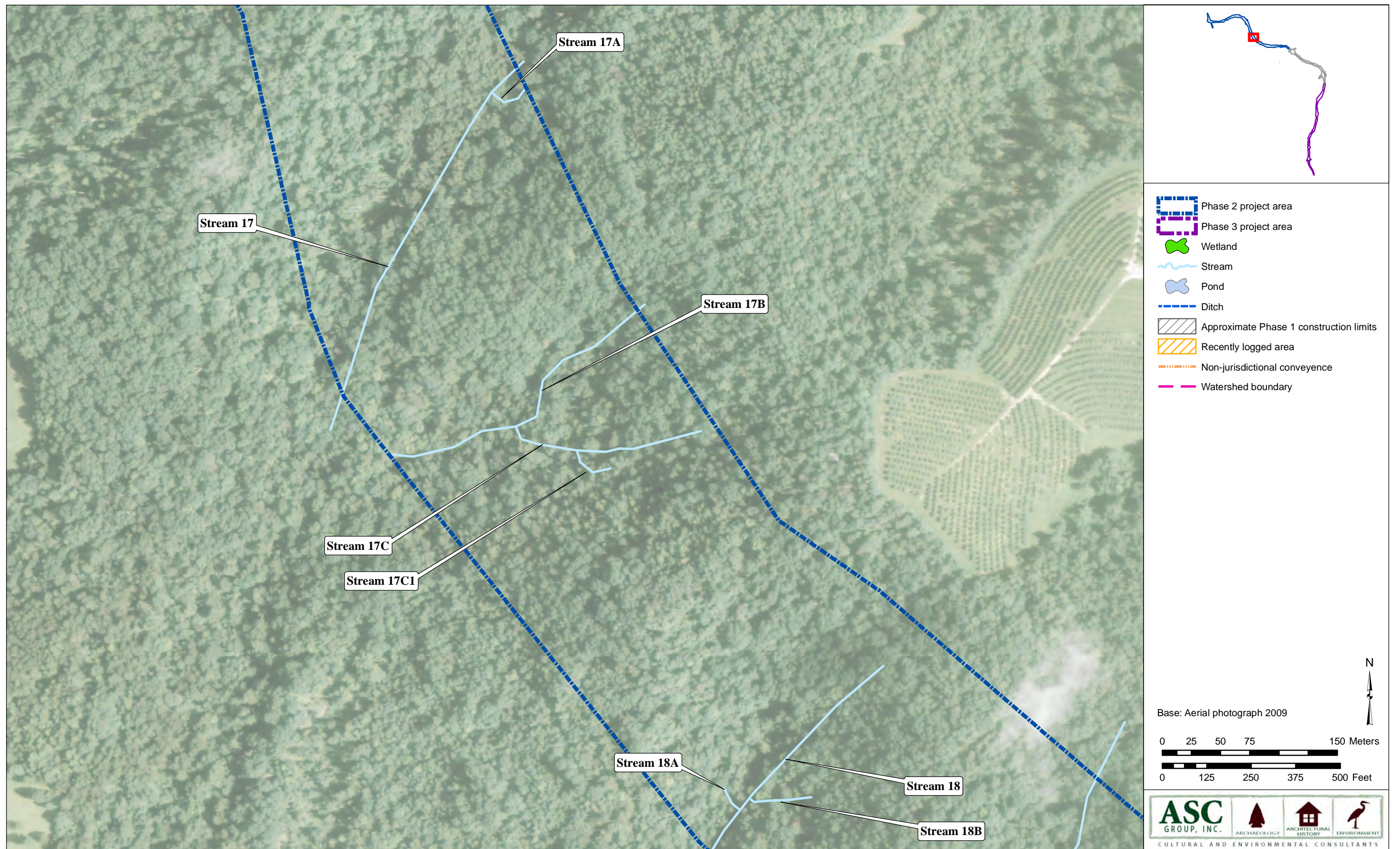


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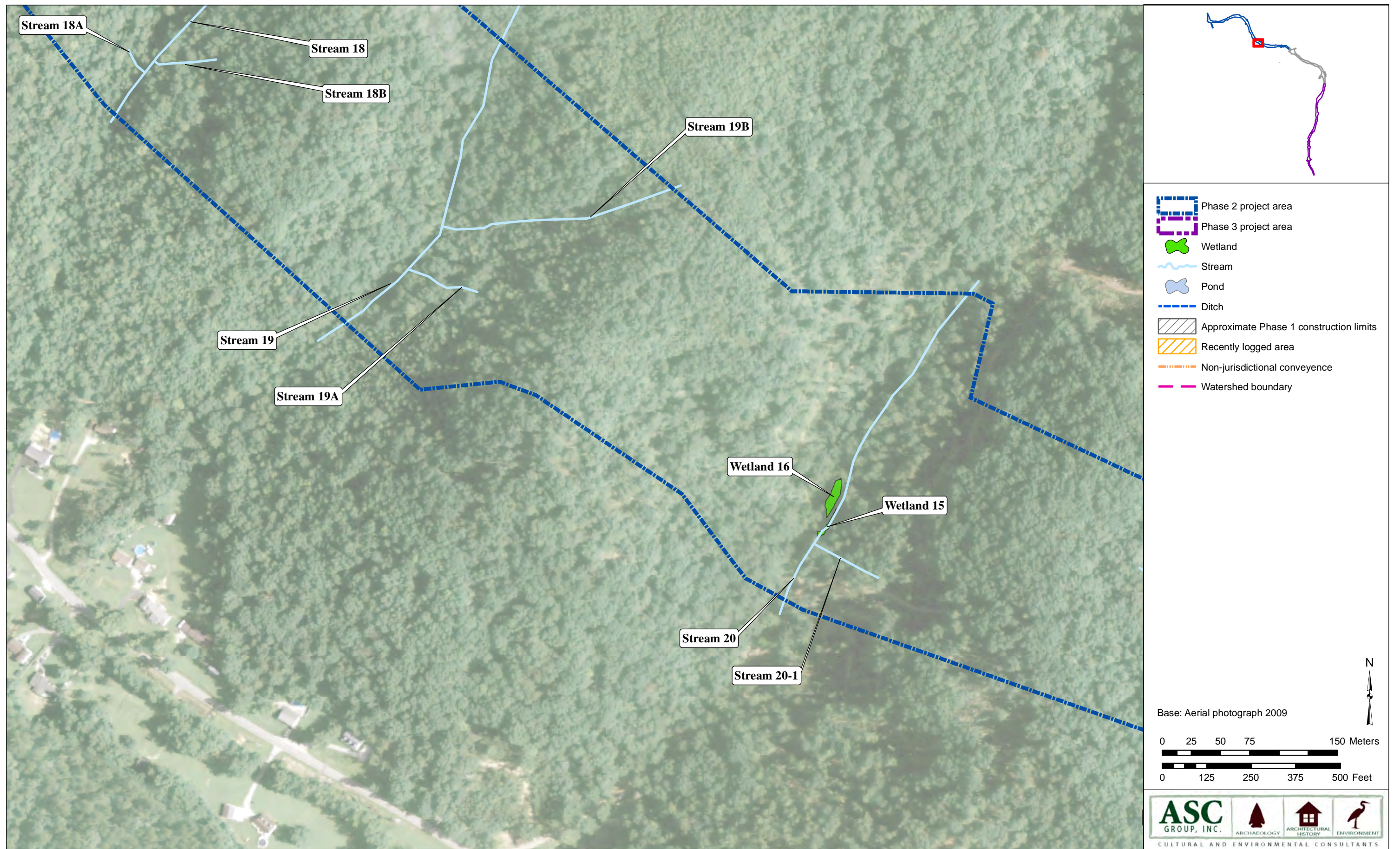


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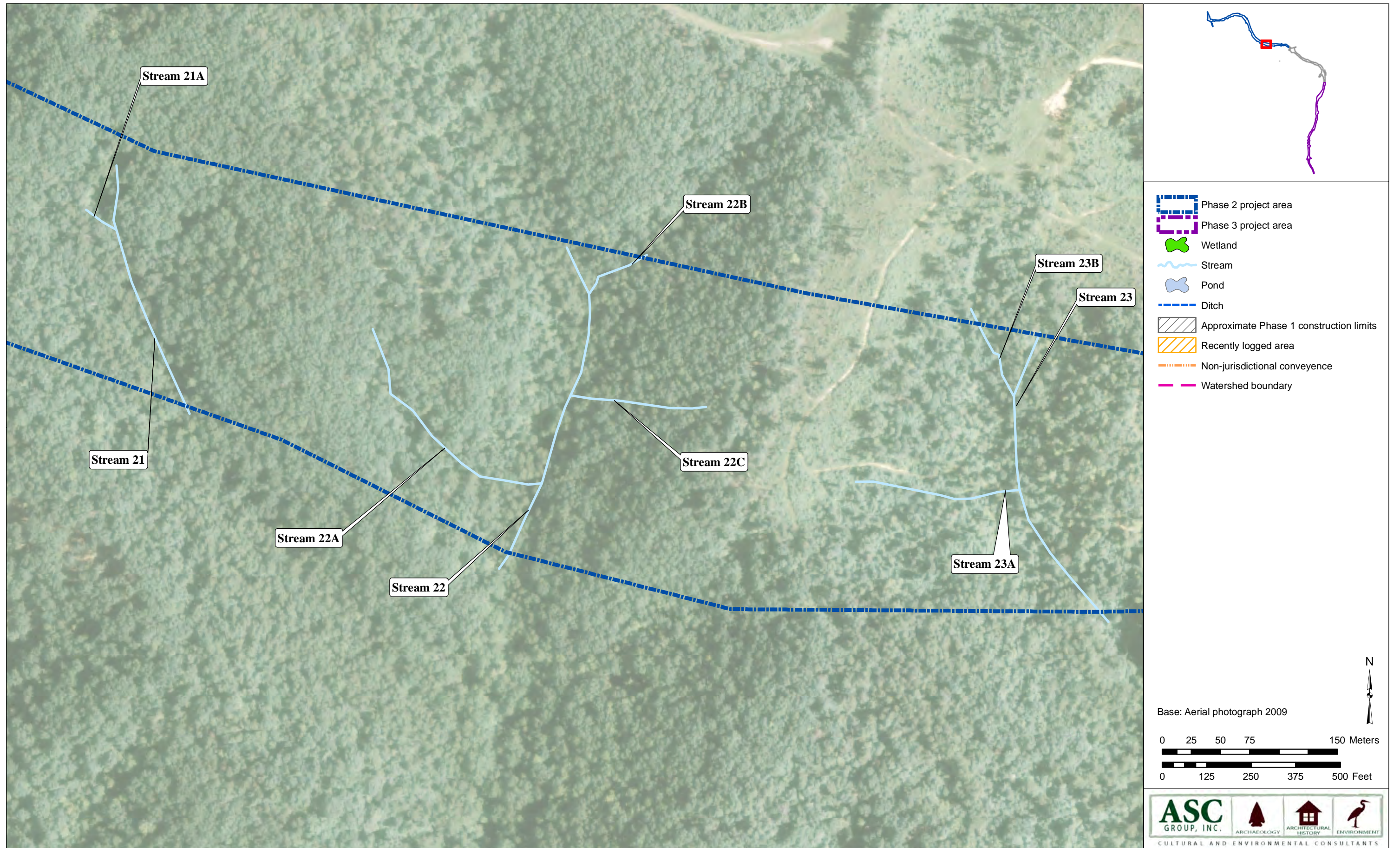


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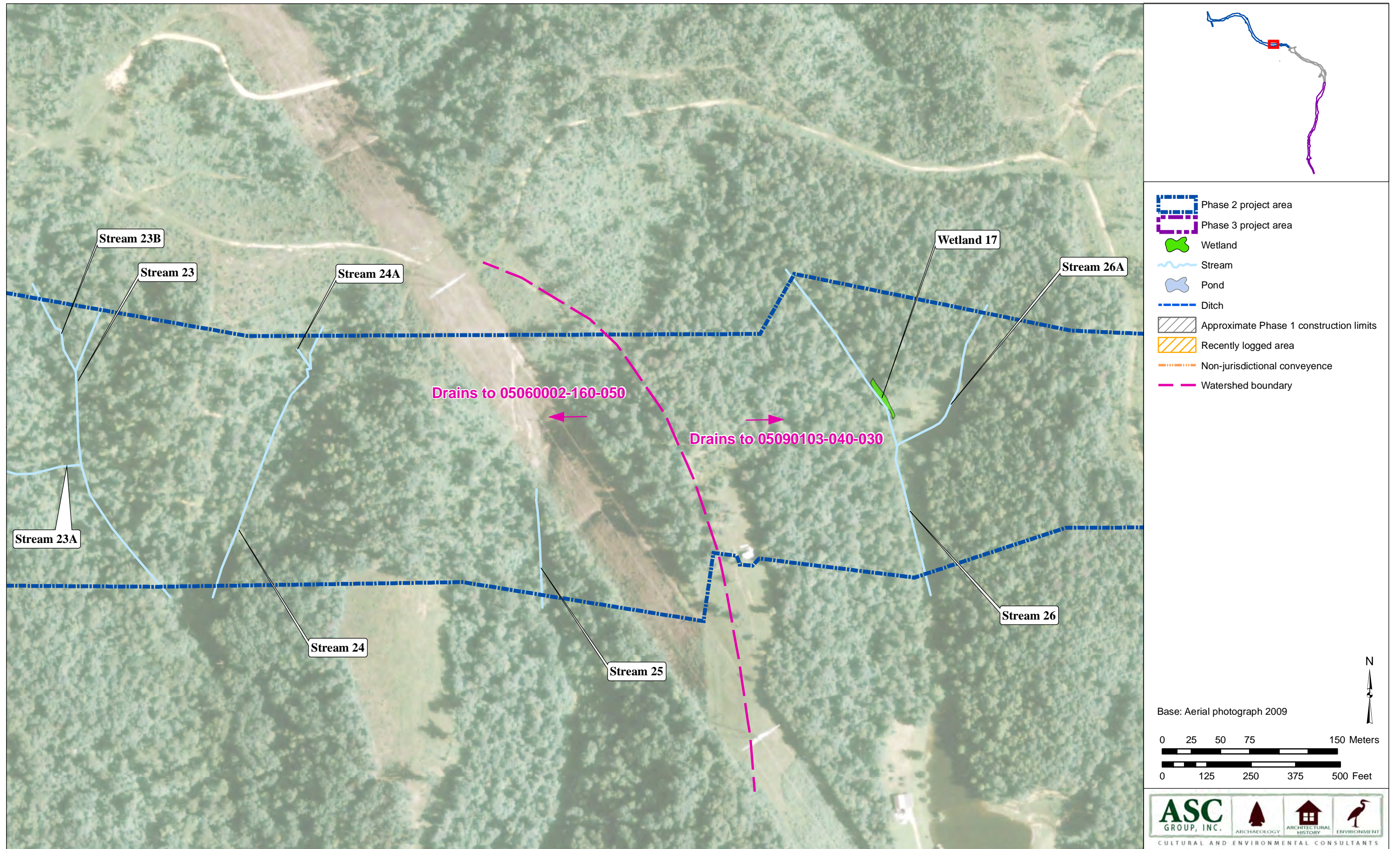


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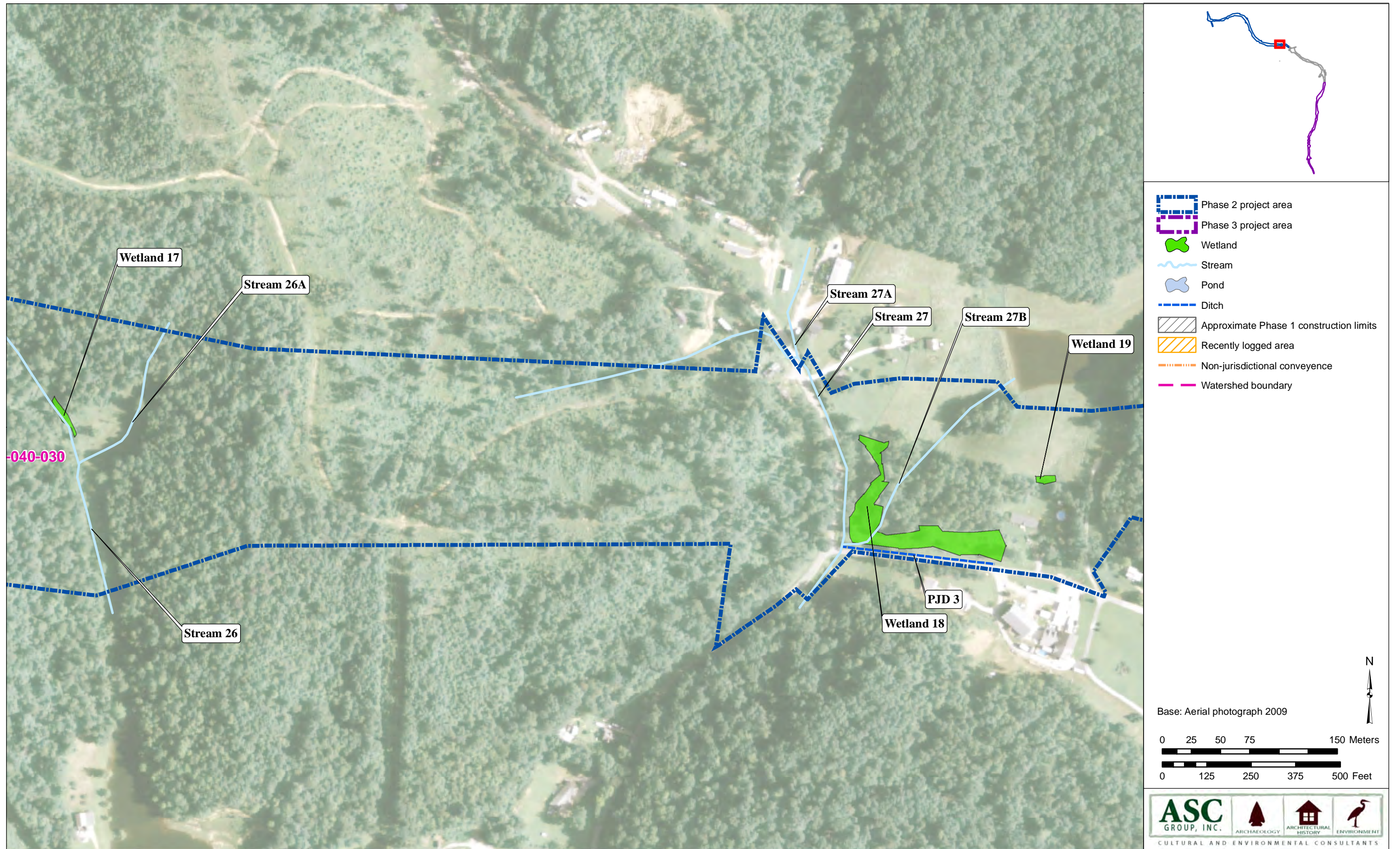


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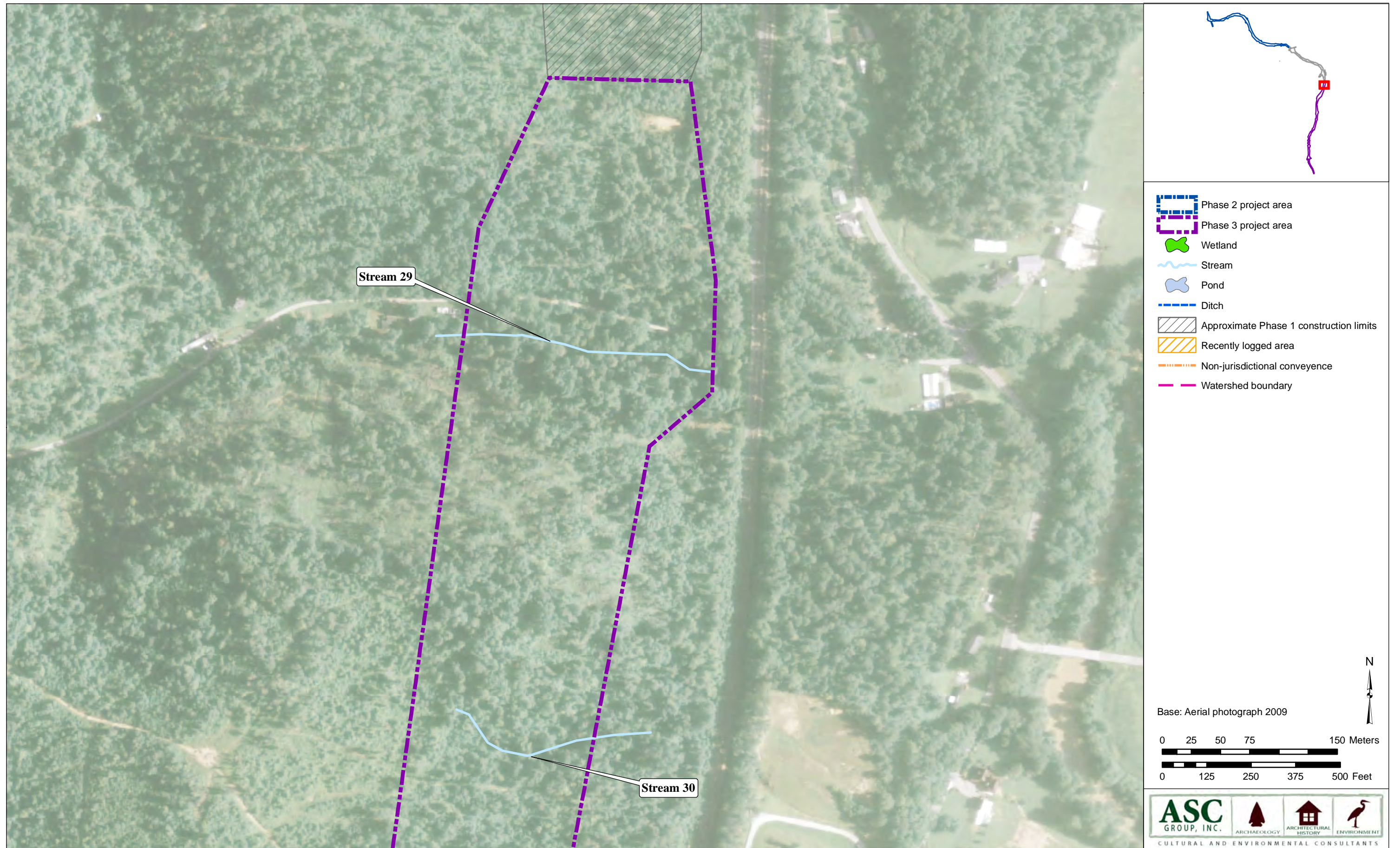


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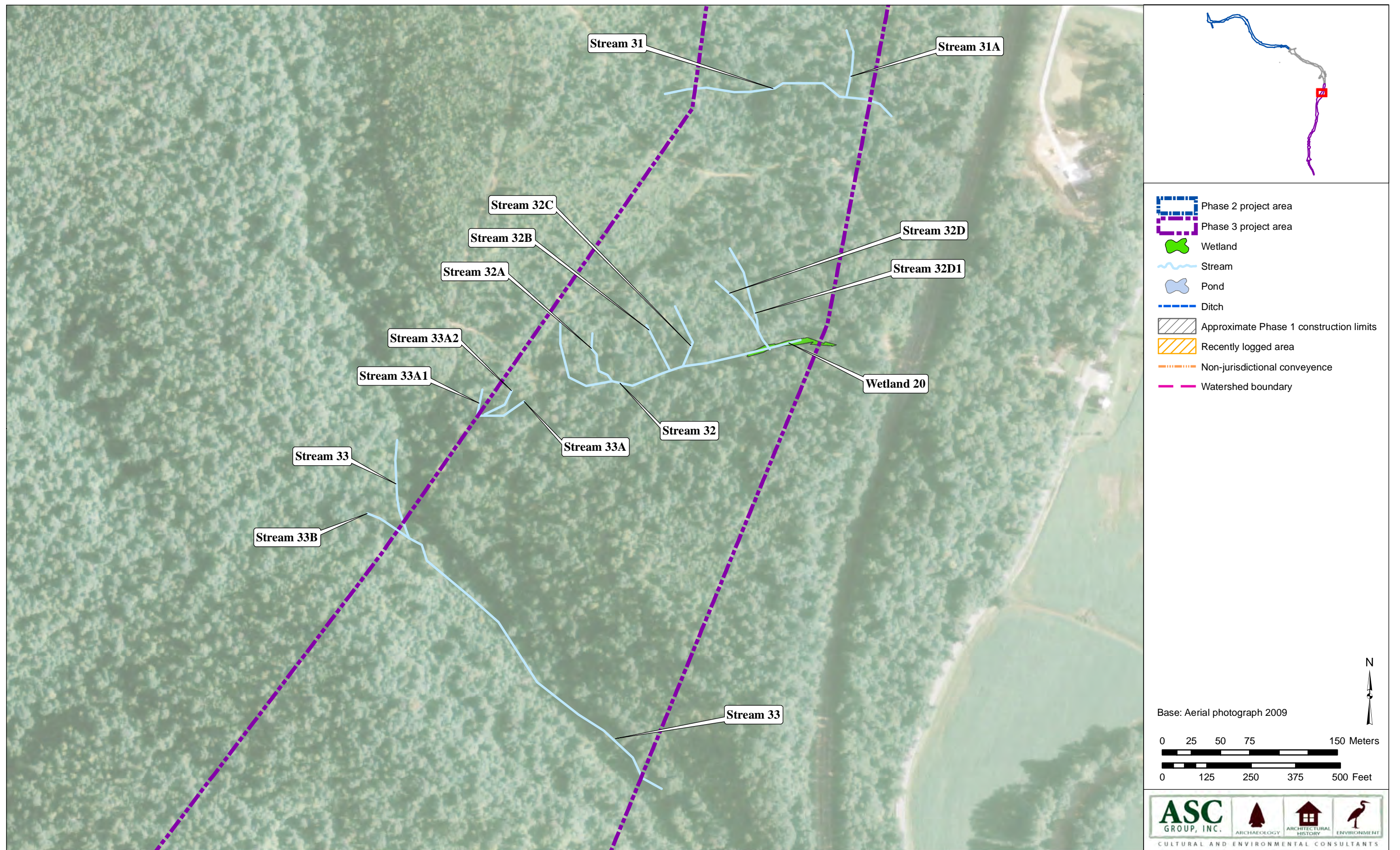


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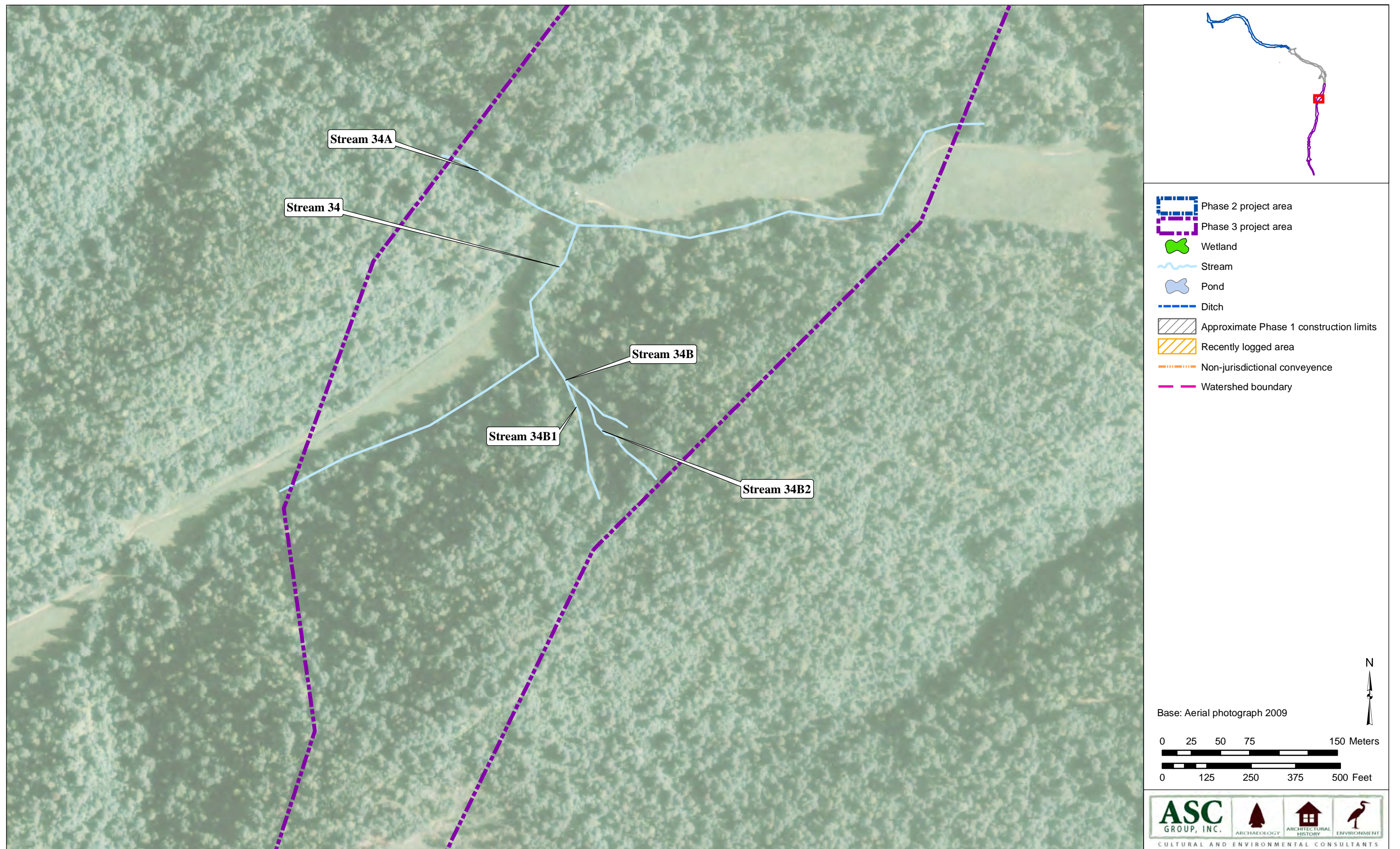


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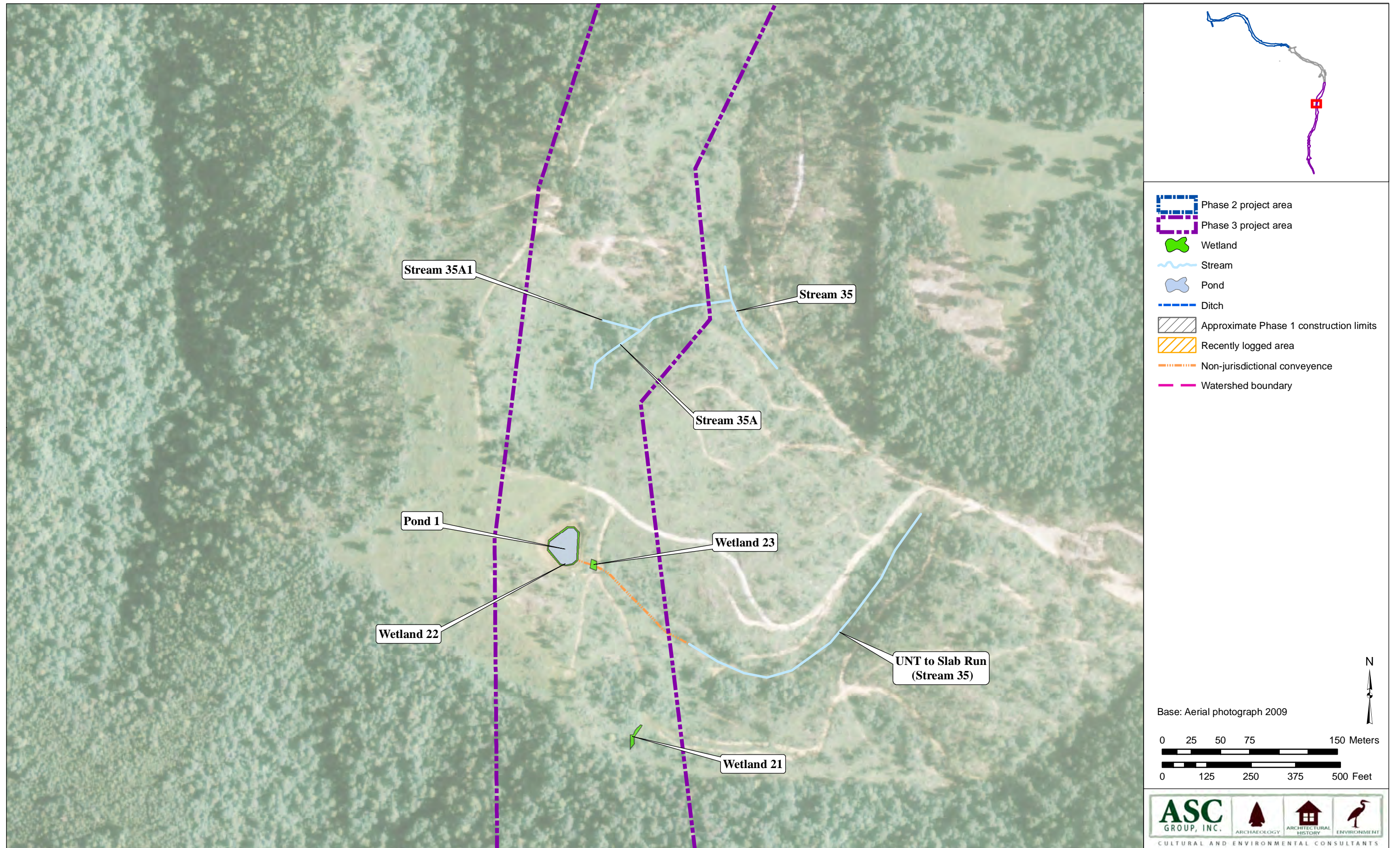


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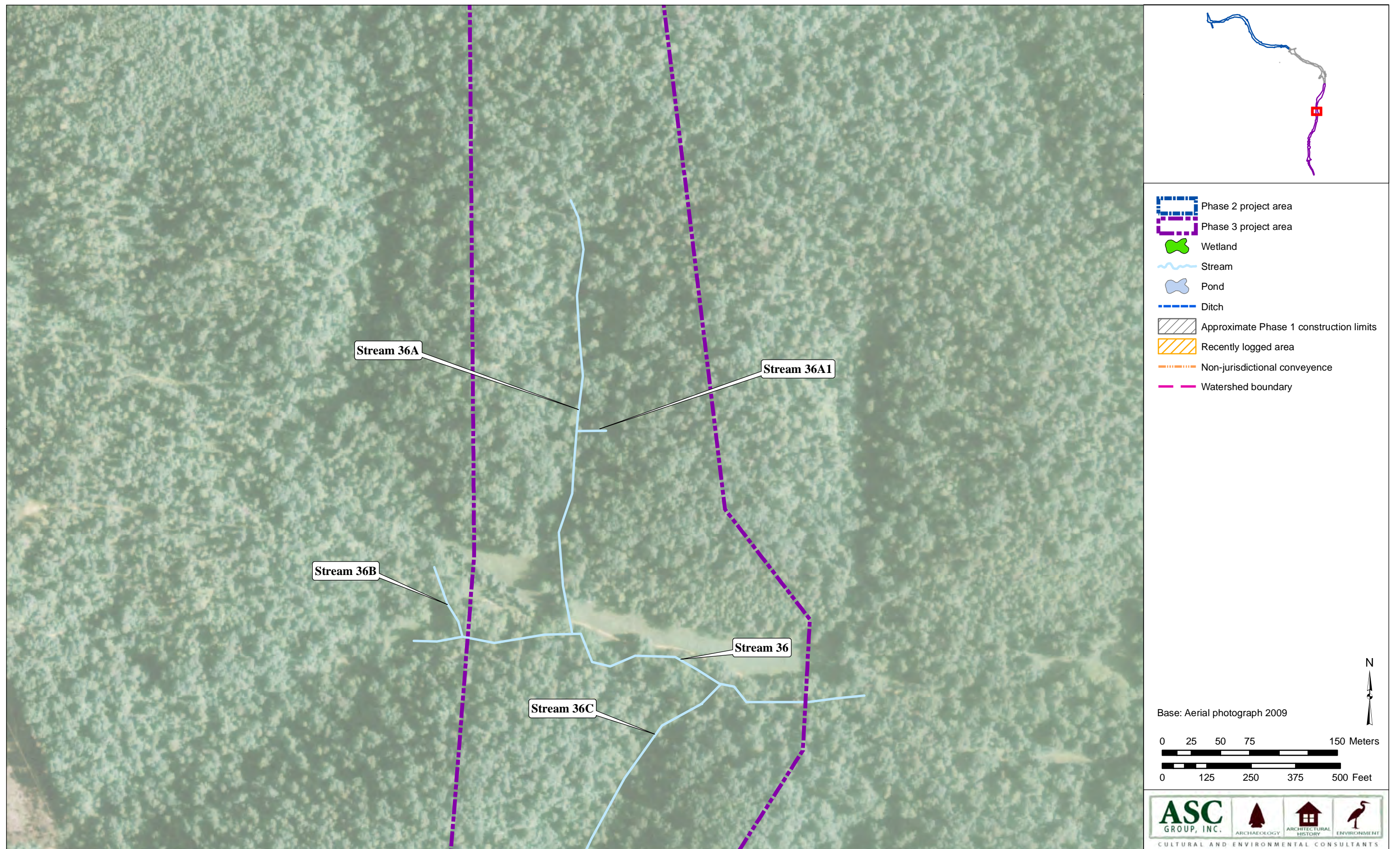


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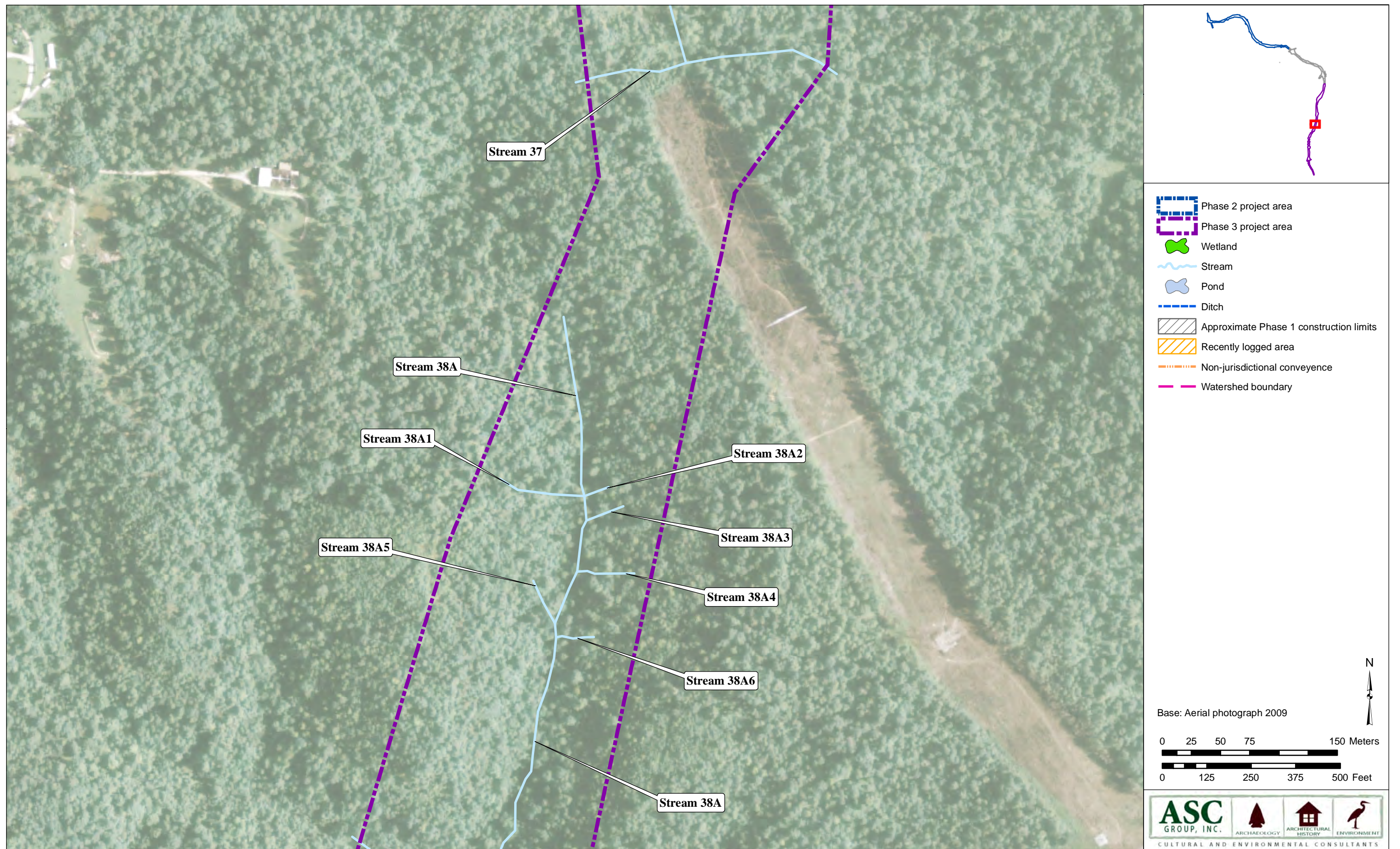


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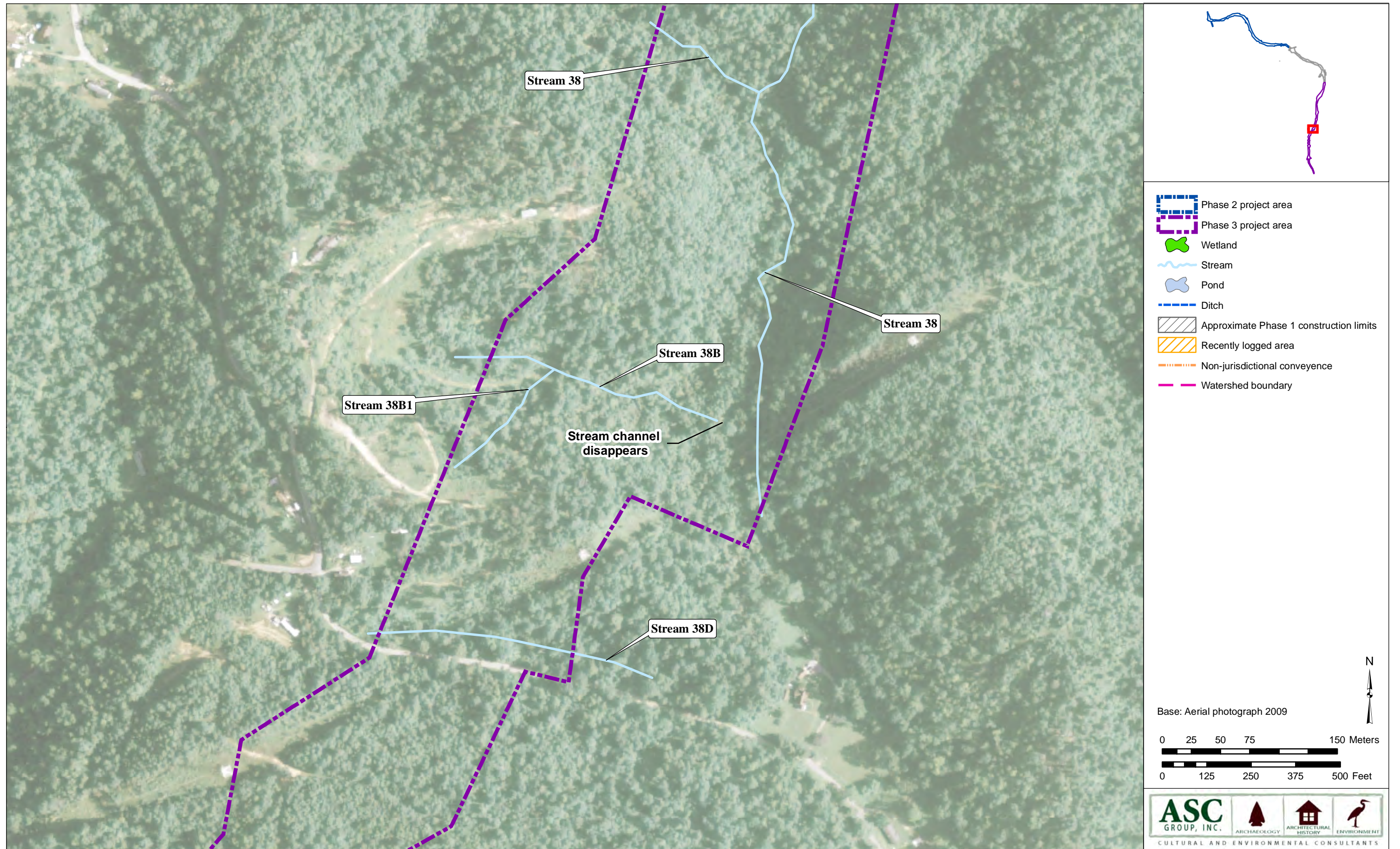


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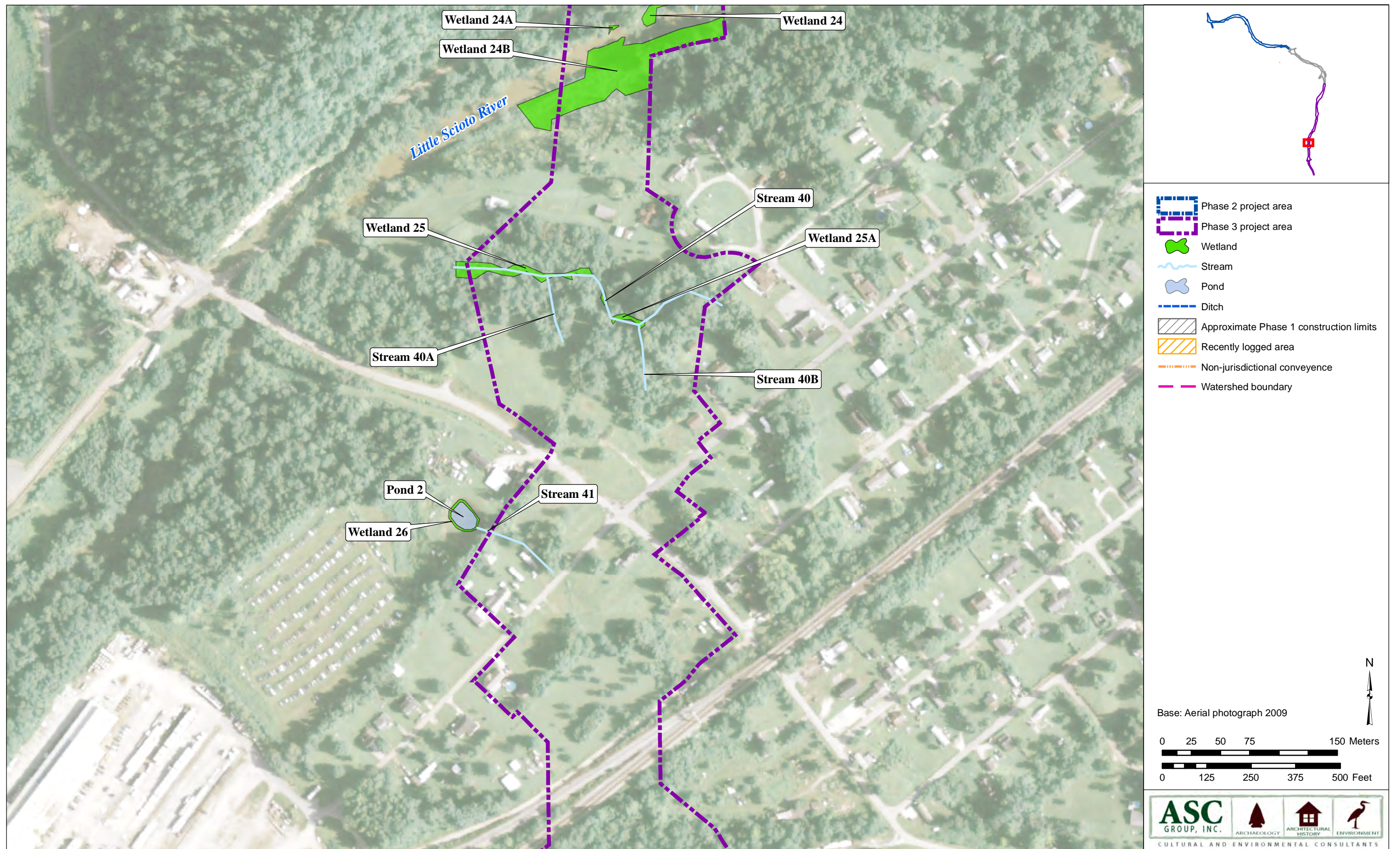


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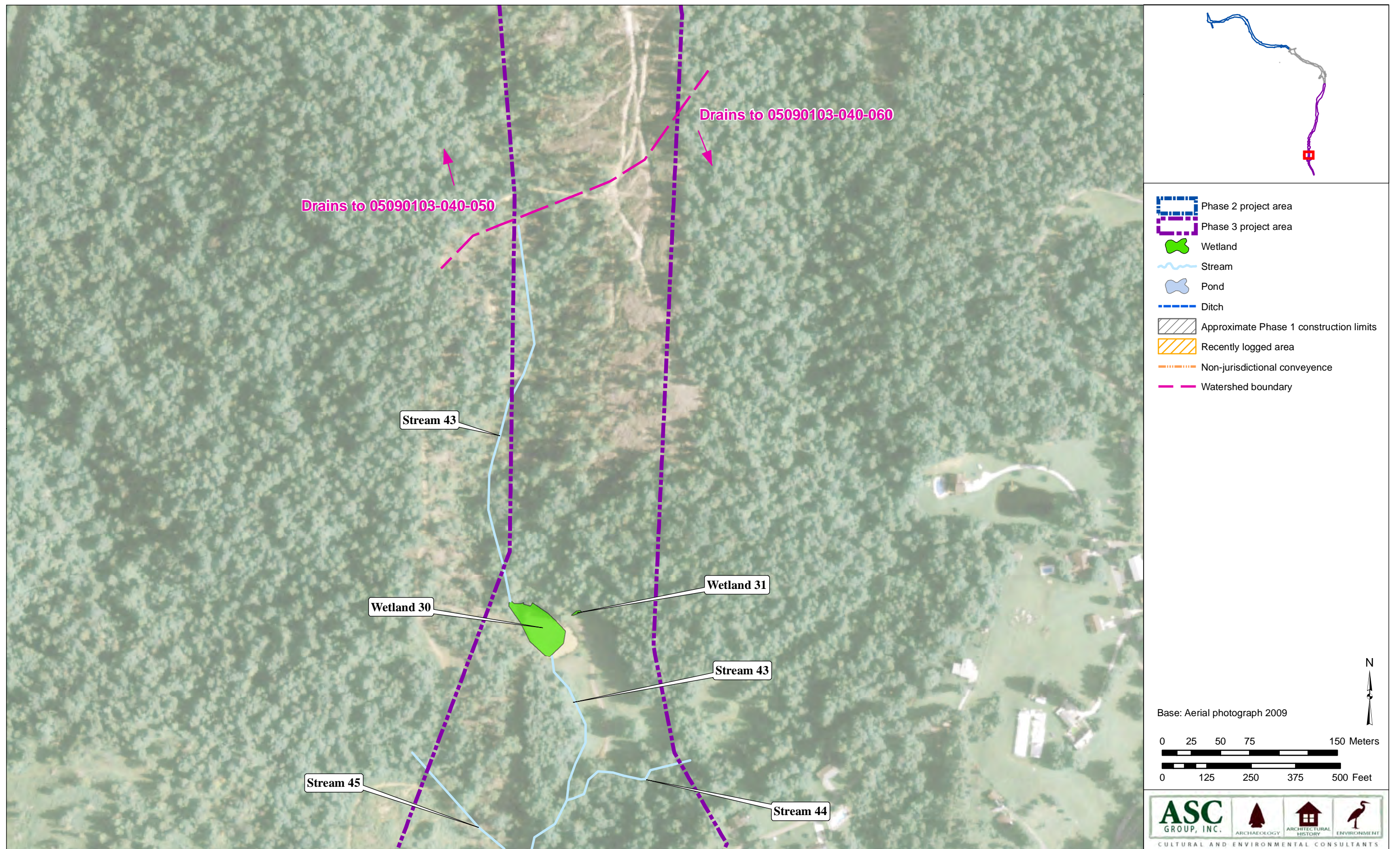


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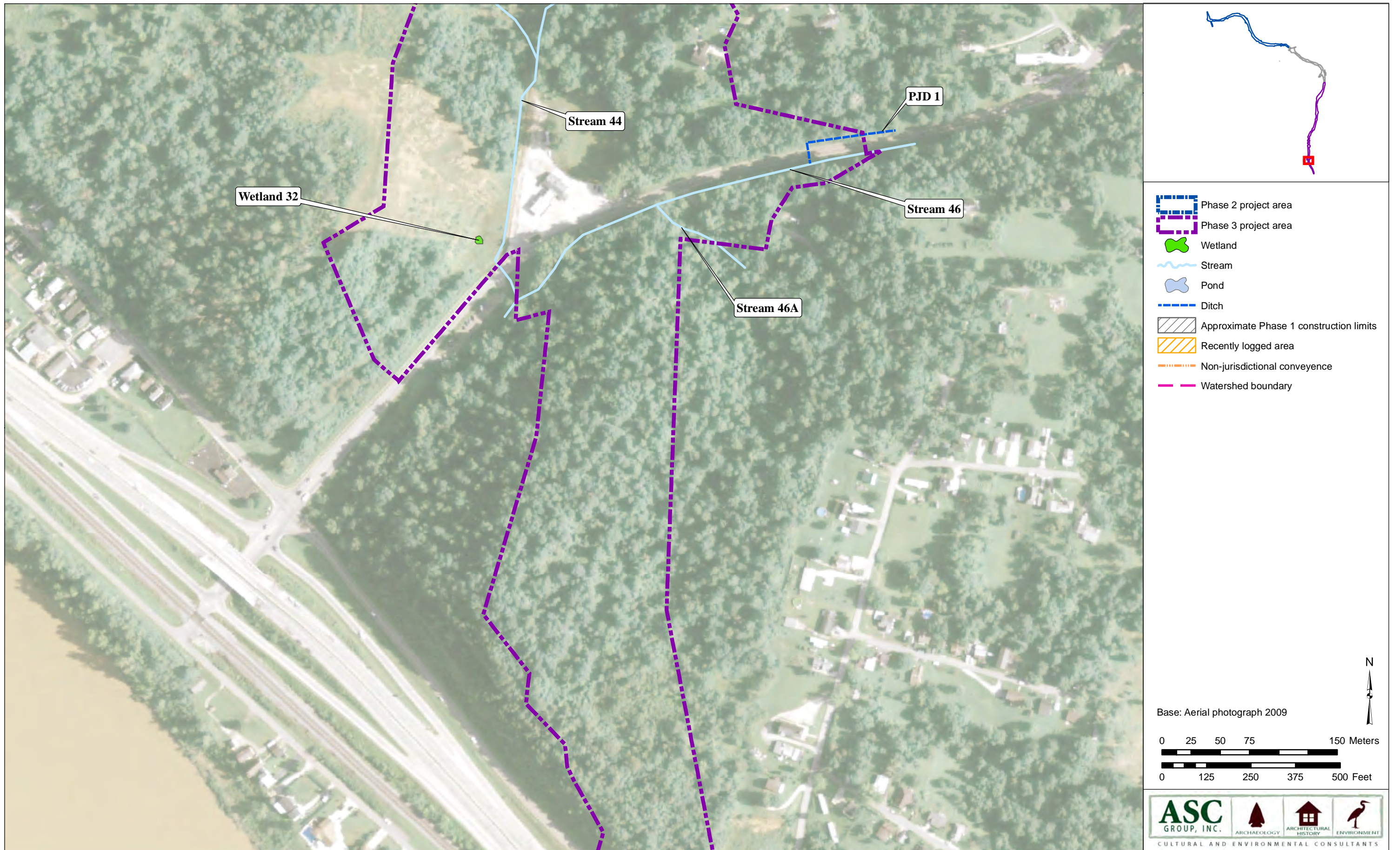


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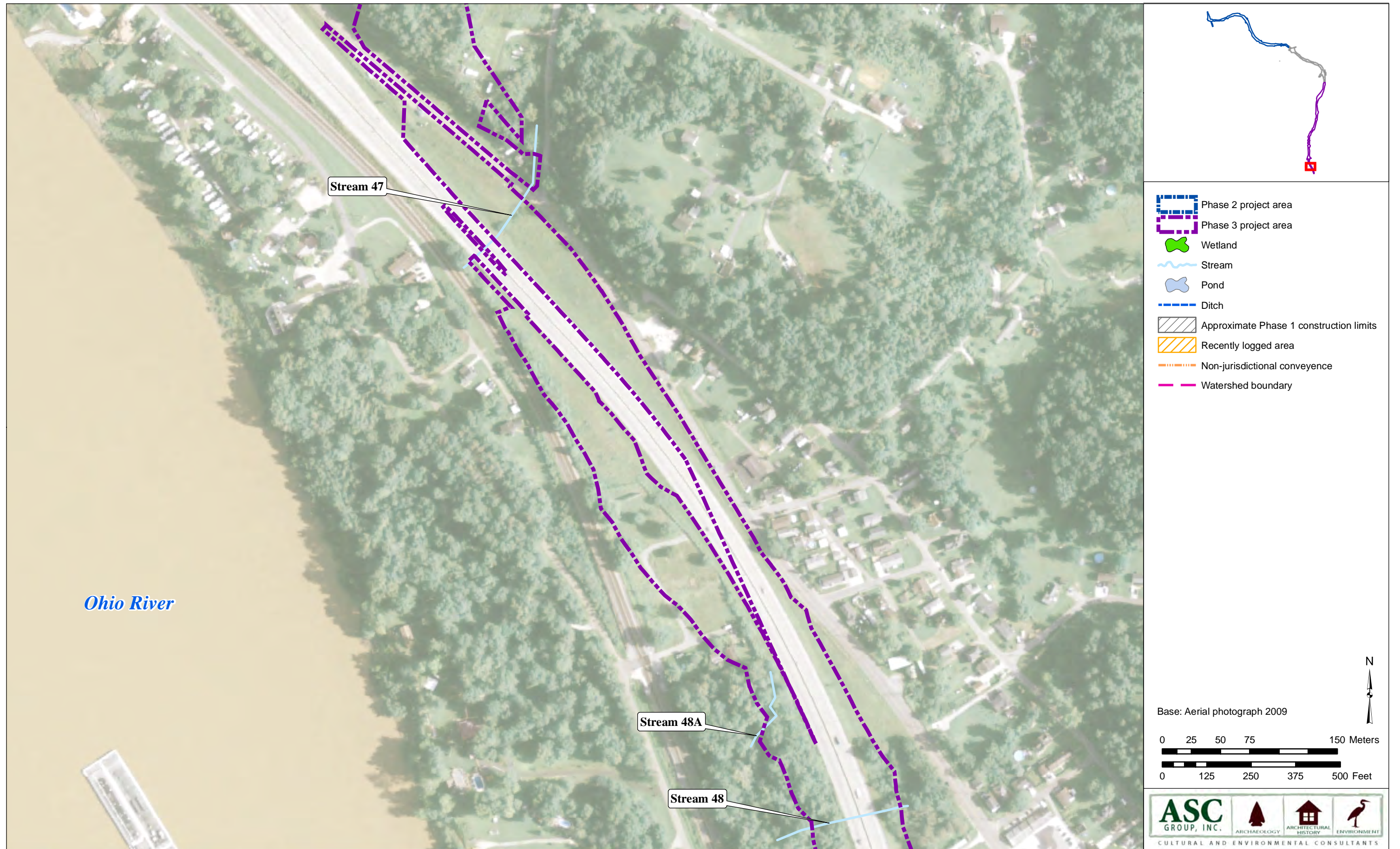


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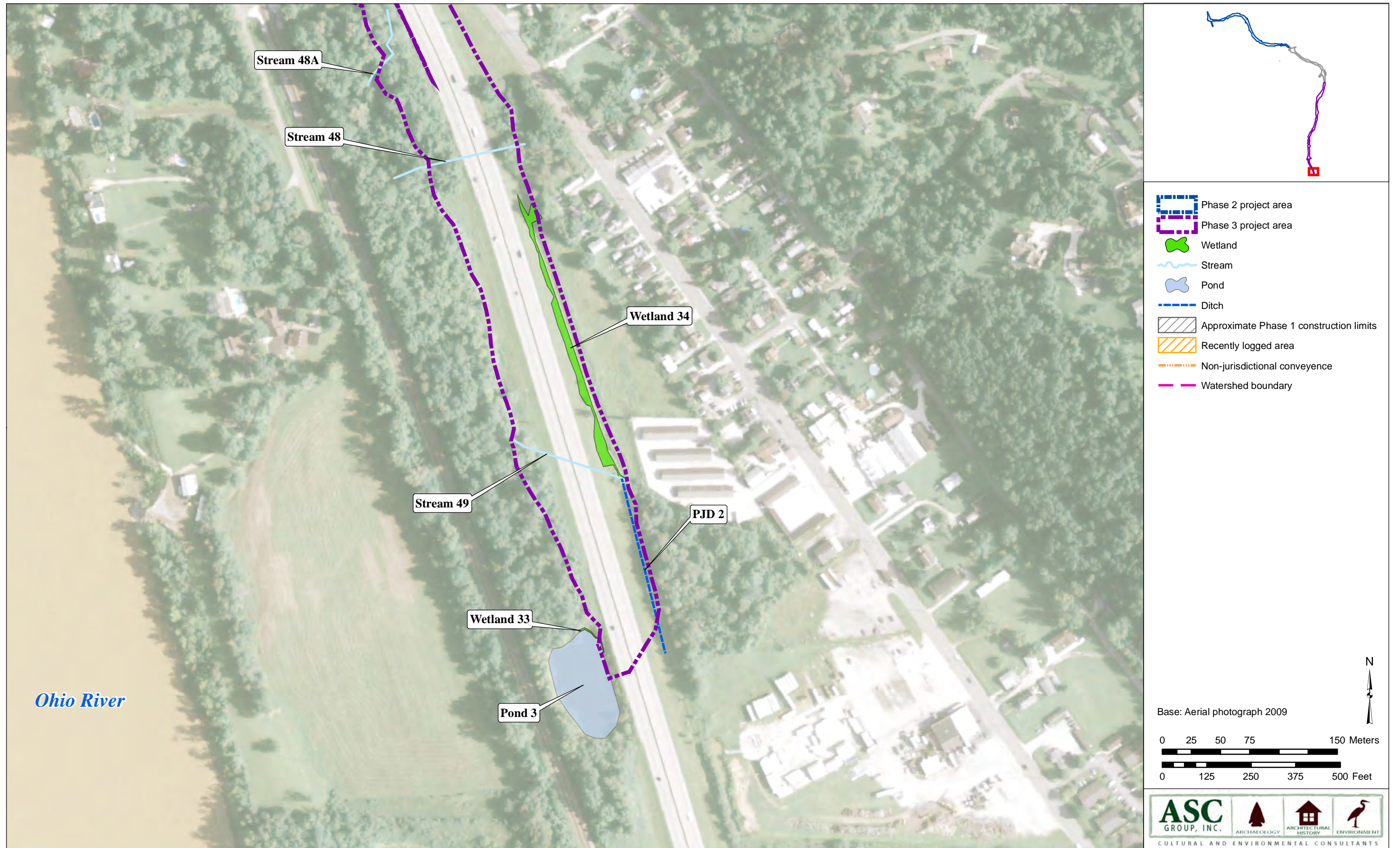


Figure 11. Survey Results. (30 sheets)



Figure 12. Data points. (30 sheets)



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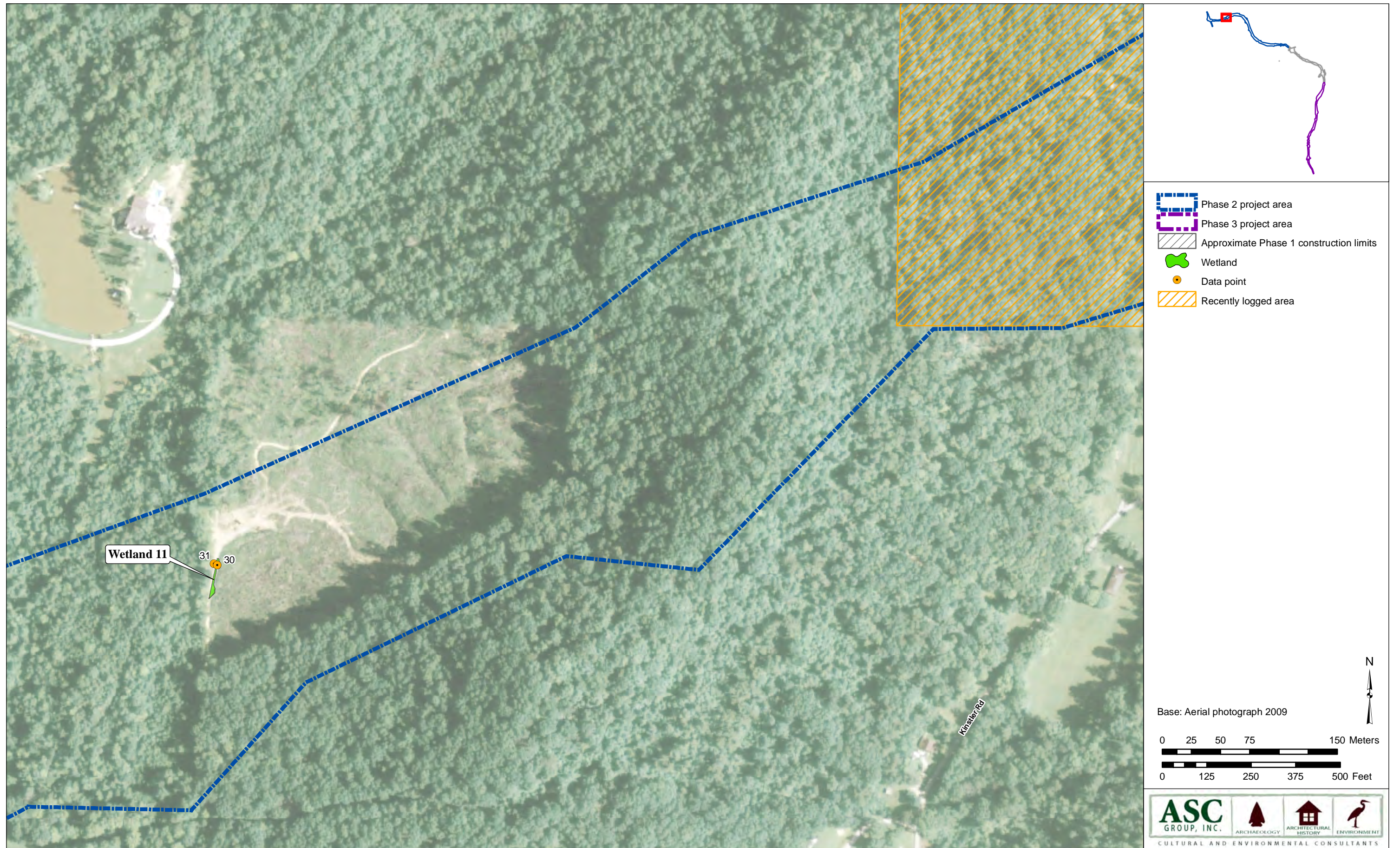


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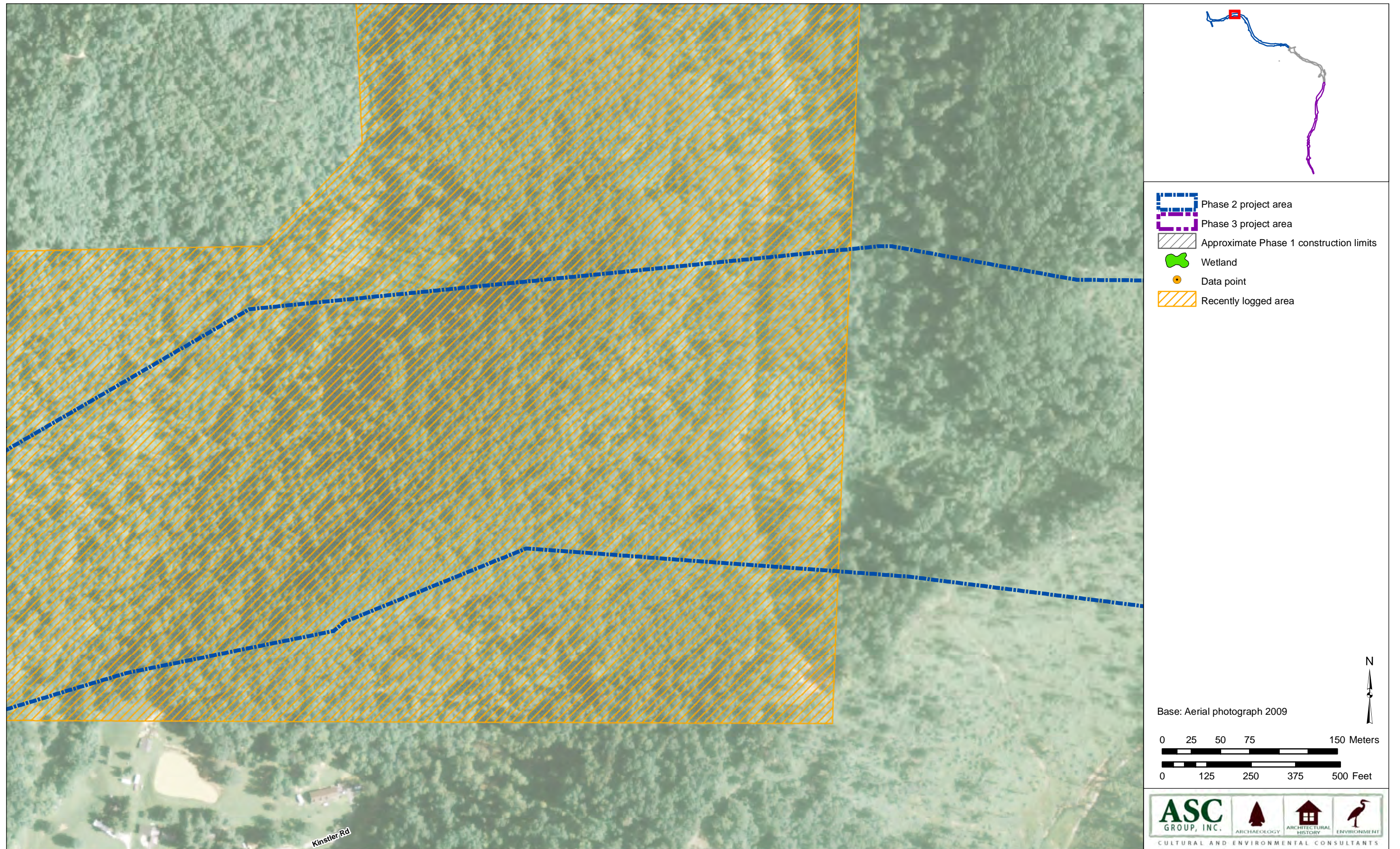


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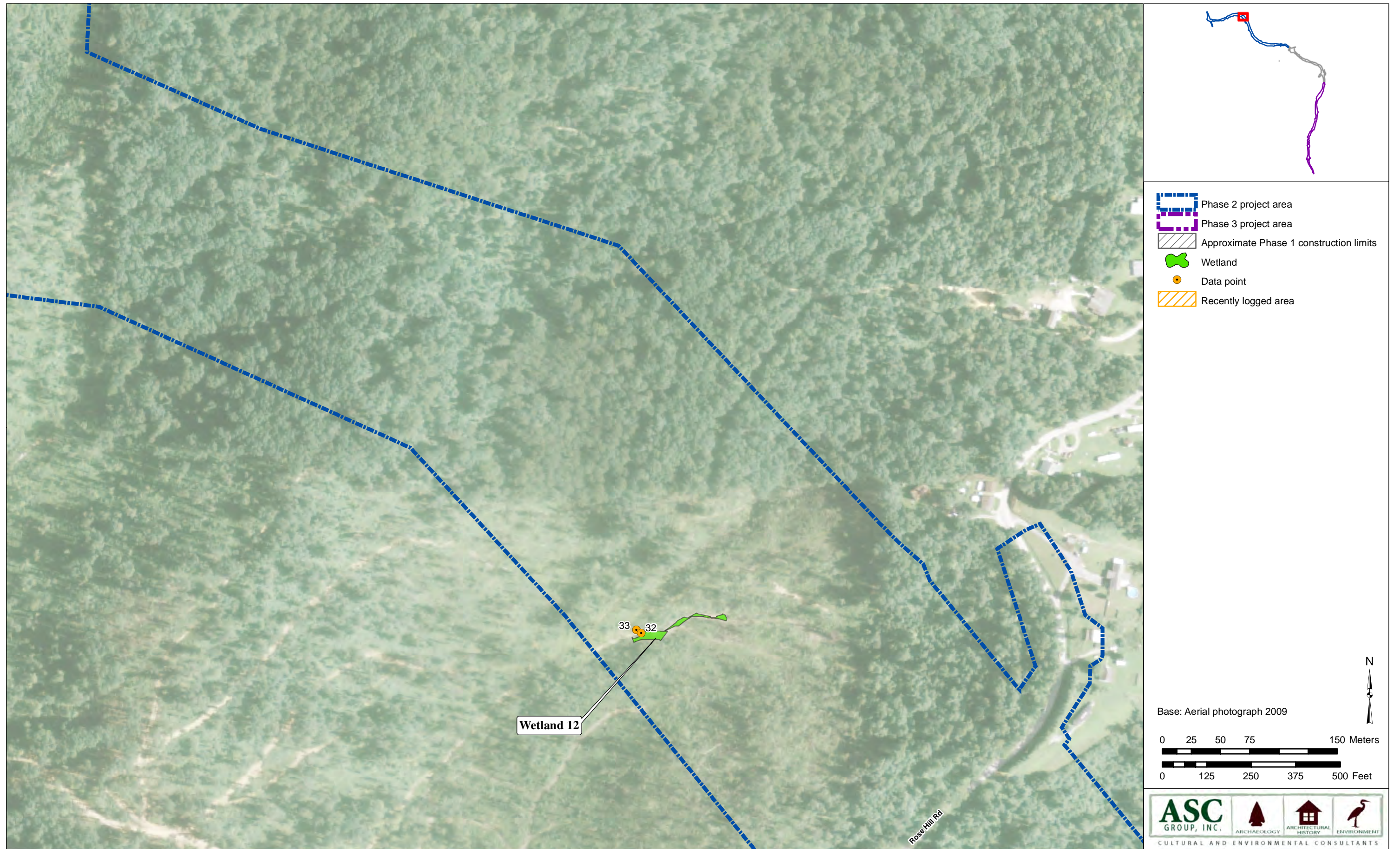


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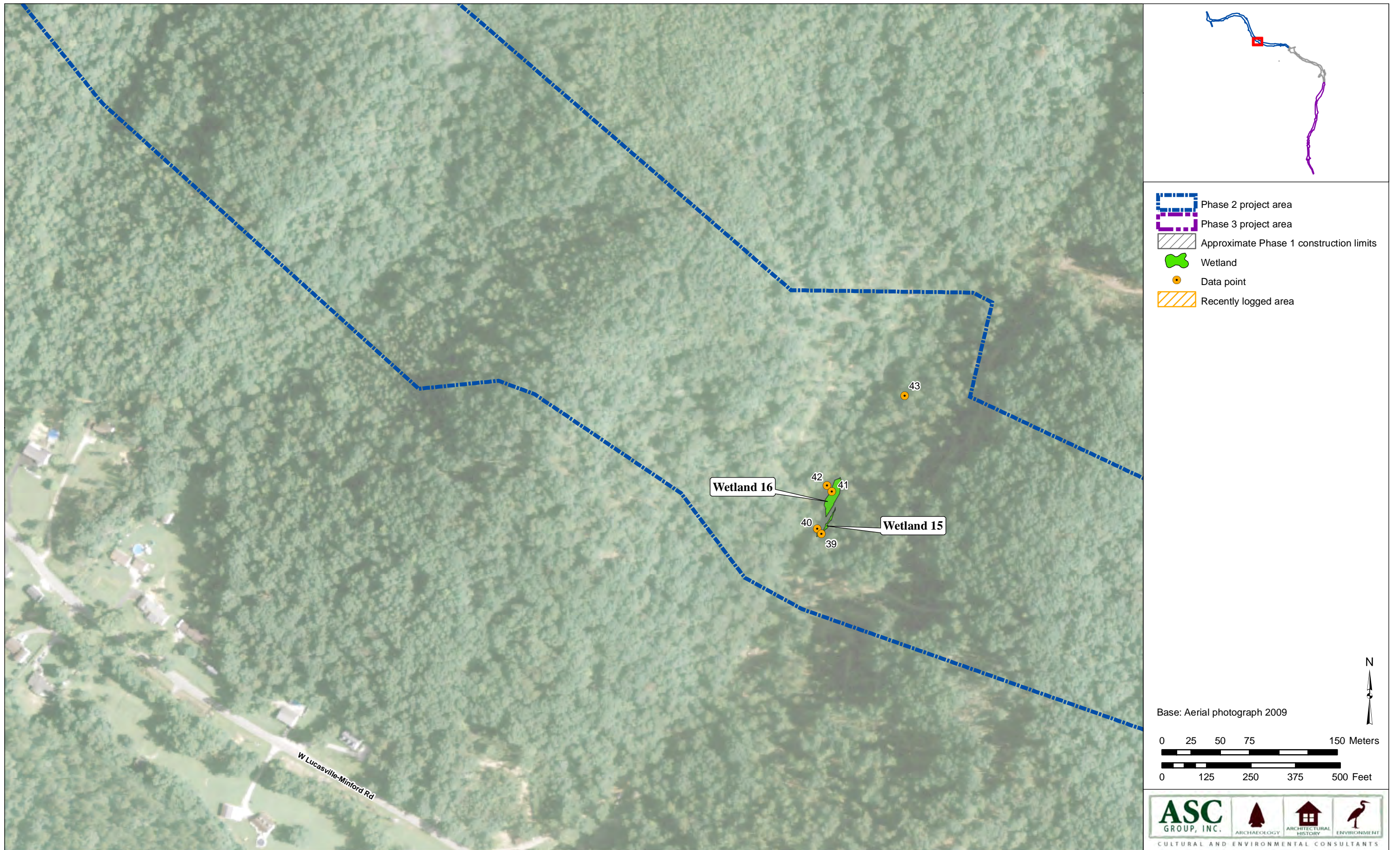


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Figure 12. Data points. (30 sheets)



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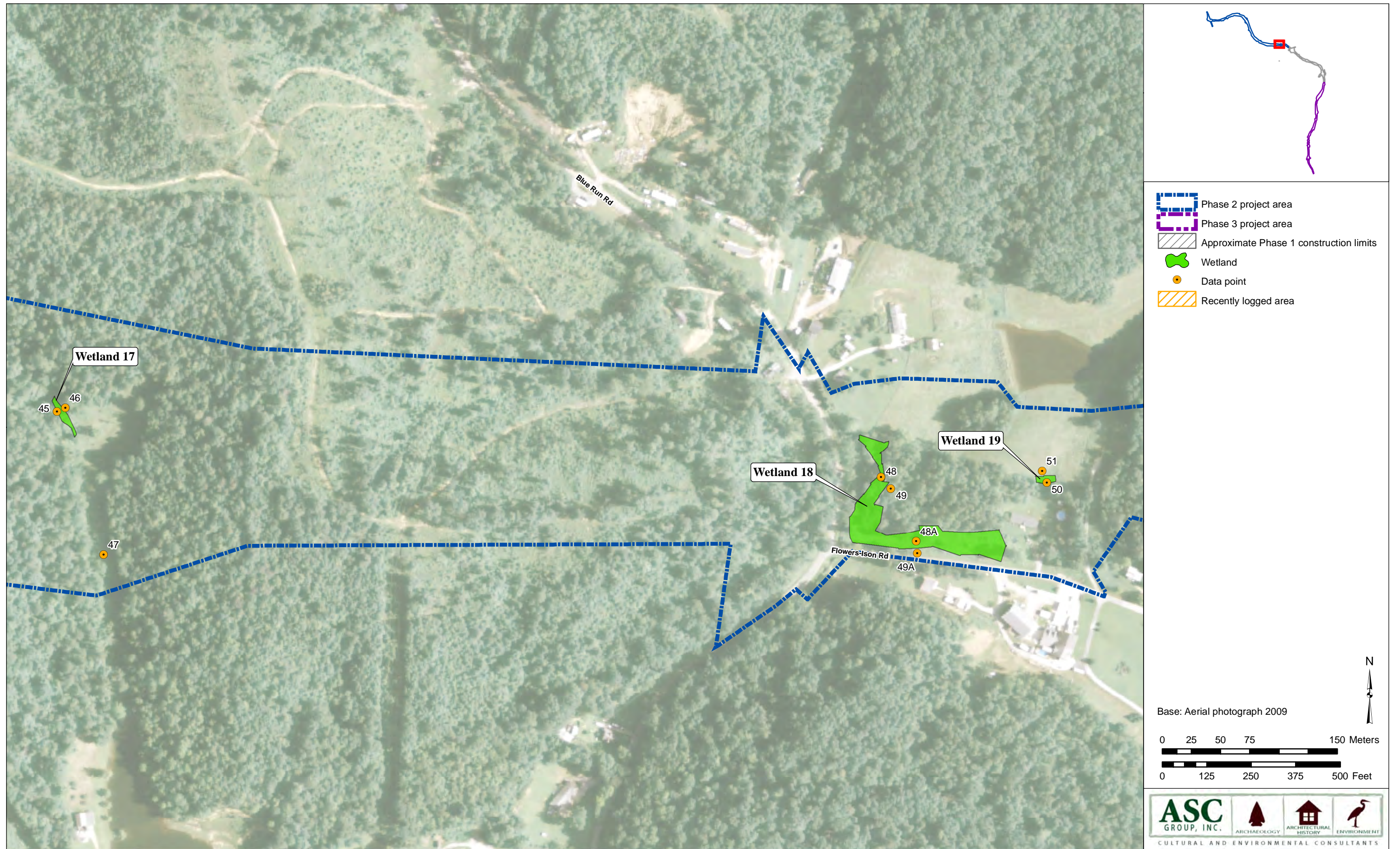


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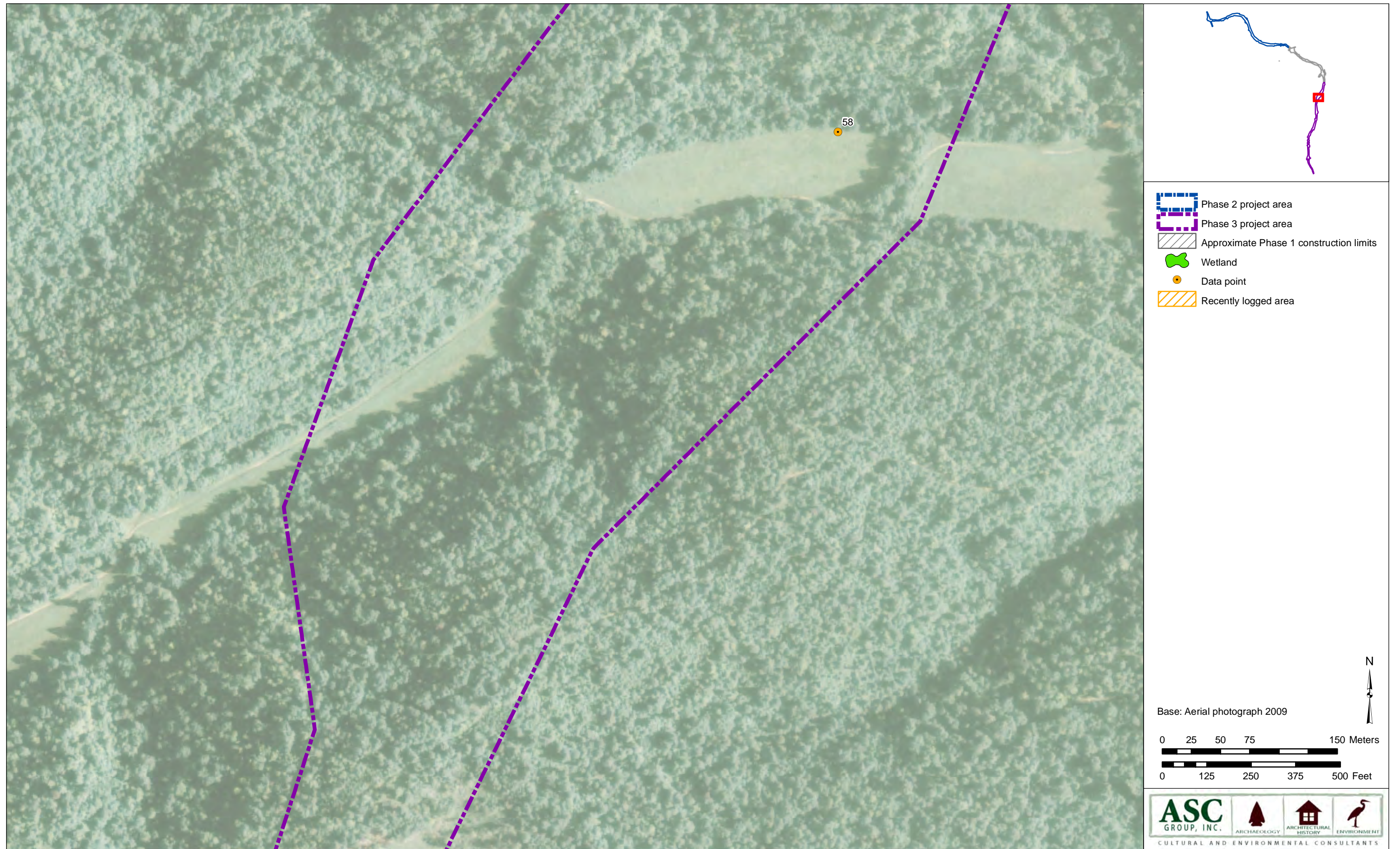


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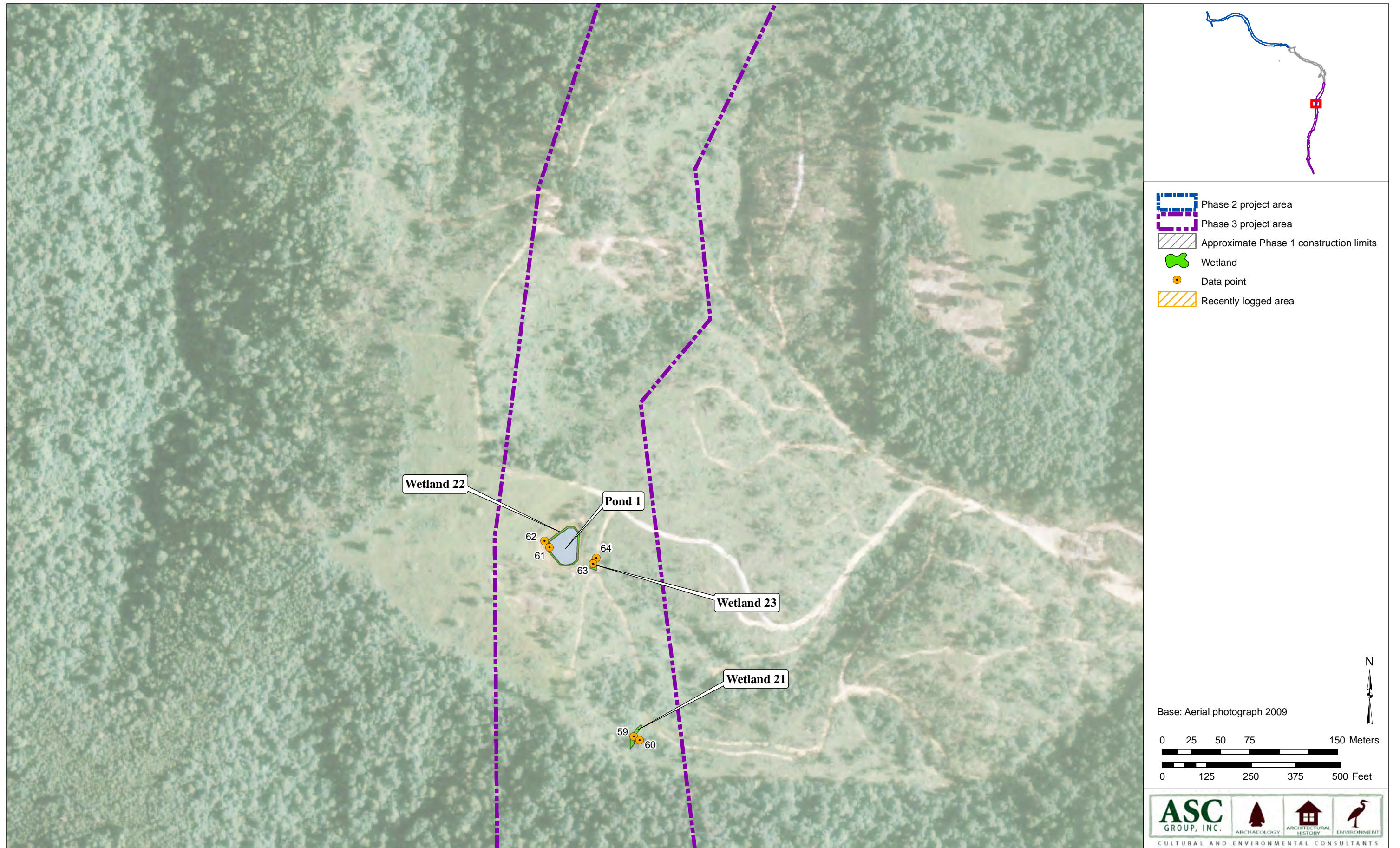


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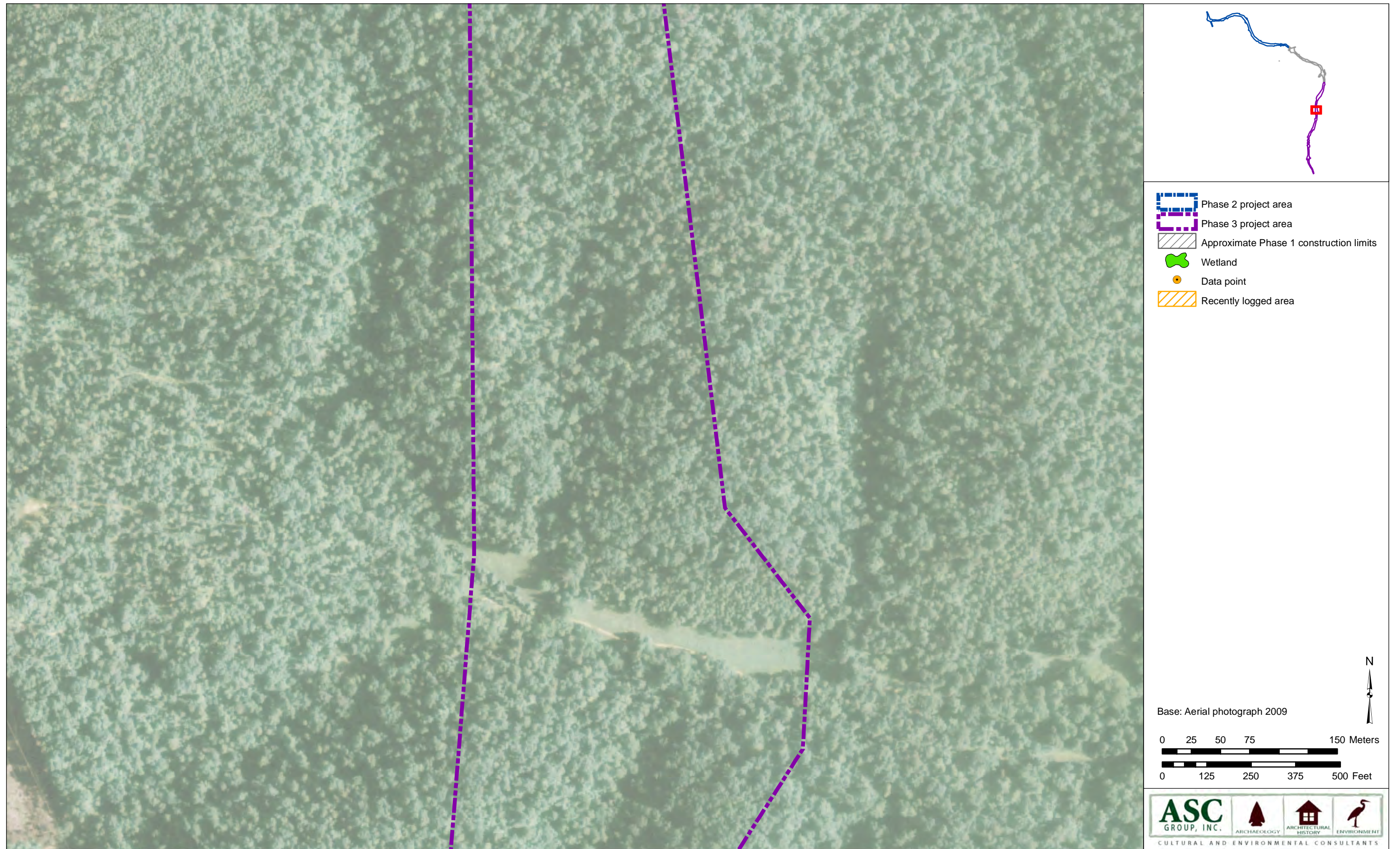


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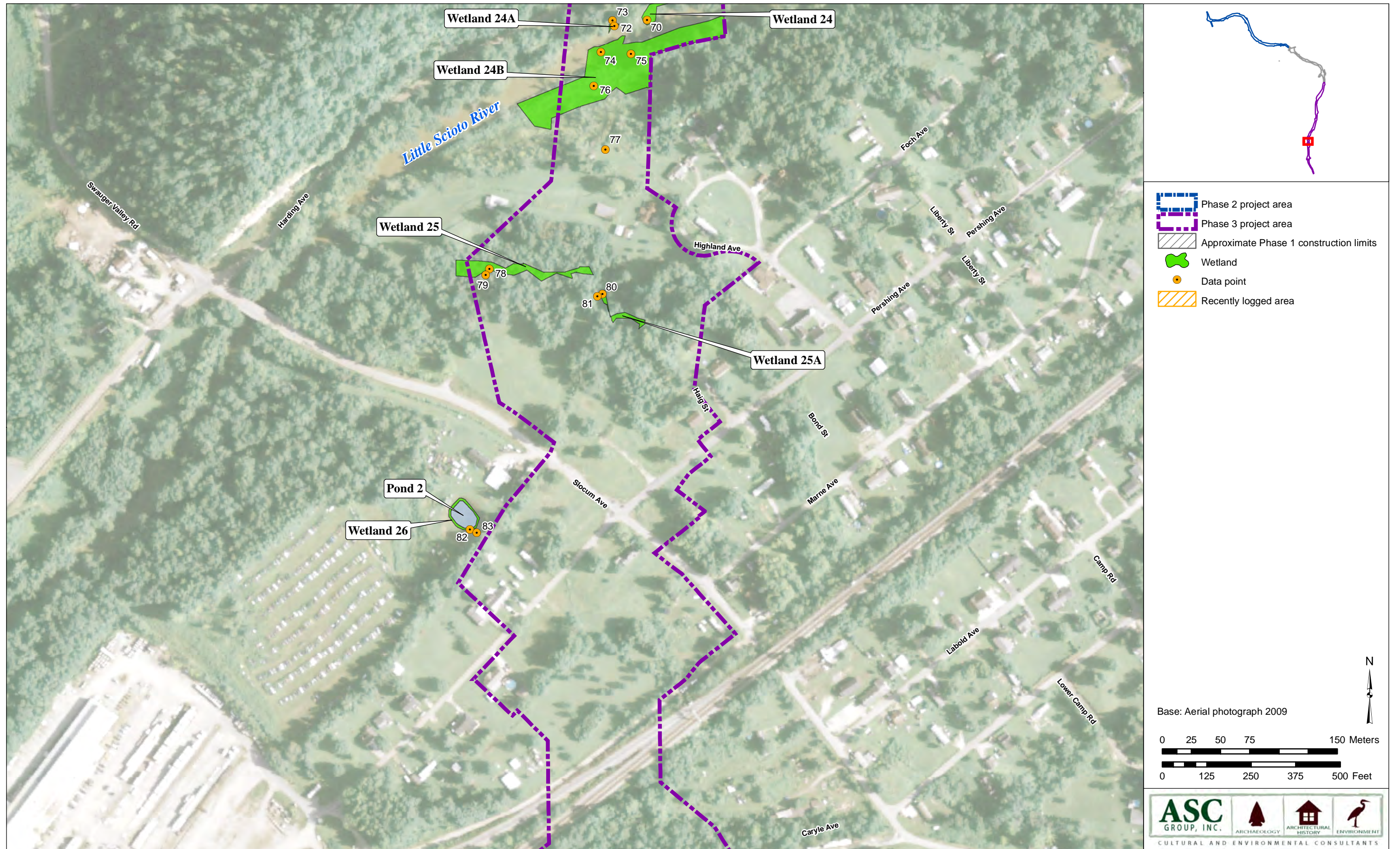


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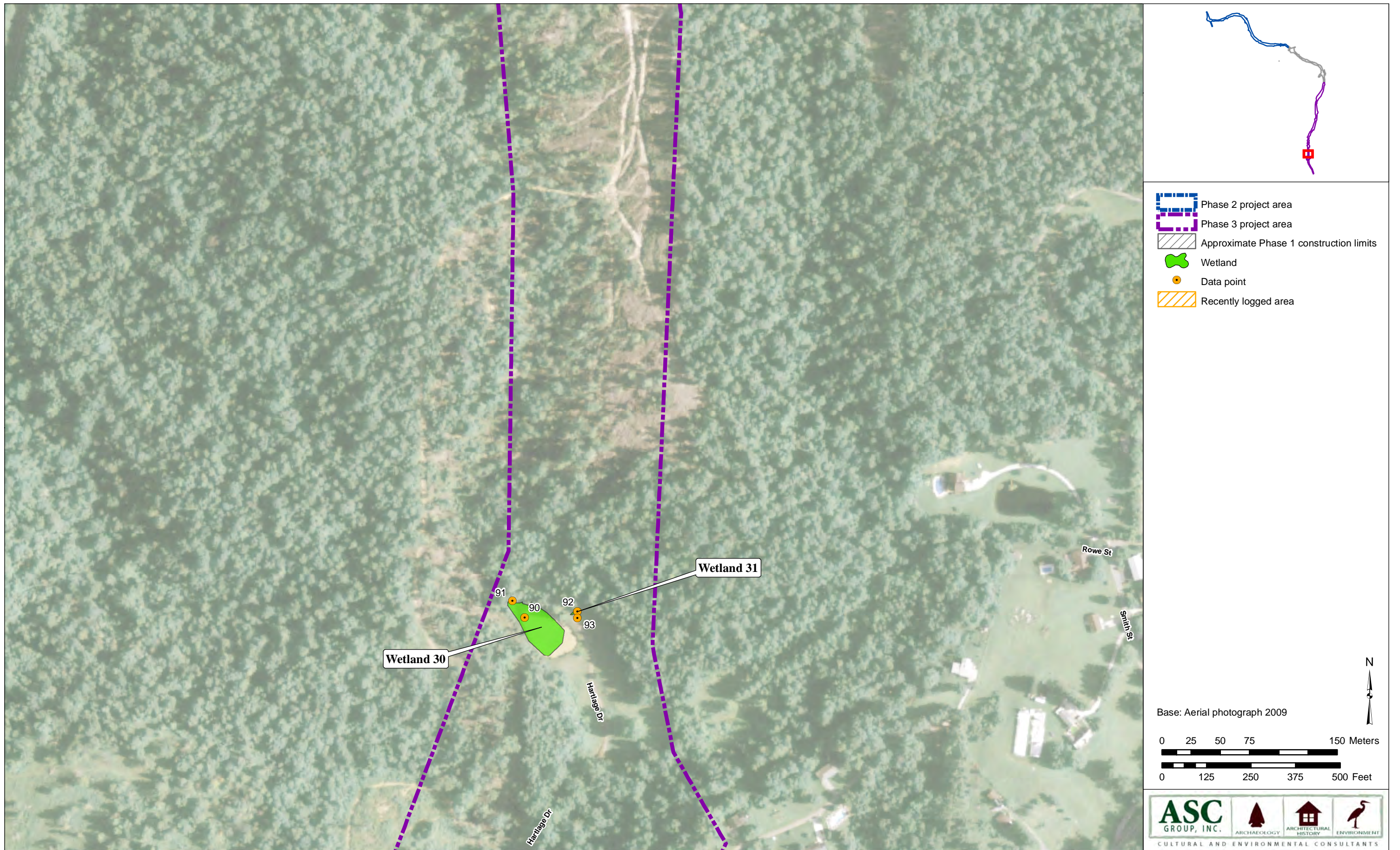


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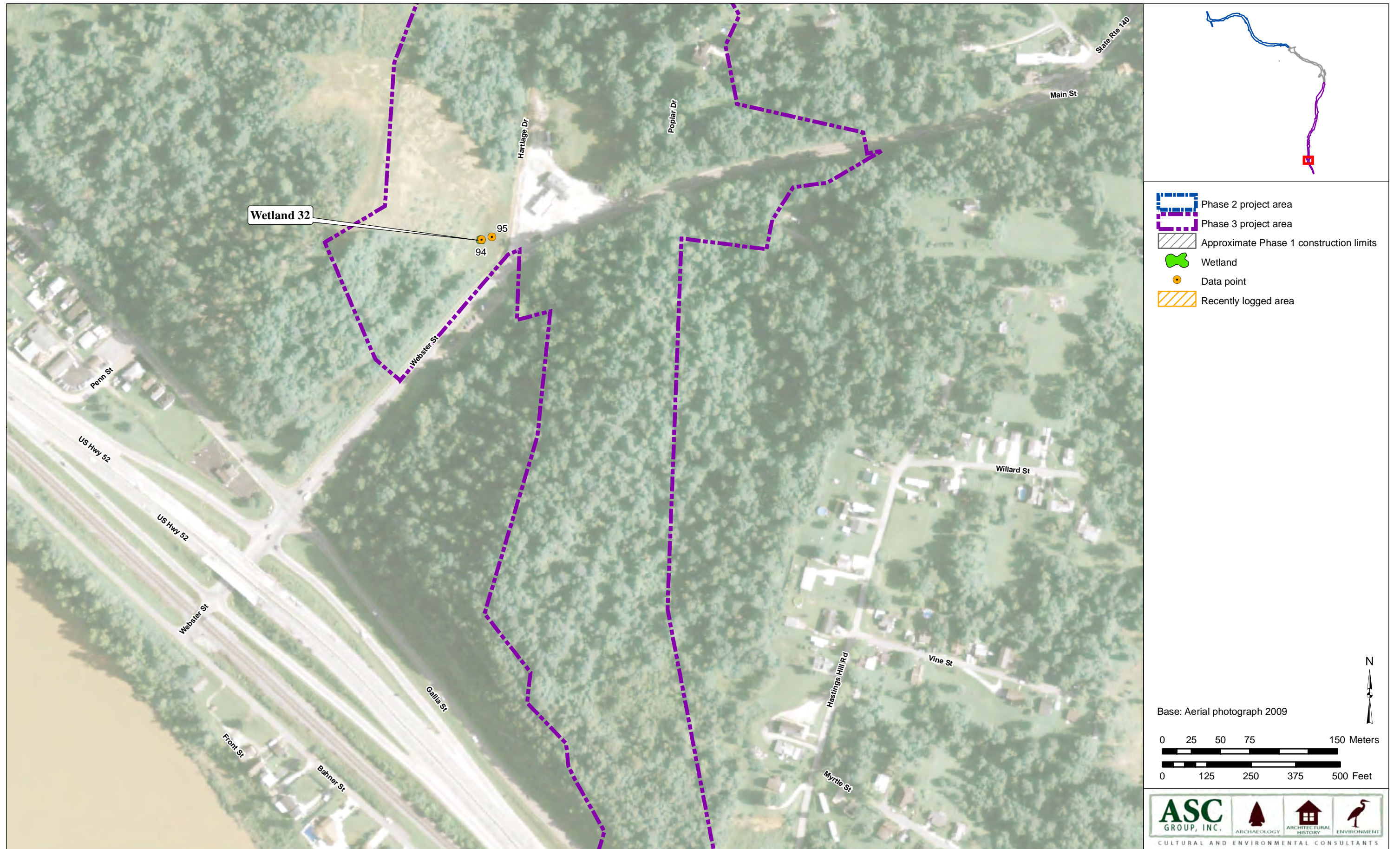


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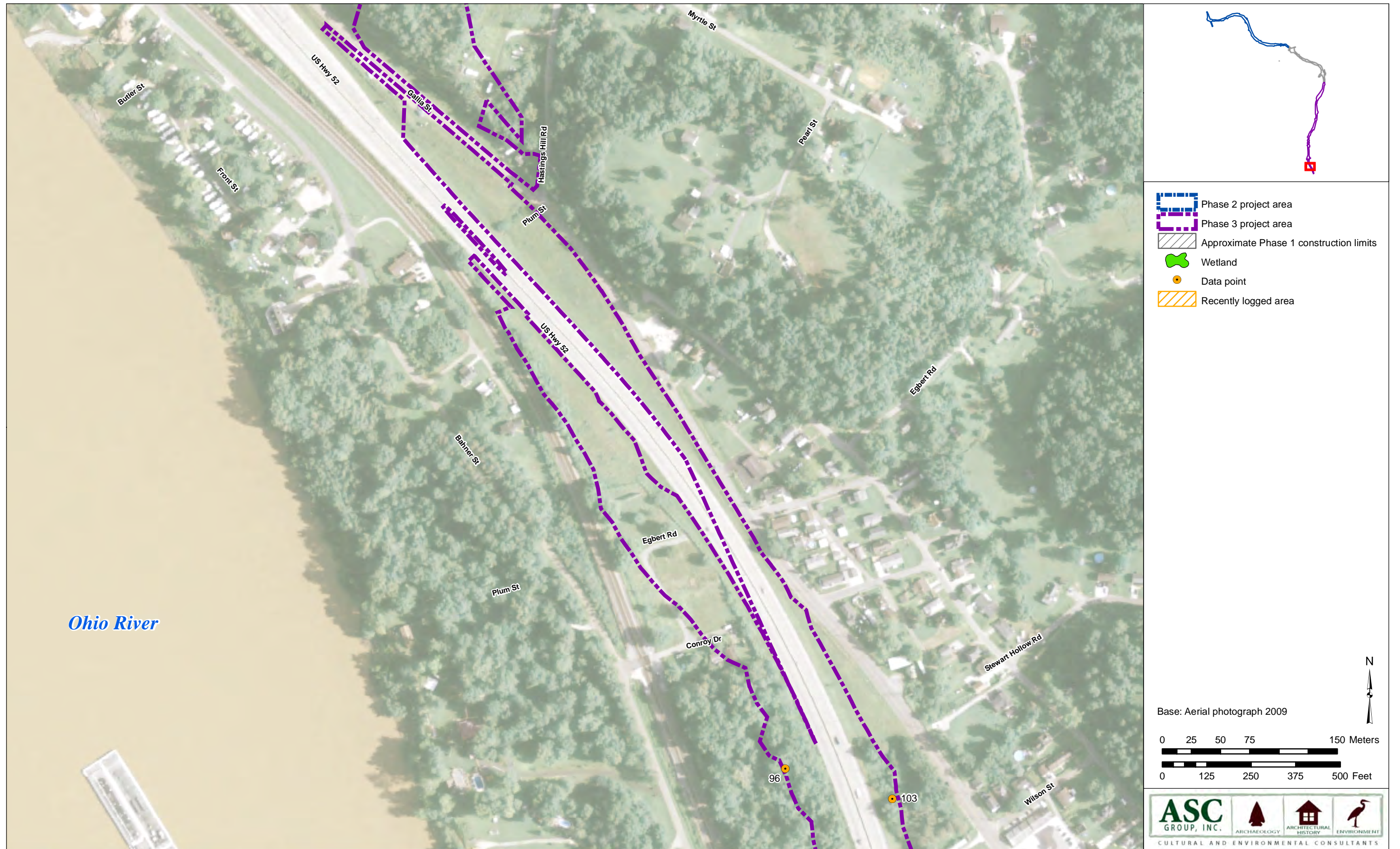


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Figure 12. Data points. (30 sheets)





Figure 13. Photograph locations. (30 sheets)



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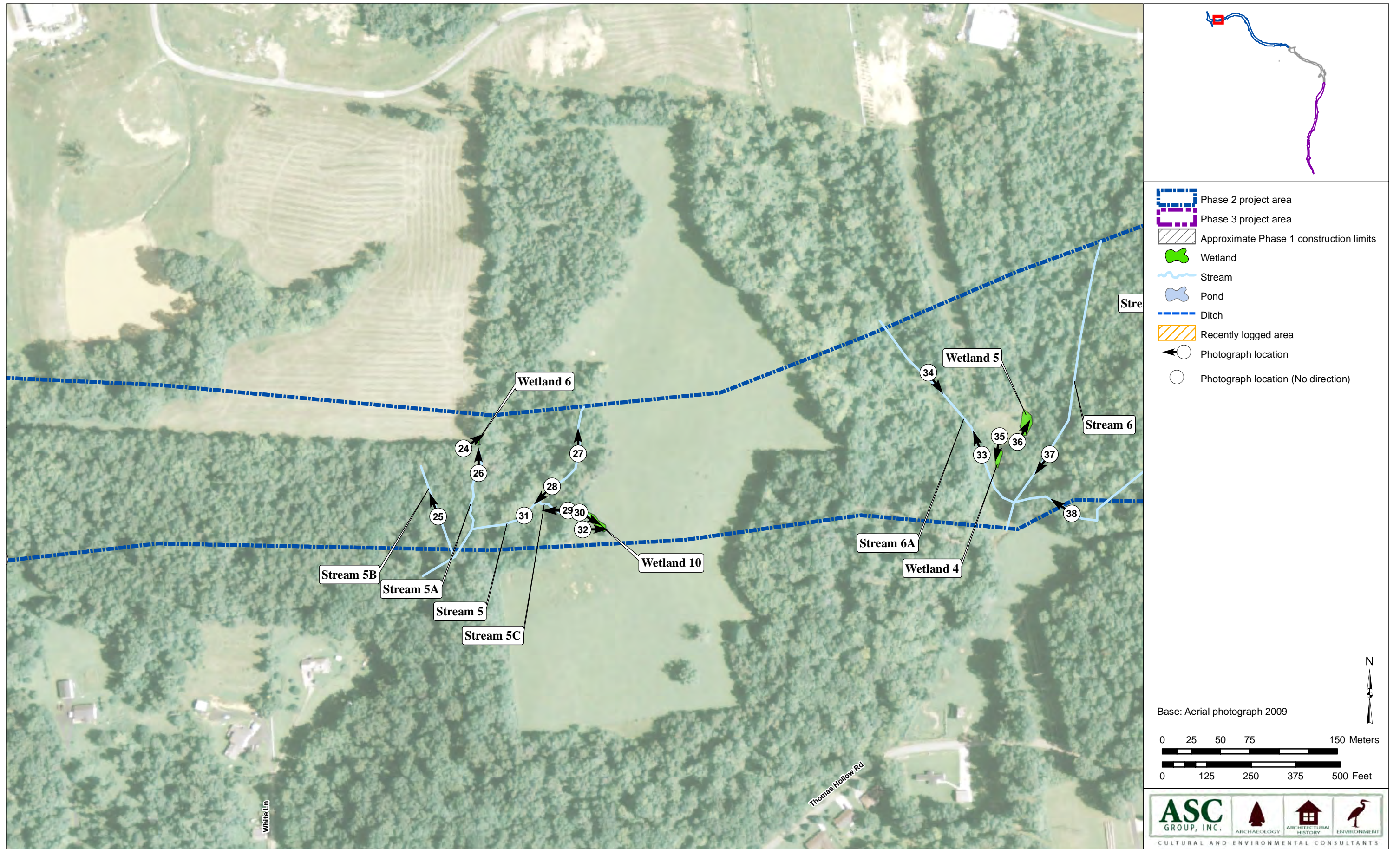


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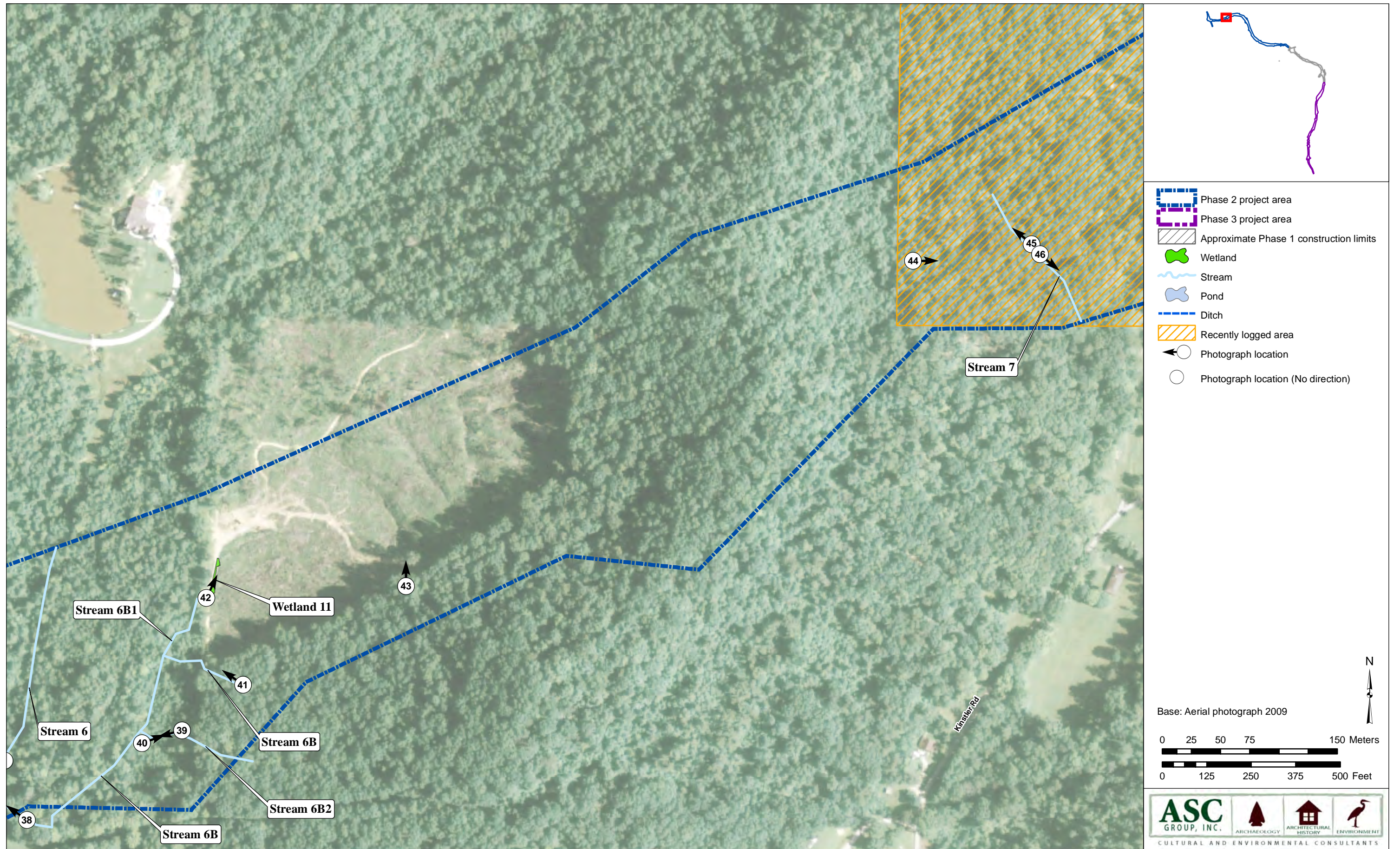


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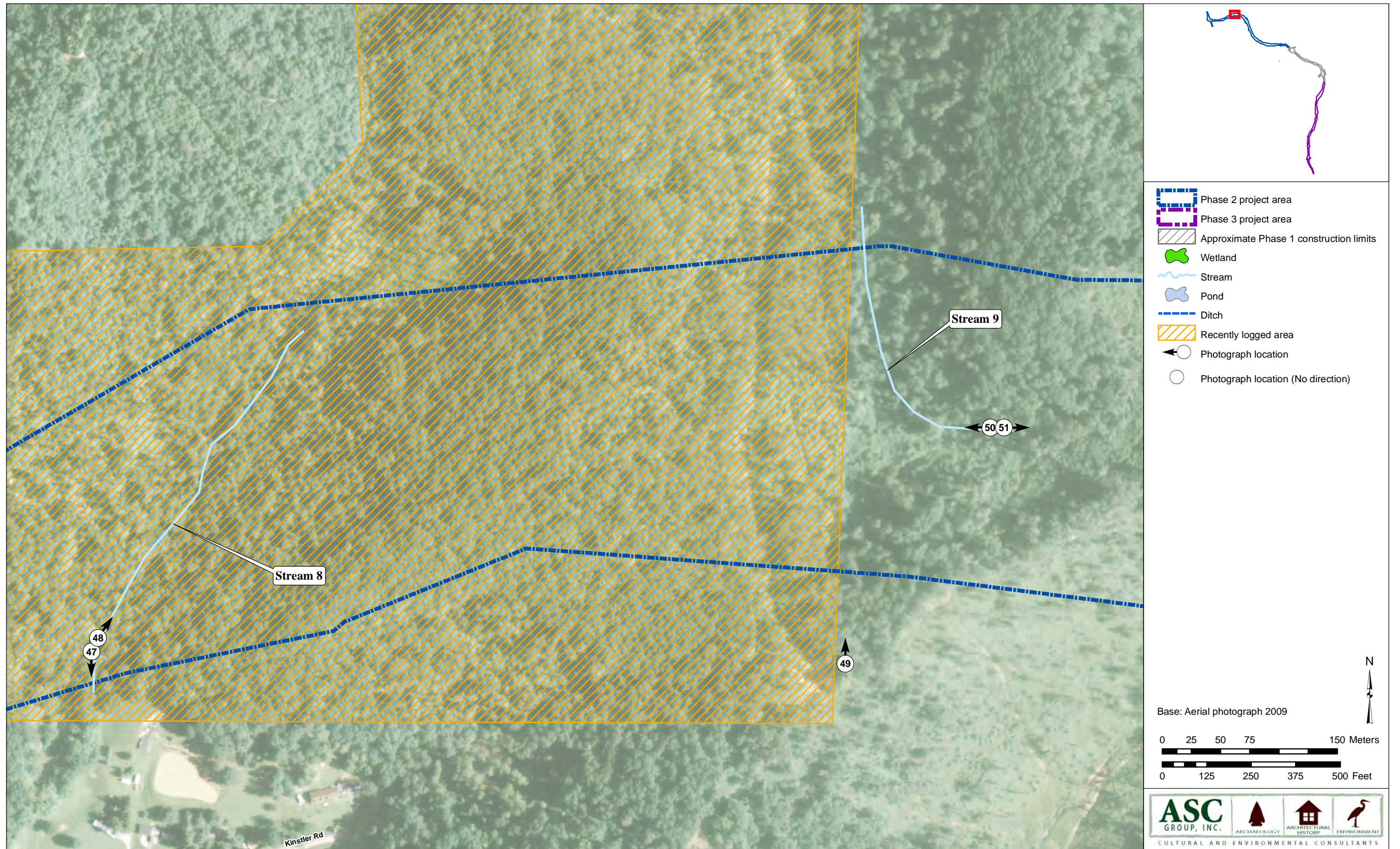


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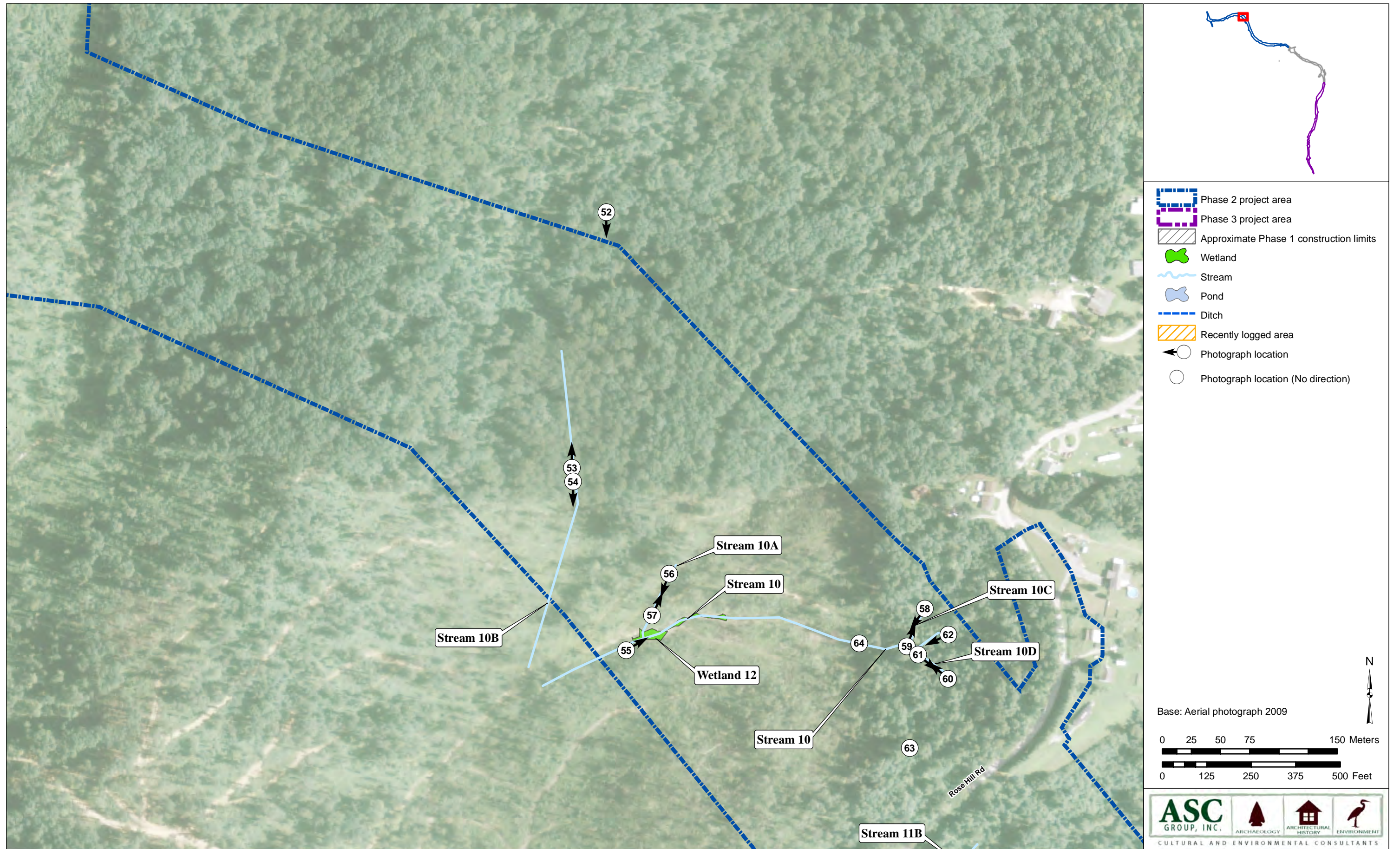


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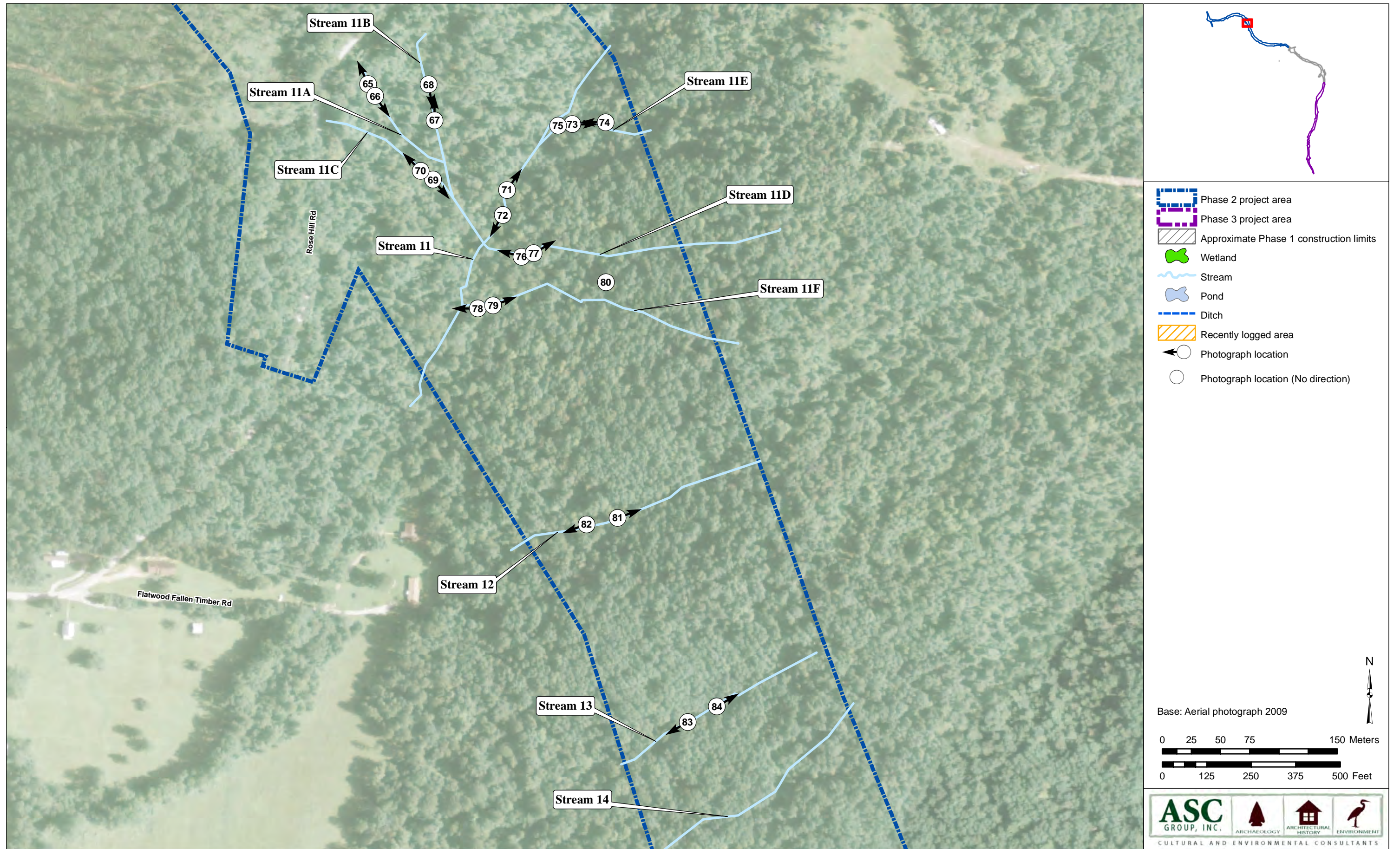


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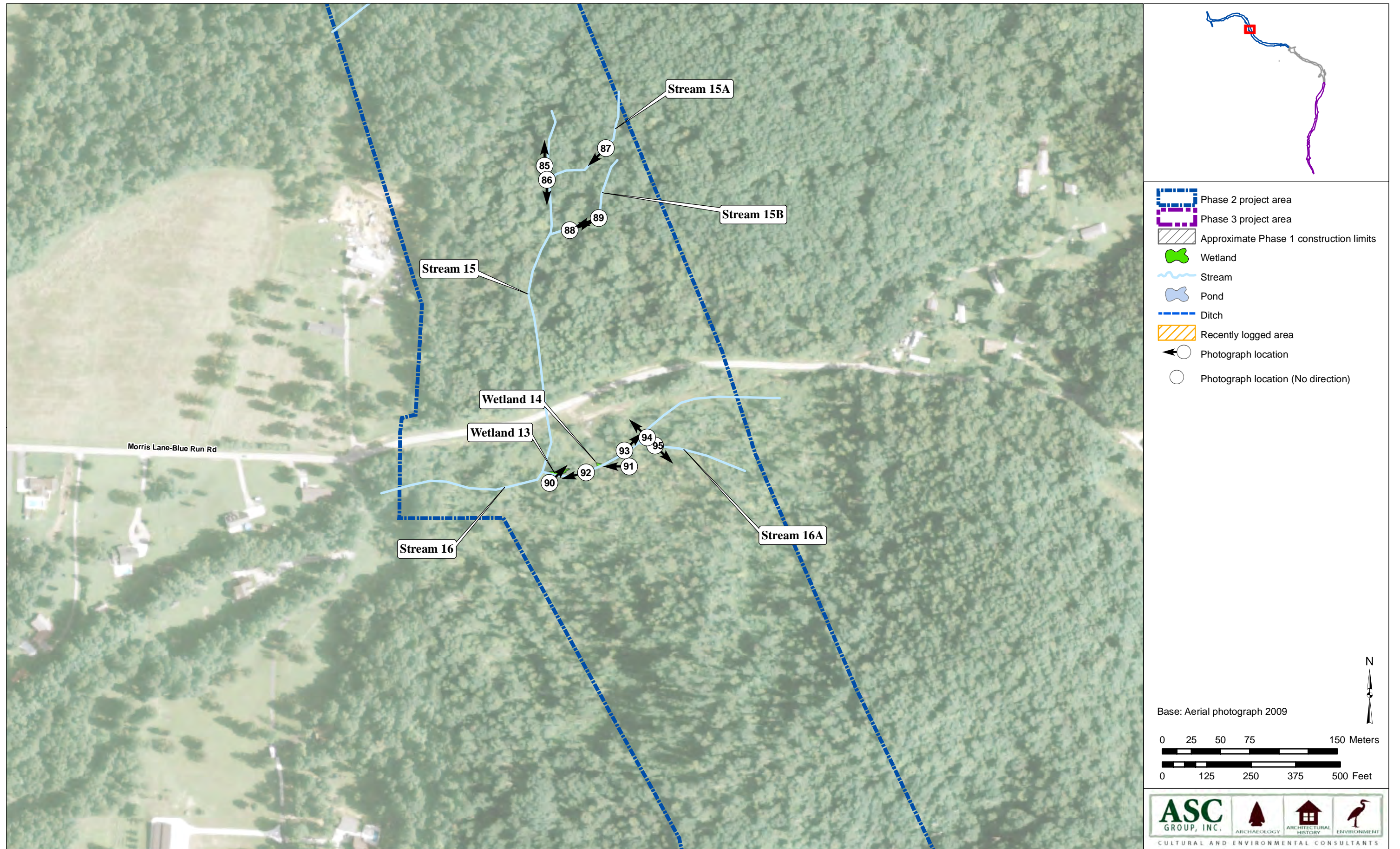


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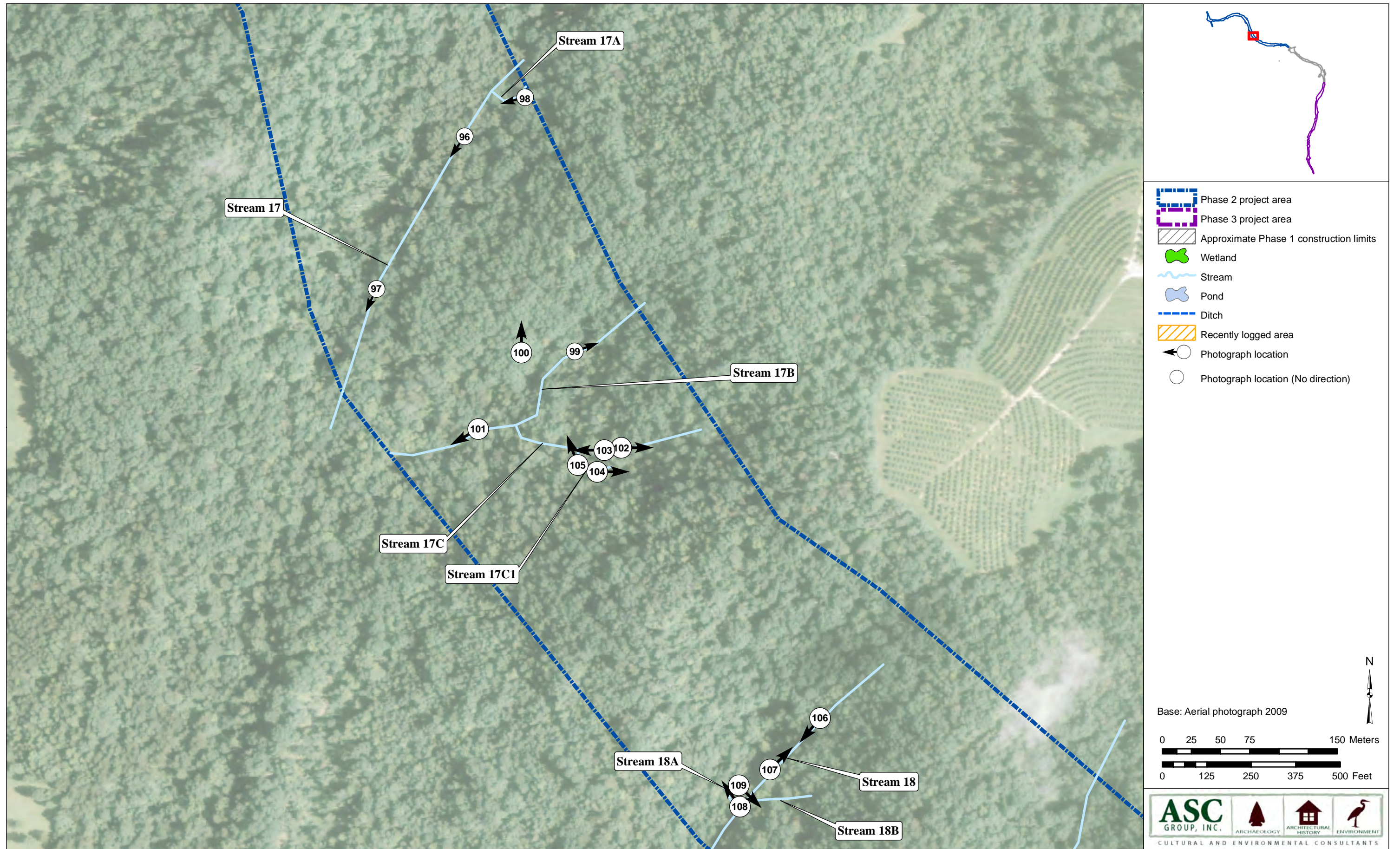


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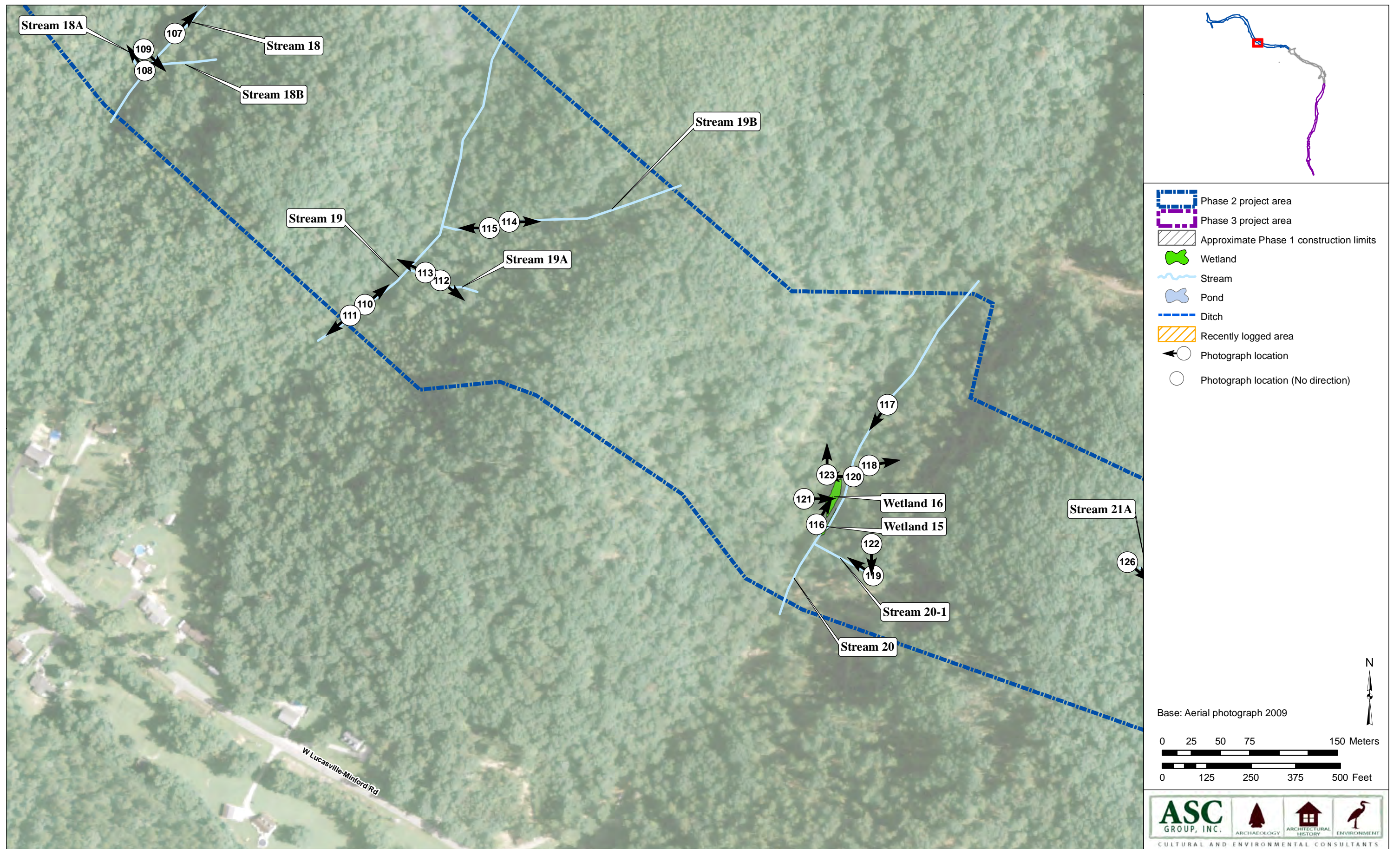


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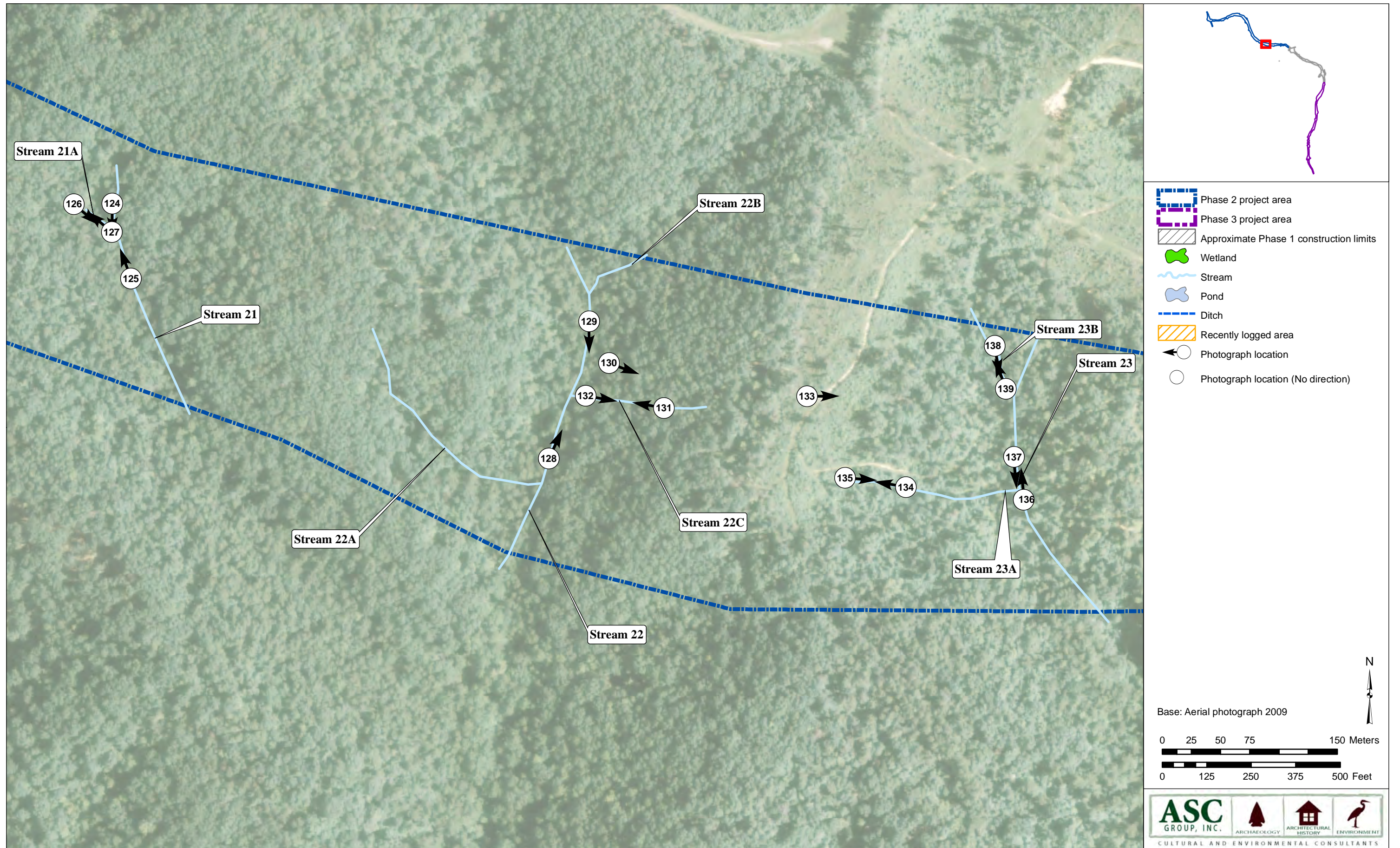


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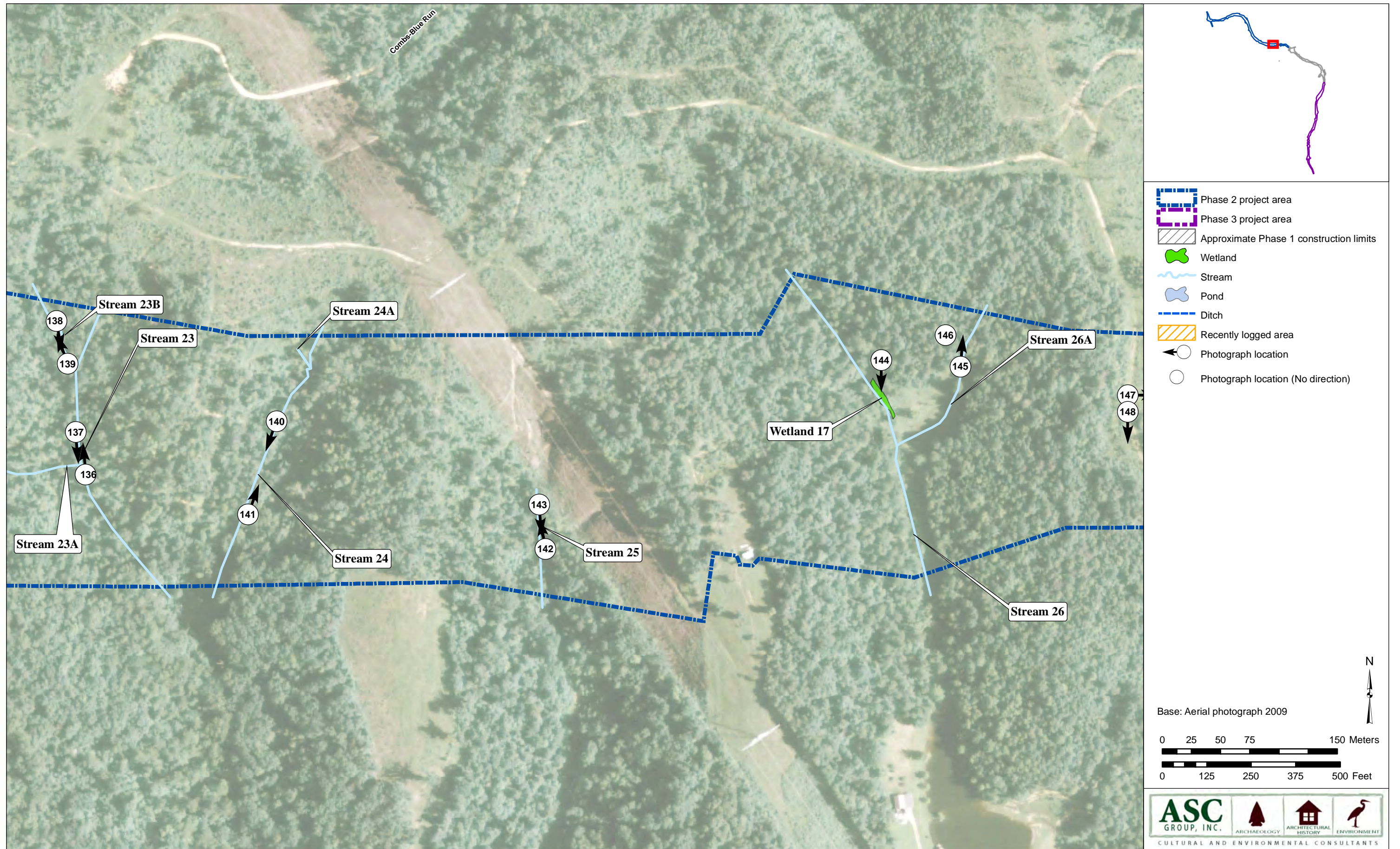


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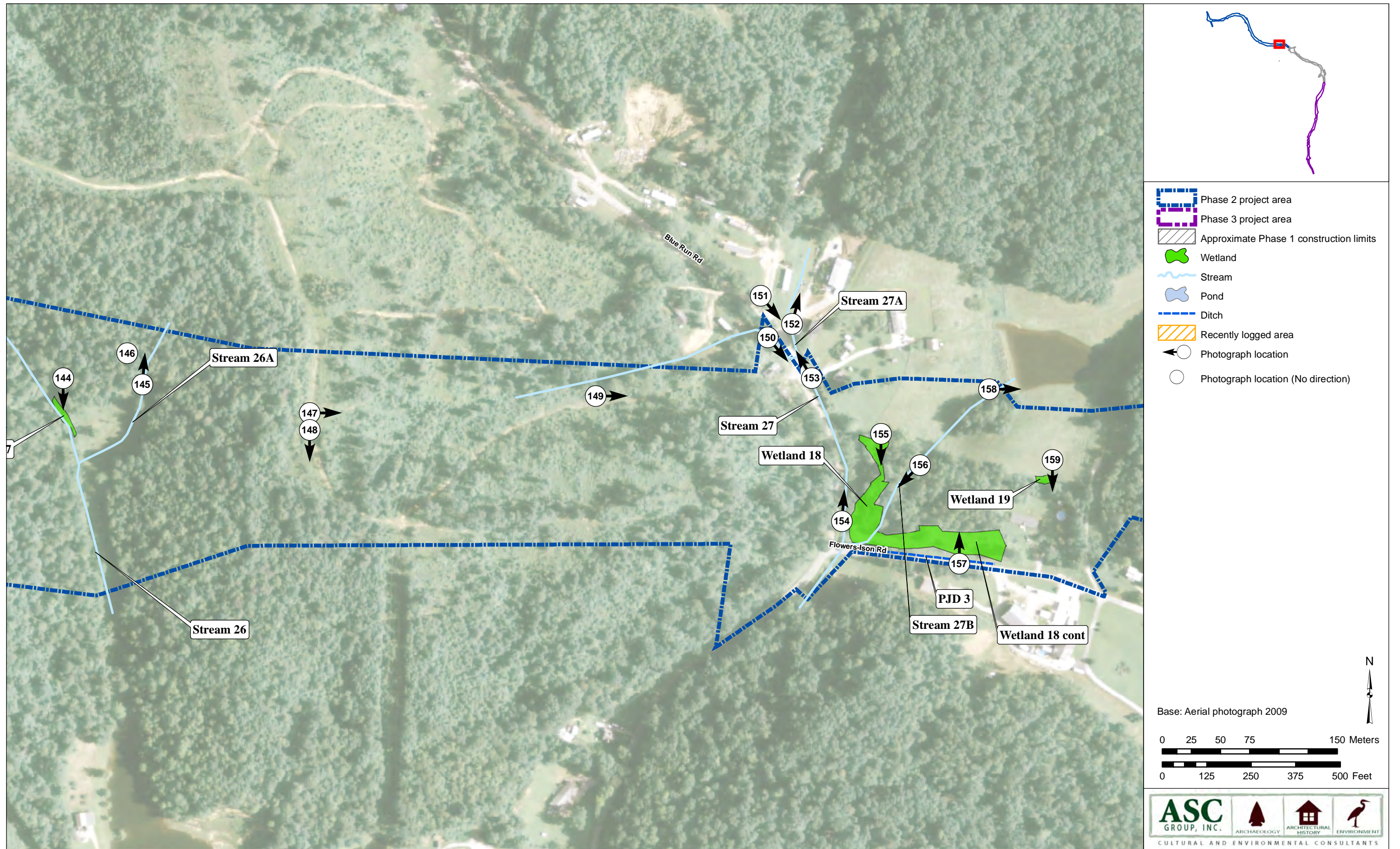


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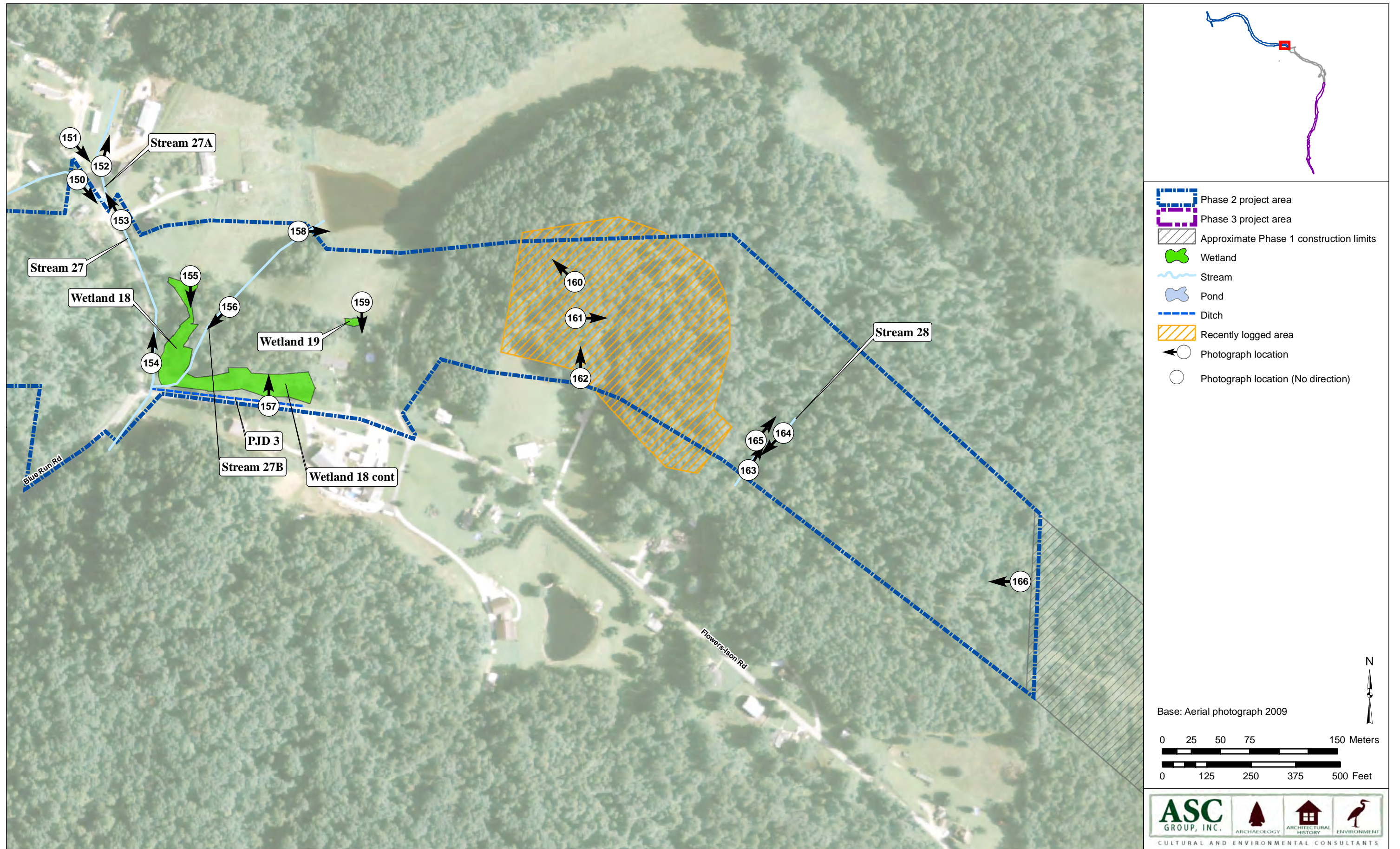


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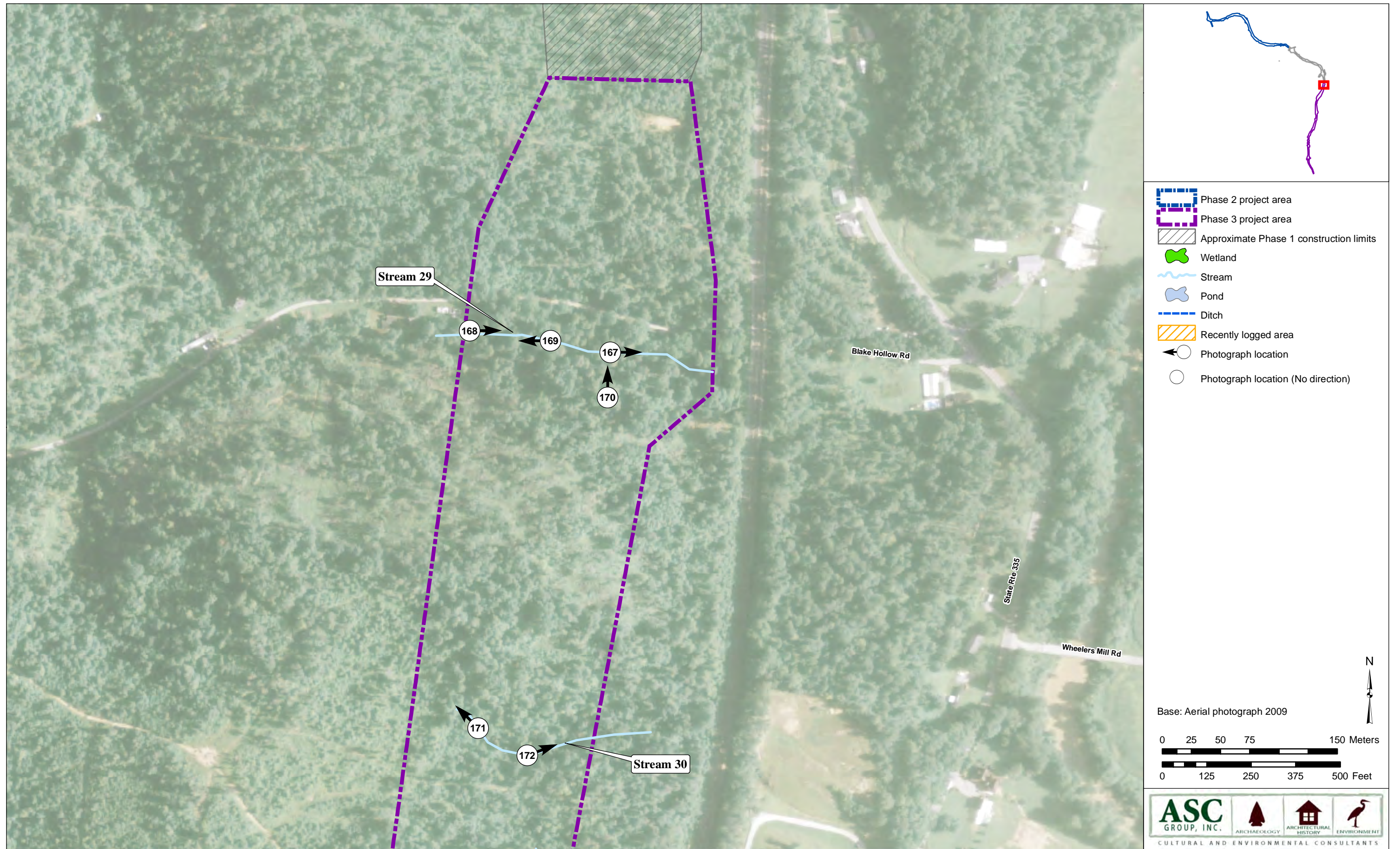


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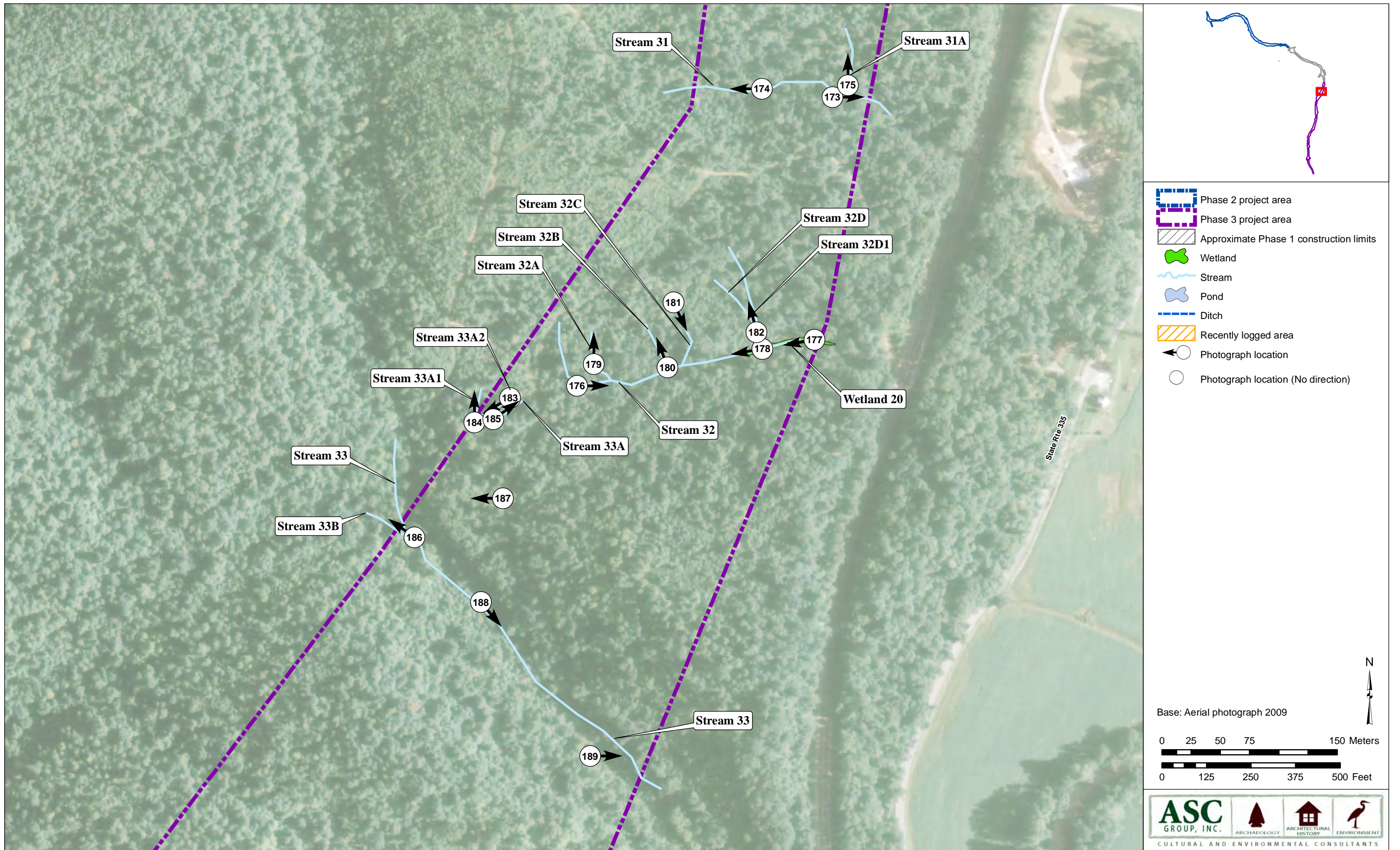


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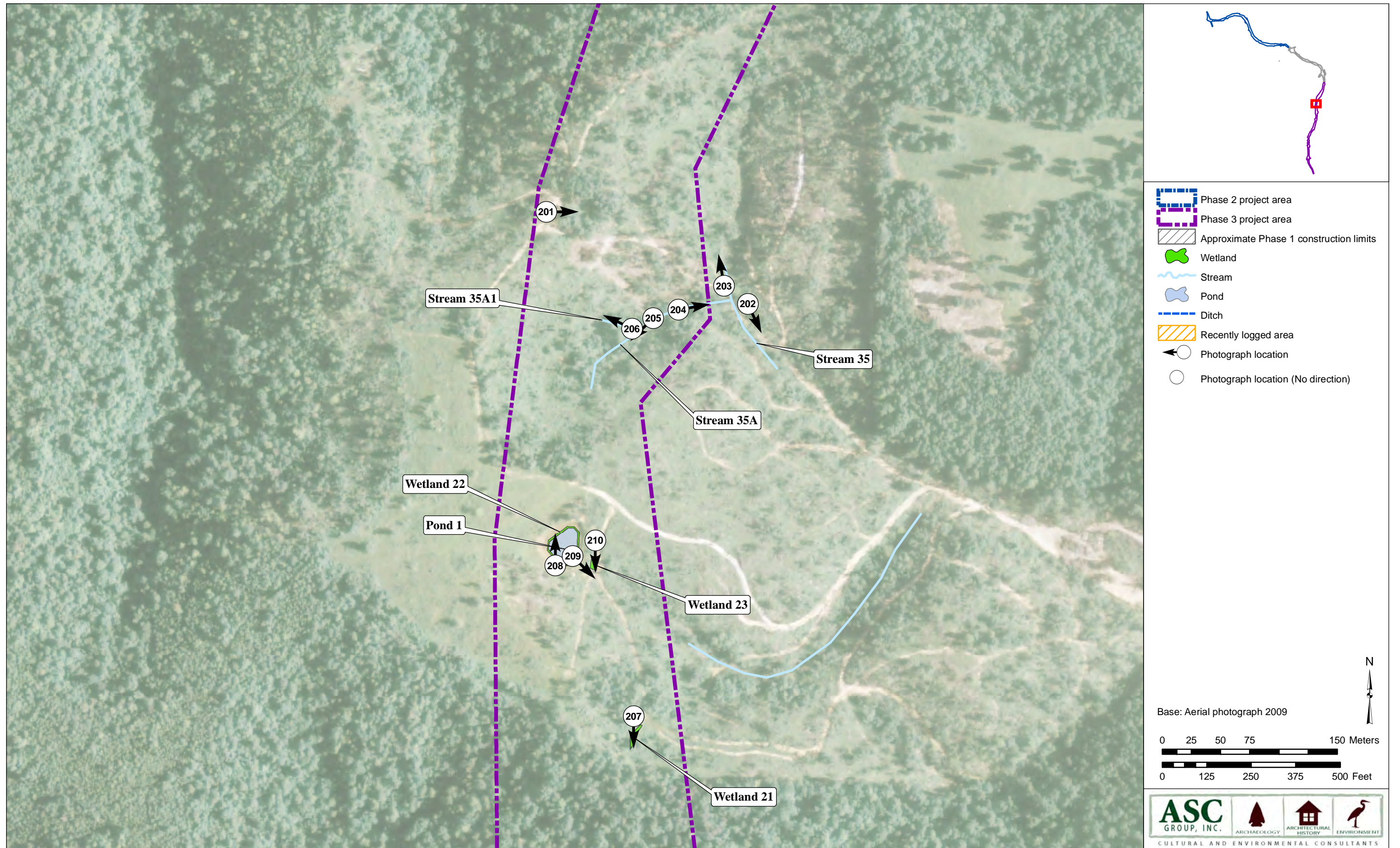


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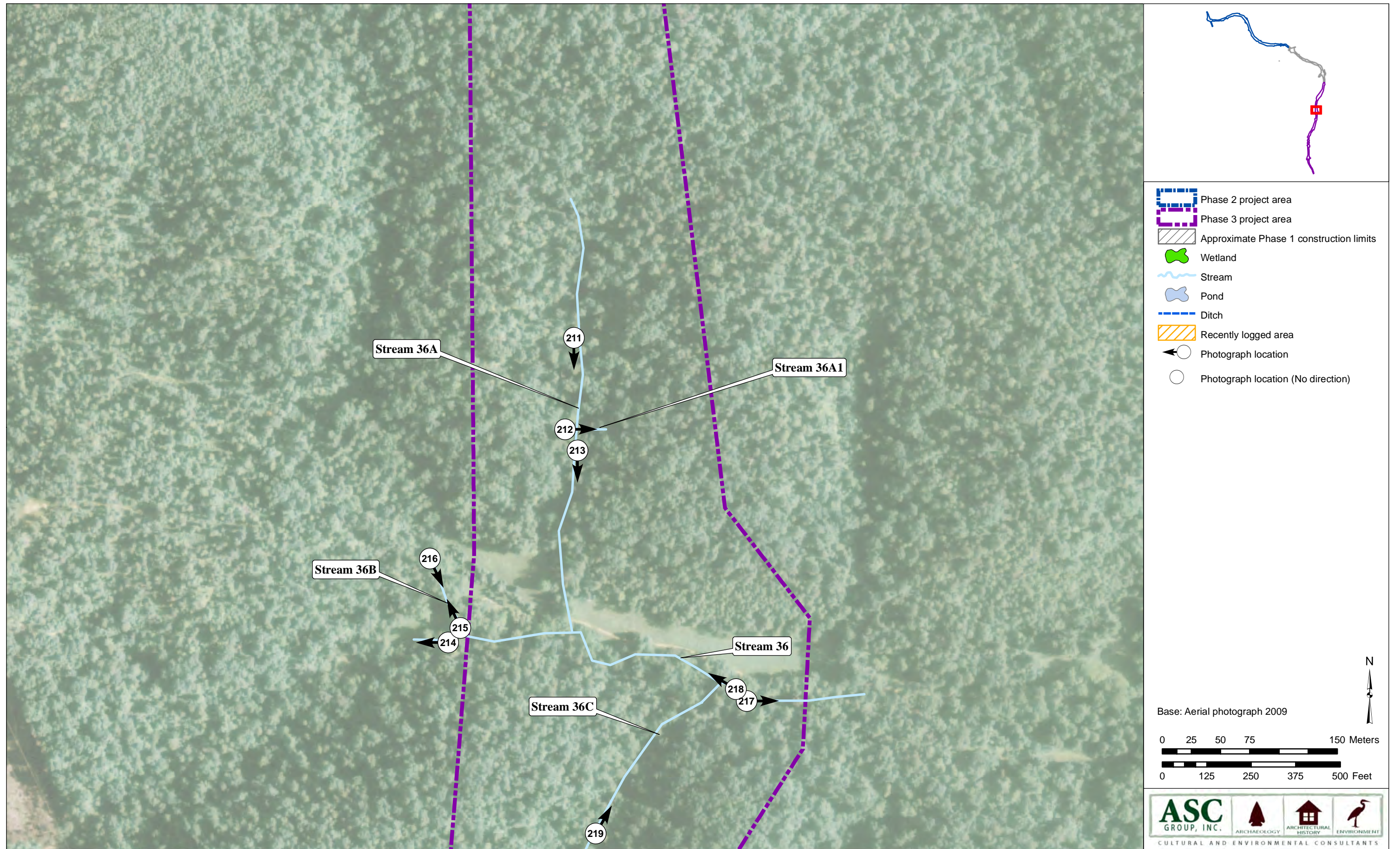


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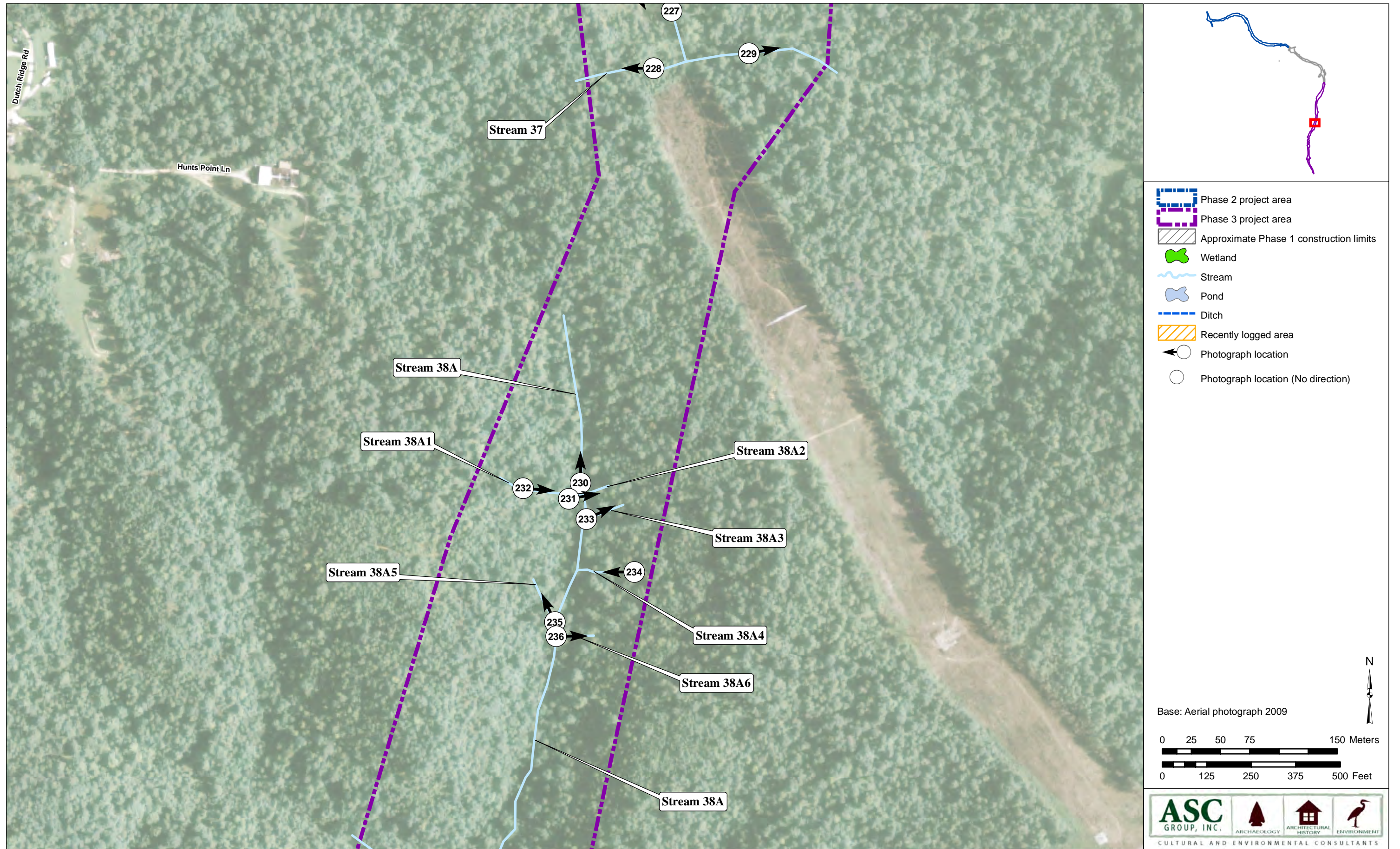


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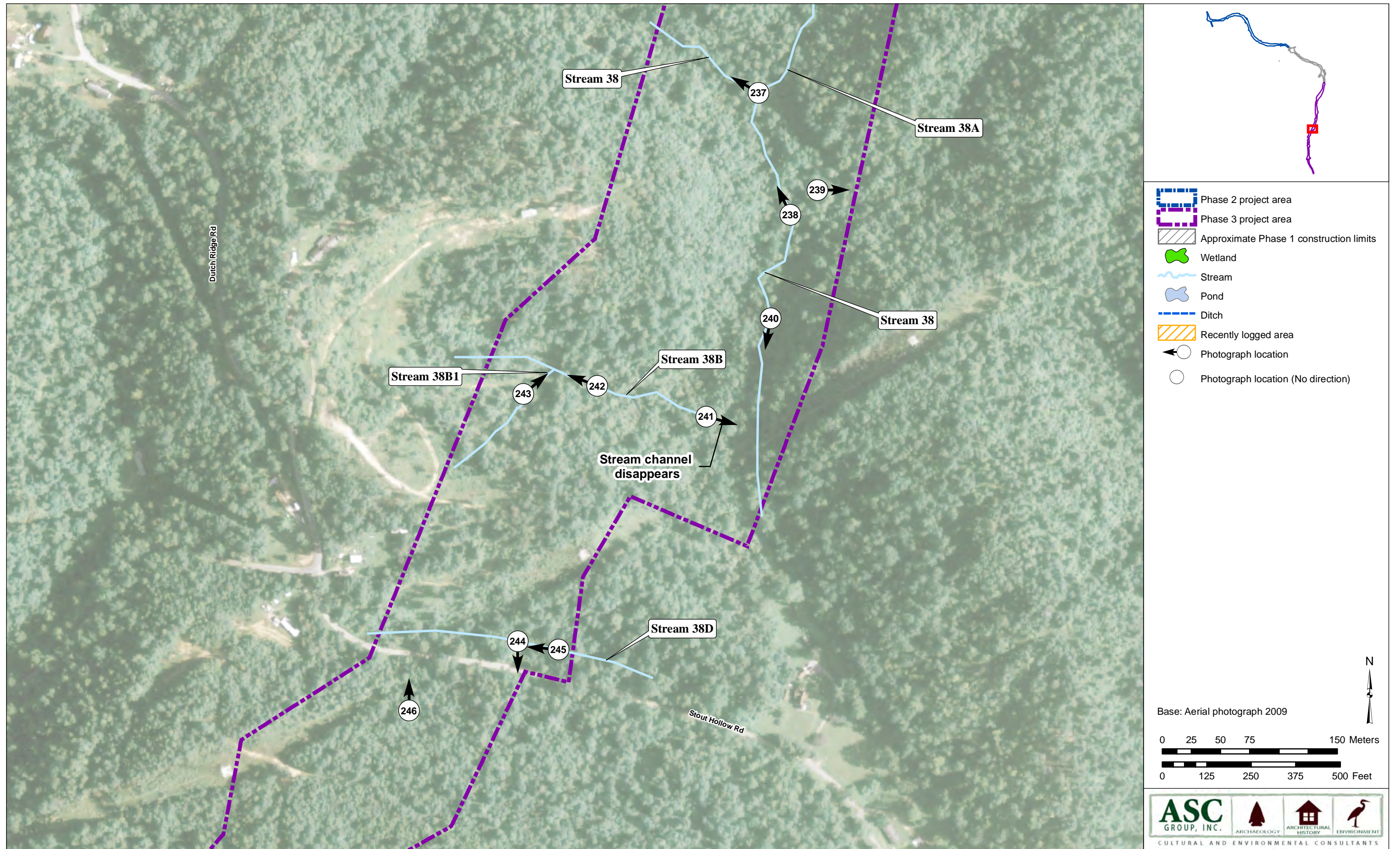


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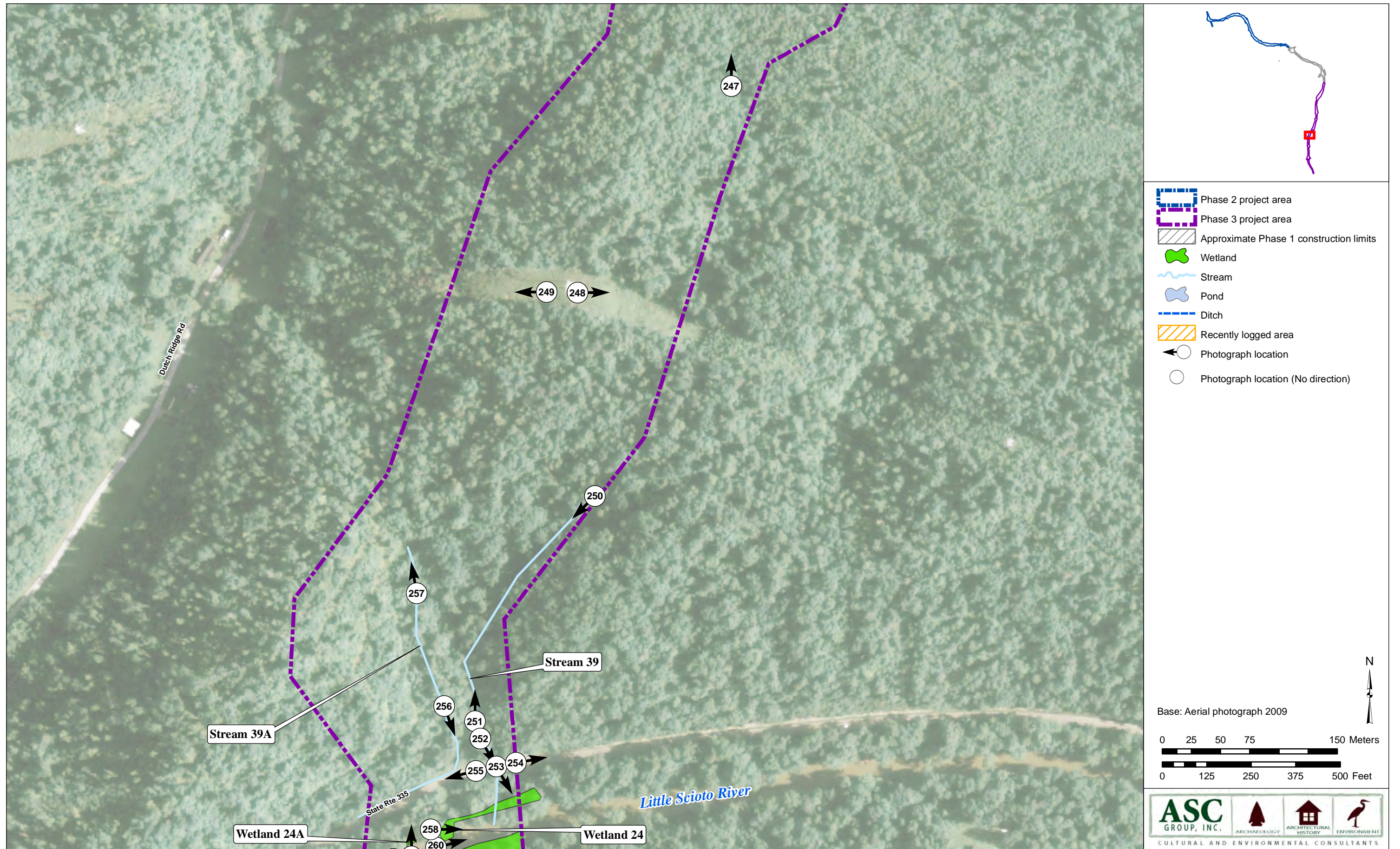


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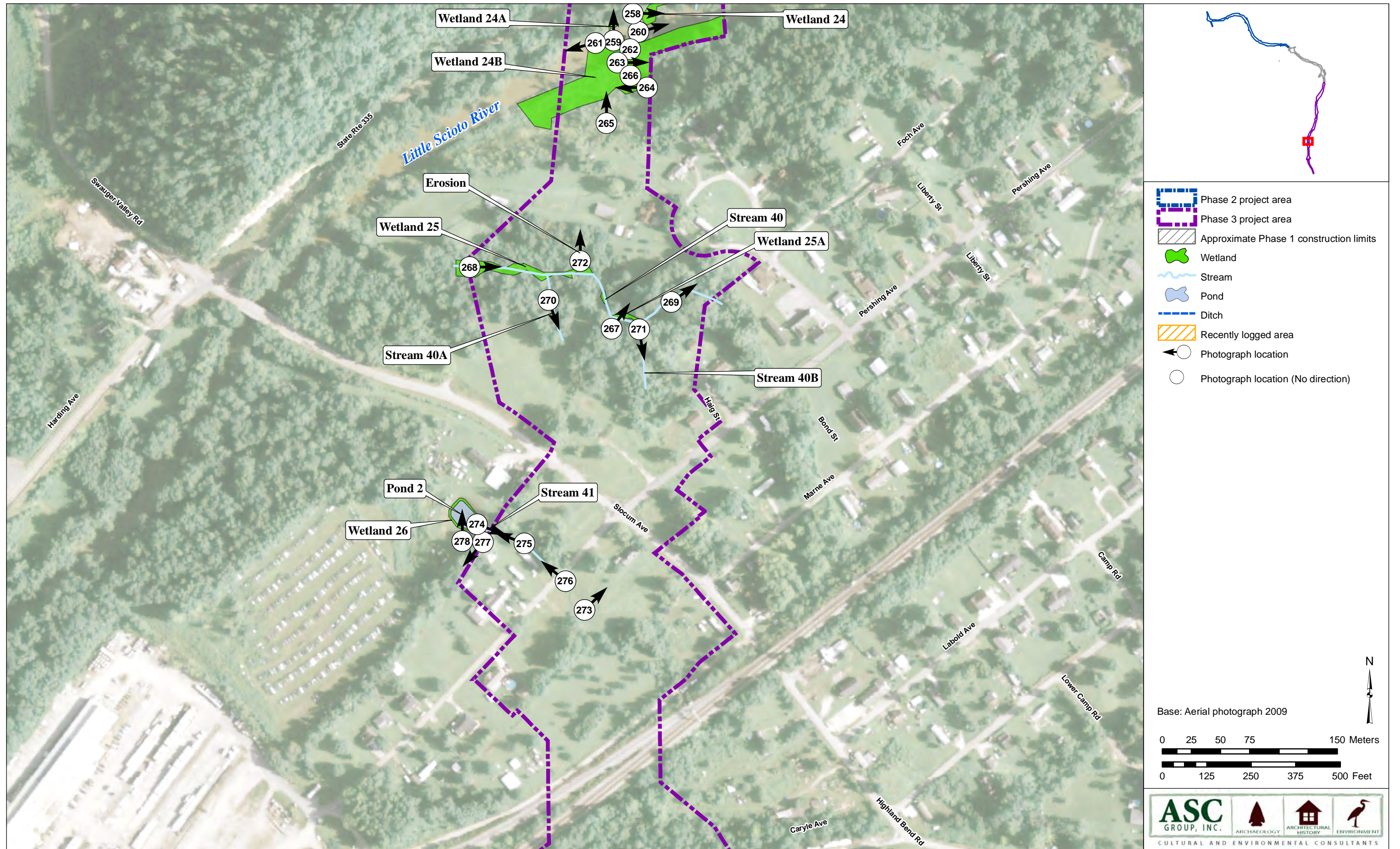


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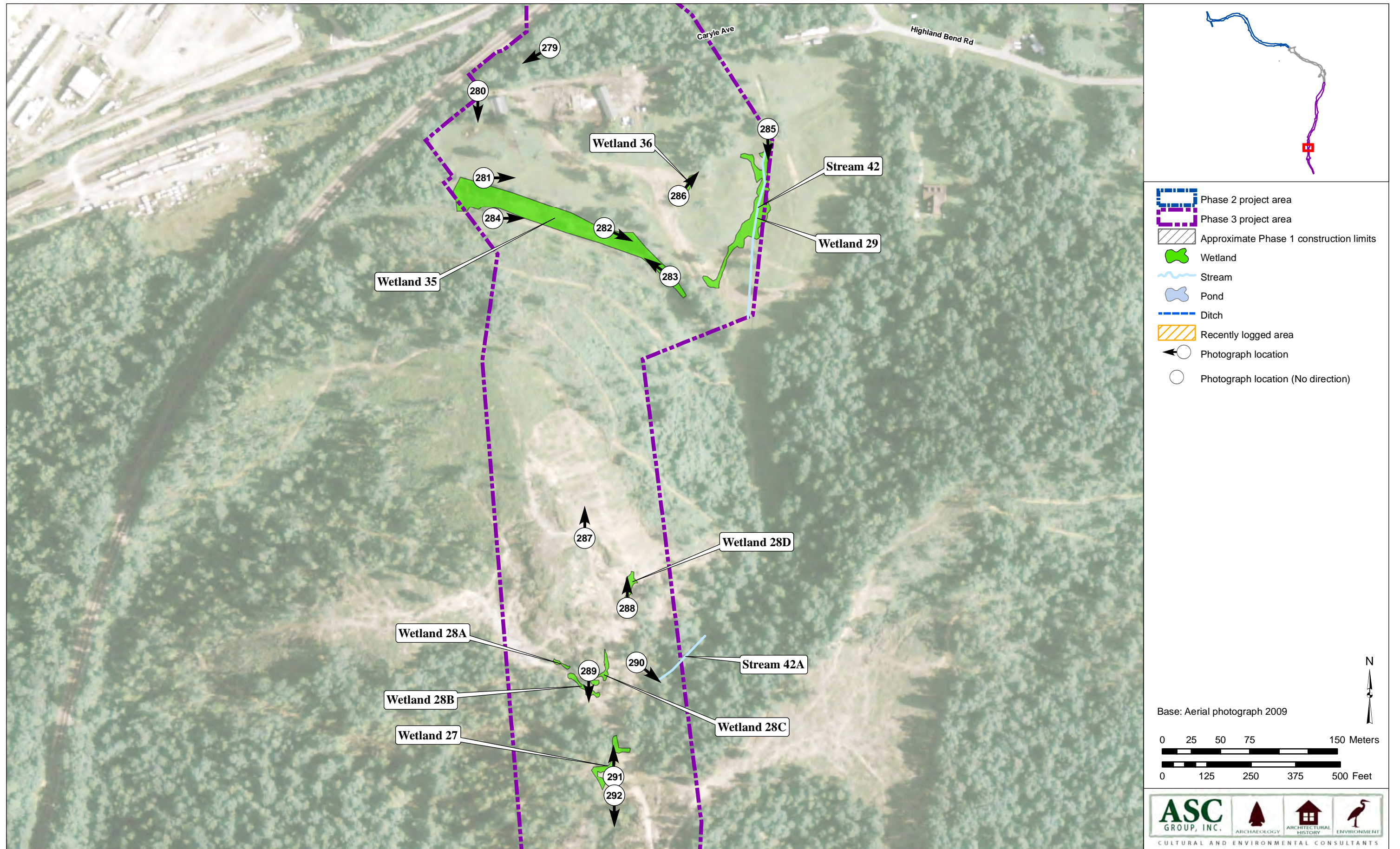


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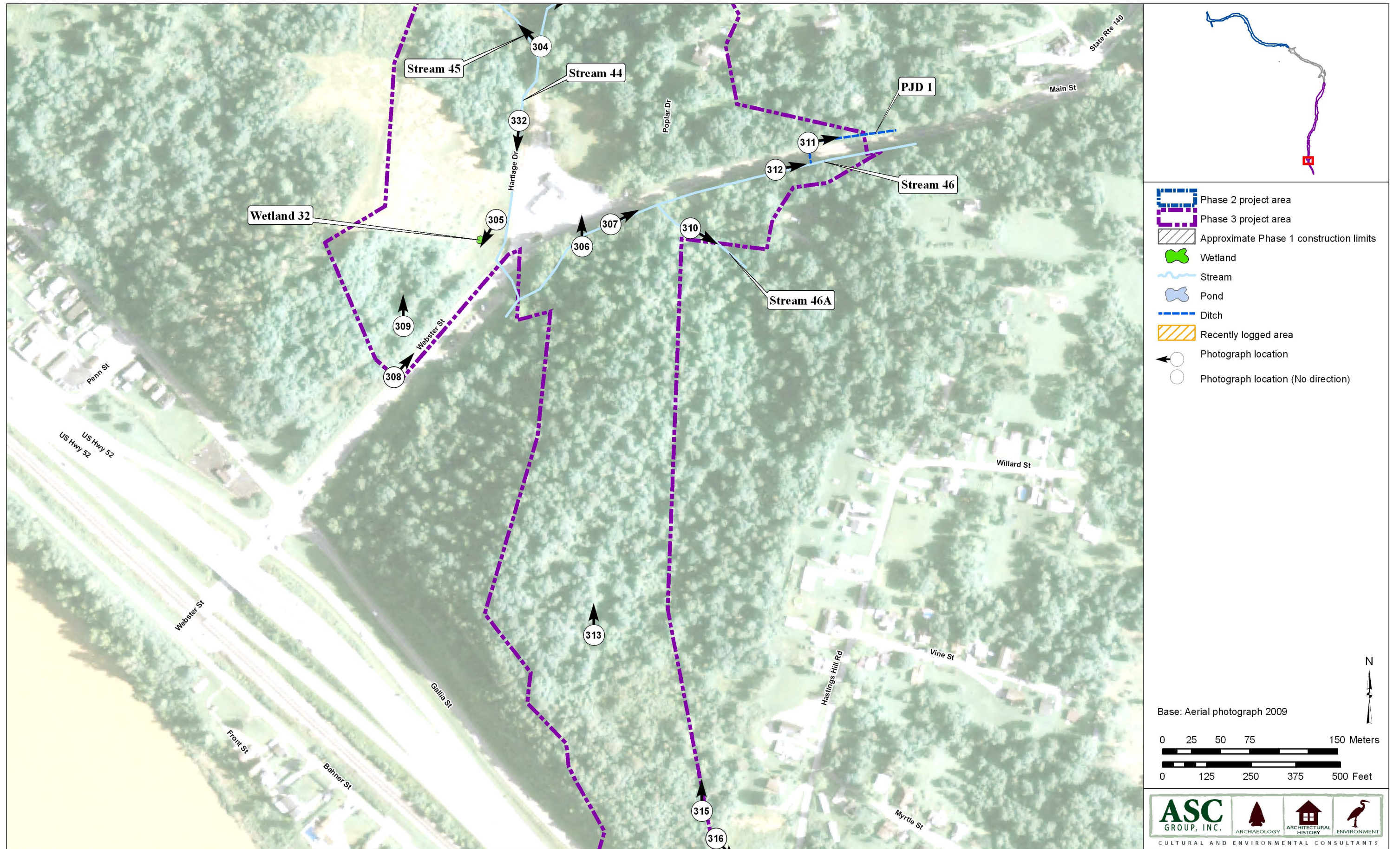


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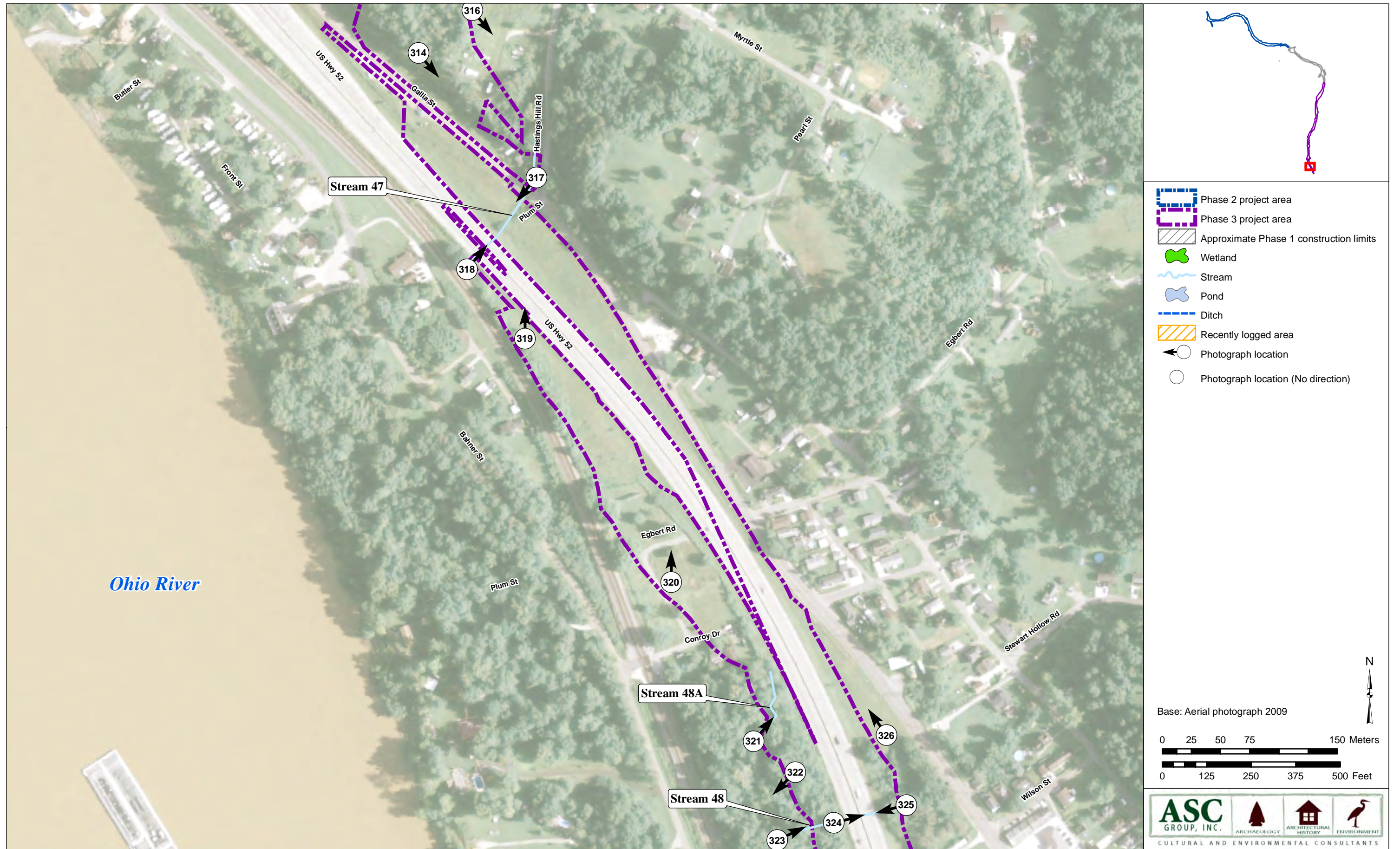


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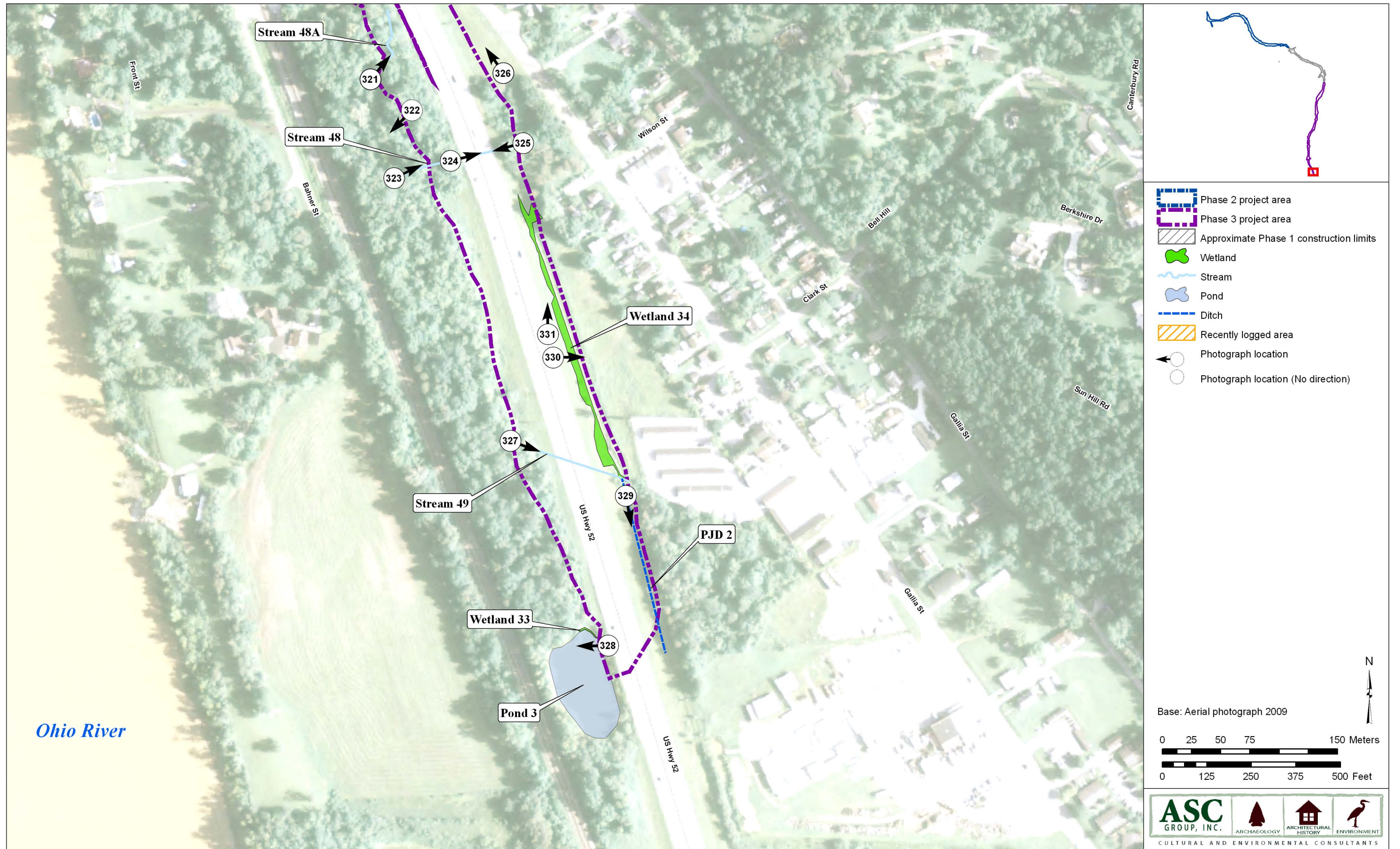


Figure 13. Photograph locations. (30 sheets)

**Appendix 2  
Photographs**



Photograph 1. Stream 1, facing upstream (northeast).



Photograph 2. Stream 1, partially obscured by vegetation, facing downstream (southwest).





Photograph 3. Stream 1, facing downstream (southeast).



Photograph 4. Stream 1, facing upstream (north).



Photograph 5. Confluence of Stream 1 (left) and Stream 2 (right), facing upstream (northeast).



Photograph 6. Stream 1, facing downstream (southwest).



Photograph 7. Stream 2 and Wetland 2, facing east.



Photograph 8. Stream 1, facing upstream (north).



Photograph 9. Area of stunted corn in Wetland 2, facing west.



Photograph 10. Wetland 2, facing south.



Photograph 11. Wetland 1, facing northeast.



Photograph 12. Stream 3, facing upstream (northeast).



Photograph 13. Stream 3, facing downstream (west).



Photograph 14. Stream 3, facing upstream (northwest).



Photograph 15. Upstream portion of Stream 3, facing northeast.



Photograph 16. Mowed portion of Wetland 3, facing southeast.



Photograph 17. Wetland 3, facing northwest.



Photograph 18. Stream 4 and upland data plot 21, facing downstream (west).





Photograph 19. Roadside ditch along US 23, facing northwest.



Photograph 20. Wetland 9, facing northwest.



Photograph 21. US 23 ROW, facing southeast.



Photograph 22. Wetland 7, facing northwest.



Photograph 23. Upland Plot 27, facing north.



Photograph 24. Wetland 6, facing northeast.



Photograph 25. Stream 5B, facing upstream (northwest).



Photograph 26. Stream 5A, facing upstream (north).



Photograph 27. Stream 5, facing upstream (north).



Photograph 28. Stream 5, facing downstream (southwest).



Photograph 29. Stream 5C, facing downstream (west).



Photograph 30. Stream 5C, facing upstream (southeast).



Photograph 31. Larval southern two-lined salamander (*Eurycea cirrigera*) observed in Stream 5.



Photograph 32. Wetland 10, facing east.



Photograph 33. Stream 6A, facing upstream (northwest).



Photograph 34. Stream 6A, facing downstream (southeast).





Photograph 35. Wetland 4, facing southwest.



Photograph 36. Wetland 5, facing northeast.



Photograph 37. Stream 6, facing downstream (southwest).



Photograph 38. Stream 6B, facing downstream (northwest).



Photograph 39. Stream 6B2, facing downstream (southwest).



Photograph 40. Stream 6B2, facing upstream (northeast).



Photograph 41. Stream 6B, facing downstream (northwest).



Photograph 42. Wetland 11, facing northeast.



Photograph 43. Previously logged area, facing north.



Photograph 44. Area of recent clear-cutting activity, facing east.



Photograph 45. Recently logged area with the Stream 7 channel in the center of the photograph, facing upstream (northwest).



Photograph 46. Recently logged area at Stream 7, facing downstream (southeast).



Photograph 47. Stream 8 near southern extent of logged area, facing downstream (south).



Photograph 48. Stream 8, facing upstream (northeast).



Photograph 49. Active logging area with bulldozer visible along skid road, facing north.



Photograph 50. Headwaters of Stream 9, facing downstream (west).





Photograph 51. Headwaters of Stream 9, near end of OHWM, facing upstream (east).



Photograph 52. View of recently clear-cut area, facing south.



Photograph 53. Slash pile covering Stream 10B, facing upstream (north).



Photograph 54. Slash pile covering Stream 10B, facing downstream (south).



Photograph 55. Stream 10 and Wetland 12, facing upstream (northeast).



Photograph 56. Stream 10A, partially obscured by vegetation, facing downstream (southwest).



Photograph 57. Stream 10A, partially obscured by vegetation, facing upstream (northeast).



Photograph 58. Stream 10C, facing downstream (southwest).



Photograph 59. Stream 10C, facing upstream (northeast).



Photograph 60. Stream 10D, facing downstream (northwest).



Photograph 61. Stream 10D, facing upstream (southeast).



Photograph 62. Headwaters of Stream 10, facing downstream (southwest).



Photograph 63. Eastern garter snake (*Thamnophis sirtalis sirtalis*) near Stream 10.



Photograph 64. Commonly found terrestrial millipedes in Stream 10 complex.



Photograph 65. Stream 11A, facing upstream (northwest).



Photograph 66. Stream 11A, facing downstream (southeast).





Photograph 67. Stream 11B, facing upstream (northwest).



Photograph 68. Stream 11B, facing downstream (southeast).



Photograph 69. Stream 11C, facing downstream (southeast).



Photograph 70. Stream 11C, facing upstream (northwest).



Photograph 71. Stream 11, facing upstream (northeast).



Photograph 72. Stream 11, facing downstream (southwest).



Photograph 73. Stream 11E, facing upstream (east).



Photograph 74. Stream 11E, facing downstream (west).



Photograph 75. View of the State of Ohio Species of Concern eastern box turtle (*Terrapene carolina carolina*), near Stream 11.



Photograph 76. Stream 11D, facing downstream (west-northwest).



Photograph 77. Stream 11D, facing upstream (northeast).



Photograph 78. Stream 11F, facing downstream (west).



Photograph 79. Stream 11F, facing upstream (northeast).



Photograph 80. Eastern fence lizard (*Sceloporus undulatus*), near Stream 11 complex.



Photograph 81. Stream 12, facing upstream (northeast).



Photograph 82. Stream 12, facing downstream (southwest).





Photograph 83. Stream 13, facing downstream (southwest).



Photograph 84. Stream 13, facing upstream (northeast).



Photograph 85. Stream 15, facing upstream (north).



Photograph 86. Stream 15, facing downstream (south).



Photograph 87. Stream 15A, facing downstream (southwest).



Photograph 88. Stream 15B, facing upstream (northeast).



Photograph 89. Stream 15B, facing downstream (southwest).



Photograph 90. Wetland 13, facing northeast along Stream 16.



Photograph 91. Wetland 14, facing west.



Photograph 92. Stream 16, facing downstream (west-southwest).



Photograph 93. Stream 16, facing upstream (northeast).



Photograph 94. Stream 16A, facing downstream (northwest).



Photograph 95. Stream 16A, facing upstream (southeast).



Photograph 96. Upstream portion of Stream 17,  
facing downstream (southwest).



Photograph 97. Stream 17, facing downstream (southwest).



Photograph 98. Stream 17A, facing downstream (southwest).





Photograph 99. Stream 17B, facing upstream (northeast).



Photograph 100. South-facing rock outcrop along Stream 17B, facing north.



Photograph 101. Downstream portion of Stream 17B,  
facing downstream (southwest).



Photograph 102. Stream 17C, facing upstream (east).



Photograph 103. Stream 17C, facing downstream (west).



Photograph 104. Stream 17C1, upstream (east).



Photograph 105. Stream 17C1, facing downstream (northwest).



Photograph 106. Stream 18, facing downstream (southwest).



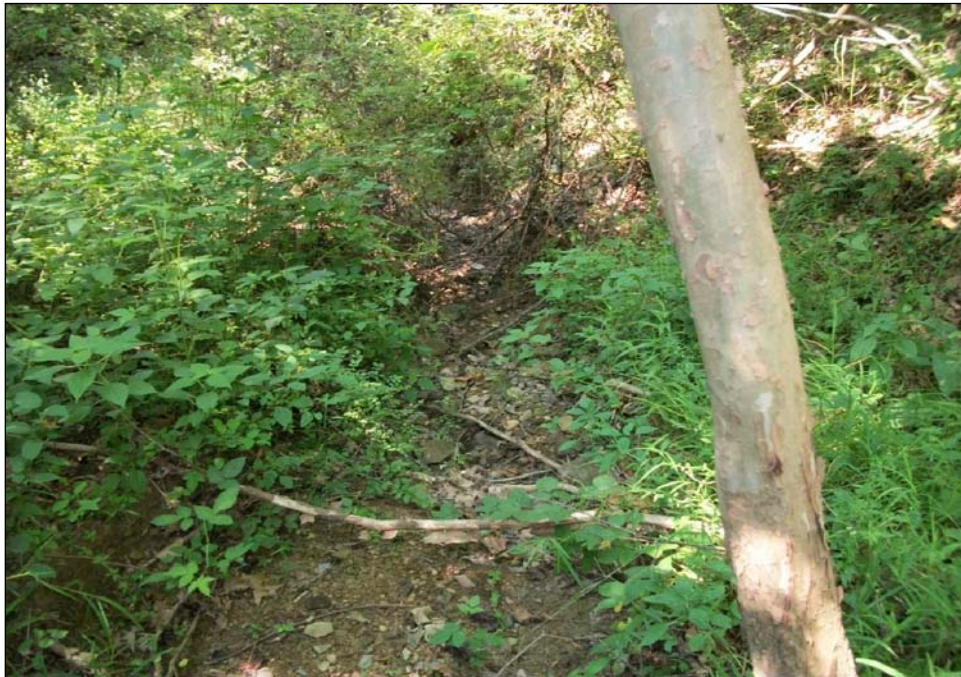
Photograph 107. Stream 18, facing upstream (northeast).



Photograph 108. Stream 18A, facing upstream (northwest).



Photograph 109. Stream 18B near confluence with Stream 18, facing upstream (southeast).



Photograph 110. Stream 19, facing upstream (northeast).



Photograph 111. Stream 19, facing downstream (southwest).



Photograph 112. Stream 19A, facing upstream (southeast).



Photograph 113. Stream 19A at confluence with Stream 19, facing downstream (northwest).



Photograph 114. Stream 19B, facing upstream (east).





Photograph 115. Stream 19B, facing downstream (west).



Photograph 116. Stream 20 and Wetland 15, facing upstream (northeast).



Photograph 117. Stream 20, facing downstream (southwest).



Photograph 118. View of the logged valley  
in the Stream 20 complex, facing east.



Photograph 119. Stream 20-1, facing downstream (northwest).



Photograph 120. View of the logged valley in the Stream 20 complex, facing west.



Photograph 121. Wetland 16, facing east.



Photograph 122. Logged valley along Stream 20-1, facing south.



Photograph 123. Slash pile along banks of Stream 20, facing north.



Photograph 124. Stream 21 near confluence with Stream 21A, facing downstream (south).



Photograph 125. Stream 21, facing upstream (northwest).



Photograph 126. Stream 21A along an abandoned logging road, facing downstream (southeast).



Photograph 127. Stream 21A, facing upstream (northwest).



Photograph 128. Stream 22, facing upstream (northeast).



Photograph 129. Stream 22, facing downstream (south).



Photograph 130. Erosional channel along abandoned logging road, facing southeast.





Photograph 131. Stream 22C, facing downstream (west).



Photograph 132. Stream 22C, facing upstream (east).



Photograph 133. Previously logged area currently dominated by a shrub/scrub community, facing east.



Photograph 134. Headwaters of Stream 23A, facing upstream (west).



Photograph 135. Headwaters of Stream 23A, facing downstream (east).



Photograph 136. Stream 23, facing upstream (north).



Photograph 137. Stream 23, upstream of Stream 23A,  
facing downstream (south).



Photograph 138. Stream 23B, facing downstream (south).



Photograph 139. Stream 23B, facing upstream (north-northwest).



Photograph 140. Stream 24, facing downstream (southwest).



Photograph 141. Stream 24, facing upstream (northeast).



Photograph 142. Stream 25, facing upstream (north).



Photograph 143. Stream 25, facing downstream (south).



Photograph 144. Stream 26 and Wetland 17, facing downstream (south).



Photograph 145. Stream 26A, facing upstream (north).

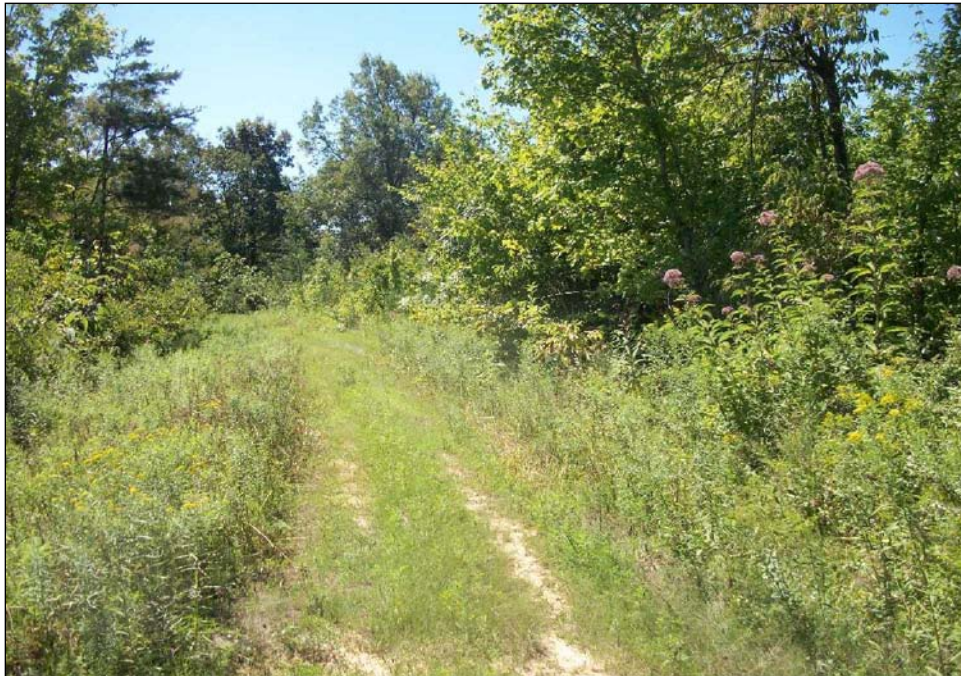


Photograph 146. View of eastern box turtle (*Terrapene carolina carolina*) along Stream 26A.





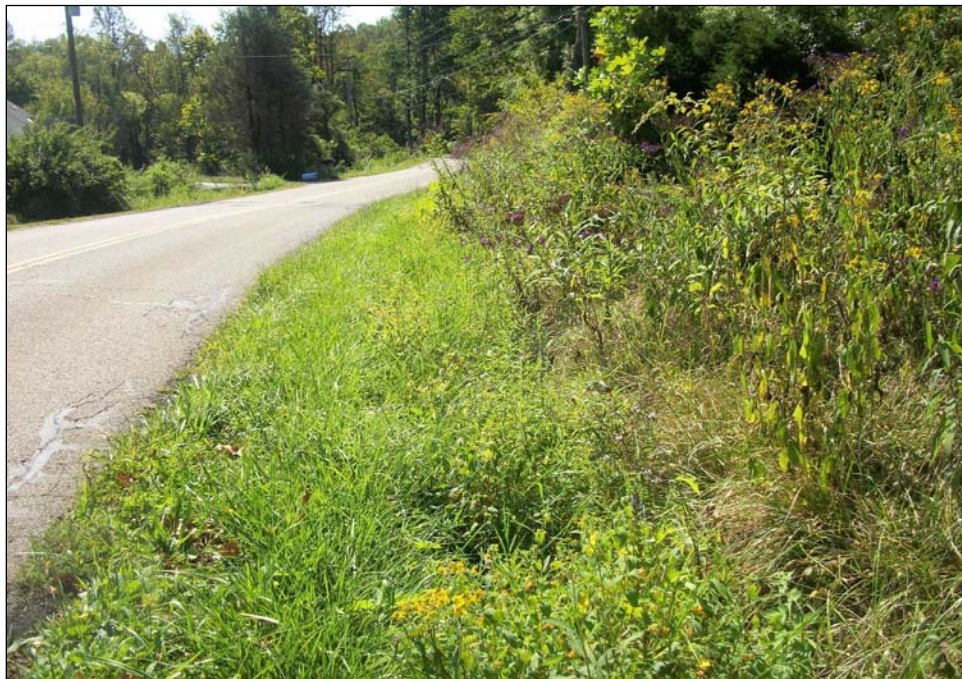
Photograph 147. Clear-cut area, facing east.



Photograph 148. Abandoned logging road in clear-cut area, facing south.



Photograph 149. View of Stream 27 obscured by dense vegetation, facing downstream (east).



Photograph 150. Stream 27 captured along Blue Run Road, facing downstream (southeast).



Photograph 151. Roadside ditch, outside of project area, upstream of Stream 27A, facing southeast.



Photograph 152. Stream 27A just outside the project area, facing upstream (northeast).



Photograph 153. Stream 27 at confluence with Stream 27A (just outside the project area), facing upstream (northwest).



Photograph 154. Stream 27, facing upstream (north).



Photograph 155. Wetland 18, facing south.



Photograph 156. Stream 27B, partially obscured by downed tree, facing downstream (southwest).



Photograph 157. Wetland 18 near Flowers-Ison Road, facing north.



Photograph 158. Pond located outside project area and the source of hydrology for Stream 27B, facing east.



Photograph 159. Wetland 19, facing south.



Photograph 160. Upland woods, facing northwest.



Photograph 161. Area of recent logging activities, facing east.



Photograph 162. Valley where recent logging activities took place, facing north.  
There is no stream present.





Photograph 163. Stream 28 facing upstream (northeast).



Photograph 164. Stream 28 facing downstream (southwest).



Photograph 165. Erosional feature upstream of Stream 28, facing northeast.



Photograph 166. Upland scrub/shrub area near the eastern terminus of the Phase 2 project area, facing west.



Photograph 167. Stream 29 and Plot 53, facing downstream (east).



Photograph 168. Stream 29 and Plot 54, facing downstream (east).



Photograph 169. Stream 29, facing upstream (west).



Photograph 170. Shrub/scrub area south of Stream 29, facing north.



Photograph 171. Stream 30 near start of OHWM,  
facing upstream (northwest).



Photograph 172. Stream 30, facing downstream (northeast).



Photograph 173. Lone pool in Stream 31, facing upstream (east).



Photograph 174. Stream 31, facing downstream (west).



Photograph 175. Stream 31A, facing upstream (north).  
Portions of the stream were previously used  
for logging access.



Photograph 176. Stream 32, facing downstream (east).



Photograph 177. Braided channel portion of Stream 32 and Wetland 20, facing upstream (west).



Photograph 178. Braided channel portion of Stream 32 and Wetland 20, facing upstream (west).





Photograph 179. Stream 32A, facing upstream (north).



Photograph 180. Stream 32B, facing upstream (northwest).



Photograph 181. Stream 32C, facing downstream (southeast).



Photograph 182. Confluence of Streams 32D and 32D1, facing upstream (northwest).



Photograph 183. Stream 33A2, facing downstream (southwest).



Photograph 184. Confluence of Streams 33A and 33A1, facing upstream (north).



Photograph 185. Confluence of Streams 33A and 33A2, facing upstream (northeast).



Photograph 186. Confluence of Streams 33 and 33B, facing upstream (northwest).



Photograph 187. Typical young second-growth upland area, facing west.



Photograph 188. Stream 33, facing downstream (southeast).



Photograph 189. Upland Plot 57, along Stream 33, facing east.



Photograph 190. Mowed grassland at Dan White Hollow, facing west.



Photograph 191. Stream 34, facing upstream (south).



Photograph 192. Mowed grassland at Dan White Hollow, facing west.



Photograph 193. Mowed grassland at Dan White Hollow, facing north.



Photograph 194. Stream 34, downstream of confluence with Stream 34A, facing downstream (east).





Photograph 195. Stream 34A, facing downstream (southeast).



Photograph 196. Stream 34A, facing upstream (northwest).



Photograph 197. Stream 34B and old logging road, facing downstream (northwest).



Photograph 198. Stream 34B, facing upstream (southeast).



Photograph 199. Stream 34B1, facing upstream (south).



Photograph 200. Stream 34B2, facing upstream (southeast).



Photograph 201. Typical view overlooking logged valley, facing east.



Photograph 202. Stream 35, located just outside the project area, facing downstream (southeast).



Photograph 203. Stream 35, located just outside the project area, facing upstream (north/northwest).



Photograph 204. Stream 35A, facing downstream (east).



Photograph 205. Stream 35A, facing upstream (southwest).



Photograph 206. Stream 35A1, facing upstream (northwest).



Photograph 207. Wetland 21, facing south.



Photograph 208. Pond 1 and fringe Wetland 22, facing north.



Photograph 209. Outlet of Pond 1/Wetland 22, facing southeast.



Photograph 210. Wetland 23, facing south.





Photograph 211. Stream 36A, facing downstream (south).



Photograph 212. Stream 36A1 at confluence with Stream 36A,  
facing upstream (east).



Photograph 213. Stream 36A, facing downstream (south).



Photograph 214. Stream 36, facing upstream (west).



Photograph 215. Stream 36B at confluence with Stream 36, facing upstream (northwest).



Photograph 1216. Stream 36B, facing downstream (southeast).



Photograph 217. Stream 36, facing downstream (east).



Photograph 218. Stream 36, facing upstream (northwest).



Photograph 219. Stream 36C, facing downstream (northeast).



Photograph 220. Stream 36C, facing upstream (southwest).



Photograph 221. Stream 36C4, facing upstream (northwest).



Photograph 222. Stream 36C2, facing downstream (southwest).



Photograph 223. Stream 36C3, facing upstream (southeast).



Photograph 224. Typical view of previously logged area, facing southwest.



Photograph 225. Power line corridor, facing southeast.



Photograph 226. Stream 37A, facing downstream (south-southeast).





Photograph 227. Stream 37A, obscured by vegetation, facing upstream (north-northwest).



Photograph 228. Stream 37, facing upstream (west).



Photograph 229. Stream 37, facing downstream (east).



Photograph 230. Stream 38A, facing upstream (north).



Photograph 231. Stream 38A2, facing upstream (east).



Photograph 232. Stream 38A1, facing downstream (east).



Photograph 233. Stream 38A3, facing upstream (northeast).



Photograph 234. Stream 38A4, facing downstream (west).



Photograph 235. Stream 38A5, facing upstream (northwest).



Photograph 236. Stream 38A6, facing upstream (east).



Photograph 237. Confluence of Streams 38 and 38A, facing upstream (northwest).



Photograph 238. Stream 38, facing upstream (northwest).



Photograph 239. Upland Plot 69, facing east.



Photograph 240. Stream 38, facing downstream (south-southwest).



Photograph 241. Stream 38B, facing downstream (southeast).



Photograph 242. Stream 38B, facing upstream (northwest).





Photograph 243. Stream 38B1, facing downstream (northeast).



Photograph 244. Trash along Stream 38D, facing south.



Photograph 245. Trash in Stream 38D channel, facing upstream (west).



Photograph 246. Typical logged area, facing north.



Photograph 247. Typical logged area, facing north.



Photograph 248. Power line corridor, facing east.



Photograph 249. Power line corridor, facing west.



Photograph 250. Headwaters of Stream 39,  
facing downstream (southwest).



Photograph 251. Stream 39, facing upstream (north).



Photograph 252. Stream 39, facing downstream (southeast).



Photograph 253. Stream 39 culvert under SR 335 that drains to Little Scioto River, facing southeast.



Photograph 254. Non-jurisdictional roadside ditch, facing east.



Photograph 255. Non-jurisdictional roadside ditch, facing west/southwest.



Photograph 256. Stream 39A, facing downstream (southeast).



Photograph 257. Stream 39A, facing upstream (northwest).



Photograph 258. Wetland 24, along terrace of Little Scioto River, facing east.





Photograph 259. Wetland 24A along Little Scioto River, facing north).



Photograph 260. Little Scioto River, facing upstream (northeast).



Photograph 261. Little Scioto River, facing downstream (southwest).



Photograph 262. Weathered mussel shell in Wetland 24B along Little Scioto River.



Photograph 263. Wetland 24B and Little Scioto River,  
facing upstream (east).



Photograph 264. Wetland 24B along upper terrace of  
Little Scioto River, facing west.



Photograph 265. Approximate location of proposed bridge crossing over Little Scioto River, facing north.



Photograph 266. Watermark on tree in upper terrace in Wetland 24B.



Photograph 267. Wetland 25A, facing northeast.



Photograph 268. Stream 40 and Wetland 25, facing upstream (east).



Photograph 269. Stream 40, facing upstream (northeast).



Photograph 270. Stream 40A, facing upstream (southeast).



Photograph 271. Stream 40B, facing upstream (southeast).



Photograph 272. Non-jurisdictional erosional feature near Stream 40, facing upslope (north).



Photograph 273. Maintained lawn near intersection of Pershing Avenue and Slocum Avenue, facing northeast.



Photograph 274. Stream 41, upstream of impounded area, facing upstream (southeast).





Photograph 275. Stream 41, facing downstream (northwest).



Photograph 276. Headwaters of Stream 41, no OHWM south of Pershing Avenue, facing northwest.



Photograph 277. Excavated non-jurisdictional feature,  
facing southwest.



Photograph 278. Wetland 26 fringe around Pond 2, just outside the project area,  
facing north.



Photograph 279. Abandoned railroad bed, facing southwest.



Photograph 280. Cow pasture, facing south.



Photograph 281. Cow pasture and lumber mill, facing east.



Photograph 282. Wetland 35, facing southeast.



Photograph 283. Wetland 35, facing northwest.



Photograph 284. Wetland 35, facing east.



Photograph 285. Wetland 29 and the braided channel portion of Stream 42 extending through a cow pasture, facing upstream (south).



Photograph 286. Wetland 36, facing northeast.



Photograph 287. Typical view of logged area in the project corridor, facing north.



Photograph 288. Wetland 28D, facing north.



Photograph 289. Wetland 28B, facing south.



Photograph 290. Headwaters of Stream 42A,  
facing downstream (southeast).





Photograph 291. Wetland 27, facing north.



Photograph 292. Typical view of logged area, facing south.



Photograph 293. Typical view of logged area, facing south.



Photograph 294. Typical view of logged area, facing south.



Photograph 295. Stream 43 just upstream of impounded portion that forms Wetland 30, facing downstream (southeast).



Photograph 296. Wetland 30, facing southeast.



Photograph 297. Wetland 31, facing northwest.



Photograph 298. Outlet from impoundment of Wetland 30 and continuation of Stream 43, facing north.



Photograph 299. Stream 43, facing upstream (northwest).



Photograph 300. Stream 44, facing downstream (southwest).



Photograph 301. Pipe from Stream 43 entering Stream 44, facing northeast.



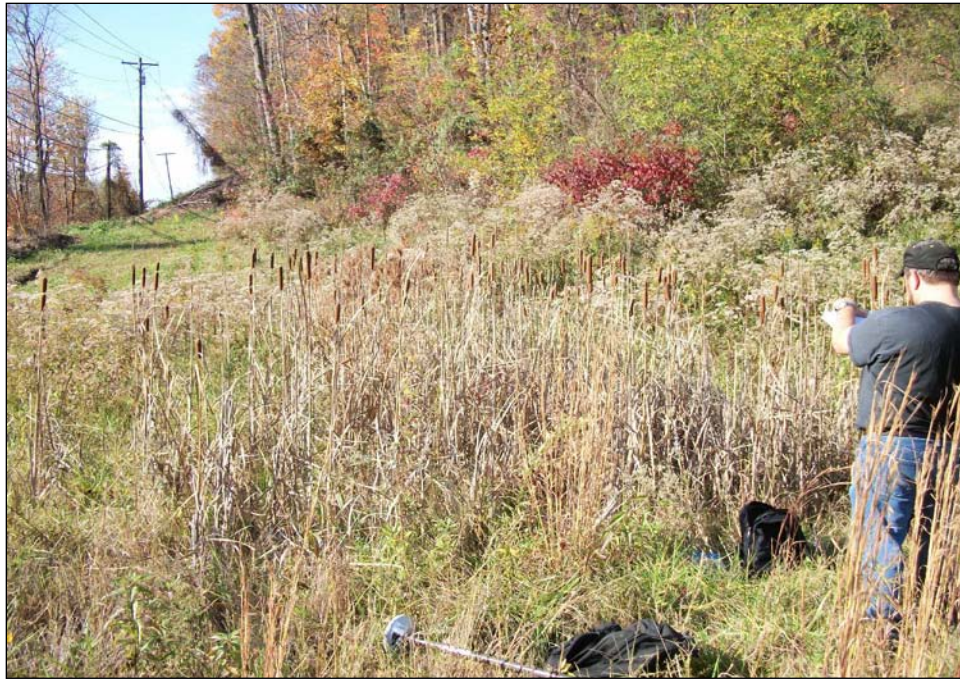
Photograph 302. Stream 44, facing upstream (northeast).



Photograph 303. Stream 45, facing downstream (southeast).



Photograph 304. Pipe from Stream 45 entering Stream 44 facing upstream (northwest).



Photograph 305. Wetland 32, facing southwest.



Photograph 306. Stormwater culvert at Stream 46 just south of Webster Street, facing north.





Photograph 307. Stream 46, facing upstream (northeast).



Photograph 308. Webster Street, facing northeast.



Photograph 309. Upland area along the power line easement, facing north.



Photograph 310. Stream 46A, facing upstream (southeast).



Photograph 311. PJD 1 along SR 140/Webster Street, facing east.



Photograph 312. Culvert from PJD 1 under SR 140/Webster Street to Stream 46.



Photograph 313. Typical upland second-growth area, facing north.



Photograph 314. Southern portion of corridor, overlooking US 52 and the Ohio River, facing southeast.



Photograph 315. Upland valley, facing north.



Photograph 2316. Approximate area of origin of Stream 47 on USGS map, no channel present, facing southeast.



Photograph 317. Stream 47 culvert under Gallia Street, facing downstream (southwest).



Photograph 318. Stream 47 culvert, facing northeast.



Photograph 319. Stormwater outlet pipe from US 52, facing north.



Photograph 320. Oldfield habitat, facing north.



Photograph 321. Stream 48A, facing upstream (northeast).



Photograph 322. Upland area, facing southwest.





Photograph 323. Stream 48, facing upstream (northeast).



Photograph 324. Stream 48 culvert under US 52, facing upstream (northeast).



Photograph 325. Stream 48 culvert under US 52, facing downstream (southwest).



Photograph 326. US 52 right-of-way, facing northwest.



Photograph 327. Stream 49 culvert under US 52, facing upstream (east-southeast).



Photograph 328. Wetland 33 fringe around Pond 3, west of US 52, facing west.



Photograph 329. PJD 2 east of US 52, facing south.



Photograph 330. Wetland 34, facing east.



Photograph 331. Wetland 34, facing north.



Photograph 332. Stream 44 facing downstream (south).

**Appendix 3  
Data Forms**

## **HHEI and QHEI Forms**

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 1** RIVER BASIN: \_\_\_\_\_ DRAINAGE AREA (m<sup>2</sup>) **0.57**

LENGTH OF STREAM REACH (ft) **200** LAT. **38.89608** LONG. **-83.00328** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **06/25/12** SCORER **J. Earley** COMMENTS \_\_\_\_\_

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

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

TYPE	PERCENT	TYPE	PERCENT	
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input checked="" type="checkbox"/> SILT [3 pt]	40%	<b>HHEI Metric Points</b>  Substrate Max = 40  <div style="border: 1px solid black; padding: 5px; width: 40px; margin: 0 auto;">10</div> A + B
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	0%	
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	0%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	0%	
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	20%	<input type="checkbox"/> MUCK [0 pts]	0%	
<input type="checkbox"/> SAND (<2 mm) [6 pts]	10%	<input checked="" type="checkbox"/> ARTIFICIAL [3 pts]	30%	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock <b>0.00%</b> (A)		100% (B)		
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: <b>6</b>		TOTAL NUMBER OF SUBSTRATE TYPES: <b>4</b>		

<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):</b> <input type="checkbox"/> > 30 centimeters [20 pts] <input checked="" type="checkbox"/> > 5 cm - 10 cm [15 pts] <input type="checkbox"/> > 22.5 - 30 cm [30 pts] <input type="checkbox"/> < 5 cm [5 pts] <input type="checkbox"/> > 10 - 22.5 cm [25 pts] <input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]	<b>Pool Depth</b> Max = 30  <div style="border: 1px solid black; padding: 5px; width: 40px; margin: 0 auto;">15</div>
COMMENTS _____	MAXIMUM POOL DEPTH (centimeters): <b>9</b>

<b>3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):</b> <input type="checkbox"/> > 4.0 meters (> 13') [30 pts] <input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] <input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] <input checked="" type="checkbox"/> ≤ 1.0 m (<= 3' 3") [5 pts] <input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	<b>Bankfull Width</b> Max=30  <div style="border: 1px solid black; padding: 5px; width: 40px; margin: 0 auto;">5</div>
COMMENTS _____	AVERAGE BANKFULL WIDTH (meters): <b>0.90</b>

**This information must also be completed**

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

RIPARIAN ZONE WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

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

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

COMMENTS Isolated pools

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

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

**STREAM GRADIENT ESTIMATE**

<input type="checkbox"/> Flat (0.5 ft/100 ft)	<input checked="" type="checkbox"/> Flat to Moderate	<input type="checkbox"/> Moderate (2 ft/100 ft)	<input type="checkbox"/> Moderate to Severe	<input type="checkbox"/> Severe (10 ft/100 ft)
---	--	---	---	--



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

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

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <u>Scioto River</u>	Distance from Evaluated Stream: <u>1.80</u>
<input type="checkbox"/> CWH Name: _____	Distance from Evaluated Stream: _____
<input type="checkbox"/> EWH Name: _____	Distance from Evaluated Stream: _____

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

USGS Quadrangle Name: Wakefield NRCS Soil Map Page: 12 NRCS Soil Map Stream Order: 2  
 County: Scioto Township / City: Valley TWP/Lucasville

**MISCELLANEOUS**

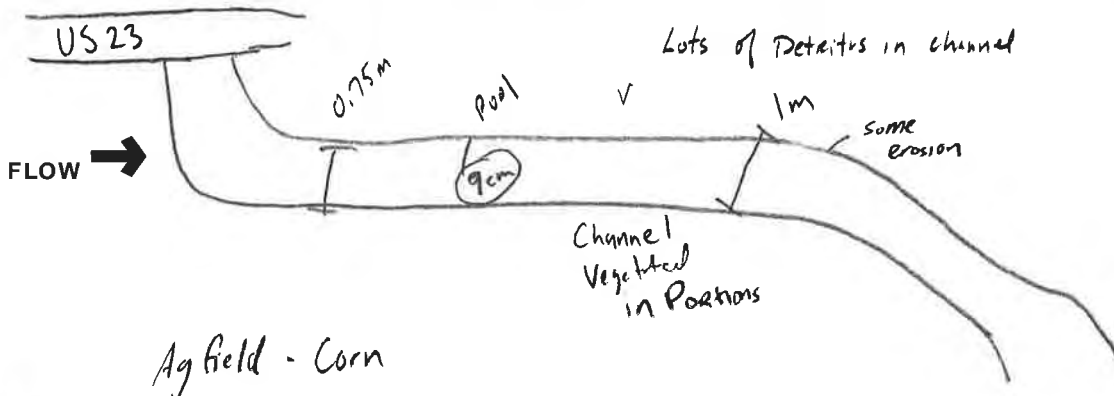
Base Flow Conditions? (Y/N): Y Date of last precipitation: 06/21/12 Quantity: 0.52  
 Photograph Information: See ESR Report  
 Elevated Turbidity? (Y/N): Y Canopy (% open): 100%  
 Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: \_\_\_\_\_  
 Field Measures: Temp (°C): \_\_\_\_\_ Dissolved Oxygen (mg/l): \_\_\_\_\_ pH (S.U.): \_\_\_\_\_ Conductivity (µmhos/cm): \_\_\_\_\_  
 Is the sampling reach representative of the stream (Y/N): Y If not, please explain: \_\_\_\_\_  
 Additional comments/description of pollution impacts: Stream 1 flows through active farm field. Pollution associated with agriculture.

**BIOTIC EVALUATION**

Performed? (Y/N): Y (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): Y Voucher? (Y/N): Y Salamanders Observed? (Y/N): N Voucher? (Y/N): N  
 Frogs or Tadpoles Observed? (Y/N): Y Voucher? (Y/N): N Aquatic Macroinvertebrates Observed? (Y/N): Y Voucher? (Y/N): N  
 Comments Regarding Biology: dragonfly larva, water striders, green frog, and western mosquitofish

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

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



## 1. Fish:

Voucher Specimens Retained? (select)  Y  N

Time Spent (minutes):

20

Sample Method Dip Net + Hand SortingStream Length Assessed (meters) 6

Species	Number Caught	Notes
Blank	0	
Blank	0	
Blank	0	
Blank	0	
Gambusia affinis	1	Several in an isolated pool at confluence
	0	Streams 1 and 2
	0	
	0	

## 2. Salamanders:

Voucher Specimens Retained? (circle)  N  Y

Time Spent (minutes):

Sample Method No Evaluation

Stream Length Assessed (meters)

Species (Genus)	# Larvae	# Juveniles/Adults	Total Number
Mountain Dusky ( <i>Desmognathus ochrophaeus</i> )	0	0	0
Northern Dusky ( <i>Desmognathus fuscus</i> )	0	0	0
Two-lined ( <i>Eurycea bislineata</i> )	0	0	0
Long-tailed ( <i>Eurycea longicauda</i> )	0	0	0
Cave ( <i>Eurycea lucifuga</i> )	0	0	0
Red ( <i>Pseudotriton ruber</i> )	0	0	0
Mud ( <i>Pseudotriton montanus</i> )	0	0	0
Spring ( <i>Gyrinophilus porphyriticus</i> ) <sup>*</sup>	0	0	0
Mole spp. ( <i>Ambystoma spp.</i> )	0	0	0
Four-toed ( <i>Hemidactylum scutatum</i> )	0	0	0
Other (name) _____	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>

Notes on Vertebrates:

**3. Macroinvertebrate Scoring Sheet:**

**THE HEADWATER MACROINVERTEBRATE FIELD EVALUATION INDEX (HMFEI) SCORING SHEET**

Indicate Abundance of Each Taxa Above each White Box.

Record HMFEI Scoring Value Points Within each Box.

For EPT taxa, also indicate the different taxa present.

**Key: V = Very Abundant (> 50); A = Abundant (10 -50); C = Common (3 -9); R = Rare (< 3)**

Sessile Animals ( <b>Porifera</b> , <b>Cnidaria, Bryozoa</b> ) (HMFEI pts = 1)	<input type="text" value="NA"/> <input type="text" value="0"/>	Crayfish ( <b>Decapoda</b> ) (HMFEI pts = 2)	<input type="text" value="NA"/> <input type="text" value="0"/>	Fishfly Larvae ( <b>Corydalidae</b> ) (HMFEI pts = 3)	<input type="text" value="NA"/> <input type="text" value="0"/>
Aquatic Worms ( <b>Turbellaria, Hirudinea</b> , <b>Oligochaeta</b> ) (HMFEI pts = 1)	<input type="text" value="NA"/> <input type="text" value="0"/>	Dragonfly Nymphs ( <b>Anisoptera</b> ) (HMFEI pts = 2)	<input type="text" value="R"/> <input type="text" value="2"/>	Water Penny Beetles ( <b>Psephenidae</b> ) (HMFEI pts = 3)	<input type="text" value="NA"/> <input type="text" value="0"/>
Sow Bugs ( <b>Isopoda</b> ) (HMFEI pts = 1)	<input type="text" value="NA"/> <input type="text" value="0"/>	Riffle Beetles ( <b>Dryopidae</b> , <b>Elmidae, Ptilodactylidae</b> ) (HMFEI pts = 2)	<input type="text" value="NA"/> <input type="text" value="0"/>	Crane-fly Larvae ( <b>Tipulidae</b> ) (HMFEI pts = 3)	<input type="text" value="NA"/> <input type="text" value="0"/>
Scuds ( <b>Amphipoda</b> ) (HMFEI pts = 1)	<input type="text" value="NA"/> <input type="text" value="0"/>	Larvae of other Flies (enter name in comments) ( <b>Diptera</b> ): (HMFEI pts = 1)	<input type="text" value="NA"/> <input type="text" value="0"/>	<b>EPT TAXA*</b>	
Water Mites ( <b>Hydracarina</b> ) (HMFEI pts = 1)	<input type="text" value="NA"/> <input type="text" value="0"/>	Midges ( <b>Chironomidae</b> ) (HMFEI pts = 1)	<input type="text" value="NA"/> <input type="text" value="0"/>	Total No. EPT Taxa =	<input type="text" value="0"/>
Damselfly Nymphs ( <b>Zygoptera</b> ) (HMFEI pts = 1)	<input type="text" value="NA"/> <input type="text" value="0"/>	Snails ( <b>Gastropoda</b> ) (HMFEI pts = 1)	<input type="text" value="NA"/> <input type="text" value="0"/>	Mayfly Nymphs ( <b>Ephemeroptera</b> ) Taxa Present:	<input type="text" value="0"/>
Alderfly Larvae ( <b>Sialidae</b> ) (HMFEI pts = 1)	<input type="text" value="NA"/> <input type="text" value="0"/>	Clams ( <b>Bivalvia</b> ) (HMFEI pts = 1)	<input type="text" value="NA"/> <input type="text" value="0"/>	HMFEI pts =	<input type="text" value="NA"/> <input type="text" value="0"/>
Other Beetles ( <b>Coleoptera</b> ) (HMFEI pts = 1)	<input type="text" value="NA"/> <input type="text" value="0"/>	Other Taxa : <b>Hemiptera - Waterstrider</b>		No. Taxa (x) 3]	<input type="text" value="0"/>
Other Taxa:	<input type="text"/>	Other Taxa:	<input type="text"/>	Stonefly Nymphs ( <b>Plecoptera</b> ) Taxa Present:	<input type="text" value="0"/>
Other Taxa:	<input type="text"/>	Other Taxa:	<input type="text"/>	HMFEI pts =	<input type="text" value="NA"/> <input type="text" value="0"/>
Other Taxa:	<input type="text"/>	Other Taxa:	<input type="text"/>	No. Taxa (x) 3]	<input type="text" value="0"/>
Other Taxa:	<input type="text"/>	Other Taxa:	<input type="text"/>	Caddisfly Larvae ( <b>Trichoptera</b> ) Taxa Present:	<input type="text" value="0"/>
Other Taxa:	<input type="text"/>	Other Taxa:	<input type="text"/>	HMFEI pts =	<input type="text" value="NA"/> <input type="text" value="0"/>
Other Taxa:	<input type="text"/>	Other Taxa:	<input type="text"/>	No. Taxa (x) 3]	<input type="text" value="0"/>

\*Note: EPT identification based upon Family or Genus level of taxonomy

Voucher Sample ID:  Time Spent (minutes):

Notes on Macroinvertebrates: (Predominant Organisms; Other Common Organisms; Diversity Estimate)

**Waterstriders were abundant in the isolated pool**

Final HMFEI Calculated Score (Sum of All White Box Scores) =

IF Final HMFEI Score is > 19, Then CLASS III PHWH STREAM  
 IF Final HMFEI Score is 7 to 19, Then CLASS II PHWH STREAM  
 IF Final HMFEI Score is < 7, Then CLASS I PHWH STREAM



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

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 2** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.23**

LENGTH OF STREAM REACH (ft) **200** LAT. **38.89387** LONG. **-83.00160** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **06/25/12** SCORER **JME** COMMENTS **located in active farm field**

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input checked="" type="checkbox"/> SILT [3 pt]	45%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	0%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	10%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	0%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	0%
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	0%	<input checked="" type="checkbox"/> MUCK [0 pts]	45%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

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

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

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

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

COMMENTS \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): **6**

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

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

COMMENTS \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): **0.80**

**HHEI Metric Points**

Substrate Max = 40

6

A + B

Pool Depth Max = 30

15

Bankfull Width Max=30

5

This information must also be completed

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

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank) Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

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

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

COMMENTS \_\_\_\_\_

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

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

**STREAM GRADIENT ESTIMATE**

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

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

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Scioto River</b>	Distance from Evaluated Stream	<b>1.80</b>
<input type="checkbox"/> CWH Name:	Distance from Evaluated Stream	
<input type="checkbox"/> EWH Name:	Distance from Evaluated Stream	

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

USGS Quadrangle Name: **Wakefield** NRCS Soil Map Page: **12** NRCS Soil Map Stream Order: **1**  
County: **Scioto** Township / City: **Valley TWP/ Lucasville**

**MISCELLANEOUS**

Base Flow Conditions? (Y/N):  Y Date of last precipitation: **06/21/12** Quantity: **0.52**  
Photograph Information: **See ESR**  
Elevated Turbidity? (Y/N):  Y Canopy (% open): **100%**  
Were samples collected for water chemistry? (Y/N):  Y (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:

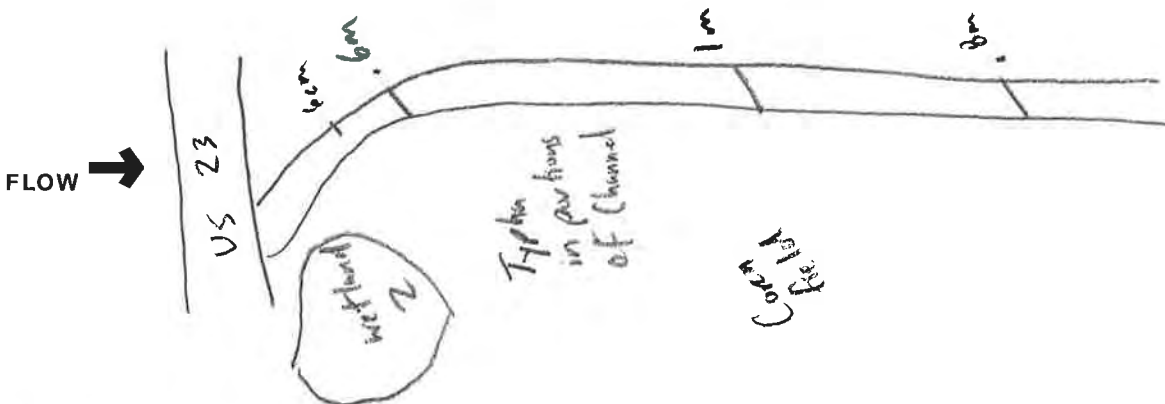
Additional comments/description of pollution impacts:  
**ag field and road runoff**

**BIOTIC EVALUATION**

Performed? (Y/N):  Y (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)  Y Voucher? (Y/N)  Y Salamanders Observed? (Y/N)  N Voucher? (Y/N)  N  
Frogs or Tadpoles Observed? (Y/N)  Y Voucher? (Y/N)  N Aquatic Macroinvertebrates Observed? (Y/N)  Y Voucher? (Y/N)  N  
Comments Regarding Biology:  
**green frogs, dragonfly larva, western mosquitofish**

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

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



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

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 3**

RIVER BASIN:

DRAINAGE AREA (mi<sup>2</sup>) **0.29**

LENGTH OF STREAM REACH (ft)

LAT. **38.89205**

LONG. **-83.00065**

RIVER CODE

RIVER MILE

DATE **06/25/12**

SCORER **JME**

COMMENTS

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

**STREAM CHANNEL MODIFICATIONS:**

NONE / NATURAL CHANNEL

RECOVERED

RECOVERING

RECENT OR NO RECOVERY

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	<input type="checkbox"/> 20%	<input type="checkbox"/> SILT [3 pt]	<input type="checkbox"/> 0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> BEDROCK [16 pt]	<input type="checkbox"/> 0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="checkbox"/> 10%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="checkbox"/> 30%
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="checkbox"/> 30%	<input type="checkbox"/> MUCK [0 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="checkbox"/> 10%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **30.00%** (A)

100%

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **9**

TOTAL NUMBER OF SUBSTRATE TYPES: **5**

**HHEI Metric Points**

Substrate Max = 40

**14**

A + B

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

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

COMMENTS

MAXIMUM POOL DEPTH (centimeters): **0**

Pool Depth Max = 30

**0**

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

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

COMMENTS

AVERAGE BANKFULL WIDTH (meters): **2.20**

Bankfull Width Max=30

**20**

**This information must also be completed**

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

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

COMMENTS **area of construction debris (concrete etc.) adjacent to stream**

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

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

COMMENTS **Moist channel with no pools at time of survey**

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

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

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)

Flat to Moderate

Moderate (2 ft/100 ft)

Moderate to Severe

Severe (10 ft/100 ft)

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

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Scioto River</b>	Distance from Evaluated Stream: <b>1.80</b>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream: <input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream: <input type="text"/>

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

USGS Quadrangle Name: **Wakefield** NRCS Soil Map Page: **12** NRCS Soil Map Stream Order: **2**  
County: **Scioto** Township / City: **Valley TWP/ Lucasville**

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **06/21/12** Quantity: **0.52**  
Photograph Information: **See ESR**  
Elevated Turbidity? (Y/N): **N** Canopy (% open): **15%**  
Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number:   
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:

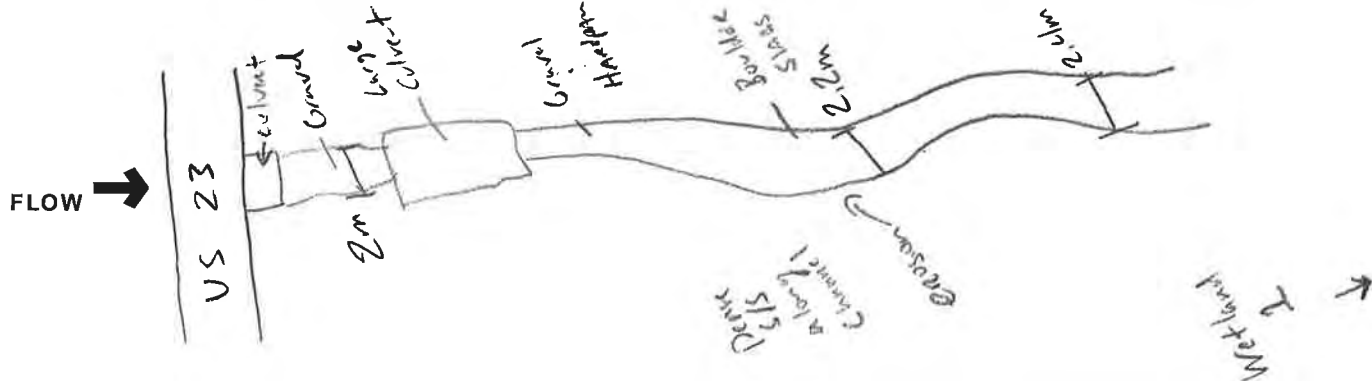
Additional comments/description of pollution impacts:   
**Road runoff and construction debris likely sources of potential pollution.**

**BIOTIC EVALUATION**

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N): **N** Voucher? (Y/N): **N** Salamanders Observed? (Y/N): **N** Voucher? (Y/N): **N**  
Frogs or Tadpoles Observed? (Y/N): **N** Voucher? (Y/N): **N** Aquatic Macroinvertebrates Observed? (Y/N): **N** Voucher? (Y/N): **N**  
Comments Regarding Biology: **No aquatic species observed. Terrestrial sow bugs and millipedes abundant.**

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

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





# Primary Headwater Habitat Evaluation Form

38

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

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 4** RIVER BASIN: \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.80**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.88612** LONG. **-82.99706** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **06/26/12** SCORER **JME** COMMENTS \_\_\_\_\_

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	0%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	20%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	0%
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	35%	<input type="checkbox"/> MUCK [0 pts]	0%
<input checked="" type="checkbox"/> SAND (<2 mm) [6 pts]	45%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **20.00%** (A) 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **15** TOTAL NUMBER OF SUBSTRATE TYPES: **3**

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

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

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

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

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

COMMENTS: \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): **3.00**

**HHEI Metric Points**

Substrate Max = 40

**18**

A + B

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Pool Depth Max = 30

**0**

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Bankfull Width Max=30

**20**

This information must also be completed

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

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

COMMENTS: Concrete channel with existing US 23 ROW.

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

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

COMMENTS: \_\_\_\_\_

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

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

**STREAM GRADIENT ESTIMATE**

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



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

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/>	WWH Name: <b>Scioto River</b>	Distance from Evaluated Stream	<b>1.35</b>
<input type="checkbox"/>	CWH Name:	Distance from Evaluated Stream	
<input type="checkbox"/>	EWH Name:	Distance from Evaluated Stream	

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

USGS Quadrangle Name: **Lucasville** NRCS Soil Map Page: **21** NRCS Soil Map Stream Order: **3**  
 County: **Scioto** Township / City: **Valley TWP/ Lucasville**

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **06/21/12** Quantity: **0.52**  
 Photograph Information: **See ESR.**  
 Elevated Turbidity? (Y/N): **N** Canopy (% open): **100%**  
 Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number:   
 Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
 Is the sampling reach representative of the stream (Y/N): **N** If not, please explain:  
**Only a small portion of Stream 4 is "daylighted" within the project area and is limited to the existing ROW.**

Additional comments/description of pollution impacts:  
**Roadway runoff is a likely source of pollution.**

**BIOTIC EVALUATION**

Performed? (Y/N): **Y** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
 Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**  
 Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**  
 Comments Regarding Biology:  
**No aquatic species indentified during HHEI evaluation.**

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

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



SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 5** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.04**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.89231** LONG. **-82.98951** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **06/25/12** SCORER **JME** COMMENTS \_\_\_\_\_

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	5%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	15%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	10%	<input checked="" type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	40%
<input type="checkbox"/> <input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	30%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **15.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9** **TOTAL NUMBER OF SUBSTRATE TYPES: 5**

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

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

**COMMENTS** \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters): 12**

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

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

**COMMENTS** \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 2.50**

**HHEI Metric Points**

Substrate Max = 40

14

A + B

---

Pool Depth Max = 30

25

---

Bankfull Width Max=30

20

This information must also be completed

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

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

**COMMENTS:** \_\_\_\_\_

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

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

**COMMENTS:** \_\_\_\_\_

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

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

**STREAM GRADIENT ESTIMATE**

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

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

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input type="checkbox"/> WWH Name: <b>Scioto River</b>	Distance from Evaluated Stream: <b>1.90</b>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream: <input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream: <input type="text"/>

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

USGS Quadrangle Name: **Lucasville** NRCS Soil Map Page: **13** NRCS Soil Map Stream Order: **1**  
 County: **Scioto** Township / City: **Valley TWP/ Lucasville**

**MISCELLANEOUS**

Base Flow Conditions? (Y/N):  Y Date of last precipitation: **06/21/12** Quantity: **0.52**  
 Photograph Information: **See ESR Report**  
 Elevated Turbidity? (Y/N):  Y Canopy (% open): **15%**  
 Were samples collected for water chemistry? (Y/N):  N (Note lab sample no. or id. and attach results) Lab Number:   
 Field Measures: Temp (°C):  Dissolved Oxygen (mg/l):  pH (S.U.):  Conductivity (µmhos/cm):   
 Is the sampling reach representative of the stream (Y/N):  Y If not, please explain:

Additional comments/description of pollution impacts:  
**Stream is located in pasture where livestock has access to stream channel.**

**BIOTIC EVALUATION**

Performed? (Y/N):  Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
 Fish Observed? (Y/N)  N Voucher? (Y/N)  N Salamanders Observed? (Y/N)  Y Voucher? (Y/N)  N  
 Frogs or Tadpoles Observed? (Y/N)  Y Voucher? (Y/N)  N Aquatic Macroinvertebrates Observed? (Y/N)  Y Voucher? (Y/N)  N  
 Comments Regarding Biology: **See additional sheet.**

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

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



1. Fish: Voucher Specimens Retained? (select)  Time Spent (minutes):   
 Sample Method No Evaluation Stream Length Assessed (meters)

Species	Number Caught	Notes
Blank	<input type="text" value="0"/>	<input type="text" value=""/>
Blank	<input type="text" value="0"/>	<input type="text" value=""/>
Blank	<input type="text" value="0"/>	<input type="text" value=""/>
Blank	<input type="text" value="0"/>	<input type="text" value=""/>
	<input type="text" value="0"/>	<input type="text" value=""/>
	<input type="text" value="0"/>	<input type="text" value=""/>
	<input type="text" value="0"/>	<input type="text" value=""/>
	<input type="text" value="0"/>	<input type="text" value=""/>

2. Salamanders: Voucher Specimens Retained? (circle)  Time Spent (minutes):   
 Sample Method Dip Net + Hand Sorting Stream Length Assessed (meters)

Species (Genus)	# Larvae	# Juveniles/Adults	Total Number
Mountain Dusky ( <i>Desmognathus ochrophaeus</i> )	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Northern Dusky ( <i>Desmognathus fuscus</i> )	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Two-lined ( <i>Eurycea bislineata</i> )	<input type="text" value="2"/>	<input type="text" value="1"/>	<input type="text" value="3"/>
Long-tailed ( <i>Eurycea longicauda</i> )	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Cave ( <i>Eurycea lucifuga</i> )	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Red ( <i>Pseudotriton ruber</i> )	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Mud ( <i>Pseudotriton montanus</i> )	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Spring ( <i>Gyrinophilus porphyriticus</i> )	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Mole spp. ( <i>Ambystoma spp.</i> )	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Four-toed ( <i>Hemidactylium scutatum</i> )	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Other (name) <input type="text" value=""/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
<b>Total</b>	<b>2</b>	<b>1</b>	<b>3</b>

Notes on Vertebrates:

06/25/12

**3. Macroinvertebrate Scoring Sheet:**

**THE HEADWATER MACROINVERTEBRATE FIELD EVALUATION INDEX (HMFEI) SCORING SHEET**

Indicate Abundance of Each Taxa Above each White Box.

Record HMFEI Scoring Value Points Within each Box.

For EPT taxa, also indicate the different taxa present.

**Key: V = Very Abundant (> 50); A = Abundant (10 -50); C = Common (3 -9); R = Rare (< 3)**

Sessile Animals ( <b>Porifera, Cnidaria, Bryozoa</b> ) (HMFEI pts = 1)	NA 0	Crayfish ( <b>Decapoda</b> ) (HMFEI pts = 2)	R 2	Fishfly Larvae ( <b>Corydalidae</b> ) (HMFEI pts = 3)	NA 0
Aquatic Worms ( <b>Turbellaria, Hirudinea, Oligochaeta</b> ) (HMFEI pts = 1)	NA 0	Dragonfly Nymphs ( <b>Anisoptera</b> ) (HMFEI pts = 2)	NA 0	Water Penny Beetles ( <b>Psephenidae</b> ) (HMFEI pts = 3)	C 3
Sow Bugs ( <b>Isopoda</b> ) (HMFEI pts = 1)	C 1	Rifle Beetles ( <b>Dryopidae, Elmidae, Ptilodactylidae</b> ) (HMFEI pts = 2)	NA 0	Cranefly Larvae ( <b>Tipulidae</b> ) (HMFEI pts = 3)	NA 0
Scuds ( <b>Amphipoda</b> ) (HMFEI pts = 1)	NA 0	Larvae of other Flies (enter name in comments) ( <b>Diptera</b> ) (HMFEI pts = 1)	NA 0	<b>EPT TAXA*</b>	
Water Mites ( <b>Hydracarina</b> ) (HMFEI pts = 1)	NA 0	Midges ( <b>Chironomidae</b> ) (HMFEI pts = 1)	NA 0	Total No. EPT Taxa =	0
Damselfly Nymphs ( <b>Zygoptera</b> ) (HMFEI pts = 1)	NA 0	Snails ( <b>Gastropoda</b> ) (HMFEI pts = 1)	NA 0	Mayfly Nymphs ( <b>Ephemeroptera</b> ) Taxa Present:	0
Alderfly Larvae ( <b>Sialidae</b> ) (HMFEI pts = 1)	NA 0	Clams ( <b>Bivalvia</b> ) (HMFEI pts = 1)	NA 0	HMFEI pts =	NA 0
Other Beetles ( <b>Coleoptera</b> ) (HMFEI pts = 1)	C 1	Other Taxa :		No. Taxa (x) 3]	0
Other Taxa:		Other Taxa:		Stonefly Nymphs ( <b>Plecoptera</b> ) Taxa Present:	0
Other Taxa:		Other Taxa:		HMFEI pts =	NA 0
Other Taxa:		Other Taxa:		No. Taxa (x) 3]	0
Other Taxa:		Other Taxa:		Caddisfly Larvae ( <b>Trichoptera</b> ) Taxa Present:	0
Other Taxa:		Other Taxa:		HMFEI pts =	NA 0
Other Taxa:		Other Taxa:		No. Taxa (x) 3]	0

\*Note: EPT identification based upon Family or Genus level of taxonomy

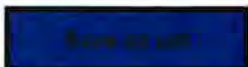
Voucher Sample ID: N/A Time Spent (minutes): 20

Notes on Macroinvertebrates: (Predominant Organisms; Other Common Organisms; Diversity Estimate)


Final HMFEI Calculated Score (Sum of All White Box Scores) =

**7**

IF Final HMFEI Score is > 19, Then CLASS III PHWH STREAM  
 IF Final HMFEI Score is 7 to 19, Then CLASS II PHWH STREAM  
 IF Final HMFEI Score is < 7, Then CLASS I PHWH STREAM



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

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**  
 SITE NUMBER **Stream 5A** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.01**  
 LENGTH OF STREAM REACH (ft) **100** LAT. **38.89199** LONG. **-82.99056** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_  
 DATE **06/25/12** SCORER **JME** COMMENTS \_\_\_\_\_

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> SILT [3 pt]	<input type="checkbox"/> 0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="checkbox"/> 0%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="checkbox"/> 30%
<input type="checkbox"/> BEDROCK [16 pt]	<input type="checkbox"/> 0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="checkbox"/> 15%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="checkbox"/> 25%
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="checkbox"/> 30%	<input type="checkbox"/> MUCK [0 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="checkbox"/> 0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **15.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12** **TOTAL NUMBER OF SUBSTRATE TYPES: 4**

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

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

COMMENTS **Dry Channel** **MAXIMUM POOL DEPTH (centimeters): 0**

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

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

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 0.90**

**HHEI Metric Points**

Substrate Max = 40

**16**

A + B

Pool Depth Max = 30

**0**

Bankfull Width Max=30

**5**

**This information must also be completed**

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

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

COMMENTS: \_\_\_\_\_

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

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

COMMENTS: **very small drainage area**

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

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

**STREAM GRADIENT ESTIMATE**

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

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

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input type="checkbox"/> WWH Name: <b>Scioto River</b>	Distance from Evaluated Stream	<b>1.90</b>
<input type="checkbox"/> CWH Name:	Distance from Evaluated Stream	
<input type="checkbox"/> EWH Name:	Distance from Evaluated Stream	

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

USGS Quadrangle Name: **Lucasville** NRCS Soil Map Page: **13** NRCS Soil Map Stream Order: **1**  
County: **Scioto** Township / City: **Valley TWP/Lucasville**

**MISCELLANEOUS**

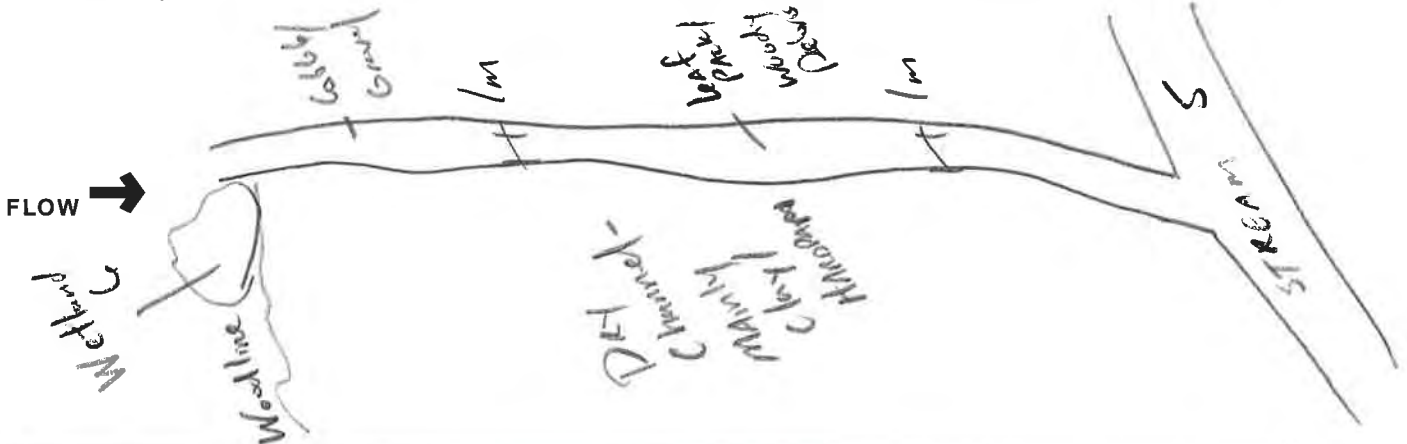
Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **06/21/12** Quantity: **0.52**  
Photograph Information: **See ESR**  
Elevated Turbidity? (Y/N): **N** Canopy (% open): **5%**  
Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
Is the sampling reach representative of the stream (Y/N): **Y** If not, please explain:  
  
Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N): **N** Voucher? (Y/N): **N** Salamanders Observed? (Y/N): **N** Voucher? (Y/N): **N**  
Frogs or Tadpoles Observed? (Y/N): **N** Voucher? (Y/N): **N** Aquatic Macroinvertebrates Observed? (Y/N): **N** Voucher? (Y/N): **N**  
Comments Regarding Biology:  
**No water in channel and no aquatic species identified during HHEI evaluation.**

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

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





# Primary Headwater Habitat Evaluation Form

12

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

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 5B** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.01**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.89192** LONG. **-82.99094** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **06/26/12** SCORER **JME** COMMENTS \_\_\_\_\_

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input checked="" type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	40%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	10%	<input type="checkbox"/> <input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	40%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	10%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **10.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3** **TOTAL NUMBER OF SUBSTRATE TYPES: 4**

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

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

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

---

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

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

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 1.00**

**HHEI Metric Points**

Substrate Max = 40

7

A + B

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Pool Depth Max = 30

0

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Bankfull Width Max=30

5

**This information must also be completed**

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

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

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

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

COMMENTS \_\_\_\_\_

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

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

**STREAM GRADIENT ESTIMATE**

<input type="checkbox"/> Flat (0.5 ft/100 ft)	<input type="checkbox"/> Flat to Moderate	<input type="checkbox"/> Moderate (2 ft/100 ft)	<input checked="" type="checkbox"/> Moderate to Severe	<input type="checkbox"/> Severe (10 ft/100 ft)
---	---	---	--	--



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

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Scioto River</b>	Distance from Evaluated Stream: <b>1.90</b>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream: <input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream: <input type="text"/>

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

USGS Quadrangle Name: **Lucasville** NRCS Soil Map Page: **13** NRCS Soil Map Stream Order: **1**  
County: **Scioto** Township / City: **Valley TWP/Lucasville**

**MISCELLANEOUS**

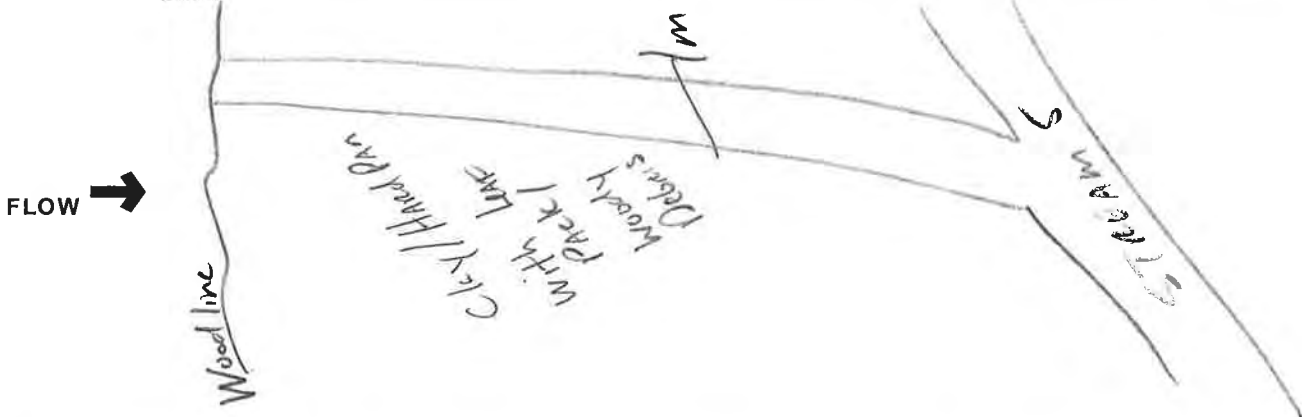
Base Flow Conditions? (Y/N):  Y Date of last precipitation: **06/21/12** Quantity: **0.52**  
Photograph Information: **See ESR**  
Elevated Turbidity? (Y/N):  N Canopy (% open): **15%**  
Were samples collected for water chemistry? (Y/N):  N (Note lab sample no. or id. and attach results) Lab Number:   
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):  N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N)  N Voucher? (Y/N)  N Salamanders Observed? (Y/N)  N Voucher? (Y/N)  N  
Frogs or Tadpoles Observed? (Y/N)  N Voucher? (Y/N)  N Aquatic Macroinvertebrates Observed? (Y/N)  N Voucher? (Y/N)  N  
Comments Regarding Biology: **No aquatic species found during HHEI evaluation.**

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

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





# Primary Headwater Habitat Evaluation Form

11

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

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 5C** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.01**

LENGTH OF STREAM REACH (ft) **155** LAT. **38.89171** LONG. **-82.98969** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **06/26/12** SCORER **JME** COMMENTS \_\_\_\_\_

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	0%	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	100%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	0%

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

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:** 0 **TOTAL NUMBER OF SUBSTRATE TYPES:** 1

---

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

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

**COMMENTS:** \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters):** 3

---

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

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

**COMMENTS:** \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters):** 0.50

**HHEI Metric Points**

Substrate Max = 40

1

A + B

---

Pool Depth Max = 30

5

---

Bankfull Width Max=30

5

**This information must also be completed**

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

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input type="checkbox"/>	<input type="checkbox"/>	(Per Bank)			
<input type="checkbox"/>	<input type="checkbox"/>	Wide >10m	<input type="checkbox"/>	<input type="checkbox"/>	Mature Forest, Wetland
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m	<input type="checkbox"/>	<input type="checkbox"/>	Immature Forest, Shrub or Old Field
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Narrow <5m	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Residential, Park, New Field
<input type="checkbox"/>	<input type="checkbox"/>	None	<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture
				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
					Open Pasture, Row Crop
				<input type="checkbox"/>	<input type="checkbox"/>
					Mining or Construction

**COMMENTS:** \_\_\_\_\_

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

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

**COMMENTS:** \_\_\_\_\_

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

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

**STREAM GRADIENT ESTIMATE**

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

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

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Scioto River</b>	Distance from Evaluated Stream	<b>1.90</b>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

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

USGS Quadrangle Name: **Lucasville** NRCS Soil Map Page: **13** NRCS Soil Map Stream Order **1**  
 County: **Scioto** Township / City: **Valley TWP/Lucasville**

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **06/21/12** Quantity: **0.52**  
 Photograph Information: **See ESR**  
 Elevated Turbidity? (Y/N): **N** Canopy (% open): **80%**  
 Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number:   
 Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
 Is the sampling reach representative of the stream (Y/N): **Y** If not, please explain:

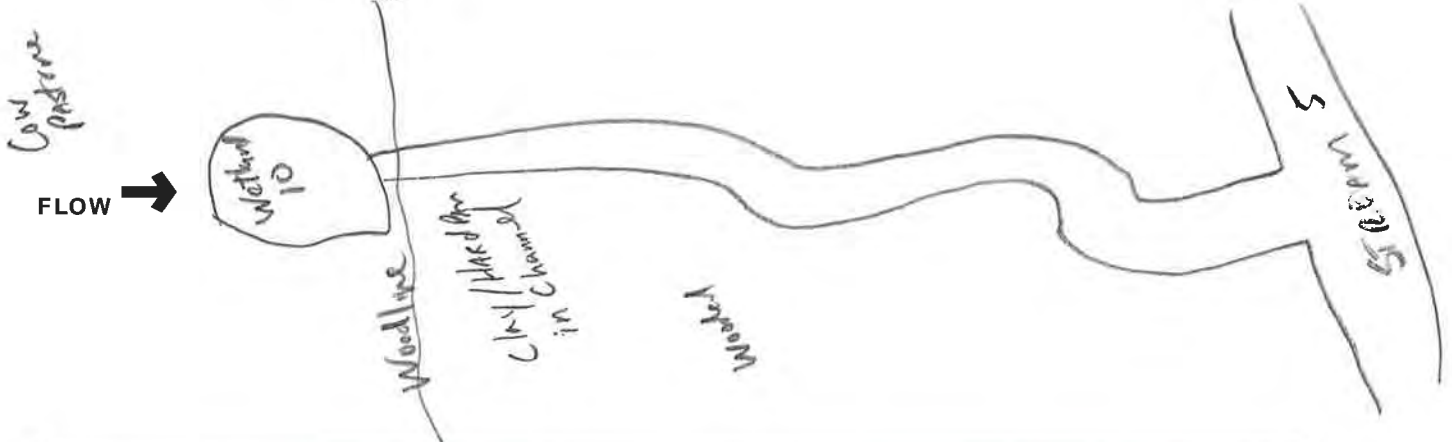
Additional comments/description of pollution impacts:  
**Stream is located in a pasture and is accessible by livestock.**

**BIOTIC EVALUATION**

Performed? (Y/N): **Y** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
 Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**  
 Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**  
 Comments Regarding Biology:  
**No aquatic species observed during HHEI evaluation.**

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

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





# Primary Headwater Habitat Evaluation Form

50

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

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 6** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.50**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.89214** LONG. **-82.98377** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **06/25/12** SCORER **JME** COMMENTS \_\_\_\_\_

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input checked="" type="checkbox"/> 15%	<input type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="checkbox"/> 0%
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input checked="" type="checkbox"/> 25%	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="checkbox"/> 0%
<input checked="" type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input checked="" type="checkbox"/> 50%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="checkbox"/> 10%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="checkbox"/> 0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **40.00%** (A) 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **21** TOTAL NUMBER OF SUBSTRATE TYPES: **4**

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

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

COMMENTS \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): **3**

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

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

COMMENTS \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): **2.20**

**HHEI Metric Points**

Substrate Max = 40

**25**

A + B

---

Pool Depth Max = 30

**5**

---

Bankfull Width Max=30

**20**

This information must also be completed

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

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

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

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

COMMENTS \_\_\_\_\_

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

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

**STREAM GRADIENT ESTIMATE**

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

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

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Scioto River</b>	Distance from Evaluated Stream	<b>1.90</b>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

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

USGS Quadrangle Name: **Lucasville** NRCS Soil Map Page: **13** NRCS Soil Map Stream Order: **2**  
County: **Scioto** Township / City: **Valley TWP/Lucasville**

**MISCELLANEOUS**

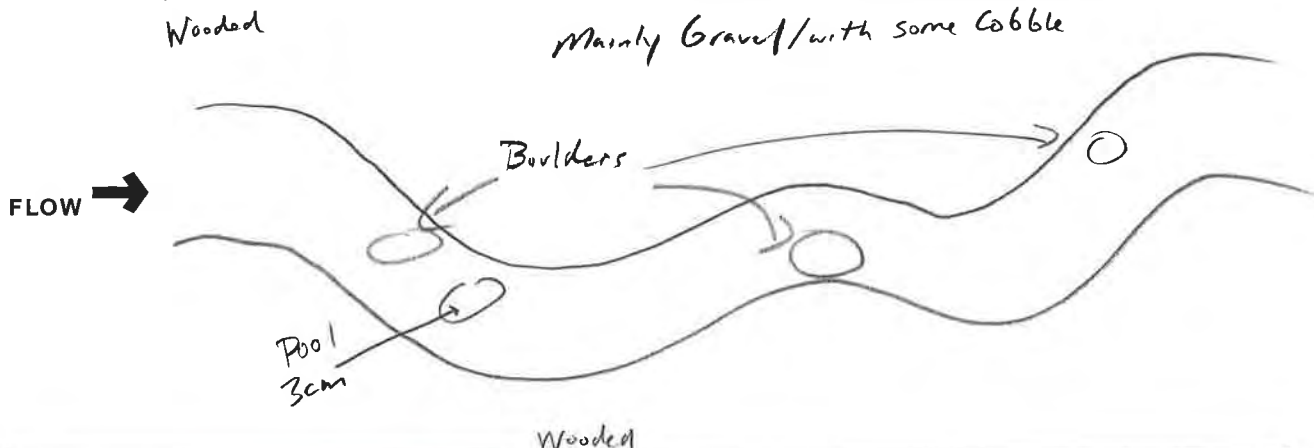
Base Flow Conditions? (Y/N):  Y Date of last precipitation: **06/21/12** Quantity: **0.52**  
Photograph Information: **See ESR.**  
Elevated Turbidity? (Y/N):  N Canopy (% open): **15%**  
Were samples collected for water chemistry? (Y/N):  N (Note lab sample no. or id. and attach results) Lab Number:   
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):  Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N)  N Voucher? (Y/N)  N Salamanders Observed? (Y/N)  N Voucher? (Y/N)  N  
Frogs or Tadpoles Observed? (Y/N)  N Voucher? (Y/N)  N Aquatic Macroinvertebrates Observed? (Y/N)  Y Voucher? (Y/N)  N  
Comments Regarding Biology: **Water strider observed in isolated pool. No additional aquatic species observed during HHEI evaluation.**

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

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



SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 6A** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.05**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.89239** LONG. **-82.98563** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **06/26/12** SCORER **JME** COMMENTS \_\_\_\_\_

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> Bldr Slabs [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	15%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input checked="" type="checkbox"/> COBBLE (65-256 mm) [12 pts]	40%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	20%
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	25%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: **40.00%** (A)      Substrate Percentages Check: **100%** (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 21**      **TOTAL NUMBER OF SUBSTRATE TYPES: 4**

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

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

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

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

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

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 2.20**

**HHEI Metric Points**

Substrate Max = 40

25

A + B

Pool Depth Max = 30

0

Bankfull Width Max=30

20

**This information must also be completed**

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

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

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

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

COMMENTS **No pools in project area, only a moist channel.**

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

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

**STREAM GRADIENT ESTIMATE**

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

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

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Scioto River</b>	Distance from Evaluated Stream	<b>1.89</b>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

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

USGS Quadrangle Name: **Lucasville** NRCS Soil Map Page: **13** NRCS Soil Map Stream Order: **1**  
County: **Scioto** Township / City: **Valley TWP/Lucasville**

**MISCELLANEOUS**

Base Flow Conditions? (Y/N):  Y Date of last precipitation: **06/21/12** Quantity: **0.52**  
Photograph Information: **See ESR.**  
Elevated Turbidity? (Y/N):  Y Canopy (% open): **15%**  
Were samples collected for water chemistry? (Y/N):  N (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
Is the sampling reach representative of the stream (Y/N):  Y If not, please explain:  
**Stream is located within a power line easement in an area of dense shrub/scrub vegetation.**

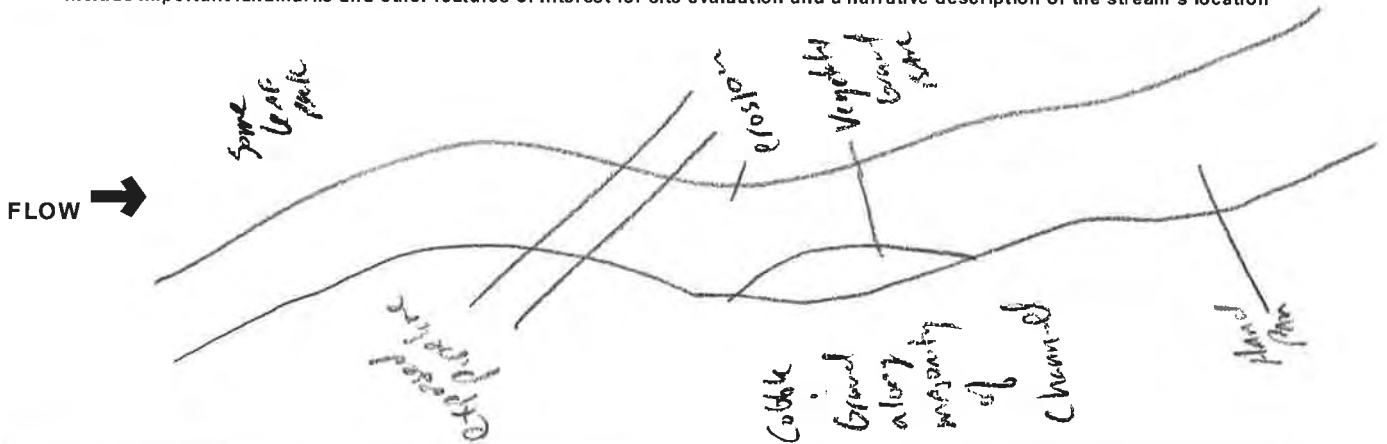
Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N):  Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N)  N Voucher? (Y/N)  N Salamanders Observed? (Y/N)  Y Voucher? (Y/N)  N  
Frogs or Tadpoles Observed? (Y/N)  N Voucher? (Y/N)  N Aquatic Macroinvertebrates Observed? (Y/N)  Y Voucher? (Y/N)  N  
Comments Regarding Biology:  
**Four adult two-line salamanders, and a dozen whirligig beetles under rocks**

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

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



1. **Fish:** Voucher Specimens Retained? (select)  Time Spent (minutes):   
 Sample Method No Evaluation Stream Length Assessed (meters)

Species	Number Caught	Notes
Blank	0	
Blank	0	
Blank	0	
Blank	0	
	0	
	0	
	0	
	0	

2. **Salamanders:** Voucher Specimens Retained? (circle)  Time Spent (minutes):   
 Sample Method Dip Net + Hand Sorting Stream Length Assessed (meters)

Species (Genus)	# Larvae	# Juveniles/Adults	Total Number
Mountain Dusky ( <i>Desmognathus ochrophaeus</i> )	0	0	0
Northern Dusky ( <i>Desmognathus fuscus</i> )	0	0	0
Two-lined ( <i>Eurycea bislineata</i> )	0	4	4
Long-tailed ( <i>Eurycea longicauda</i> )	0	0	0
Cave ( <i>Eurycea lucifuga</i> )	0	0	0
Red ( <i>Pseudotriton ruber</i> )	0	0	0
Mud ( <i>Pseudotriton montanus</i> )	0	0	0
Spring ( <i>Gyrinophilus porphyriticus</i> )	0	0	0
Mole spp. ( <i>Ambystoma spp.</i> )	0	0	0
Four-toed ( <i>Hemidactylium scutatum</i> )	0	0	0
Other (name) <input type="text"/>	0	0	0
<b>Total</b>	<b>0</b>	<b>4</b>	<b>4</b>

Notes on Vertebrates:



06/26/12

**3. Macroinvertebrate Scoring Sheet:**

**THE HEADWATER MACROINVERTEBRATE FIELD EVALUATION INDEX (HMFEI) SCORING SHEET**

Indicate Abundance of Each Taxa Above each White Box.

Record HMFEI Scoring Value Points Within each Box.

For EPT taxa, also indicate the different taxa present.

**Key: V = Very Abundant (> 50); A = Abundant (10 -50); C = Common (3 -9); R = Rare (< 3)**

Sessile Animals ( <b>Porifera</b> , <b>Cnidaria, Bryozoa</b> ) (HMFEI pts = 1)	<input type="text" value="NA"/> <input type="text" value="0"/>	Crayfish ( <b>Decapoda</b> ) (HMFEI pts = 2)	<input type="text" value="NA"/> <input type="text" value="0"/>	Fishfly Larvae ( <b>Corydalidae</b> ) (HMFEI pts = 3)	<input type="text" value="NA"/> <input type="text" value="0"/>
Aquatic Worms ( <b>Turbellaria, Hirudinea</b> , <b>Oligochaeta</b> ) (HMFEI pts = 1)	<input type="text" value="NA"/> <input type="text" value="0"/>	Dragonfly Nymphs ( <b>Anisoptera</b> ) (HMFEI pts = 2)	<input type="text" value="NA"/> <input type="text" value="0"/>	Water Penny Beetles ( <b>Psephenidae</b> ) (HMFEI pts = 3)	<input type="text" value="NA"/> <input type="text" value="0"/>
Sow Bugs ( <b>Isopoda</b> ) (HMFEI pts = 1)	<input type="text" value="C"/> <input type="text" value="1"/>	Riffle Beetles ( <b>Dryopidae</b> , <b>Elmidae, Ptilodactylidae</b> ) (HMFEI pts = 2)	<input type="text" value="C"/> <input type="text" value="2"/>	Cranefly Larvae ( <b>Tipulidae</b> ) (HMFEI pts = 3)	<input type="text" value="NA"/> <input type="text" value="0"/>
Scuds ( <b>Amphipoda</b> ) (HMFEI pts = 1)	<input type="text" value="NA"/> <input type="text" value="0"/>	Larvae of other Flies (enter name in comments) ( <b>Diptera</b> ): (HMFEI pts = 1)	<input type="text" value="NA"/> <input type="text" value="0"/>	<b>EPT TAXA*</b>	
Water Mites ( <b>Hydracarina</b> ) (HMFEI pts = 1)	<input type="text" value="NA"/> <input type="text" value="0"/>	Midges ( <b>Chironomidae</b> ) (HMFEI pts = 1)	<input type="text" value="NA"/> <input type="text" value="0"/>	Total No. EPT Taxa =	<input type="text" value="0"/>
Damselfly Nymphs ( <b>Zygoptera</b> ) (HMFEI pts = 1)	<input type="text" value="NA"/> <input type="text" value="0"/>	Snails ( <b>Gastropoda</b> ) (HMFEI pts = 1)	<input type="text" value="NA"/> <input type="text" value="0"/>	Mayfly Nymphs ( <b>Ephemeroptera</b> ) Taxa Present:	<input type="text" value="0"/>
Alderfly Larvae ( <b>Sialidae</b> ) (HMFEI pts = 1)	<input type="text" value="NA"/> <input type="text" value="0"/>	Clams ( <b>Bivalvia</b> ) (HMFEI pts = 1)	<input type="text" value="NA"/> <input type="text" value="0"/>	HMFEI pts =	<input type="text" value="NA"/> <input type="text" value="0"/>
Other Beetles ( <b>Coleoptera</b> ) (HMFEI pts = 1)	<input type="text" value="V"/> <input type="text" value="1"/>	Other Taxa : <input type="text"/>		No. Taxa (x) 3]	<input type="text" value="0"/>
Other Taxa: <input type="text"/>		Other Taxa: <input type="text"/>		Stonefly Nymphs ( <b>Plecoptera</b> ) Taxa Present:	<input type="text" value="0"/>
Other Taxa: <input type="text"/>		Other Taxa: <input type="text"/>		HMFEI pts =	<input type="text" value="NA"/> <input type="text" value="0"/>
				No. Taxa (x) 3]	<input type="text" value="0"/>
				Caddisfly Larvae ( <b>Trichoptera</b> ) Taxa Present:	<input type="text" value="0"/>
				HMFEI pts =	<input type="text" value="NA"/> <input type="text" value="0"/>
				No. Taxa (x) 3]	<input type="text" value="0"/>

\*Note: EPT identification based upon Family or Genus level of taxonomy

Voucher Sample ID  Time Spent (minutes):

Notes on Macroinvertebrates: (Predominant Organisms; Other Common Organisms; Diversity Estimate)


Final HMFEI Calculated Score (Sum of All White Box Scores) =

IF Final HMFEI Score is > 19, Then CLASS III PHWH STREAM  
 IF Final HMFEI Score is 7 to 19, Then CLASS II PHWH STREAM  
 IF Final HMFEI Score is < 7, Then CLASS I PHWH STREAM



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

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 6B** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.02**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.89187** LONG. **-82.98420** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **06/26/12** SCORER **JME** COMMENTS \_\_\_\_\_

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	20%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input checked="" type="checkbox"/> COBBLE (65-256 mm) [12 pts]	30%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	15%
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	35%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **30.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 21** **TOTAL NUMBER OF SUBSTRATE TYPES: 4**

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

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

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

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

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

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 2.00**

**HHEI Metric Points**

Substrate Max = 40

25

A + B

Pool Depth Max = 30

0

Bankfull Width Max=30

20

**This information must also be completed**

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

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank) Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS: \_\_\_\_\_

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

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

COMMENTS: No pools, only moist channel.

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

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

**STREAM GRADIENT ESTIMATE**

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

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

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Scioto River</b>	Distance from Evaluated Stream	<b>1.99</b>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

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

USGS Quadrangle Name: **Lucasville** NRCS Soil Map Page: **13** NRCS Soil Map Stream Order: **1**  
 County: **Scioto** Township / City: **Valley TWP/Lucasville**

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **06/21/12** Quantity: **0.52**  
 Photograph Information: **See ESR.**  
 Elevated Turbidity? (Y/N): **N** Canopy (% open): **15%**  
 Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number:   
 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:

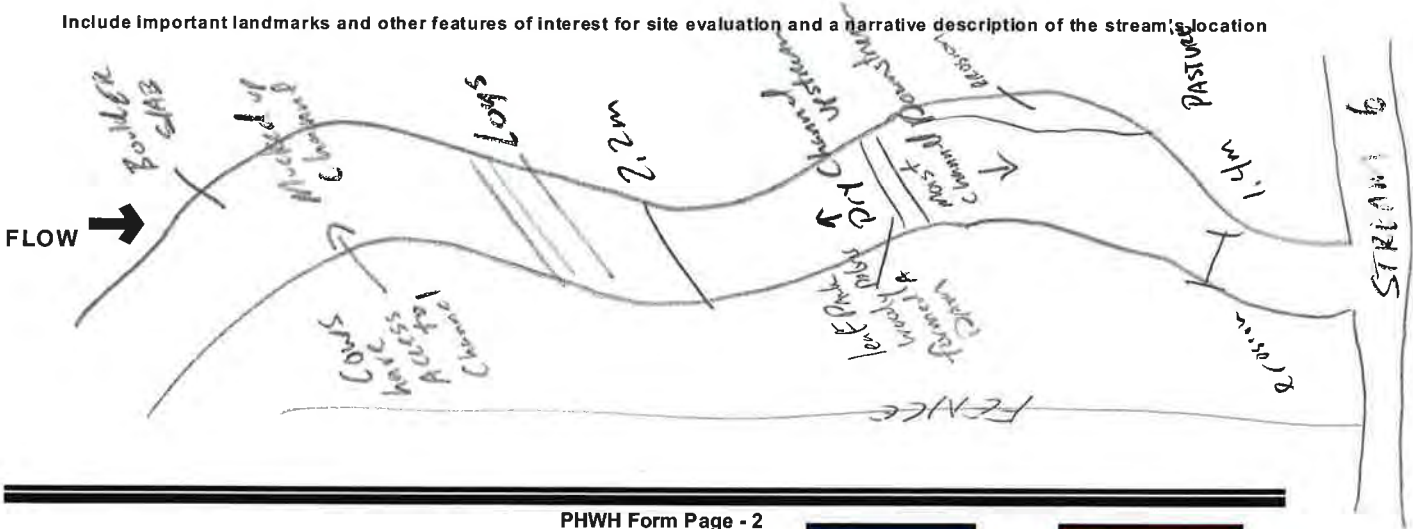
Additional comments/description of pollution impacts:  
**Located in cow pasture with livestock access to stream.**

**BIOTIC EVALUATION**

Performed? (Y/N): **Y** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
 Fish Observed? (Y/N): **N** Voucher? (Y/N): **N** Salamanders Observed? (Y/N): **Y** Voucher? (Y/N): **N**  
 Frogs or Tadpoles Observed? (Y/N): **N** Voucher? (Y/N): **N** Aquatic Macroinvertebrates Observed? (Y/N): **Y** Voucher? (Y/N): **N**  
 Comments Regarding Biology:  
**Only 1 larval 2-line salamander and several whirligig beetles were found during HHEI evaluation.**

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

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



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

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 6B1**

RIVER BASIN

DRAINAGE AREA (mi<sup>2</sup>) **0.01**

LENGTH OF STREAM REACH (ft)

LAT. **38.89343**

LONG. **-82.98297**

RIVER CODE

RIVER MILE

DATE **06/26/12**

SCORER **JME**

COMMENTS

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

**STREAM CHANNEL MODIFICATIONS:**

NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

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

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

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **0.00%**

(A)

100%

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **3**

TOTAL NUMBER OF SUBSTRATE TYPES: **2**

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

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

COMMENTS

MAXIMUM POOL DEPTH (centimeters): **0**

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

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

COMMENTS

AVERAGE BANKFULL WIDTH (meters): **0.75**

**HHEI Metric Points**

Substrate Max = 40

**5**

A + B

Pool Depth Max = 30

**0**

Bankfull Width Max=30

**5**

**This information must also be completed**

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

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

COMMENTS

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

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

COMMENTS

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

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

**STREAM GRADIENT ESTIMATE**

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

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

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <input type="text" value="Scioto River"/>	Distance from Evaluated Stream	<input type="text" value="1.99"/>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

**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:

**MISCELLANEOUS**

Base Flow Conditions? (Y/N):  Y Date of last precipitation:  Quantity:   
Photograph Information:   
Elevated Turbidity? (Y/N):  N Canopy (% open):   
Were samples collected for water chemistry? (Y/N):  N (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
Is the sampling reach representative of the stream (Y/N)  Y If not, please explain:

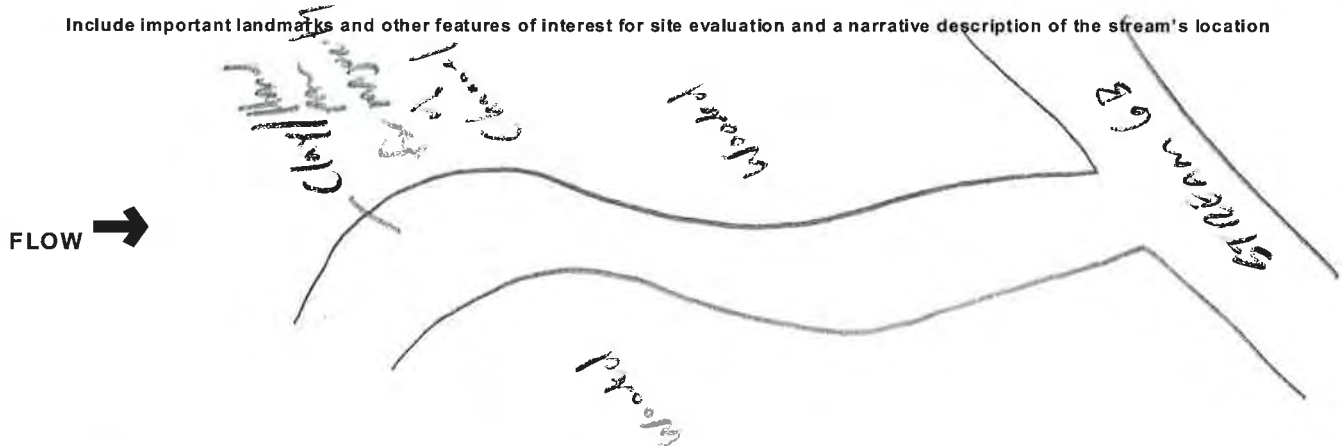
Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N):  Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N)  N Voucher? (Y/N)  N Salamanders Observed? (Y/N)  N Voucher? (Y/N)  N  
Frogs or Tadpoles Observed? (Y/N)  N Voucher? (Y/N)  N Aquatic Macroinvertebrates Observed? (Y/N)  Y Voucher? (Y/N)  N  
Comments Regarding Biology:

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

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





# Primary Headwater Habitat Evaluation Form

**18**

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

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 6B2** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.01**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.89234** LONG. **-82.98299** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **06/26/12** SCORER **JME** COMMENTS \_\_\_\_\_

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> SILT [3 pt]	<input type="checkbox"/> 0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input checked="" type="checkbox"/> 15%
<input type="checkbox"/> BEDROCK [16 pt]	<input type="checkbox"/> 0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input checked="" type="checkbox"/> 15%	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	<input checked="" type="checkbox"/> 40%
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input checked="" type="checkbox"/> 30%	<input type="checkbox"/> MUCK [0 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="checkbox"/> 0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **15.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9** **TOTAL NUMBER OF SUBSTRATE TYPES: 4**

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

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

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

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

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

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 0.90**

**HHEI Metric Points**

Substrate Max = 40

**13**

A + B

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Pool Depth Max = 30

**0**

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Bankfull Width Max=30

**5**

This information must also be completed

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

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

COMMENTS \_\_\_\_\_

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

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

COMMENTS \_\_\_\_\_

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

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

**STREAM GRADIENT ESTIMATE**  Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

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

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: Scioto River	Distance from Evaluated Stream	1.99
<input type="checkbox"/> CWH Name:	Distance from Evaluated Stream	
<input type="checkbox"/> 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:

**MISCELLANEOUS**

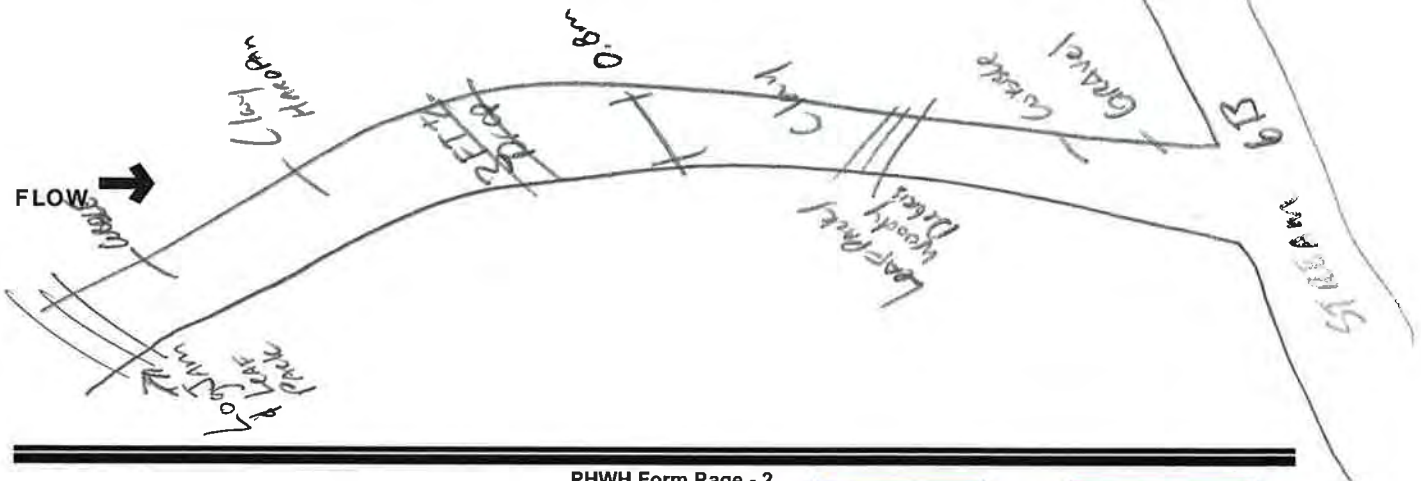
Base Flow Conditions? (Y/N):  Y Date of last precipitation:  Quantity:   
 Photograph Information:   
 Elevated Turbidity? (Y/N):  N Canopy (% open):   
 Were samples collected for water chemistry? (Y/N):  N (Note lab sample no. or id. and attach results) Lab Number:   
 Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
 Is the sampling reach representative of the stream (Y/N)  Y If not, please explain:   
 Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N):  Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
 Fish Observed? (Y/N)  N Voucher? (Y/N)  N Salamanders Observed? (Y/N)  N Voucher? (Y/N)  N  
 Frogs or Tadpoles Observed? (Y/N)  N Voucher? (Y/N)  N Aquatic Macroinvertebrates Observed? (Y/N)  N Voucher? (Y/N)  N  
 Comments Regarding Biology:

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

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





# Primary Headwater Habitat Evaluation Form

20

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

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 7** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.13**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.89592** LONG. **-82.97445** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **06/26/12** SCORER **JME** COMMENTS **Very recently clear cut.**

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

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

TYPE	PERCENT	TYPE	PERCENT	
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%	<b>HHEI Metric Points</b> Substrate Max = 40 <div style="border: 1px solid black; padding: 5px; text-align: center; font-size: 24px; margin: 5px 0;">5</div> A + B
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	50%	
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	0%	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	50%	
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	0%	<input type="checkbox"/> MUCK [0 pts]	0%	
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock <b>0.00%</b> (A)		100% (B)		
<b>SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3</b>		<b>TOTAL NUMBER OF SUBSTRATE TYPES: 2</b>		

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

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

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

COMMENTS **Plunge pools due to logging machinery.** MAXIMUM POOL DEPTH (centimeters): **0**

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

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

COMMENTS **Estimated from other similar streams.** AVERAGE BANKFULL WIDTH (meters): **1.50**

**Pool Depth Max = 30**

0

**Bankfull Width Max=30**

15

**This information must also be completed**

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

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

COMMENTS **Clearcut weeks/months prior to investigation.**

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

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

COMMENTS **Channel has been severely altered. No flow but isolated pools were observed.**

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

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

**STREAM GRADIENT ESTIMATE**

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



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

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text" value="3.40"/>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

**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:

**MISCELLANEOUS**

Base Flow Conditions? (Y/N):  Y Date of last precipitation:  Quantity:   
Photograph Information:   
Elevated Turbidity? (Y/N):  Y 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):   
Frogs or Tadpoles Observed? (Y/N):  Voucher? (Y/N):  Aquatic Macroinvertebrates Observed? (Y/N):  Voucher? (Y/N):   
Comments Regarding Biology:

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

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



*Logging Activities*

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*Channel filled with slag piles from*

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*Clear-cut with slag piles*

*Barren land*



SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 8** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.09**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.89612** LONG. **-82.97316** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **06/27/12** SCORER **JME** COMMENTS **Very recently logged.**

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> Bldr Slabs [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	40%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	0%	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	60%
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	0%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

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

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3**      **TOTAL NUMBER OF SUBSTRATE TYPES: 2**

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

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

COMMENTS **1 large pool from machinery tires @ staging area**      **MAXIMUM POOL DEPTH (centimeters): 0**

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

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

COMMENTS **no OHWM left after logging.**      **AVERAGE BANKFULL WIDTH (meters): 0.00**

**HHEI Metric Points**

Substrate Max = 40

5

A + B

Pool Depth Max = 30

0

Bankfull Width Max=30

5

**This information must also be completed**

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

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS: **logged**

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

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

COMMENTS \_\_\_\_\_

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

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

**STREAM GRADIENT ESTIMATE**

<input type="checkbox"/> Flat (0.5 ft/100 ft)	<input type="checkbox"/> Flat to Moderate	<input type="checkbox"/> Moderate (2 ft/100 ft)	<input checked="" type="checkbox"/> Moderate to Severe	<input type="checkbox"/> Severe (10 ft/100 ft)
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**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <u>Scioto River.</u>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

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

USGS Quadrangle Name: Lucasville NRCS Soil Map Page: 13 NRCS Soil Map Stream Order: 1  
County: Scioto Township / City: Valley TWP/Lucasville

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 06/21/12 Quantity: 0.52  
Photograph Information: See ESR.  
Elevated Turbidity? (Y/N): Y Canopy (% open): 100%  
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or Id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
Is the sampling reach representative of the stream (Y/N): N If not, please explain:  
Stream 8 not logged downstream.  
Additional comments/description of pollution impacts:  
Very recently clear-cut. Pollution includes trash, slag piles, sedimentation, and likely fluids from logging machinery.

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N): Y Voucher? (Y/N): N Salamanders Observed? (Y/N): N Voucher? (Y/N): N  
Frogs or Tadpoles Observed? (Y/N): N Voucher? (Y/N): N Aquatic Macroinvertebrates Observed? (Y/N): N Voucher? (Y/N): N  
Comments Regarding Biology:  
Nothing of the stream remains.

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

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

Clear Cut - Barren Land

FLOW →

Slag Piles Across Channel



SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 9** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.09**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.89784** LONG. **-82.96413** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **06/27/12** SCORER **JME** COMMENTS **HHEI done in upstream, downstream being clearcut**

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	10%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	40%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input checked="" type="checkbox"/> COBBLE (65-256 mm) [12 pts]	30%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	20%
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	0%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **40.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15** **TOTAL NUMBER OF SUBSTRATE TYPES: 4**

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

<input type="checkbox"/> > 30 centimeters [20 pts] <input type="checkbox"/> > 22.5 - 30 cm [30 pts] <input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts] <input type="checkbox"/> < 5 cm [5 pts] <input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]
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COMMENTS \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters): 0**

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

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts] <input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] <input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	<input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] <input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
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COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 1.30**

**HHEI Metric Points**

Substrate Max = 40

19

A + B

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Pool Depth Max = 30

0

---

Bankfull Width Max=30

15

**This information must also be completed**

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

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS **Active clearcutting downstream of sample location.**

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

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

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

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

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

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

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <input type="text" value="Miller Run"/>	Distance from Evaluated Stream	<input type="text" value="1.20"/>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

**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:

**MISCELLANEOUS**

Base Flow Conditions? (Y/N):  Y Date of last precipitation:  Quantity:   
Photograph Information:   
Elevated Turbidity? (Y/N):  N Canopy (% open):   
Were samples collected for water chemistry? (Y/N):  N (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
Is the sampling reach representative of the stream (Y/N):  N If not, please explain:   
Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N):  Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N)  N Voucher? (Y/N)  N Salamanders Observed? (Y/N)  N Voucher? (Y/N)  N  
Frogs or Tadpoles Observed? (Y/N)  N Voucher? (Y/N)  N Aquatic Macroinvertebrates Observed? (Y/N)  N Voucher? (Y/N)  N  
Comments Regarding Biology:

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

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



SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 10** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.15**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.89407** LONG. **-82.95599** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **06/27/12** SCORER **JME** COMMENTS **Previously logged**

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

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

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

<table border="0"> <thead> <tr> <th>TYPE</th> <th>PERCENT</th> </tr> </thead> <tbody> <tr><td><input type="checkbox"/> BLDR SLABS [16 pts]</td><td>0%</td></tr> <tr><td><input type="checkbox"/> BOULDER (&gt;256 mm) [16 pts]</td><td>5%</td></tr> <tr><td><input type="checkbox"/> BEDROCK [16 pt]</td><td>0%</td></tr> <tr><td><input type="checkbox"/> COBBLE (65-256 mm) [12 pts]</td><td>20%</td></tr> <tr><td><input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]</td><td>25%</td></tr> <tr><td><input type="checkbox"/> SAND (&lt;2 mm) [6 pts]</td><td>0%</td></tr> </tbody> </table> <p style="text-align: right;">Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock <b>25.00%</b> (A)</p>	TYPE	PERCENT	<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	5%	<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	20%	<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	25%	<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<table border="0"> <thead> <tr> <th>TYPE</th> <th>PERCENT</th> </tr> </thead> <tbody> <tr><td><input checked="" type="checkbox"/> SILT [3 pt]</td><td>0%</td></tr> <tr><td><input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]</td><td>30%</td></tr> <tr><td><input type="checkbox"/> FINE DETRITUS [3 pts]</td><td>0%</td></tr> <tr><td><input type="checkbox"/> CLAY or HARDPAN [0 pt]</td><td>20%</td></tr> <tr><td><input type="checkbox"/> MUCK [0 pts]</td><td>0%</td></tr> <tr><td><input type="checkbox"/> ARTIFICIAL [3 pts]</td><td>0%</td></tr> </tbody> </table> <p style="text-align: right;">100% (B)</p>	TYPE	PERCENT	<input checked="" type="checkbox"/> SILT [3 pt]	0%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	30%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	20%	<input type="checkbox"/> MUCK [0 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%
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<input type="checkbox"/> FINE DETRITUS [3 pts]	0%																												
<input type="checkbox"/> CLAY or HARDPAN [0 pt]	20%																												
<input type="checkbox"/> MUCK [0 pts]	0%																												
<input type="checkbox"/> ARTIFICIAL [3 pts]	0%																												

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12**      **TOTAL NUMBER OF SUBSTRATE TYPES: 5**

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

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

**COMMENTS: 1 very shallow pool in stream**      **MAXIMUM POOL DEPTH (centimeters): 4**

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

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

**COMMENTS: braided channel in portions of sampled reach**      **AVERAGE BANKFULL WIDTH (meters): 1.20**

**HHEI Metric Points**

Substrate Max = 40

17

A + B

Pool Depth Max = 30

5

Bankfull Width Max=30

15

**This information must also be completed**

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

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

**COMMENTS: was logged 2-5 years ago and now in shrub/scrub habitat**

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

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

**COMMENTS: Braided channel in areas.**

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

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

**STREAM GRADIENT ESTIMATE**

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

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

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Candy Run</b>	Distance from Evaluated Stream	<b>3.30</b>
<input type="checkbox"/> CWH Name:	Distance from Evaluated Stream	
<input type="checkbox"/> EWH Name:	Distance from Evaluated Stream	

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

USGS Quadrangle Name: **Lucasville** NRCS Soil Map Page: **13** NRCS Soil Map Stream Order: **2**  
County: **Scioto** Township / City: **Jefferson TWP/ Lucasville**

**MISCELLANEOUS**

Base Flow Conditions? (Y/N):  Y Date of last precipitation: **06/21/12** Quantity: **0.52**  
Photograph Information: **See ESR.**  
Elevated Turbidity? (Y/N):  Y Canopy (% open): **90%**  
Were samples collected for water chemistry? (Y/N):  N (Note lab sample no. or id. and attach results) Lab Number:   
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:  
**Most of the valley has been logged. May be "natural" downstream.**

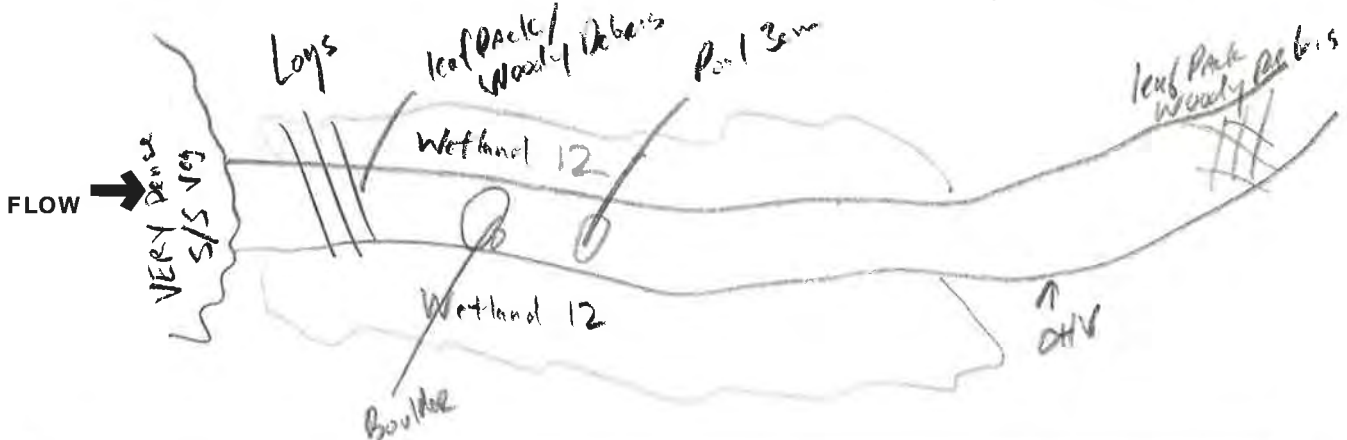
Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N):  Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N)  N Voucher? (Y/N)  N Salamanders Observed? (Y/N)  N Voucher? (Y/N)  N  
Frogs or Tadpoles Observed? (Y/N)  N Voucher? (Y/N)  N Aquatic Macroinvertebrates Observed? (Y/N)  Y Voucher? (Y/N)  N  
Comments Regarding Biology:  
**Whirligig Beetles (VC), riffle beetles (C), crayfish borrows. Mostly terrestrial species.**

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

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



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

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 10A** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.01**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.89435** LONG. **-82.95667** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **06/27/12** SCORER **JME** COMMENTS **Logged in the past few years**

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	30%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	5%	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	60%
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	5%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **5.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3** **TOTAL NUMBER OF SUBSTRATE TYPES: 4**

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

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

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

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

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

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 1.20**

**HHEI Metric Points**

Substrate Max = 40

7

A + B

Pool Depth Max = 30

0

Bankfull Width Max=30

15

**This information must also be completed**

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

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank) Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS **was logged 2-5 years ago and now in shrub/scrub habitat**

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

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

COMMENTS \_\_\_\_\_

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

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

**STREAM GRADIENT ESTIMATE**  Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)



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

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Candy Run</b>	Distance from Evaluated Stream	<b>3.30</b>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

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

USGS Quadrangle Name: **Lucasville** NRCS Soil Map Page: **13** NRCS Soil Map Stream Order: **1**  
 County: **Scioto** Township / City: **Jefferson TWP/ Lucasville**

**MISCELLANEOUS**

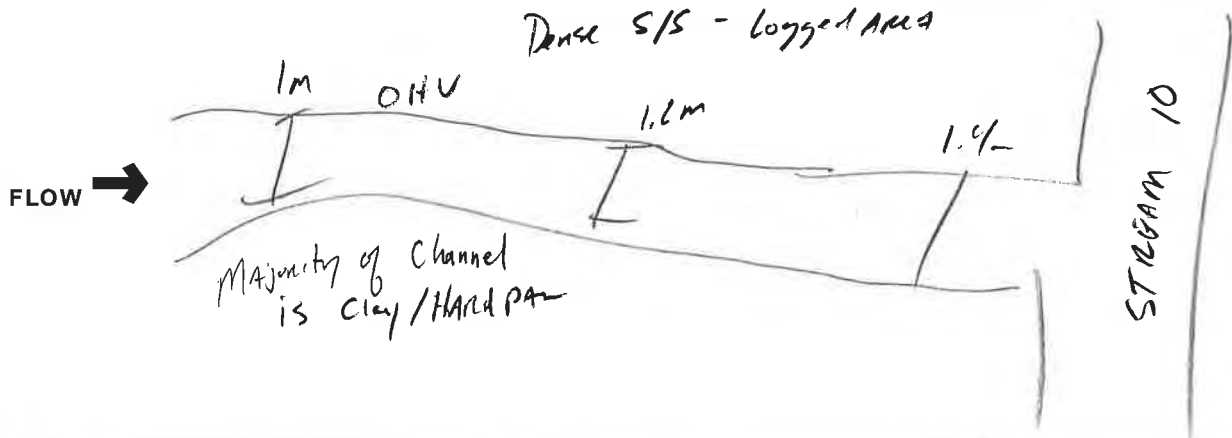
Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **06/21/12** Quantity: **0.52**  
 Photograph Information: **See ESR.**  
 Elevated Turbidity? (Y/N): **N** Canopy (% open): **90%**  
 Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number:   
 Field Measures: Temp (°C):  Dissolved Oxygen (mg/l):  pH (S.U.):  Conductivity (µmhos/cm):   
 Is the sampling reach representative of the stream (Y/N): **Y** If not, please explain:   
 Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N): **Y** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
 Fish Observed? (Y/N): **N** Voucher? (Y/N): **N** Salamanders Observed? (Y/N): **N** Voucher? (Y/N): **N**  
 Frogs or Tadpoles Observed? (Y/N): **N** Voucher? (Y/N): **N** Aquatic Macroinvertebrates Observed? (Y/N): **Y** Voucher? (Y/N): **N**  
 Comments Regarding Biology: **No habitat or water in channel. No aquatic species observed.**

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

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





# Primary Headwater Habitat Evaluation Form

10

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

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 10B** RIVER BASIN: DRAINAGE AREA (mi<sup>2</sup>) **0.04**

LENGTH OF STREAM REACH (ft) LAT. **38.89495** LONG. **-82.95754** RIVER CODE RIVER MILE

DATE **06/27/12** SCORER **JME** COMMENTS **Previously logged**

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

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

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

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

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

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **3** TOTAL NUMBER OF SUBSTRATE TYPES: **2**

**HHEI Metric Points**

Substrate Max = 40

5

A + B

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

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

COMMENTS MAXIMUM POOL DEPTH (centimeters): **0**

Pool Depth Max = 30

0

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

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

COMMENTS **Discontinuous OHWM due to logging** AVERAGE BANKFULL WIDTH (meters): **0.75**

Bankfull Width Max=30

5

**This information must also be completed**

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

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

COMMENTS **Clearcut and now dense shrub/scrub habitat**

**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  1.0  2.0  3.0  
 0.5  1.5  2.5  >3

**STREAM GRADIENT ESTIMATE**  Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

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

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

WWH Name:  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:

**MISCELLANEOUS**

Base Flow Conditions? (Y/N):  Date of last precipitation:  Quantity:   
Photograph Information:   
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)   
Frogs or Tadpoles Observed? (Y/N)  Voucher? (Y/N)  Aquatic Macroinvertebrates Observed? (Y/N)  Voucher? (Y/N)   
Comments Regarding Biology:   

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

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

*Logged / Dense S/S*

FLOW → *Slag covers channel*





# Primary Headwater Habitat Evaluation Form

12

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

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 10C** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.03**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.89414** LONG. **-82.95412** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **07/09/12** SCORER **JME** COMMENTS **Previously logged**

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

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

<b>1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A &amp; B.</b>				<b>HHEI Metric Points</b> Substrate Max = 40 <div style="border: 1px solid black; padding: 5px; font-size: 24px; margin: 5px 0;">7</div> A + B
<b>TYPE</b>	<b>PERCENT</b>	<b>TYPE</b>	<b>PERCENT</b>	
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%	
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	40%	
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	5%	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	45%	
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	10%	<input type="checkbox"/> MUCK [0 pts]	0%	
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock <b>5.00%</b> (A)		100% (B)		
<b>SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3</b>		<b>TOTAL NUMBER OF SUBSTRATE TYPES: 4</b>		
<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):</b>				<b>Pool Depth</b> Max = 30 <div style="border: 1px solid black; padding: 5px; font-size: 24px; margin: 5px 0;">0</div>
<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]			
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input checked="" type="checkbox"/> < 5 cm [5 pts]			
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]	COMMENTS _____ <b>MAXIMUM POOL DEPTH (centimeters): 0</b>		
<b>3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):</b>				<b>Bankfull Width</b> Max=30 <div style="border: 1px solid black; padding: 5px; font-size: 24px; margin: 5px 0;">5</div>
<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]			
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]			
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	COMMENTS _____ <b>AVERAGE BANKFULL WIDTH (meters): 0.80</b>			

This information must also be completed

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

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

COMMENTS: Was previously logged

**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  1.0  2.0  3.0

0.5  1.5  2.5  >3

**STREAM GRADIENT ESTIMATE**

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

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

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Candy Run</b>	Distance from Evaluated Stream	<b>3.30</b>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

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

USGS Quadrangle Name: **Lucasville** NRCS Soil Map Page: **13** NRCS Soil Map Stream Order: **1**  
County: **Scioto** Township / City: **Jefferson TWP/ Lucasville**

**MISCELLANEOUS**

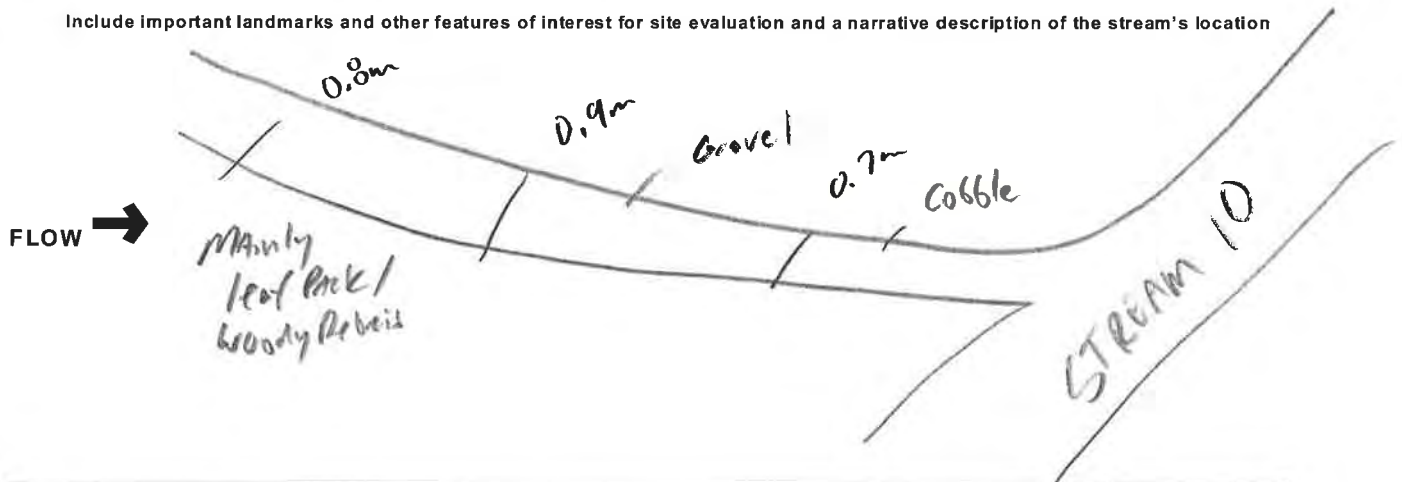
Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **07/08/12** Quantity: **1.77**  
Photograph Information: **See ESR.**  
Elevated Turbidity? (Y/N): **N** Canopy (% open): **15%**  
Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number:   
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): **Y** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N): **N** Voucher? (Y/N): **N** Salamanders Observed? (Y/N): **N** Voucher? (Y/N): **N**  
Frogs or Tadpoles Observed? (Y/N): **N** Voucher? (Y/N): **N** Aquatic Macroinvertebrates Observed? (Y/N): **N** Voucher? (Y/N): **N**  
Comments Regarding Biology: **No aquatic species observed during HHEI evaluation.**

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

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





# Primary Headwater Habitat Evaluation Form

23

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

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 10D** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.03**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.89380** LONG. **-82.95416** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **07/09/12** SCORER **JME** COMMENTS **Previously logged**

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

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

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)				<b>HHEI Metric Points</b>
TYPE	PERCENT	TYPE	PERCENT	
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%	<b>8</b>
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	5%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	40%	
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	15%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	30%	
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	10%	<input type="checkbox"/> MUCK [0 pts]	0%	
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock <b>20.00%</b> (A)		100% (B)		
<b>SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3</b>		<b>TOTAL NUMBER OF SUBSTRATE TYPES: 5</b>		
<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):</b>				<b>0</b>
<input type="checkbox"/> > 30 centimeters [20 pts] <input type="checkbox"/> > 5 cm - 10 cm [15 pts] <input type="checkbox"/> > 22.5 - 30 cm [30 pts] <input type="checkbox"/> < 5 cm [5 pts] <input type="checkbox"/> > 10 - 22.5 cm [25 pts] <input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]				
<b>COMMENTS:</b> _____ <b>MAXIMUM POOL DEPTH (centimeters):</b> <b>0</b>				
<b>3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):</b>				<b>15</b>
<input type="checkbox"/> > 4.0 meters (> 13') [30 pts] <input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] <input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] <input type="checkbox"/> ≤ 1.0 m (<= 3' 3") [5 pts] <input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]				
<b>COMMENTS:</b> _____ <b>AVERAGE BANKFULL WIDTH (meters):</b> <b>1.10</b>				

**This information must also be completed**

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

RIPARIAN WIDTH		FLOODPLAIN QUALITY		L R	
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank) Wide >10m		(Most Predominant per Bank) Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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       1.0       2.0       3.0  
 0.5       1.5       2.5       >3

**STREAM GRADIENT ESTIMATE**  Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

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

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Candy Run</b>	Distance from Evaluated Stream	<b>3.30</b>
<input type="checkbox"/> CWH Name:	Distance from Evaluated Stream	
<input type="checkbox"/> EWH Name:	Distance from Evaluated Stream	

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

USGS Quadrangle Name: **Lucasville** NRCS Soil Map Page: **13** NRCS Soil Map Stream Order: **1**  
County: **Scioto** Township / City: **Jefferson TWP/ Lucasville**

**MISCELLANEOUS**

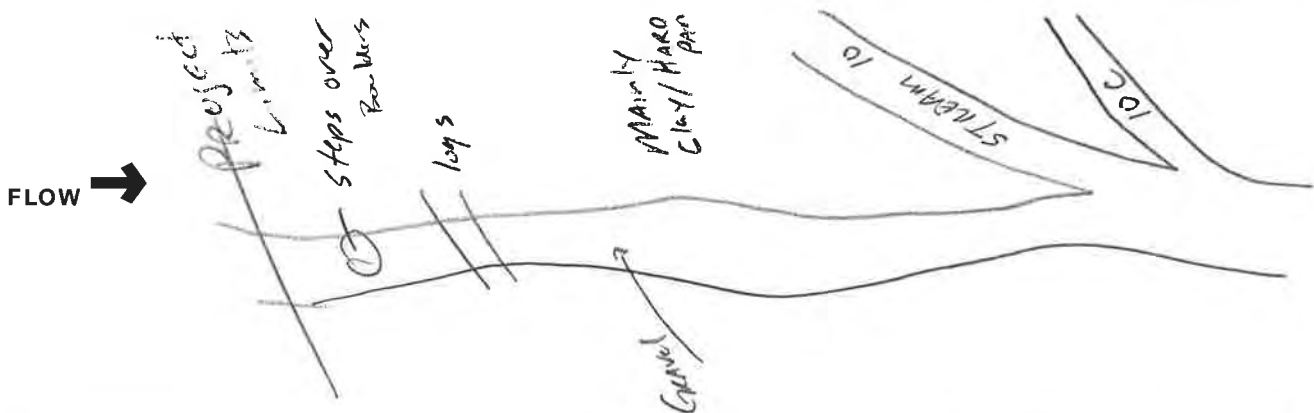
Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **07/08/12** Quantity: **1.77**  
Photograph Information: **See ESR.**  
Elevated Turbidity? (Y/N): **N** Canopy (% open): **15%**  
Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number:   
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): **Y** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**  
Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**  
Comments Regarding Biology: **No aquatic species observed during HHEI evaluation**

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

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





# Primary Headwater Habitat Evaluation Form

46

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

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 11** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.12**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.89039** LONG. **-82.95323** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **07/09/12** SCORER **JME** COMMENTS \_\_\_\_\_

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	5%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	15%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input checked="" type="checkbox"/> COBBLE (65-256 mm) [12 pts]	25%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	0%
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	40%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	15%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **30.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 21**      **TOTAL NUMBER OF SUBSTRATE TYPES: 5**

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

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

COMMENTS **No pools, moist channel under larger rocks**      **MAXIMUM POOL DEPTH (centimeters): 0**

---

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

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

COMMENTS \_\_\_\_\_      **AVERAGE BANKFULL WIDTH (meters): 2.40**

**HHEI Metric Points**

Substrate Max = 40

26

A + B

Pool Depth Max = 30

0

Bankfull Width Max=30

20

**This information must also be completed**

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

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS **Logged 30+/- years ago**

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

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

COMMENTS **No pools - moist channel**

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

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

**STREAM GRADIENT ESTIMATE**

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



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

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

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: Candy Run	Distance from Evaluated Stream	1.40
<input type="checkbox"/> CWH Name:	Distance from Evaluated Stream	
<input type="checkbox"/> 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:

**MISCELLANEOUS**

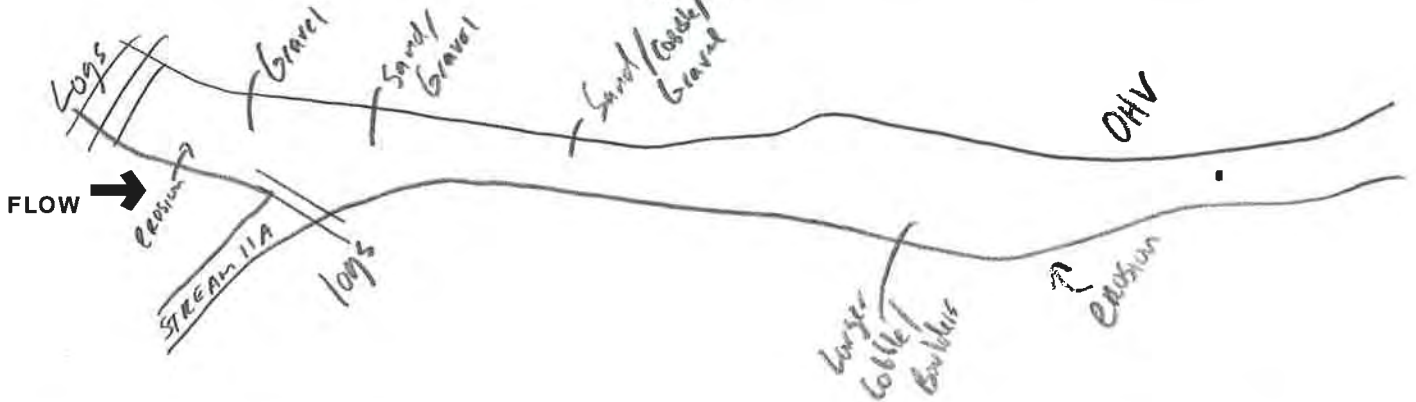
Base Flow Conditions? (Y/N):  Y Date of last precipitation:  Quantity:   
 Photograph Information:   
 Elevated Turbidity? (Y/N):  N Canopy (% open):   
 Were samples collected for water chemistry? (Y/N):  N (Note lab sample no. or id. and attach results) Lab Number:   
 Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
 Is the sampling reach representative of the stream (Y/N):  Y If not, please explain:   
 Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N):  Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
 Fish Observed? (Y/N):  N Voucher? (Y/N):  N Salamanders Observed? (Y/N):  Y Voucher? (Y/N):  N  
 Frogs or Tadpoles Observed? (Y/N):  Y Voucher? (Y/N):  N Aquatic Macroinvertebrates Observed? (Y/N):  Y Voucher? (Y/N):  N  
 Comments Regarding Biology:   
 \_\_\_\_\_

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

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



1. **Fish:** Voucher Specimens Retained? (select)  N  Time Spent (minutes):   
 Sample Method No Evaluation Stream Length Assessed (meters)

Species	Number Caught	Notes
Blank	0	
Blank	0	
Blank	0	
Blank	0	
	0	
	0	
	0	
	0	

2. **Salamanders:** Voucher Specimens Retained? (circle) N  Time Spent (minutes):  30  
 Sample Method Dip Net + Hand Sorting Stream Length Assessed (meters)  30.0

Species (Genus)	# Larvae	# Juveniles/Adults	Total Number
Mountain Dusky ( <i>Desmognathus ochrophaeus</i> )	0	0	0
Northern Dusky ( <i>Desmognathus fuscus</i> )	0	0	0
Two-lined ( <i>Eurycea bislineata</i> )	0	1	1
Long-tailed ( <i>Eurycea longicauda</i> )	0	0	0
Cave ( <i>Eurycea lucifuga</i> )	0	0	0
Red ( <i>Pseudotriton ruber</i> )	0	0	0
Mud ( <i>Pseudotriton montanus</i> )	0	0	0
Spring ( <i>Gyrinophilus porphyriticus</i> )	0	0	0
Mole spp. ( <i>Ambystoma spp.</i> )	0	0	0
Four-toed ( <i>Hemidactylium scutatum</i> )	0	0	0
Other (name) <input type="text"/>	0	0	0
<b>Total</b>	<b>0</b>	<b>1</b>	<b>1</b>

Notes on Vertebrates:  only 1 adult/juvenile southern 2-line salamander found

07/09/12

**3. Macroinvertebrate Scoring Sheet:**

**THE HEADWATER MACROINVERTEBRATE FIELD EVALUATION INDEX (HMFEI) SCORING SHEET**

Indicate Abundance of Each Taxa Above each White Box.

Record HMFEI Scoring Value Points Within each Box.

For EPT taxa, also indicate the different taxa present.

**Key: V = Very Abundant (> 50); A = Abundant (10 -50); C = Common (3 -9); R = Rare (< 3)**

Sessile Animals ( <b>Porifera</b> , <b>Cnidaria</b> , <b>Bryozoa</b> ) (HMFEI pts = 1)	<input type="text" value="NA"/> <input type="text" value="0"/>	Crayfish ( <b>Decapoda</b> ) (HMFEI pts = 2)	<input type="text" value="R"/> <input type="text" value="2"/>	Fishfly Larvae ( <b>Corydalidae</b> ) (HMFEI pts = 3)	<input type="text" value="NA"/> <input type="text" value="0"/>
Aquatic Worms ( <b>Turbellaria</b> , <b>Hirudinea</b> , <b>Oligochaeta</b> ) (HMFEI pts = 1)	<input type="text" value="NA"/> <input type="text" value="0"/>	Dragonfly Nymphs ( <b>Anisoptera</b> ) (HMFEI pts = 2)	<input type="text" value="NA"/> <input type="text" value="0"/>	Water Penny Beetles ( <b>Psephenidae</b> ) (HMFEI pts = 3)	<input type="text" value="NA"/> <input type="text" value="0"/>
Sow Bugs ( <b>Isopoda</b> ) (HMFEI pts = 1)	<input type="text" value="NA"/> <input type="text" value="0"/>	Riffle Beetles ( <b>Dryopidae</b> , <b>Elmidae</b> , <b>Ptilodactylidae</b> ) (HMFEI pts = 2)	<input type="text" value="NA"/> <input type="text" value="0"/>	Cranefly Larvae ( <b>Tipulidae</b> ) (HMFEI pts = 3)	<input type="text" value="NA"/> <input type="text" value="0"/>
Scuds ( <b>Amphipoda</b> ) (HMFEI pts = 1)	<input type="text" value="NA"/> <input type="text" value="0"/>	Larvae of other Flies (enter name in comments) ( <b>Diptera</b> ): (HMFEI pts = 1)	<input type="text" value="NA"/> <input type="text" value="0"/>	<b>EPT TAXA*</b>	
Water Mites ( <b>Hydracarina</b> ) (HMFEI pts = 1)	<input type="text" value="NA"/> <input type="text" value="0"/>	Midges ( <b>Chironomidae</b> ) (HMFEI pts = 1)	<input type="text" value="NA"/> <input type="text" value="0"/>	Total No. EPT Taxa =	<input type="text" value="0"/>
Damselfly Nymphs ( <b>Zygoptera</b> ) (HMFEI pts = 1)	<input type="text" value="NA"/> <input type="text" value="0"/>	Snails ( <b>Gastropoda</b> ) (HMFEI pts = 1)	<input type="text" value="R"/> <input type="text" value="1"/>	Mayfly Nymphs ( <b>Ephemeroptera</b> ) Taxa Present:	<input type="text" value="0"/>
Alderfly Larvae ( <b>Sialidae</b> ) (HMFEI pts = 1)	<input type="text" value="NA"/> <input type="text" value="0"/>	Clams ( <b>Bivalvia</b> ) (HMFEI pts = 1)	<input type="text" value="NA"/> <input type="text" value="0"/>	HMFEI pts =	<input type="text" value="NA"/> <input type="text" value="0"/>
Other Beetles ( <b>Coleoptera</b> ) (HMFEI pts = 1)	<input type="text" value="C"/> <input type="text" value="1"/>	Other Taxa:	<input type="text"/>	No. Taxa (x) 3]	<input type="text" value="0"/>
Other Taxa:	<input type="text"/>	Other Taxa:	<input type="text"/>	Stonefly Nymphs ( <b>Plecoptera</b> ) Taxa Present:	<input type="text" value="0"/>
Other Taxa:	<input type="text"/>	Other Taxa:	<input type="text"/>	HMFEI pts =	<input type="text" value="NA"/> <input type="text" value="0"/>
Other Taxa:	<input type="text"/>	Other Taxa:	<input type="text"/>	No. Taxa (x) 3]	<input type="text" value="0"/>
Other Taxa:	<input type="text"/>	Other Taxa:	<input type="text"/>	Caddisfly Larvae ( <b>Trichoptera</b> ) Taxa Present:	<input type="text" value="0"/>
Other Taxa:	<input type="text"/>	Other Taxa:	<input type="text"/>	HMFEI pts =	<input type="text" value="NA"/> <input type="text" value="0"/>
Other Taxa:	<input type="text"/>	Other Taxa:	<input type="text"/>	No. Taxa (x) 3]	<input type="text" value="0"/>

\*Note: EPT identification based upon Family or Genus level of taxonomy

Voucher Sample ID:  Time Spent (minutes):

Notes on Macroinvertebrates: (Predominant Organisms; Other Common Organisms; Diversity Estimate)

**Mainly terrestrial macroinvertebrates observed in channel including ants, spiders, millipedes and centipedes.**

Final HMFEI Calculated Score (Sum of All White Box Scores) =

**4**

IF Final HMFEI Score is > 19, Then CLASS III PHWH STREAM  
 IF Final HMFEI Score is 7 to 19, Then CLASS II PHWH STREAM  
 IF Final HMFEI Score is < 7, Then CLASS I PHWH STREAM





# Primary Headwater Habitat Evaluation Form

22

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

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 11A** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.02**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.89180** LONG. **-82.95405** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **07/09/12** SCORER **RP** COMMENTS \_\_\_\_\_

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

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

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.				<b>HHEI Metric Points</b>
TYPE	PERCENT	TYPE	PERCENT	
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%	Substrate Max = 40  <b>7</b>  A + B
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	20%	
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	5%	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	45%	
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	30%	<input type="checkbox"/> MUCK [0 pts]	0%	
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock <b>5.00%</b> (A)		100% (B)		
<b>SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3</b>		<b>TOTAL NUMBER OF SUBSTRATE TYPES: 4</b>		
2. <b>Maximum Pool Depth</b> (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 Max = 30
<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]	<input type="checkbox"/> < 5 cm [5 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]	
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input checked="" type="checkbox"/>			<b>0</b>
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]				Bankfull Width Max=30
COMMENTS _____ <b>MAXIMUM POOL DEPTH (centimeters): 0</b>				
3. <b>BANK FULL WIDTH</b> (Measured as the average of 3-4 measurements) (Check ONLY one box):				Bankfull Width Max=30
<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	<input type="checkbox"/> < 1.0 m (<= 3' 3") [5 pts]		
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]				<b>15</b>
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]				
COMMENTS _____ <b>AVERAGE BANKFULL WIDTH (meters): 1.20</b>				

This information must also be completed

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

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

COMMENTS **Logged 30 +/- years ago**

**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  1.0  2.0  3.0

0.5  1.5  2.5  >3

**STREAM GRADIENT ESTIMATE**

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

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

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <u>Candy Run</u>	Distance from Evaluated Stream	<u>1.40</u>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

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

USGS Quadrangle Name: Lucasville NRCS Soil Map Page: 13 NRCS Soil Map Stream Order: 1  
County: Scioto Township / City: Jefferson TWP/ Lucasville

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 07/08/12 Quantity: 1.77  
Photograph Information: See ESR.  
Elevated Turbidity? (Y/N): N Canopy (% open): 20%  
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
Is the sampling reach representative of the stream (Y/N) Y If not, please explain:   
Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N): Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N  
Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N  
Comments Regarding Biology: No aquatic species observed during HHEI evaluation.

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

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





# Primary Headwater Habitat Evaluation Form

18

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

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 11B** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.01**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.89193** LONG. **-82.95358** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **07/09/12** SCORER **RP** COMMENTS \_\_\_\_\_

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

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

1. SUBSTRATE (Estimate percent of every type of substrate present. Check <i>ONLY</i> two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.				<b>HHEI Metric Points</b>
TYPE	PERCENT	TYPE	PERCENT	
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	0%	Substrate Max = 40  <b>13</b>  A + B
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	15%	
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%	
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	5%	<input checked="" type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	60%	
<input type="checkbox"/> <input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	20%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%	
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	0%	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock <b>5.00%</b> (A)		100% (B)		
<b>SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9</b>		<b>TOTAL NUMBER OF SUBSTRATE TYPES: 4</b>		
2. <b>Maximum Pool Depth</b> (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 <i>ONLY</i> one box):				Pool Depth Max = 30
<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]	<input type="checkbox"/> < 5 cm [5 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]	
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input checked="" type="checkbox"/>			<b>0</b>
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]				
COMMENTS _____ <b>MAXIMUM POOL DEPTH (centimeters): 0</b>				
3. <b>BANK FULL WIDTH</b> (Measured as the average of 3-4 measurements) (Check <i>ONLY</i> one box):				Bankfull Width Max=30
<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	<input type="checkbox"/> ≤ 1.0 m (<=3' 3") [5 pts]		
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]				<b>5</b>
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]				
COMMENTS _____ <b>AVERAGE BANKFULL WIDTH (meters): 0.90</b>				

This information must also be completed

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

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank) Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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  1.0  2.0  3.0

0.5  1.5  2.5  >3

**STREAM GRADIENT ESTIMATE**

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

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

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

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: Candy Run	Distance from Evaluated Stream	1.40
<input type="checkbox"/> CWH Name:	Distance from Evaluated Stream	
<input type="checkbox"/> EWH Name:	Distance from Evaluated Stream	

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

USGS Quadrangle Name:  Lucasville NRCS Soil Map Page:  13 NRCS Soil Map Stream Order:  1  
County:  Scioto Township / City:  Jefferson TWP/ Lucasville

**MISCELLANEOUS**

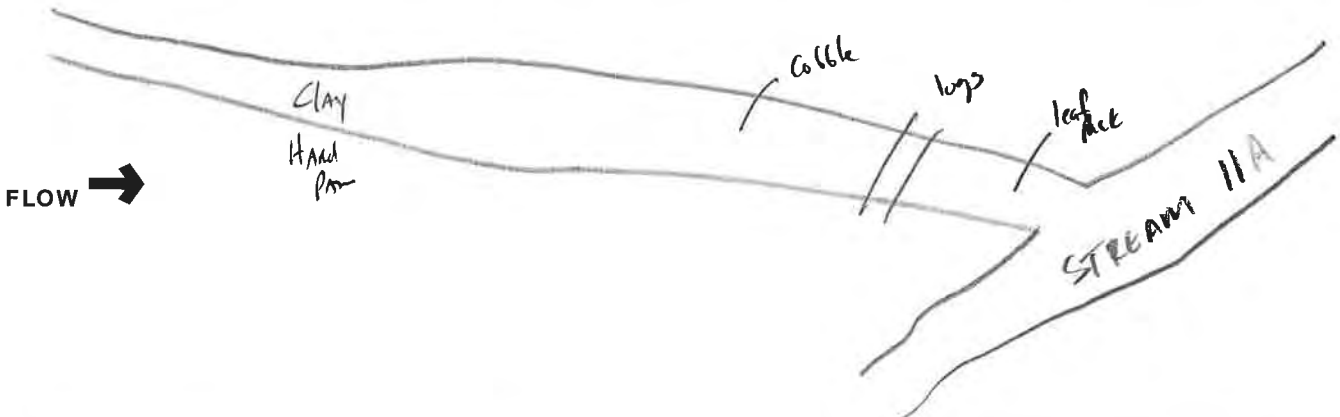
Base Flow Conditions? (Y/N):  Y Date of last precipitation:  07/08/12 Quantity:  1.77  
Photograph Information:  See ESR.  
Elevated Turbidity? (Y/N):  N Canopy (% open):  20%  
Were samples collected for water chemistry? (Y/N):  N (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
Is the sampling reach representative of the stream (Y/N)  Y If not, please explain:   
Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N):  Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N):  N Voucher? (Y/N):  N Salamanders Observed? (Y/N):  N Voucher? (Y/N):  N  
Frogs or Tadpoles Observed? (Y/N):  N Voucher? (Y/N):  N Aquatic Macroinvertebrates Observed? (Y/N):  N Voucher? (Y/N):  N  
Comments Regarding Biology:  No aquatic species observed during HHEI evaluation.

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

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





# Primary Headwater Habitat Evaluation Form

28

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

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 11C** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.02**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.89153** LONG. **-82.95399** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **07/09/12** SCORER **RP** COMMENTS \_\_\_\_\_

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> SILT [3 pt]	<input type="checkbox"/> 0%
<input checked="" type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input checked="" type="checkbox"/> 40%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input checked="" type="checkbox"/> 25%
<input type="checkbox"/> BEDROCK [16 pt]	<input type="checkbox"/> 0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="checkbox"/> 20%
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input checked="" type="checkbox"/> 15%	<input type="checkbox"/> MUCK [0 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="checkbox"/> 0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **40.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 19** **TOTAL NUMBER OF SUBSTRATE TYPES: 4**

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

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

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

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

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

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 0.90**

**HHEI Metric Points**

Substrate Max = 40

23

A + B

---

Pool Depth Max = 30

0

---

Bankfull Width Max=30

5

This information must also be completed

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

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank) Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

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

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

COMMENTS \_\_\_\_\_

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

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

**STREAM GRADIENT ESTIMATE**

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



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

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

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Candy Run</b>	Distance from Evaluated Stream	<b>1.40</b>
<input type="checkbox"/> CWH Name:	Distance from Evaluated Stream	
<input type="checkbox"/> EWH Name:	Distance from Evaluated Stream	

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

USGS Quadrangle Name: **Lucasville** NRCS Soil Map Page: **13** NRCS Soil Map Stream Order: **1**  
County: **Scioto** Township / City: **Jefferson TWP/ Lucasville**

**MISCELLANEOUS**

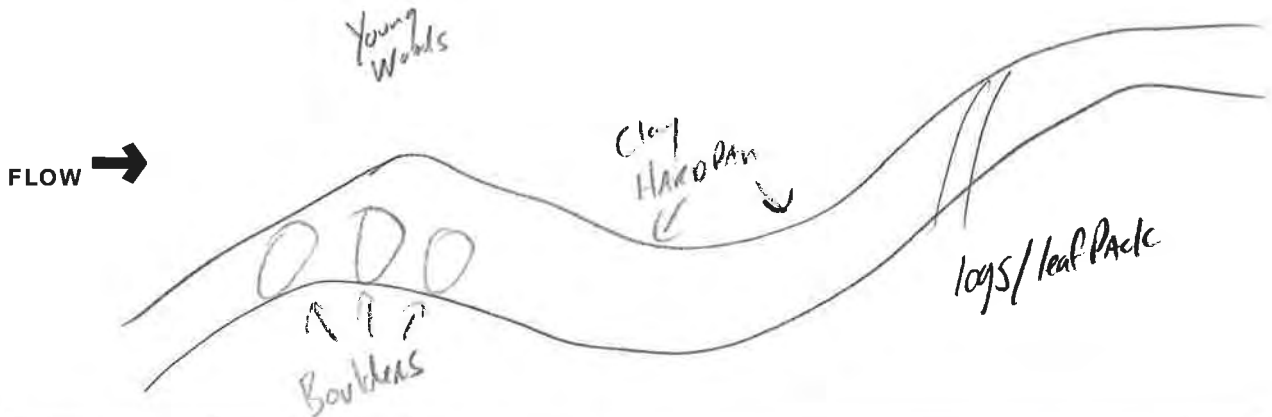
Base Flow Conditions? (Y/N):  Y Date of last precipitation: **07/08/12** Quantity: **1.77**  
Photograph Information: **See ESR.**  
Elevated Turbidity? (Y/N):  N Canopy (% open): **20%**  
Were samples collected for water chemistry? (Y/N):  N (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
Is the sampling reach representative of the stream (Y/N)  Y If not, please explain:  
  
Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N):  Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N)  N Voucher? (Y/N)  N Salamanders Observed? (Y/N)  N Voucher? (Y/N)  N  
Frogs or Tadpoles Observed? (Y/N)  N Voucher? (Y/N)  N Aquatic Macroinvertebrates Observed? (Y/N)  N Voucher? (Y/N)  N  
Comments Regarding Biology:  
**No aquatic species observed during HHEI evaluation.**

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

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





# Primary Headwater Habitat Evaluation Form

**13**

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

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 11D** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.02**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.89066** LONG. **-82.95177** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **07/09/12** SCORER **RP** COMMENTS \_\_\_\_\_

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> SILT [3 pt]	<input type="checkbox"/> 0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="checkbox"/> 2%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="checkbox"/> 23%
<input type="checkbox"/> BEDROCK [16 pt]	<input type="checkbox"/> 0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="checkbox"/> 5%	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="checkbox"/> 50%
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="checkbox"/> 20%	<input type="checkbox"/> MUCK [0 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="checkbox"/> 0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **7.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3** **TOTAL NUMBER OF SUBSTRATE TYPES: 5**

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

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

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

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

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

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 0.80**

**HHEI Metric Points**

Substrate Max = 40

**8**

A + B

Pool Depth Max = 30

**0**

Bankfull Width Max=30

**5**

This information must also be completed

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

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank) Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

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

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

COMMENTS \_\_\_\_\_

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

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

**STREAM GRADIENT ESTIMATE**

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

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

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

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Candy Run</b>	Distance from Evaluated Stream	<b>1.40</b>
<input type="checkbox"/> CWH Name:	Distance from Evaluated Stream	
<input type="checkbox"/> EWH Name:	Distance from Evaluated Stream	

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

USGS Quadrangle Name: **Lucasville** NRCS Soil Map Page: **13** NRCS Soil Map Stream Order: **1**  
County: **Scioto** Township / City: **Jefferson TWP/ Lucasville**

**MISCELLANEOUS**

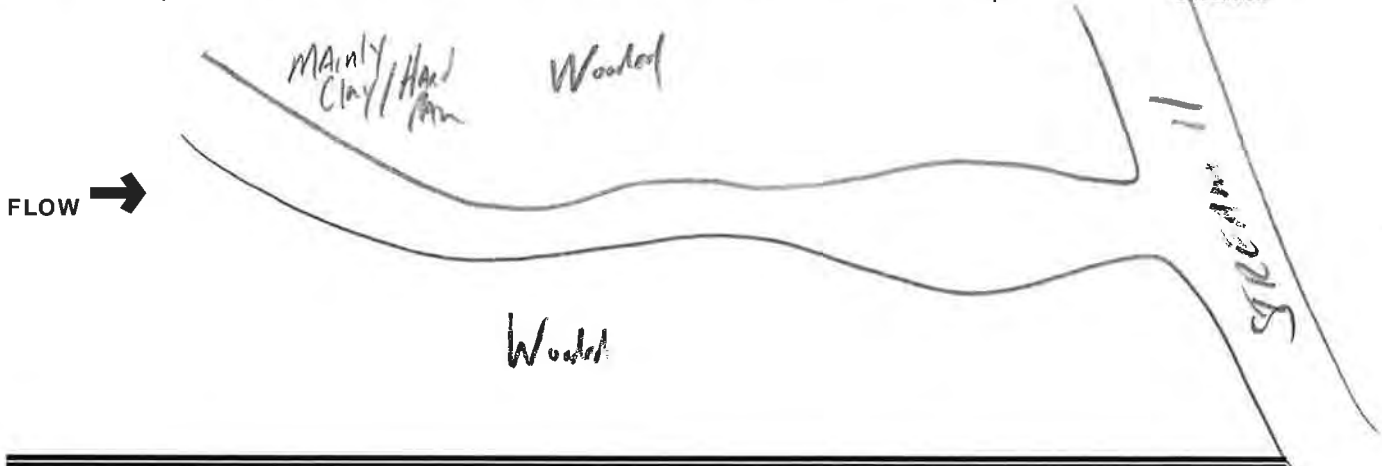
Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **07/08/12** Quantity: **1.77**  
Photograph Information: **See ESR.**  
Elevated Turbidity? (Y/N): **N** Canopy (% open): **20%**  
Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain:   
Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N): **Y** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N): **N** Voucher? (Y/N): **N** Salamanders Observed? (Y/N): **N** Voucher? (Y/N): **N**  
Frogs or Tadpoles Observed? (Y/N): **N** Voucher? (Y/N): **N** Aquatic Macroinvertebrates Observed? (Y/N): **N** Voucher? (Y/N): **N**  
Comments Regarding Biology: **No aquatic species observed during HHEI evaluation.**

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

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



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

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**  
 SITE NUMBER **Stream 11E** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.02**  
 LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.89166** LONG. **-82.95191** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_  
 DATE **07/09/12** SCORER **JME** COMMENTS \_\_\_\_\_

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	5%	<input checked="" type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	35%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	20%
<input type="checkbox"/> <input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	30%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	10%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **5.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12** **TOTAL NUMBER OF SUBSTRATE TYPES: 5**

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

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

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

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

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

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 1.30**

**HHEI Metric Points**

Substrate Max = 40

**17**

A + B

Pool Depth Max = 30

**0**

Bankfull Width Max=30

**15**

**This information must also be completed**

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

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank) Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS: Logged 25 +/- years ago

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

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

COMMENTS \_\_\_\_\_

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

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

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

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

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

WWH Name: Candy Run Distance from Evaluated Stream 1.40  
 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: Lucasville NRCS Soil Map Page: 13 NRCS Soil Map Stream Order 1  
 County: Scioto Township / City: Jefferson TWP/ Lucasville

**MISCELLANEOUS**

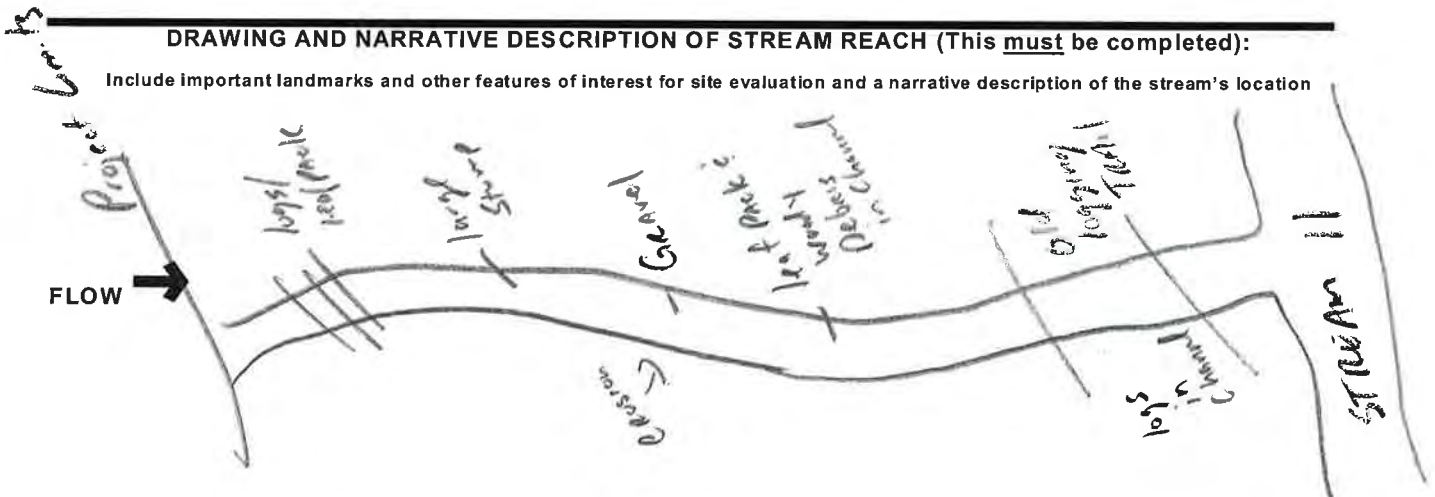
Base Flow Conditions? (Y/N): Y Date of last precipitation: 07/08/12 Quantity: 1.77  
 Photograph Information: See ESR.  
 Elevated Turbidity? (Y/N): N Canopy (% open): 15%  
 Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:   
 Field Measures: 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): Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
 Fish Observed? (Y/N): N Voucher? (Y/N): N Salamanders Observed? (Y/N): N Voucher? (Y/N): N  
 Frogs or Tadpoles Observed? (Y/N): N Voucher? (Y/N): N Aquatic Macroinvertebrates Observed? (Y/N): N Voucher? (Y/N): N  
 Comments Regarding Biology: No aquatic species observed during HHEI evaluation.

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

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





# Primary Headwater Habitat Evaluation Form

12

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

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 11F** RIVER BASIN: DRAINAGE AREA (mi<sup>2</sup>) **0.02**

LENGTH OF STREAM REACH (ft) LAT. **38.89043** LONG. **-82.95238** RIVER CODE RIVER MILE

DATE **07/09/12** SCORER **RP** COMMENTS

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="checkbox"/> 30%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="checkbox"/> 5%	<input type="checkbox"/> <input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="checkbox"/> 50%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="checkbox"/> 15%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="checkbox"/> 0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **5.00%** (A) 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **3** TOTAL NUMBER OF SUBSTRATE TYPES: **4**

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

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

COMMENTS MAXIMUM POOL DEPTH (centimeters): **0**

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

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

COMMENTS AVERAGE BANKFULL WIDTH (meters): **0.90**

**HHEI Metric Points**

Substrate Max = 40

**7**

A + B

Pool Depth Max = 30

**0**

Bankfull Width Max=30

**5**

**This information must also be completed**

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

**RIPARIAN WIDTH**

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

**FLOODPLAIN QUALITY**

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

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

COMMENTS

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

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

COMMENTS

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

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

**STREAM GRADIENT ESTIMATE**

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

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

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Candy Run</b>	Distance from Evaluated Stream	<b>1.40</b>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

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

USGS Quadrangle Name: **Lucasville** NRCS Soil Map Page: **13** NRCS Soil Map Stream Order: **1**  
County: **Scioto** Township / City: **Jefferson TWP/ Lucasville**

**MISCELLANEOUS**

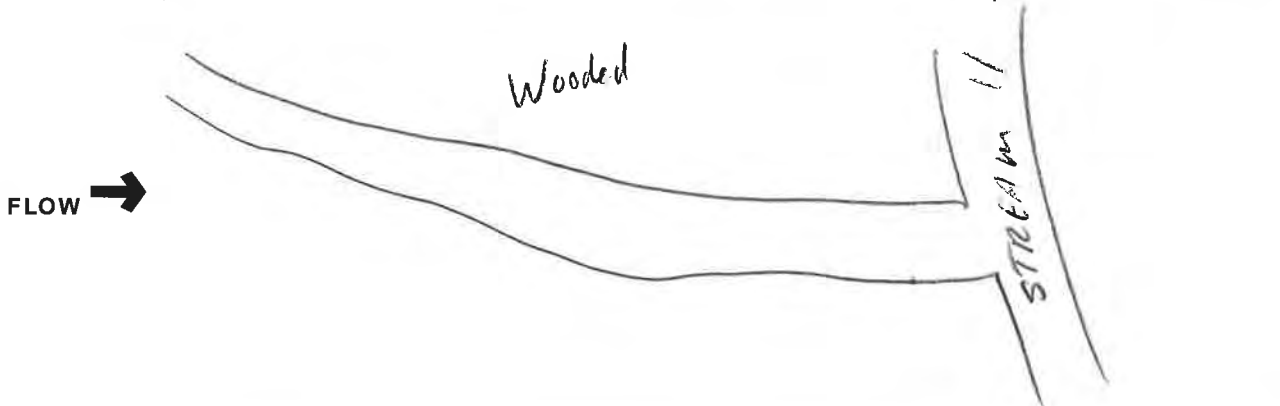
Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **07/08/12** Quantity: **1.77**  
Photograph Information: **See ESR.**  
Elevated Turbidity? (Y/N): **N** Canopy (% open): **15%**  
Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number:   
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): **Y** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**  
Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**  
Comments Regarding Biology: **No aquatic species observed during HHEI evaluation.**

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

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



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

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 12** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.10**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.88848** LONG. **-82.95250** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **07/09/12** SCORER **JME** COMMENTS \_\_\_\_\_

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	10%	<input type="checkbox"/> <input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	25%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	15%	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	15%
<input checked="" type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	35%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **25.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12** **TOTAL NUMBER OF SUBSTRATE TYPES: 5**

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

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

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

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

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

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 1.20**

**HHEI Metric Points**

Substrate Max = 40

**17**

A + B

Pool Depth Max = 30

**0**

Bankfull Width Max=30

**15**

**This information must also be completed**

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

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS: \_\_\_\_\_

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

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

COMMENTS: **Channel is dry, no moisture observed within channel.**

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

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

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



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

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Candy Run</b>	Distance from Evaluated Stream: <b>1.30</b>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream: <input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream: <input type="text"/>

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

USGS Quadrangle Name: **Lucasville** NRCS Soil Map Page: **21** NRCS Soil Map Stream Order: **1**  
County: **Scioto** Township / City: **Jefferson TWP/ Lucasville**

**MISCELLANEOUS**

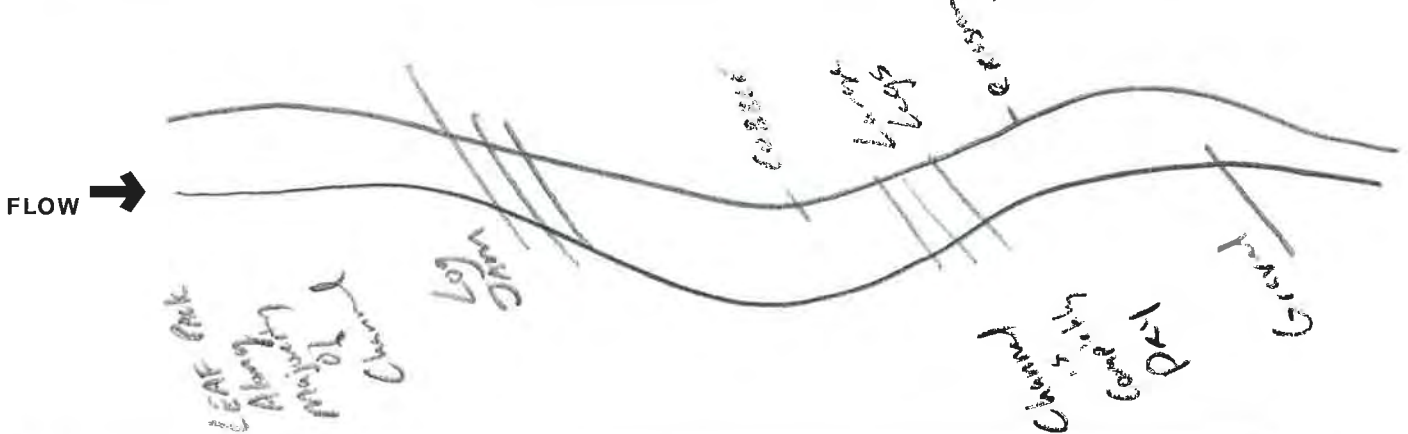
Base Flow Conditions? (Y/N):  Y Date of last precipitation: **07/08/12** Quantity: **1.77**  
Photograph Information: **See ESR.**  
Elevated Turbidity? (Y/N):  N Canopy (% open): **25%**  
Were samples collected for water chemistry? (Y/N):  N (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
Is the sampling reach representative of the stream (Y/N)  Y If not, please explain:   
Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N):  Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N)  N Voucher? (Y/N)  N Salamanders Observed? (Y/N)  N Voucher? (Y/N)  N  
Frogs or Tadpoles Observed? (Y/N)  N Voucher? (Y/N)  N Aquatic Macroinvertebrates Observed? (Y/N)  N Voucher? (Y/N)  N  
Comments Regarding Biology: **No aquatic species observed during the HHEI evaluation.**

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

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



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

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 13** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.01**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.88708** LONG. **-82.95090** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **07/09/12** SCORER **LM** COMMENTS \_\_\_\_\_

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%
<input checked="" type="checkbox"/> BOULDER (>256 mm) [16 pts]	40%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	20%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	0%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	15%
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	10%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	15%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **40.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 19** **TOTAL NUMBER OF SUBSTRATE TYPES: 5**

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

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

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

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

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

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 2.00**

**HHEI Metric Points**

Substrate Max = 40

24

A + B

Pool Depth Max = 30

0

Bankfull Width Max=30

20

**This information must also be completed**

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

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank) Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

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

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

COMMENTS \_\_\_\_\_

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

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

**STREAM GRADIENT ESTIMATE**

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

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

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Candy Run</b>	Distance from Evaluated Stream	<b>1.25</b>
<input type="checkbox"/> CWH Name:	Distance from Evaluated Stream	
<input type="checkbox"/> EWH Name:	Distance from Evaluated Stream	

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

USGS Quadrangle Name: **Lucasville** NRCS Soil Map Page: **21** NRCS Soil Map Stream Order: **1**  
County: **Scioto** Township / City: **Jefferson TWP/ Lucasville**

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **07/08/12** Quantity: **1.77**  
Photograph Information: **See ESR.**  
Elevated Turbidity? (Y/N): **N** Canopy (% open): **20%**  
Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain:   
Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N): **Y** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**  
Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**  
Comments Regarding Biology: **No aquatic species observed during the HHEI evaluation.**

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

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



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

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 14** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.02**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.88670** LONG. **-82.94998** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **07/09/12** SCORER **JME** COMMENTS \_\_\_\_\_

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	5%	<input type="checkbox"/> <input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	35%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	10%	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	10%
<input checked="" type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	35%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	5%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **15.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12** **TOTAL NUMBER OF SUBSTRATE TYPES: 6**

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

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

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

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

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

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 0.80**

**HHEI Metric Points**

Substrate Max = 40

18

A + B

Pool Depth Max = 30

0

Bankfull Width Max=30

5

This information **must** also be completed

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

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

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

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

COMMENTS \_\_\_\_\_

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

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

**STREAM GRADIENT ESTIMATE**

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

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

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Candy Run</b>	Distance from Evaluated Stream	<b>1.20</b>
<input type="checkbox"/> CWH Name:	Distance from Evaluated Stream	
<input type="checkbox"/> EWH Name:	Distance from Evaluated Stream	

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

USGS Quadrangle Name: **Lucasville** NRCS Soil Map Page: **21** NRCS Soil Map Stream Order: **1**  
 County: **Scioto** Township / City: **Jefferson TWP/ Lucasville**

**MISCELLANEOUS**

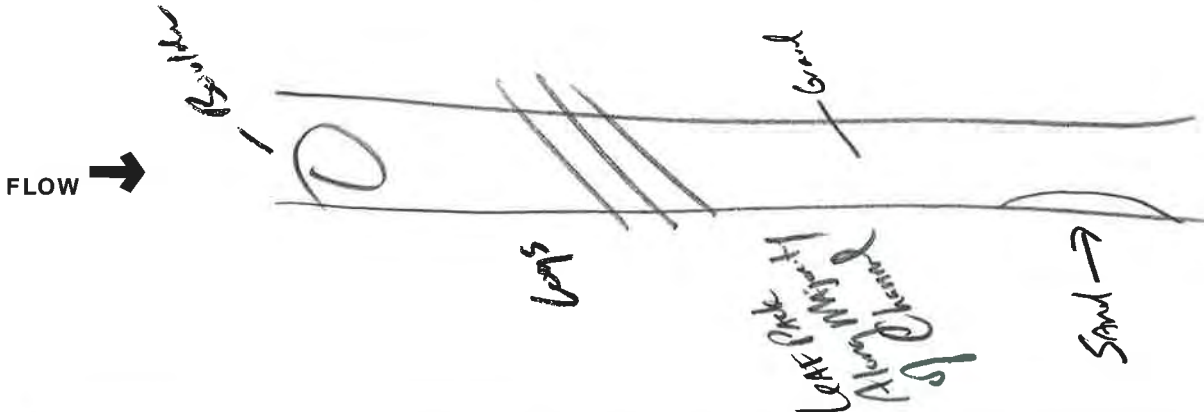
Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **07/08/12** Quantity: **1.77**  
 Photograph Information: **See ESR.**  
 Elevated Turbidity? (Y/N): **N** Canopy (% open): **15%**  
 Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number:   
 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): **Y** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
 Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**  
 Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**  
 Comments Regarding Biology: **No aquatic species observed during the HHEI evaluation.**

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

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





# Primary Headwater Habitat Evaluation Form

**22**

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

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 15** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.02**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.88478** LONG. **-82.94919** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **07/09/12** SCORER **JME** COMMENTS \_\_\_\_\_

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="checkbox"/> 0%	<input checked="" type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="checkbox"/> 35%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="checkbox"/> 10%	<input type="checkbox"/> <input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="checkbox"/> 25%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="checkbox"/> 30%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="checkbox"/> 0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **10.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3** **TOTAL NUMBER OF SUBSTRATE TYPES: 4**

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

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

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

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

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

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 1.10**

**HHEI Metric Points**

Substrate Max = 40

**7**

A + B

Pool Depth Max = 30

**0**

Bankfull Width Max=30

**15**

**This information must also be completed**

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

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

COMMENTS \_\_\_\_\_

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

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

COMMENTS \_\_\_\_\_

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

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

**STREAM GRADIENT ESTIMATE**

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

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

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

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Candy Run</b>	Distance from Evaluated Stream	<b>1.20</b>
<input type="checkbox"/> CWH Name:	Distance from Evaluated Stream	
<input type="checkbox"/> EWH Name:	Distance from Evaluated Stream	

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

USGS Quadrangle Name: **Lucasville** NRCS Soil Map Page: **21** NRCS Soil Map Stream Order: **1**  
 County: **Scioto** Township / City: **Jefferson TWP/ Lucasville**

**MISCELLANEOUS**

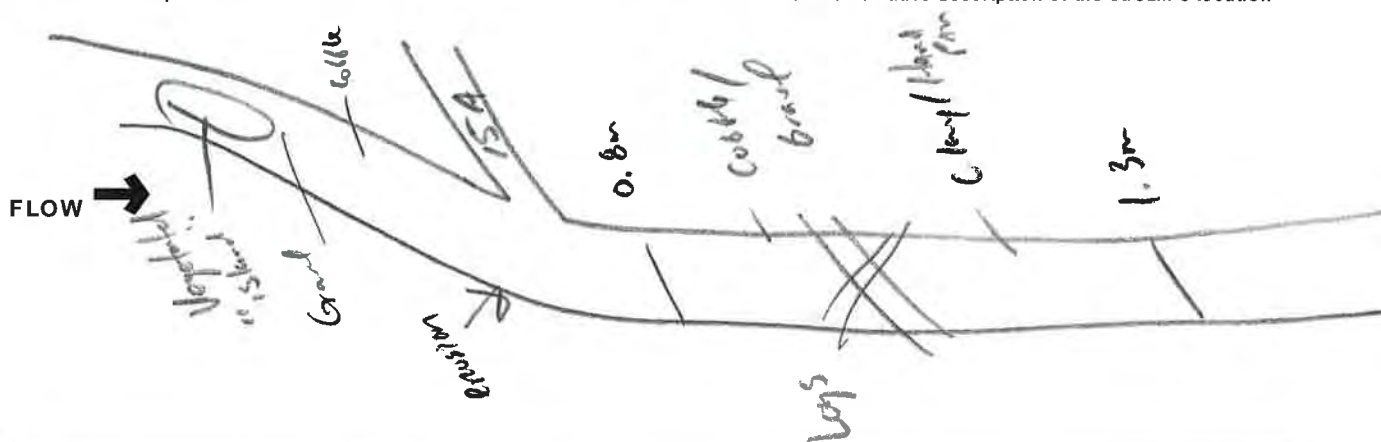
Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **07/08/12** Quantity: **1.77**  
 Photograph Information: **See ESR.**  
 Elevated Turbidity? (Y/N): **N** Canopy (% open): **30%**  
 Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number:   
 Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
 Is the sampling reach representative of the stream (Y/N): **Y** If not, please explain:   
 Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N): **Y** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
 Fish Observed? (Y/N): **N** Voucher? (Y/N): **N** Salamanders Observed? (Y/N): **N** Voucher? (Y/N): **N**  
 Frogs or Tadpoles Observed? (Y/N): **N** Voucher? (Y/N): **N** Aquatic Macroinvertebrates Observed? (Y/N): **N** Voucher? (Y/N): **N**  
 Comments Regarding Biology: **No aquatic species observed during HHEI evaluation.**

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

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





# Primary Headwater Habitat Evaluation Form

21

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

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 15A** RIVER BASIN: DRAINAGE AREA (mi<sup>2</sup>) **0.01**

LENGTH OF STREAM REACH (ft) LAT. **38.88495** LONG. **-82.94884** RIVER CODE RIVER MILE

DATE **07/09/12** SCORER **JME** COMMENTS

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	5%	<input checked="" type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	70%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	0%	<input type="checkbox"/> <input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	25%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **5.00%** (A) 100% (B)

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

**HHEI Metric Points**

Substrate Max = 40

**6**

A + B

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

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

COMMENTS MAXIMUM POOL DEPTH (centimeters): **0**

Pool Depth Max = 30

**0**

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

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

COMMENTS AVERAGE BANKFULL WIDTH (meters): **1.10**

Bankfull Width Max=30

**15**

**This information must also be completed**

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

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

COMMENTS

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>FLOW REGIME (At Time of Evaluation) (Check ONLY one box):</b>			
Stream Flowing		Moist Channel, isolated pools, no flow (Intermittent)	
Subsurface flow with isolated pools (Interstitial)		Dry channel, no water (Ephemeral)	

COMMENTS

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):</b>			
None	1.0	2.0	3.0
0.5	1.5	2.5	>3

**STREAM GRADIENT ESTIMATE**  Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)



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

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

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Candy Run</b>	Distance from Evaluated Stream	<b>1.31</b>
<input type="checkbox"/> CWH Name:	Distance from Evaluated Stream	
<input type="checkbox"/> EWH Name:	Distance from Evaluated Stream	

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

USGS Quadrangle Name: **Lucasville** NRCS Soil Map Page: **21** NRCS Soil Map Stream Order: **1**  
County: **Scioto** Township / City: **Jefferson TWP/ Lucasville**

**MISCELLANEOUS**

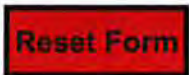
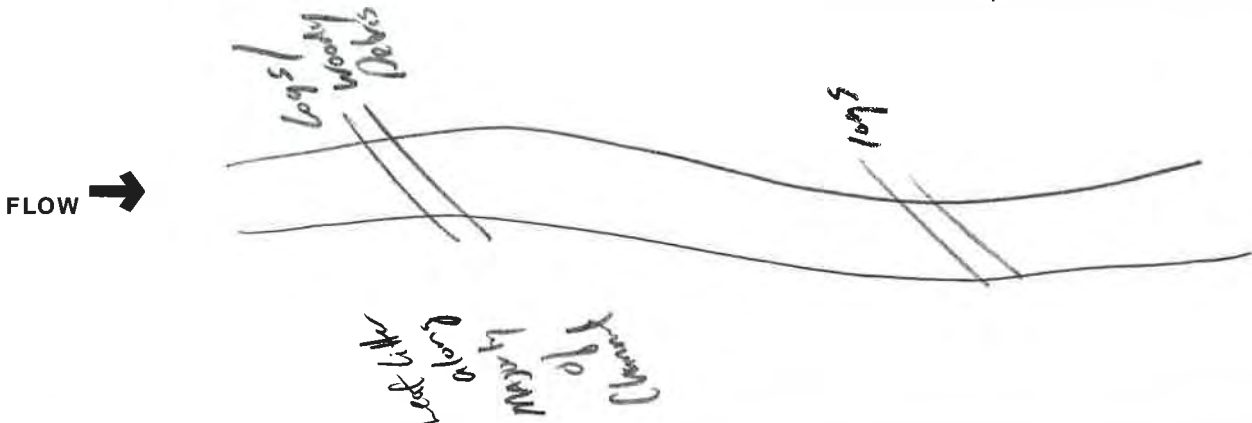
Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **07/08/12** Quantity: **1.77**  
Photograph Information: **See ESR.**  
Elevated Turbidity? (Y/N): **N** Canopy (% open): **30%**  
Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
Is the sampling reach representative of the stream (Y/N): **Y** If not, please explain:   
Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N): **Y** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**  
Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**  
Comments Regarding Biology: **No aquatic species observed during HHEI evaluation.**

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

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





# Primary Headwater Habitat Evaluation Form

11

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

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 15B** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.01**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.88480** LONG. **-82.94865** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **07/09/12** SCORER **RP** COMMENTS \_\_\_\_\_

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

### STREAM CHANNEL MODIFICATIONS:

NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> SILT [3 pt]	<input type="checkbox"/> 0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input checked="" type="checkbox"/> 10%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input checked="" type="checkbox"/> 20%
<input type="checkbox"/> BEDROCK [16 pt]	<input type="checkbox"/> 0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="checkbox"/> 5%	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	<input checked="" type="checkbox"/> 50%
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input checked="" type="checkbox"/> 15%	<input type="checkbox"/> MUCK [0 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="checkbox"/> 0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **15.00%** (A) 100% (B)

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

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

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

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

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

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

COMMENTS \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): **0.90**

HHEI Metric Points

Substrate Max = 40

6

A + B

Pool Depth Max = 30

0

Bankfull Width Max=30

5

This information must also be completed

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

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank) Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

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

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

COMMENTS \_\_\_\_\_

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

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

**STREAM GRADIENT ESTIMATE**

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

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

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Candy Run</b>	Distance from Evaluated Stream	<b>1.35</b>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

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

USGS Quadrangle Name: **Lucasville** NRCS Soil Map Page: **21** NRCS Soil Map Stream Order: **1**  
County: **Scioto** Township / City: **Jefferson TWP/ Lucasville**

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **07/08/12** Quantity: **1.77**  
Photograph Information: **See ESR.**  
Elevated Turbidity? (Y/N): **N** Canopy (% open): **30%**  
Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain:   
Additional comments/description of pollution impacts:

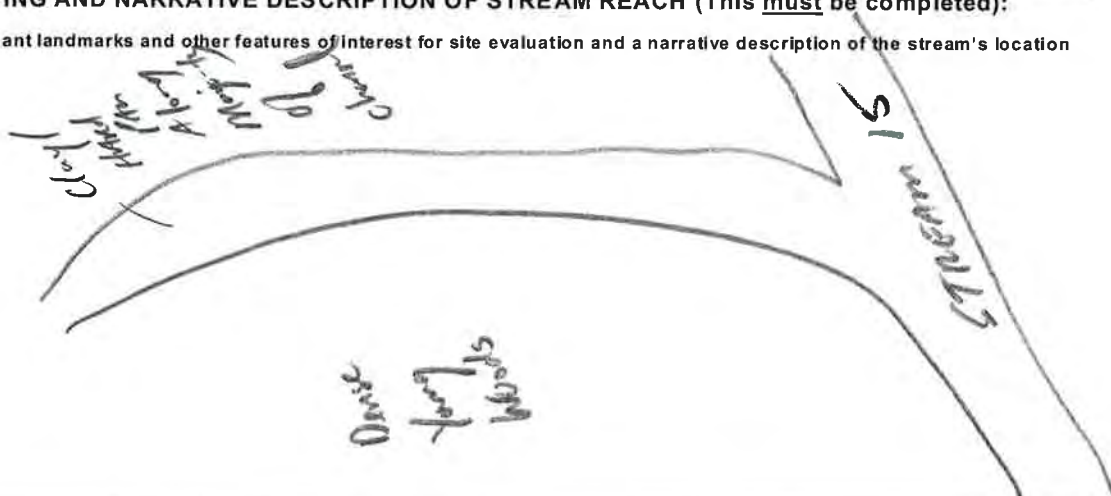
**BIOTIC EVALUATION**

Performed? (Y/N): **Y** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N): **N** Voucher? (Y/N): **N** Salamanders Observed? (Y/N): **N** Voucher? (Y/N): **N**  
Frogs or Tadpoles Observed? (Y/N): **N** Voucher? (Y/N): **N** Aquatic Macroinvertebrates Observed? (Y/N): **N** Voucher? (Y/N): **N**  
Comments Regarding Biology: **No aquatic species observed during HHEI evaluation.**

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

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

FLOW →





# Primary Headwater Habitat Evaluation Form

41

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

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 16** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.27**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.88253** LONG. **-82.95055** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **07/10/12** SCORER **JME** COMMENTS \_\_\_\_\_

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> SILT [3 pt]	<input type="checkbox"/> 0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="checkbox"/> 20%
<input type="checkbox"/> BEDROCK [16 pt]	<input type="checkbox"/> 0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="checkbox"/> 0%
<input checked="" type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="checkbox"/> 25%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="checkbox"/> 10%
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="checkbox"/> 40%	<input type="checkbox"/> MUCK [0 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="checkbox"/> 5%	<input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="checkbox"/> 0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **25.00%** (A) 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **21** TOTAL NUMBER OF SUBSTRATE TYPES: **5**

**HHEI Metric Points**

Substrate Max = 40

**26**

A + B

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

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

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

Pool Depth Max = 30

**0**

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

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

COMMENTS \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): **1.50**

Bankfull Width Max=30

**15**

**This information must also be completed**

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

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

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 **Moist channel, no pools at time of survey.**

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**  
 None  1.0  2.0  3.0  
 0.5  1.5  2.5  >3

**STREAM GRADIENT ESTIMATE**  Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

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

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <u>Candy Run</u>	Distance from Evaluated Stream	<u>0.95</u>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

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

USGS Quadrangle Name: Lucasville NRCS Soil Map Page: 21 NRCS Soil Map Stream Order: 1  
County: Scioto Township / City: Jefferson TWP/ Lucasville

**MISCELLANEOUS**

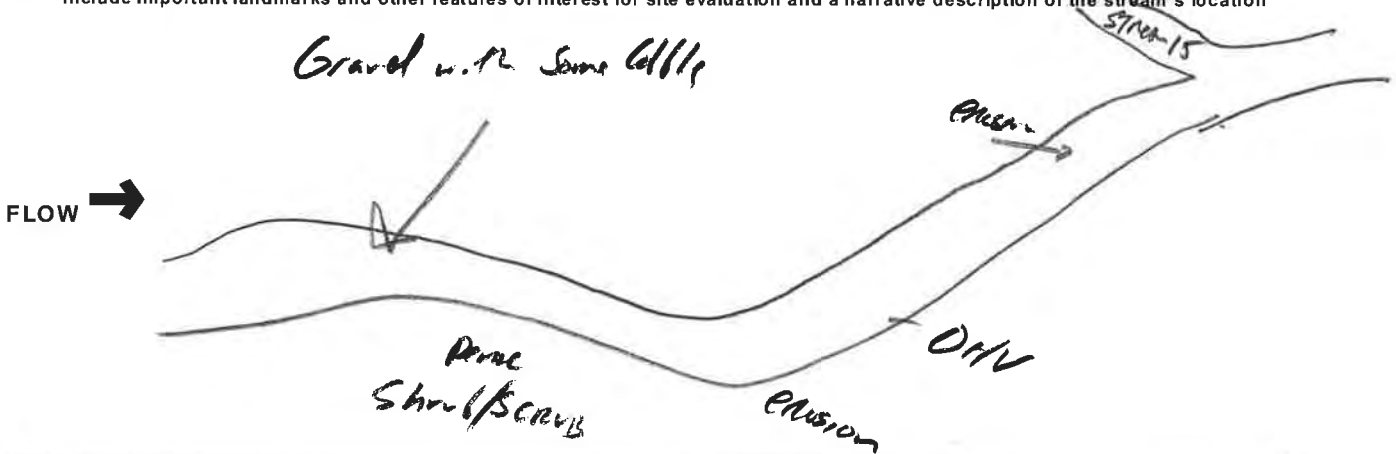
Base Flow Conditions? (Y/N): Y Date of last precipitation: 07/08/12 Quantity: 1.77  
Photograph Information: See ESR.  
Elevated Turbidity? (Y/N): N Canopy (% open): 55%  
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
Is the sampling reach representative of the stream (Y/N) Y If not, please explain:   
Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N): Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N): N Voucher? (Y/N): N Salamanders Observed? (Y/N): Y Voucher? (Y/N): N  
Frogs or Tadpoles Observed? (Y/N): N Voucher? (Y/N): N Aquatic Macroinvertebrates Observed? (Y/N): N Voucher? (Y/N): N  
Comments Regarding Biology: 1 adult 2-line salamander and terrestrial invertebrates observed. No other aquatic species observed.

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

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





# Primary Headwater Habitat Evaluation Form

**26**

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

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 16A** RIVER BASIN: DRAINAGE AREA (mi<sup>2</sup>) **0.05**

LENGTH OF STREAM REACH (ft) LAT. **38.88283** LONG. **-82.94821** RIVER CODE RIVER MILE

DATE **07/10/12** SCORER **RP** COMMENTS

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	5%
<input checked="" type="checkbox"/> BEDROCK [16 pt]	95%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	0%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	0%
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	0%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **95.00%** (A) 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **19** TOTAL NUMBER OF SUBSTRATE TYPES: **2**

**HHEI Metric Points**

Substrate Max = 40

**21**

A + B

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

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

COMMENTS MAXIMUM POOL DEPTH (centimeters): **0**

Pool Depth Max = 30

**0**

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

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

COMMENTS AVERAGE BANKFULL WIDTH (meters): **0.90**

Bankfull Width Max=30

**5**

**This information must also be completed**

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

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank) Wide >10m		(Most Predominant per Bank) Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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  1.0  2.0  3.0  
 0.5  1.5  2.5  >3

**STREAM GRADIENT ESTIMATE**  
 Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

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

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

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <u>Candy Run</u>	Distance from Evaluated Stream	<u>1.00</u>
<input type="checkbox"/> CWH Name: _____	Distance from Evaluated Stream	_____
<input type="checkbox"/> EWH Name: _____	Distance from Evaluated Stream	_____

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

USGS Quadrangle Name: Lucasville NRCS Soil Map Page: 21 NRCS Soil Map Stream Order: 1  
County: Scioto Township / City: Jefferson TWP/ Lucasville

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 07/08/12 Quantity: 1.77  
Photograph Information: See ESR.  
Elevated Turbidity? (Y/N): N Canopy (% open): 15%  
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: \_\_\_\_\_  
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: \_\_\_\_\_

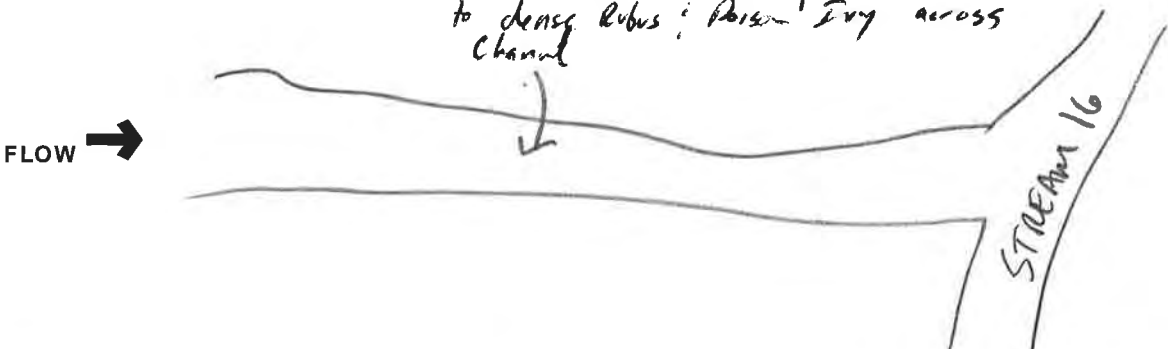
**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N): N Voucher? (Y/N): N Salamanders Observed? (Y/N): N Voucher? (Y/N): N  
Frogs or Tadpoles Observed? (Y/N): N Voucher? (Y/N): N Aquatic Macroinvertebrates Observed? (Y/N): N Voucher? (Y/N): N  
Comments Regarding Biology: No aquatic species observed during HHEI evaluation.

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

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

*only investigated ~ 30ft of channel due to dense Rubus; Poison Ivy across channel*



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

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 17** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.09**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.87771** LONG. **-82.94654** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **07/10/12** SCORER **JME** COMMENTS \_\_\_\_\_

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	10%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	15%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input checked="" type="checkbox"/> COBBLE (65-256 mm) [12 pts]	30%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	10%
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	35%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **40.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 21** **TOTAL NUMBER OF SUBSTRATE TYPES: 5**

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

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

COMMENTS \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters): 10**

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

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

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 1.80**

**HHEI Metric Points**

Substrate Max = 40

**26**

A + B

Pool Depth Max = 30

**15**

Bankfull Width Max=30

**20**

**This information must also be completed**

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

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

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

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

COMMENTS \_\_\_\_\_

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

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

**STREAM GRADIENT ESTIMATE**

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



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

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Candy Run</b>	Distance from Evaluated Stream: <b>0.46</b>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream: <input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream: <input type="text"/>

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

USGS Quadrangle Name: **Lucasville** NRCS Soil Map Page: **21** NRCS Soil Map Stream Order: **1**  
County: **Scioto** Township / City: **Jefferson TWP/ Lucasville**

**MISCELLANEOUS**

Base Flow Conditions? (Y/N):  Y Date of last precipitation: **07/08/12** Quantity: **1.77**  
Photograph Information: **See ESR.**  
Elevated Turbidity? (Y/N):  N Canopy (% open): **10%**  
Were samples collected for water chemistry? (Y/N):  N (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
Is the sampling reach representative of the stream (Y/N)  Y If not, please explain:  
**Headwaters of Stream 17 originate in project area.**

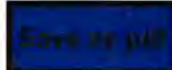
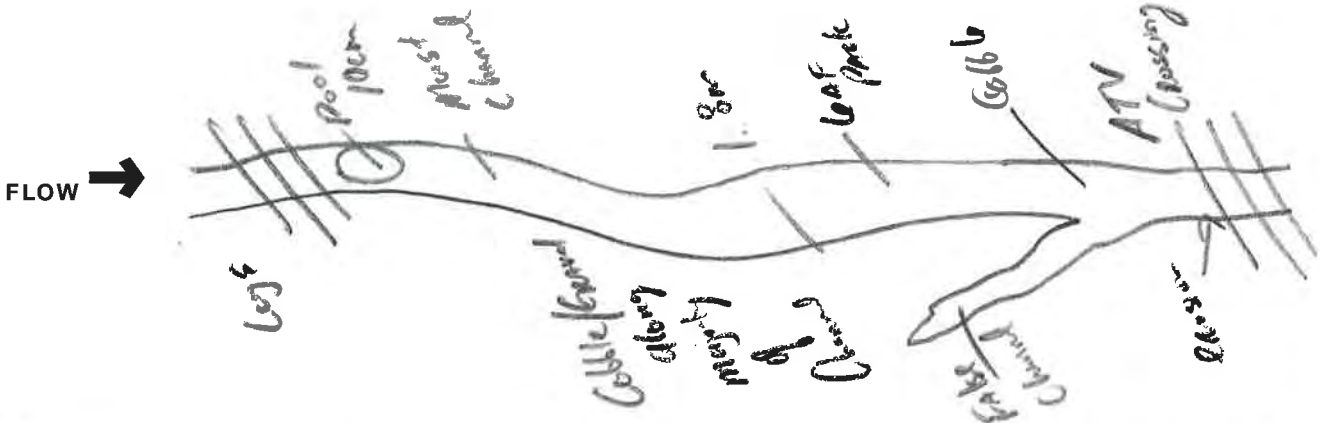
Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N):  N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N):  N Voucher? (Y/N):  N Salamanders Observed? (Y/N):  N Voucher? (Y/N):  N  
Frogs or Tadpoles Observed? (Y/N):  Y Voucher? (Y/N):  N Aquatic Macroinvertebrates Observed? (Y/N):  Y Voucher? (Y/N):  N  
Comments Regarding Biology:  
**Whirligig beetles, water striders, woodfrogs?. Sampling cut short due to disturbing yellow jacket nest in channel.**

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

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



SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 17A** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.01**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.87914** LONG. **-82.94530** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **07/10/12** SCORER **JME** COMMENTS \_\_\_\_\_

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input checked="" type="checkbox"/> BLDR SLABS [16 pts]	30%	<input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	35%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	10%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	20%
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	5%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **40.00%** (A) Substrate Percentage Check **100%** (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 19** **TOTAL NUMBER OF SUBSTRATE TYPES: 5**

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

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

COMMENTS **Moisture only under larger rocks. No pools.** **MAXIMUM POOL DEPTH (centimeters): 0**

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

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

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 0.80**

**HHEI Metric Points**

Substrate Max = 40

**24**

A + B

Pool Depth Max = 30

**0**

Bankfull Width Max=30

**5**

**This information must also be completed**

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

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

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

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

COMMENTS **Moist channel, no pools.**

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

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

**STREAM GRADIENT ESTIMATE**

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

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

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

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: Candy Run	Distance from Evaluated Stream	0.67
<input type="checkbox"/> CWH Name:	Distance from Evaluated Stream	
<input type="checkbox"/> EWH Name:	Distance from Evaluated Stream	

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

USGS Quadrangle Name: Lucasville NRCS Soil Map Page: 21 NRCS Soil Map Stream Order: 1  
County: Scioto Township / City: Jefferson TWP/ Lucasville

**MISCELLANEOUS**

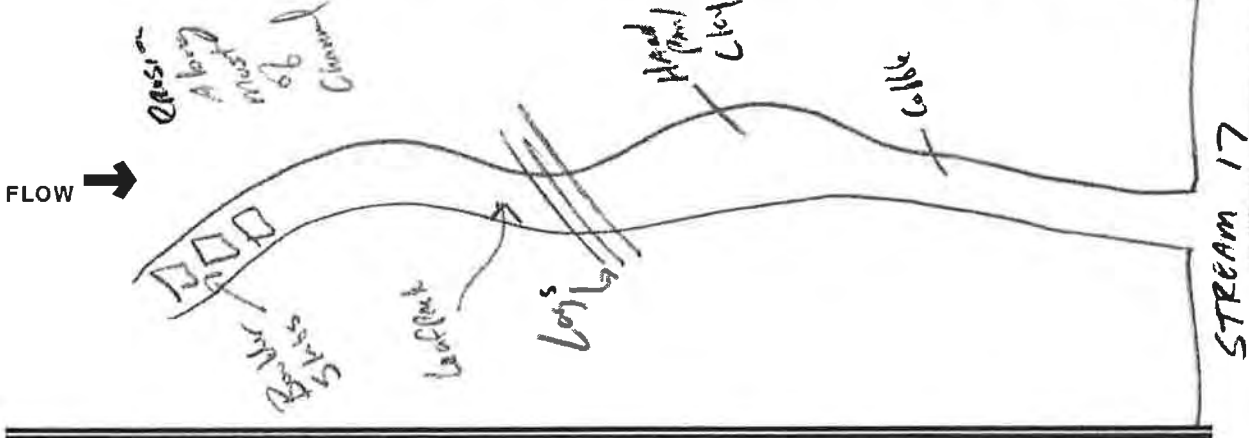
Base Flow Conditions? (Y/N):  Y Date of last precipitation: 07/08/12 Quantity: 1.77  
Photograph Information: See ESR.  
Elevated Turbidity? (Y/N):  N Canopy (% open): 30%  
Were samples collected for water chemistry? (Y/N):  N (Note lab sample no. or id. and attach results) Lab Number: \_\_\_\_\_  
Field Measures: Temp (°C): \_\_\_\_\_ Dissolved Oxygen (mg/l) \_\_\_\_\_ pH (S.U.): \_\_\_\_\_ Conductivity (µmhos/cm) \_\_\_\_\_  
Is the sampling reach representative of the stream (Y/N):  Y If not, please explain: \_\_\_\_\_  
Additional comments/description of pollution impacts: \_\_\_\_\_

**BIOTIC EVALUATION**

Performed? (Y/N):  Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N):  N Voucher? (Y/N):  N Salamanders Observed? (Y/N):  N Voucher? (Y/N):  N  
Frogs or Tadpoles Observed? (Y/N):  Y Voucher? (Y/N):  N Aquatic Macroinvertebrates Observed? (Y/N):  N Voucher? (Y/N):  N  
Comments Regarding Biology: \_\_\_\_\_  
**No aquatic species observed. Only terrestrial species found.**

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

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



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

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 17B** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.04**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.87670** LONG. **-82.94497** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **07/10/12** SCORER **JME** COMMENTS \_\_\_\_\_

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	15%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> <input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	25%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	20%	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	10%
<input checked="" type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	30%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **35.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12** **TOTAL NUMBER OF SUBSTRATE TYPES: 5**

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

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

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

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

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

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 1.30**

**HHEI Metric Points**

Substrate Max = 40

17

A + B

Pool Depth Max = 30

0

Bankfull Width Max=30

15

**This information must also be completed**

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

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank) Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

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

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

COMMENTS \_\_\_\_\_

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

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

**STREAM GRADIENT ESTIMATE**

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

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

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: Candy Run	Distance from Evaluated Stream	0.54
<input type="checkbox"/> CWH Name:	Distance from Evaluated Stream	
<input type="checkbox"/> 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:

**MISCELLANEOUS**

Base Flow Conditions? (Y/N):  Y Date of last precipitation:  Quantity:

Photograph Information:

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

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

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

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

Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

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

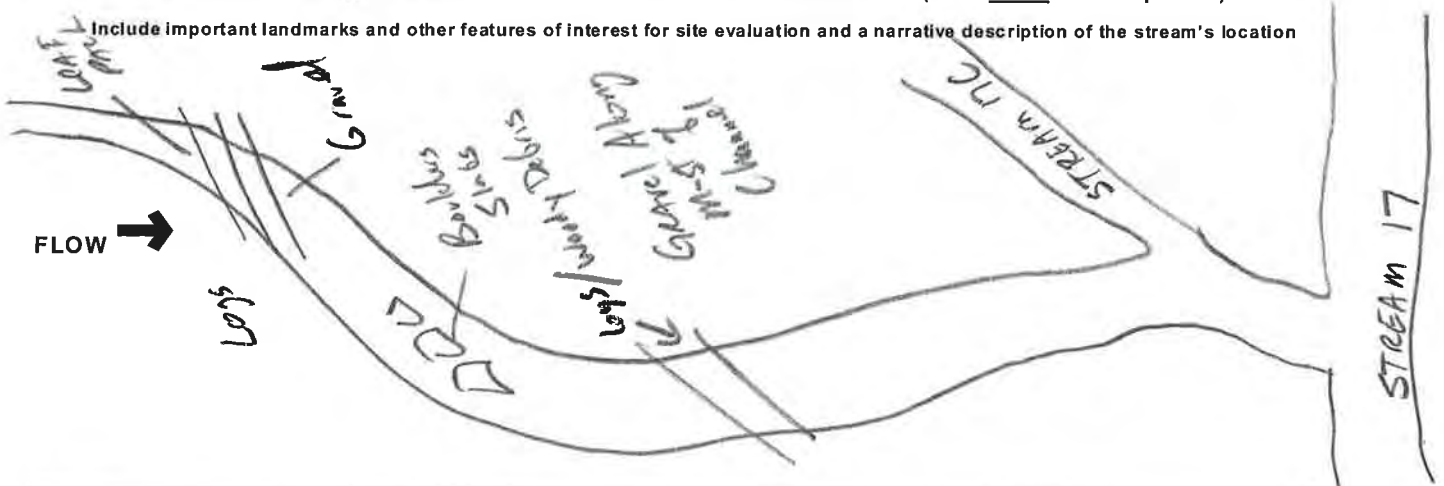
Fish Observed? (Y/N):  N Voucher? (Y/N):  N Salamanders Observed? (Y/N):  N Voucher? (Y/N):  N

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

Comments Regarding Biology:

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

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





# Primary Headwater Habitat Evaluation Form

37

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

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 17C** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.04**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.87651** LONG. **-82.94494** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **07/10/12** SCORER **RP** COMMENTS \_\_\_\_\_

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%
<input checked="" type="checkbox"/> BOULDER (>256 mm) [16 pts]	45%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	35%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	0%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	20%
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	0%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **45.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 19** **TOTAL NUMBER OF SUBSTRATE TYPES: 3**

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

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

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

---

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

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

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 1.20**

**HHEI Metric Points**

Substrate Max = 40

22

A + B

Pool Depth Max = 30

0

Bankfull Width Max=30

15

**This information must also be completed**

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

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank) Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

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

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

COMMENTS \_\_\_\_\_

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

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

**STREAM GRADIENT ESTIMATE**

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

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

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Candy Run</b>	Distance from Evaluated Stream	<b>0.45</b>
<input type="checkbox"/> CWH Name:	Distance from Evaluated Stream	
<input type="checkbox"/> EWH Name:	Distance from Evaluated Stream	

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

USGS Quadrangle Name: **Lucasville** NRCS Soil Map Page: **21** NRCS Soil Map Stream Order: **1**  
County: **Scioto** Township / City: **Jefferson TWP/ Lucasville**

**MISCELLANEOUS**

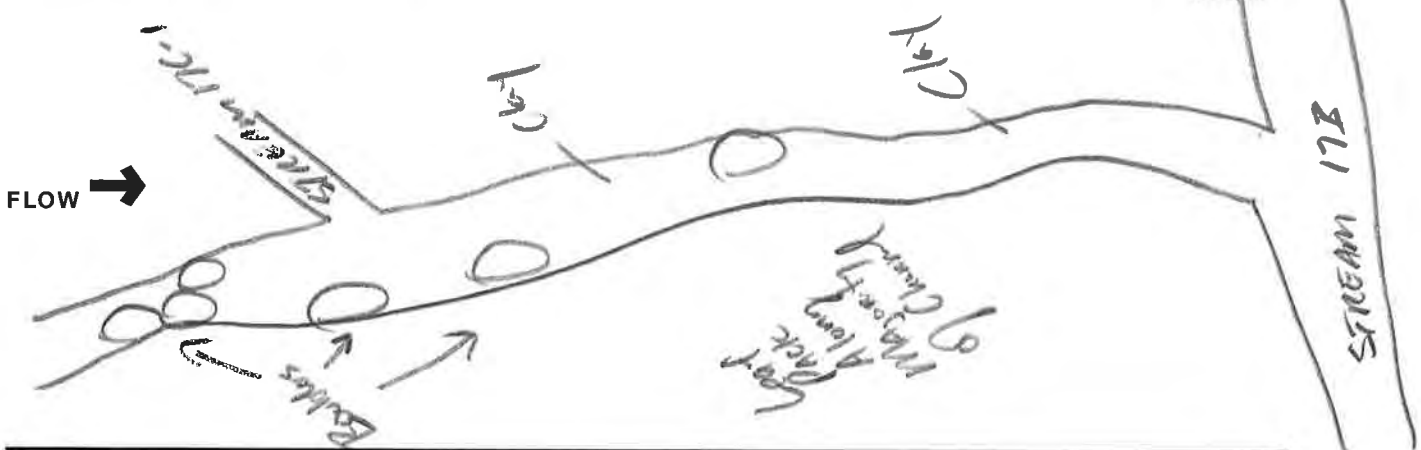
Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **07/08/12** Quantity: **1.77**  
Photograph Information: **See ESR.**  
Elevated Turbidity? (Y/N): **N** Canopy (% open): **10%**  
Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain:   
Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N): **Y** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**  
Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**  
Comments Regarding Biology: **No aquatic species observed. Only terrestrial species found.**

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

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





# Primary Headwater Habitat Evaluation Form

28

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

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **17C1** RIVER BASIN: \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.01**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.87632** LONG. **-82.94423** RIVER CODE: \_\_\_\_\_ RIVER MILE: \_\_\_\_\_

DATE **07/10/12** SCORER **RP** COMMENTS: \_\_\_\_\_

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	10%	<input type="checkbox"/> SILT [3 pt]	0%
<input checked="" type="checkbox"/> BOULDER (>256 mm) [16 pts]	45%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	35%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	0%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	10%
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	0%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **55.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 19**      **TOTAL NUMBER OF SUBSTRATE TYPES: 4**

---

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

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

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

---

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

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

COMMENTS: \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 0.80**

**HHEI Metric Points**

Substrate Max = 40

23

A + B

---

Pool Depth Max = 30

0

---

Bankfull Width Max=30

5

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY**

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

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

COMMENTS: \_\_\_\_\_

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

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

COMMENTS: \_\_\_\_\_

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

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

**STREAM GRADIENT ESTIMATE**

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



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

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

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Candy Run</b>	Distance from Evaluated Stream	<b>0.45</b>
<input type="checkbox"/> CWH Name:	Distance from Evaluated Stream	
<input type="checkbox"/> EWH Name:	Distance from Evaluated Stream	

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

USGS Quadrangle Name: **Lucasville** NRCS Soil Map Page: **21** NRCS Soil Map Stream Order: **1**  
County: **Scioto** Township / City: **Jefferson TWP/ Lucasville**

**MISCELLANEOUS**

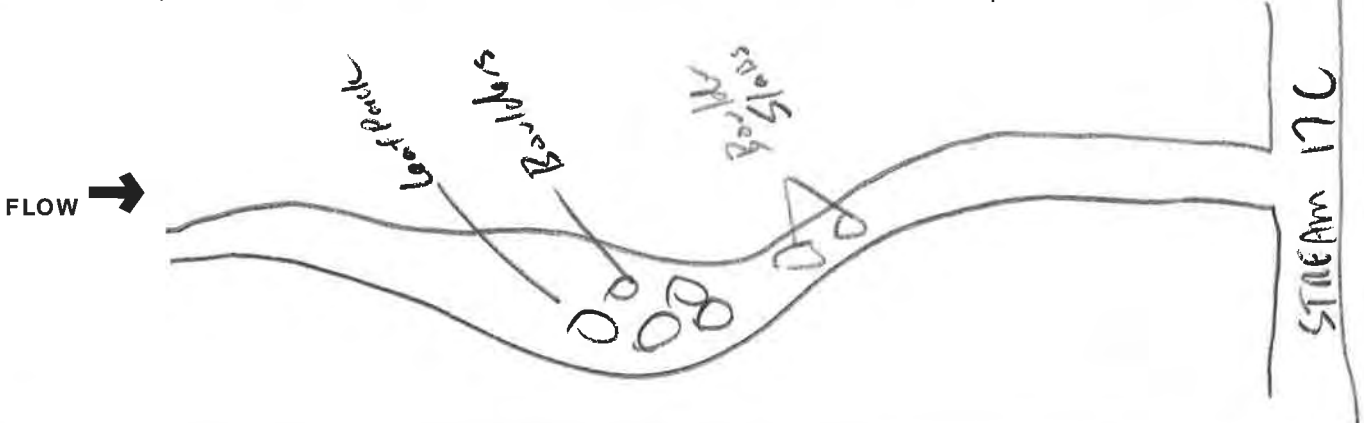
Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **07/08/12** Quantity: **1.77**  
Photograph Information: **See ESR.**  
Elevated Turbidity? (Y/N): **N** Canopy (% open): **10%**  
Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
Is the sampling reach representative of the stream (Y/N): **Y** If not, please explain:   
Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N): **Y** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N): **N** Voucher? (Y/N): **N** Salamanders Observed? (Y/N): **N** Voucher? (Y/N): **N**  
Frogs or Tadpoles Observed? (Y/N): **N** Voucher? (Y/N): **N** Aquatic Macroinvertebrates Observed? (Y/N): **N** Voucher? (Y/N): **N**  
Comments Regarding Biology: **No aquatic species observed. Only terrestrial species found.**

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

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



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

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 18** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.01**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.87383** LONG. **-82.94281** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **07/11/12** SCORER **RP** COMMENTS \_\_\_\_\_

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

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

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

<b>TYPE</b>	<b>PERCENT</b>	<b>TYPE</b>	<b>PERCENT</b>
<input type="checkbox"/> BLDR SLABS [16 pts]	<input type="checkbox"/> 10%	<input type="checkbox"/> SILT [3 pt]	<input type="checkbox"/> 0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="checkbox"/> 0%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="checkbox"/> 25%
<input type="checkbox"/> BEDROCK [16 pt]	<input type="checkbox"/> 0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="checkbox"/> 15%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="checkbox"/> 15%
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="checkbox"/> 35%	<input type="checkbox"/> MUCK [0 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="checkbox"/> 0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **25.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12** **TOTAL NUMBER OF SUBSTRATE TYPES: 5**

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

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

COMMENTS **Dry channel.** **MAXIMUM POOL DEPTH (centimeters): 0**

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

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

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 1.90**

**HHEI Metric Points**

Substrate Max = 40

17

A + B

Pool Depth Max = 30

0

Bankfull Width Max=30

20

**This information must also be completed**

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

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

COMMENTS \_\_\_\_\_

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

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

COMMENTS \_\_\_\_\_

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

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

**STREAM GRADIENT ESTIMATE**

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

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

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Candy Run</b>	Distance from Evaluated Stream	<b>0.36</b>
<input type="checkbox"/> CWH Name:	Distance from Evaluated Stream	
<input type="checkbox"/> EWH Name:	Distance from Evaluated Stream	

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

USGS Quadrangle Name: **Lucasville** NRCS Soil Map Page: **21** NRCS Soil Map Stream Order: **1**  
County: **Scioto** Township / City: **Jefferson TWP/ Lucasville**

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **07/08/12** Quantity: **1.77**  
Photograph Information: **See ESR.**  
Elevated Turbidity? (Y/N): **N** Canopy (% open): **20%**  
Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
Is the sampling reach representative of the stream (Y/N): **Y** If not, please explain:   
**OHWM originates in project area.**

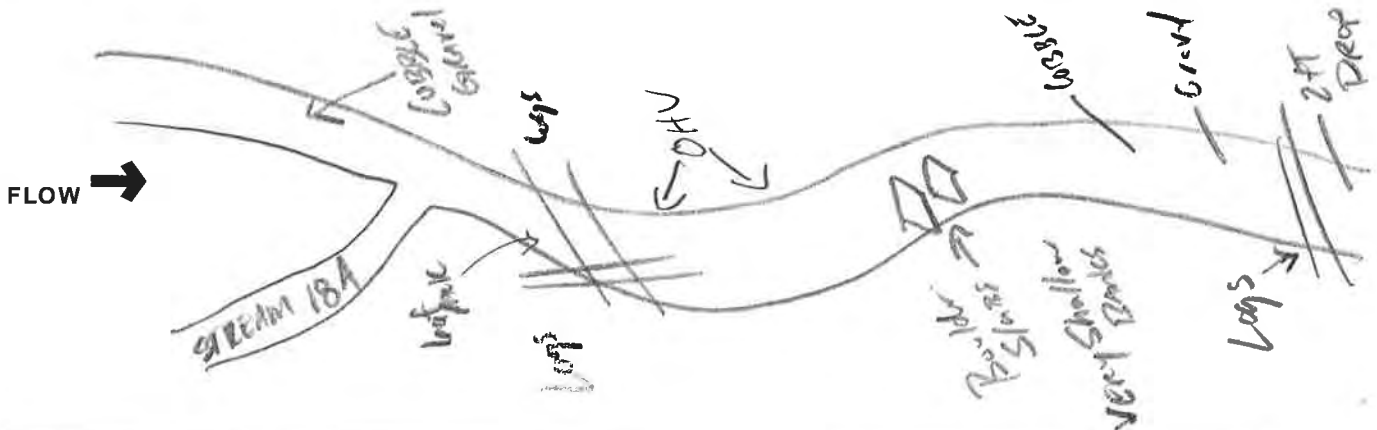
Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N): **Y** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**  
Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**  
Comments Regarding Biology: **No aquatic species observed. Only terrestrial species found.**

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

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



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

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 18A** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.01**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.87375** LONG. **-82.94302** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **07/11/12** SCORER **RP** COMMENTS \_\_\_\_\_

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

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

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

<table border="0"> <tr><th>TYPE</th><th>PERCENT</th></tr> <tr><td><input type="checkbox"/> BLDR SLABS [16 pts]</td><td>0%</td></tr> <tr><td><input type="checkbox"/> BOULDER (&gt;256 mm) [16 pts]</td><td>0%</td></tr> <tr><td><input type="checkbox"/> BEDROCK [16 pts]</td><td>0%</td></tr> <tr><td><input type="checkbox"/> COBBLE (65-256 mm) [12 pts]</td><td>10%</td></tr> <tr><td><input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]</td><td>0%</td></tr> <tr><td><input type="checkbox"/> SAND (&lt;2 mm) [6 pts]</td><td>0%</td></tr> </table>	TYPE	PERCENT	<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> BEDROCK [16 pts]	0%	<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	10%	<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	0%	<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<table border="0"> <tr><th>TYPE</th><th>PERCENT</th></tr> <tr><td><input checked="" type="checkbox"/> SILT [3 pt]</td><td>0%</td></tr> <tr><td><input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]</td><td>70%</td></tr> <tr><td><input type="checkbox"/> FINE DETRITUS [3 pts]</td><td>0%</td></tr> <tr><td><input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]</td><td>20%</td></tr> <tr><td><input type="checkbox"/> MUCK [0 pts]</td><td>0%</td></tr> <tr><td><input type="checkbox"/> ARTIFICIAL [3 pts]</td><td>0%</td></tr> </table>	TYPE	PERCENT	<input checked="" type="checkbox"/> SILT [3 pt]	0%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	70%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	20%	<input type="checkbox"/> MUCK [0 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%
TYPE	PERCENT																												
<input type="checkbox"/> BLDR SLABS [16 pts]	0%																												
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%																												
<input type="checkbox"/> BEDROCK [16 pts]	0%																												
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	10%																												
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	0%																												
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%																												
TYPE	PERCENT																												
<input checked="" type="checkbox"/> SILT [3 pt]	0%																												
<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	70%																												
<input type="checkbox"/> FINE DETRITUS [3 pts]	0%																												
<input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	20%																												
<input type="checkbox"/> MUCK [0 pts]	0%																												
<input type="checkbox"/> ARTIFICIAL [3 pts]	0%																												

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **10.00%** (A) 100% (B)

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

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

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

COMMENTS **Dry channel.** **MAXIMUM POOL DEPTH (centimeters): 0**

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

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

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 0.60**

**HHEI Metric Points**

Substrate Max = 40

**6**

A + B

Pool Depth Max = 30

**0**

Bankfull Width Max=30

**5**

**This information must also be completed**

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

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

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

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

COMMENTS \_\_\_\_\_

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

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

**STREAM GRADIENT ESTIMATE**

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

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

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

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Candy Run</b>	Distance from Evaluated Stream	<b>0.33</b>
<input type="checkbox"/> CWH Name:	Distance from Evaluated Stream	
<input type="checkbox"/> EWH Name:	Distance from Evaluated Stream	

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

USGS Quadrangle Name: **Lucasville** NRCS Soil Map Page: **21** NRCS Soil Map Stream Order: **1**  
County: **Scioto** Township / City: **Jefferson TWP/ Lucasville**

**MISCELLANEOUS**

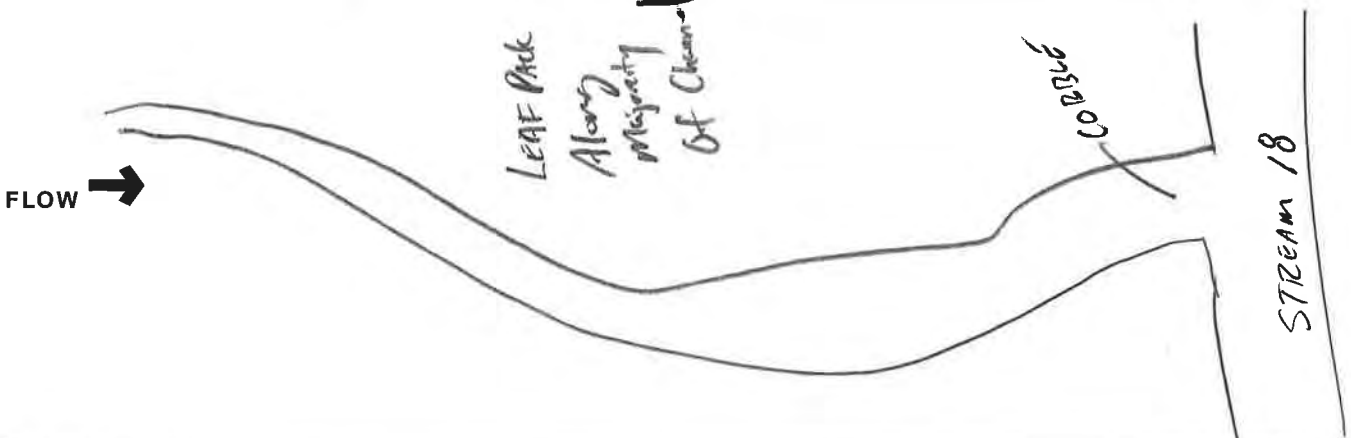
Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **07/08/12** Quantity: **1.77**  
Photograph Information: **See ESR.**  
Elevated Turbidity? (Y/N): **N** Canopy (% open): **0%**  
Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
Is the sampling reach representative of the stream (Y/N): **Y** If not, please explain:   
Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N): **Y** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**  
Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**  
Comments Regarding Biology: **No aquatic species observed. Only terrestrial species found.**

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

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





# Primary Headwater Habitat Evaluation Form

24

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

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 18B** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.01**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.87378** LONG. **-82.94266** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **07/11/12** SCORER **JME** COMMENTS \_\_\_\_\_

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

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

<b>1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A &amp; B.</b>				<b>HHEI Metric Points</b>  Substrate Max = 40  <div style="border: 1px solid black; padding: 5px; font-size: 24px; font-weight: bold;">19</div> A + B		
<b>TYPE</b>		<b>PERCENT</b>				<b>PERCENT</b>
<input type="checkbox"/> BLDR SLABS [16 pts]		0%	<input type="checkbox"/>		SILT [3 pt]	0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		0%	<input checked="" type="checkbox"/>		LEAF PACK/WOODY DEBRIS [3 pts]	60%
<input type="checkbox"/> BEDROCK [16 pt]		0%	<input type="checkbox"/>		FINE DETRITUS [3 pts]	0%
<input checked="" type="checkbox"/> COBBLE (65-256 mm) [12 pts]		20%	<input type="checkbox"/>		CLAY or HARDPAN [0 pt]	10%
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]		10%	<input type="checkbox"/>		MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]		0%	<input type="checkbox"/>		ARTIFICIAL [3 pts]	0%
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock		<b>20.00%</b>	(A)		100%	(B)
<b>SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:</b>			15		<b>TOTAL NUMBER OF SUBSTRATE TYPES:</b>	
				4		
<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):</b>				Pool Depth Max = 30  <div style="border: 1px solid black; padding: 5px; font-size: 24px; font-weight: bold;">0</div>		
<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]					
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]					
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]					
COMMENTS <b>Dry channel.</b>		MAXIMUM POOL DEPTH (centimeters):		0		
<b>3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):</b>				Bankfull Width Max=30  <div style="border: 1px solid black; padding: 5px; font-size: 24px; font-weight: bold;">5</div>		
<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]					
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input checked="" type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]					
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]						
COMMENTS _____		AVERAGE BANKFULL WIDTH (meters):		0.90		

**This information must also be completed**

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

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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 **Dry channel. No moisture under substrate.**

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

None  1.0  2.0  3.0

0.5  1.5  2.5  >3

**STREAM GRADIENT ESTIMATE**

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

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

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Candy Run</b>	Distance from Evaluated Stream	<b>0.34</b>
<input type="checkbox"/> CWH Name:	Distance from Evaluated Stream	
<input type="checkbox"/> EWH Name:	Distance from Evaluated Stream	

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

USGS Quadrangle Name: **Lucasville** NRCS Soil Map Page: **21** NRCS Soil Map Stream Order: **1**  
County: **Scioto** Township / City: **Jefferson TWP/ Lucasville**

**MISCELLANEOUS**

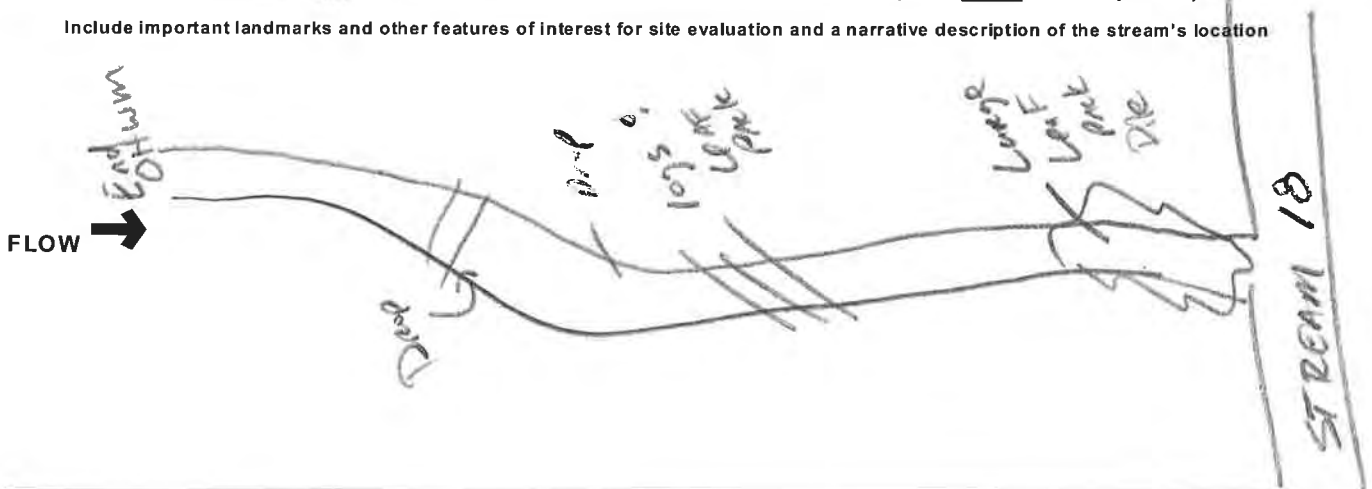
Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **07/08/12** Quantity: **1.77**  
Photograph Information: **See ESR.**  
Elevated Turbidity? (Y/N): **N** Canopy (% open): **10%**  
Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain:   
Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N): **Y** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**  
Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**  
Comments Regarding Biology: **No aquatic species observed. Only terrestrial species found.**

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

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





# Primary Headwater Habitat Evaluation Form

37

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

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 19** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.04**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.87194** LONG. **-82.94069** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **07/11/12** SCORER **JME** COMMENTS \_\_\_\_\_

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

**STREAM CHANNEL MODIFICATIONS:**

NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	<input type="checkbox"/> 5%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="checkbox"/> 25%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="checkbox"/> 15%	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="checkbox"/> 15%
<input checked="" type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="checkbox"/> 40%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="checkbox"/> 0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **20.00%** (A) 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **12** TOTAL NUMBER OF SUBSTRATE TYPES: **5**

**HHEI Metric Points**

Substrate Max = 40

**17**  
A + B

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

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

COMMENTS **Dry channel.** MAXIMUM POOL DEPTH (centimeters): **0**

Pool Depth Max = 30

**0**

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

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

COMMENTS \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): **1.60**

Bankfull Width Max=30

**20**

**This information must also be completed**

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

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank) Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

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

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

COMMENTS \_\_\_\_\_

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

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

**STREAM GRADIENT ESTIMATE**  
 Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)



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

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

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Candy Run</b>	Distance from Evaluated Stream	<b>0.26</b>
<input type="checkbox"/> CWH Name:	Distance from Evaluated Stream	
<input type="checkbox"/> EWH Name:	Distance from Evaluated Stream	

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

USGS Quadrangle Name: **Lucasville** NRCS Soil Map Page: **21** NRCS Soil Map Stream Order: **1**  
County: **Scioto** Township / City: **Jefferson TWP/ Lucasville**

**MISCELLANEOUS**

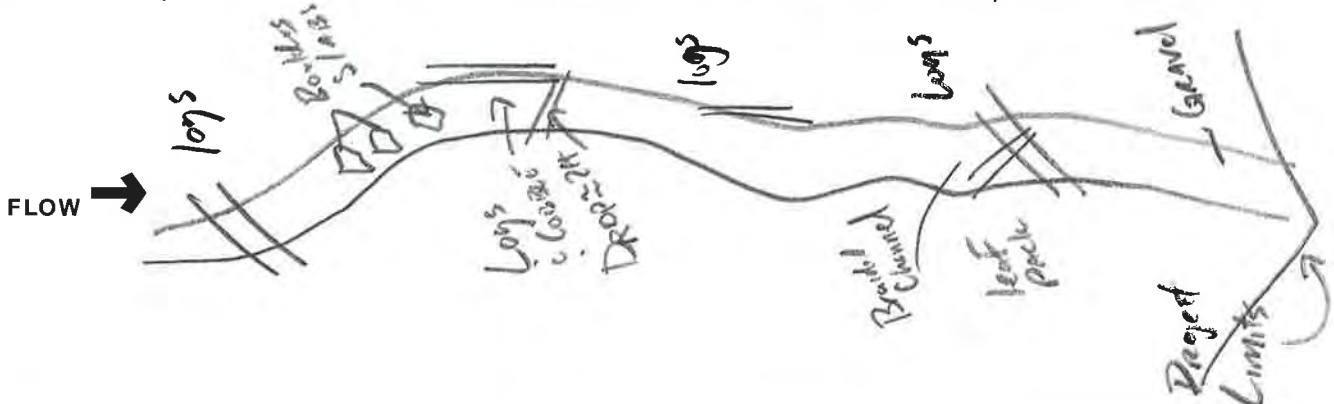
Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **07/08/12** Quantity: **1.77**  
Photograph Information: **See ESR.**  
Elevated Turbidity? (Y/N): **N** Canopy (% open): **30%**  
Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
Is the sampling reach representative of the stream (Y/N): **Y** If not, please explain:   
Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N): **Y** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N): **N** Voucher? (Y/N): **N** Salamanders Observed? (Y/N): **N** Voucher? (Y/N): **N**  
Frogs or Tadpoles Observed? (Y/N): **N** Voucher? (Y/N): **N** Aquatic Macroinvertebrates Observed? (Y/N): **N** Voucher? (Y/N): **N**  
Comments Regarding Biology: **No aquatic species observed. Only terrestrial species found.**

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

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





# Primary Headwater Habitat Evaluation Form

**12**

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

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 19A** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.00**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.87204** LONG. **-82.93967** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **07/11/12** SCORER **RP** COMMENTS \_\_\_\_\_

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> SILT [3 pt]	<input type="checkbox"/> 0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="checkbox"/> 0%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="checkbox"/> 55%
<input type="checkbox"/> BEDROCK [16 pt]	<input type="checkbox"/> 10%	<input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="checkbox"/> 15%	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="checkbox"/> 20%
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> MUCK [0 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="checkbox"/> 0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **25.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3** **TOTAL NUMBER OF SUBSTRATE TYPES: 4**

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

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

COMMENTS **Dry channel.** **MAXIMUM POOL DEPTH (centimeters): 0**

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

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

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 0.74**

**HHEI Metric Points**

Substrate Max = 40

**7**

A + B

Pool Depth Max = 30

**0**

Bankfull Width Max=30

**5**

This information must also be completed

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

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank) Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

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

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

COMMENTS \_\_\_\_\_

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

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

**STREAM GRADIENT ESTIMATE**  Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

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

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

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Candy Run</b>	Distance from Evaluated Stream	<b>0.30</b>
<input type="checkbox"/> CWH Name:	Distance from Evaluated Stream	
<input type="checkbox"/> EWH Name:	Distance from Evaluated Stream	

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

USGS Quadrangle Name: **Lucasville** NRCS Soil Map Page: **21** NRCS Soil Map Stream Order: **1**  
County: **Scioto** Township / City: **Jefferson TWP/ Lucasville**

**MISCELLANEOUS**

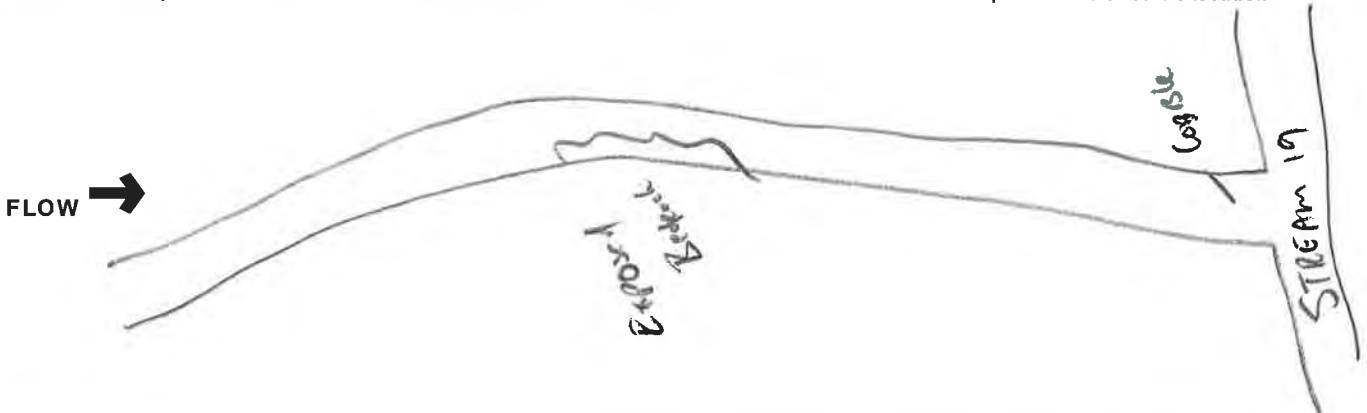
Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **07/08/12** Quantity: **1.77**  
Photograph Information: **See ESR.**  
Elevated Turbidity? (Y/N): **N** Canopy (% open): **30%**  
Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain:   
Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N): **Y** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N): **N** Voucher? (Y/N): **N** Salamanders Observed? (Y/N): **N** Voucher? (Y/N): **N**  
Frogs or Tadpoles Observed? (Y/N): **N** Voucher? (Y/N): **N** Aquatic Macroinvertebrates Observed? (Y/N): **N** Voucher? (Y/N): **N**  
Comments Regarding Biology: **No aquatic species observed. Only terrestrial species found.**

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

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





# Primary Headwater Habitat Evaluation Form

27

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

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 19B** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.00**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.87258** LONG. **-82.93899** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **07/11/12** SCORER **RP** COMMENTS \_\_\_\_\_

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%
<input checked="" type="checkbox"/> BOULDER (>256 mm) [16 pts]	40%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	50%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	0%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	10%
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	0%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **40.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 19** **TOTAL NUMBER OF SUBSTRATE TYPES: 3**

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

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

COMMENTS **Dry channel.** **MAXIMUM POOL DEPTH (centimeters): 0**

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input checked="" type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 0.95**

**HHEI Metric Points**

Substrate Max = 40

22

A + B

Pool Depth Max = 30

0

Bankfull Width Max=30

5

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED?  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Candy Run</b>	Distance from Evaluated Stream	<b>0.30</b>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: **Lucasville** NRCS Soil Map Page: **21** NRCS Soil Map Stream Order: **1**  
County: **Scioto** Township / City: **Jefferson TWP/ Lucasville**

**MISCELLANEOUS**

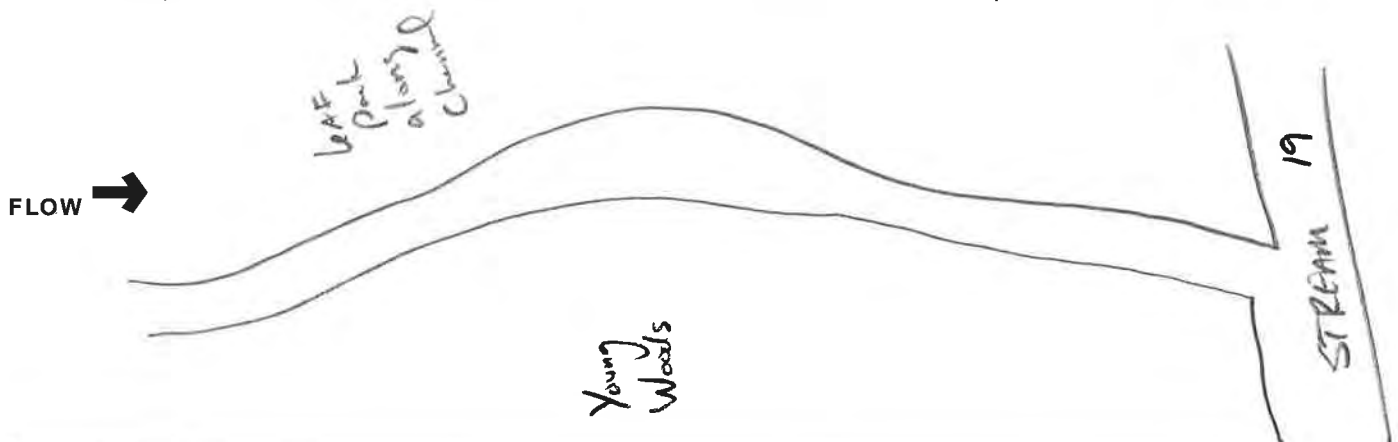
Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **07/08/12** Quantity: **1.77**  
Photograph Information: **See ESR.**  
Elevated Turbidity? (Y/N): **N** Canopy (% open): **30%**  
Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
Is the sampling reach representative of the stream (Y/N): **Y** If not, please explain:   
Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N): **Y** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N): **N** Voucher? (Y/N): **N** Salamanders Observed? (Y/N): **N** Voucher? (Y/N): **N**  
Frogs or Tadpoles Observed? (Y/N): **N** Voucher? (Y/N): **N** Aquatic Macroinvertebrates Observed? (Y/N): **N** Voucher? (Y/N): **N**  
Comments Regarding Biology: **No aquatic species observed. Only terrestrial species found.**

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location





# Primary Headwater Habitat Evaluation Form

43

HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 20** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.13**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.87090** LONG. **-82.93585** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **07/23/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	25%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	10%	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	35%
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	30%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **10.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9** **TOTAL NUMBER OF SUBSTRATE TYPES: 4**

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**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input checked="" type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS **Dry channel.** **MAXIMUM POOL DEPTH (centimeters): 7**

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**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (<= 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 1.30**

**HHEI Metric Points**

Substrate Max = 40

13

A + B

Pool Depth Max = 30

15

Bankfull Width Max=30

15

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank) Wide >10m		(Most Predominant per Bank) Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5
		<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**  Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED?  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Candy Run</b>	Distance from Evaluated Stream	<b>0.19</b>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: **Lucasville** NRCS Soil Map Page: **21** NRCS Soil Map Stream Order: **1**  
County: **Scioto** Township / City: **Jefferson TWP/ Lucasville**

**MISCELLANEOUS**

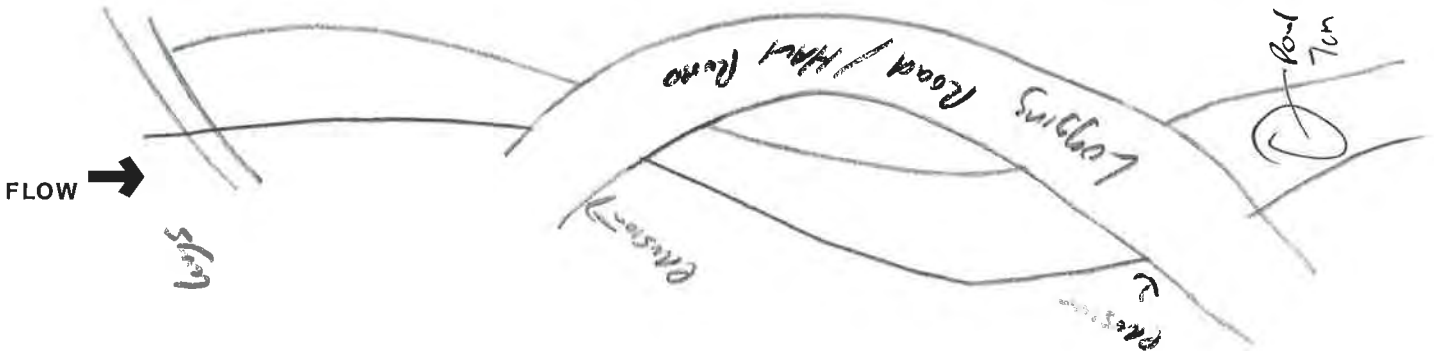
Base Flow Conditions? (Y/N):  Y Date of last precipitation: **07/20/12** Quantity: **0.07**  
Photograph Information: **See ESR.**  
Elevated Turbidity? (Y/N):  N Canopy (% open): **85%**  
Were samples collected for water chemistry? (Y/N):  N (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C) **17.70** Dissolved Oxygen (mg/l) **2.80** pH (S.U.) **6.25** Conductivity (µmhos/cm) **0**  
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):  Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N):  N Voucher? (Y/N):  N Salamanders Observed? (Y/N):  N Voucher? (Y/N):  N  
Frogs or Tadpoles Observed? (Y/N):  Y Voucher? (Y/N):  N Aquatic Macroinvertebrates Observed? (Y/N):  N Voucher? (Y/N):  N  
Comments Regarding Biology: **Frogs observed in pool beyond project limits. Crayfish burrows along banks. Waterstriders in pools. Terrestrial species dominate.**

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location





# Primary Headwater Habitat Evaluation Form

12

HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 20-1** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.01**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.87010** LONG. **-82.93635** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **07/23/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	40%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	15%	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	30%
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	15%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **15.00%** (A)      Substrate Preliminary Check: 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3**      **TOTAL NUMBER OF SUBSTRATE TYPES: 4**

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS **Dry channel.**      **MAXIMUM POOL DEPTH (centimeters): 0**

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input checked="" type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS \_\_\_\_\_      **AVERAGE BANKFULL WIDTH (meters): 0.85**

**HHEI Metric Points**

Substrate Max = 40

7

A + B

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Pool Depth Max = 30

0

---

Bankfull Width Max=30

5

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank) Wide >10m		(Most Predominant per Bank) Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)     Flat to Moderate     Moderate (2 ft/100 ft)     Moderate to Severe     Severe (10 ft/100 ft)



**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <u>Candy Run</u>	Distance from Evaluated Stream	<u>0.30</u>
<input type="checkbox"/> CWH Name: _____	Distance from Evaluated Stream	_____
<input type="checkbox"/> EWH Name: _____	Distance from Evaluated Stream	_____

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: Lucasville NRCS Soil Map Page: 21 NRCS Soil Map Stream Order: 1  
County: Scioto Township / City: Jefferson TWP/ Lucasville

**MISCELLANEOUS**

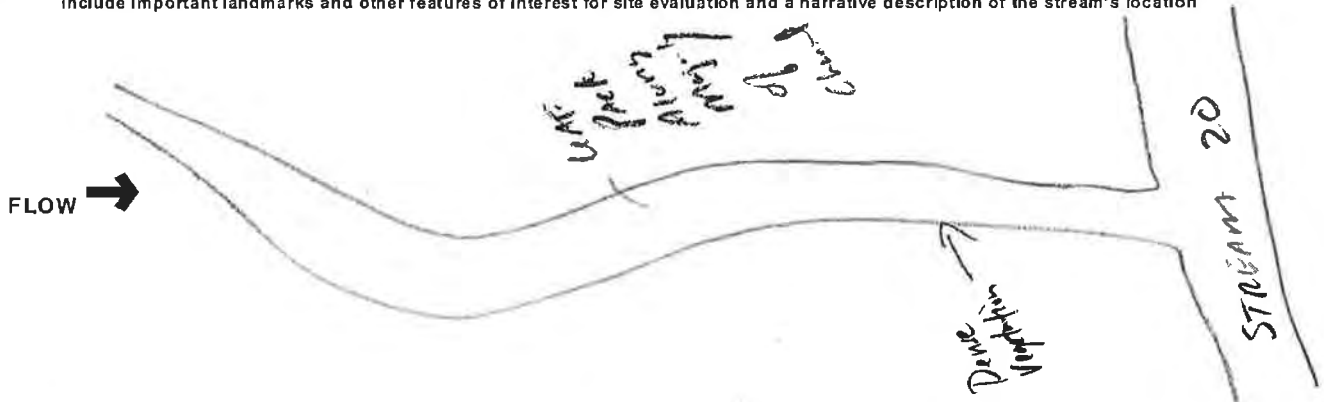
Base Flow Conditions? (Y/N):  Y Date of last precipitation: 07/20/12 Quantity: 0.07  
Photograph Information: See ESR.  
Elevated Turbidity? (Y/N):  N Canopy (% open): 85%  
Were samples collected for water chemistry? (Y/N):  N (Note lab sample no. or id. and attach results) Lab Number: \_\_\_\_\_  
Field Measures: Temp (°C): \_\_\_\_\_ Dissolved Oxygen (mg/l): \_\_\_\_\_ pH (S.U.): \_\_\_\_\_ Conductivity (µmhos/cm): \_\_\_\_\_  
Is the sampling reach representative of the stream (Y/N):  Y If not, please explain: \_\_\_\_\_  
Additional comments/description of pollution impacts: \_\_\_\_\_

**BIOTIC EVALUATION**

Performed? (Y/N):  Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N):  N Voucher? (Y/N):  N Salamanders Observed? (Y/N):  N Voucher? (Y/N):  N  
Frogs or Tadpoles Observed? (Y/N):  N Voucher? (Y/N):  N Aquatic Macroinvertebrates Observed? (Y/N):  N Voucher? (Y/N):  N  
Comments Regarding Biology: Only terrestrial species observed.

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 21** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.04**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.86951** LONG. **-82.93265** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **08/06/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> Bldr Slabs [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%
<input checked="" type="checkbox"/> BOULDER (>256 mm) [16 pts]	25%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	20%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	5%	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	35%
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	15%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: **30.00%** (A)      Substrate Measurement Criteria: **100%** (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 16**      **TOTAL NUMBER OF SUBSTRATE TYPES: 5**

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS **Dry channel.**      **MAXIMUM POOL DEPTH (centimeters): 0**

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input checked="" type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS \_\_\_\_\_      **AVERAGE BANKFULL WIDTH (meters): 2.00**

**HHEI Metric Points**

Substrate Max = 40

21

A + B

Pool Depth Max = 30

0

Bankfull Width Max=30

20

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input checked="" type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)     Flat to Moderate     Moderate (2 ft/100 ft)     Moderate to Severe     Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score: \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Candy Run</b>	Distance from Evaluated Stream: <b>0.40</b>
<input type="checkbox"/> CWH Name:	Distance from Evaluated Stream:
<input type="checkbox"/> EWH Name:	Distance from Evaluated Stream:

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: **Lucasville** NRCS Soil Map Page: **21** NRCS Soil Map Stream Order: **1**  
County: **Scioto** Township / City: **Jefferson TWP/ Lucasville**

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **08/05/12** Quantity: **0.02**  
Photograph Information: **See ESR.**  
Elevated Turbidity? (Y/N): **N** Canopy (% open): **30%**  
Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: \_\_\_\_\_  
Field Measures: Temp (°C): \_\_\_\_\_ Dissolved Oxygen (mg/l): \_\_\_\_\_ pH (S.U.): \_\_\_\_\_ Conductivity (µmhos/cm): \_\_\_\_\_  
Is the sampling reach representative of the stream (Y/N): **Y** If not, please explain: \_\_\_\_\_

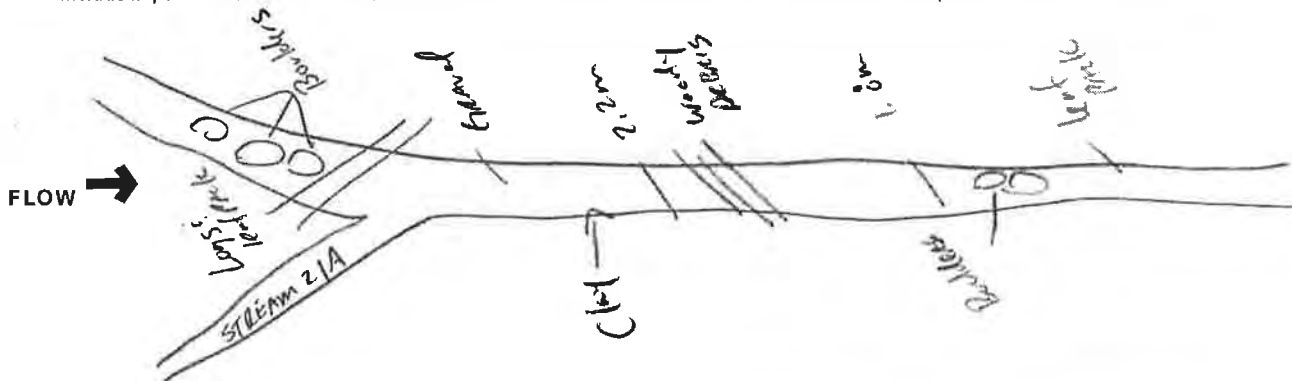
Additional comments/description of pollution impacts: \_\_\_\_\_

**BIOTIC EVALUATION**

Performed? (Y/N): **Y** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N): **N** Voucher? (Y/N): **N** Salamanders Observed? (Y/N): **N** Voucher? (Y/N): **N**  
Frogs or Tadpoles Observed? (Y/N): **N** Voucher? (Y/N): **N** Aquatic Macroinvertebrates Observed? (Y/N): **N** Voucher? (Y/N): \_\_\_\_\_  
Comments Regarding Biology: **No aquatic species observed during HHEI evaluation.**

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 21A** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.01**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.86981** LONG. **-82.93291** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **08/06/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> Bldr Slabs [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	20%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	35%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	0%	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	25%
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	20%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **20.00%** (A) Substrate Percentages Check: 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3** **TOTAL NUMBER OF SUBSTRATE TYPES: 4**

---

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS **Dry channel.** **MAXIMUM POOL DEPTH (centimeters): 0**

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**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input checked="" type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 0.90**

**HHEI Metric Points**

Substrate Max = 40

7

A + B

Pool Depth Max = 30

0

Bankfull Width Max=30

5

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream ☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input checked="" type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED?  Yes  No QHEI Score: \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

WWH Name: Candy Run Distance from Evaluated Stream: 0.40  
 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: Lucasville NRCS Soil Map Page: 21 NRCS Soil Map Stream Order: 1  
County: Scioto Township / City: Jefferson TWP/ Lucasville

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 08/05/12 Quantity: 0.02

Photograph Information: See ESR.

Elevated Turbidity? (Y/N): N Canopy (% open): 30%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: \_\_\_\_\_

Field Measures: Temp (°C): \_\_\_\_\_ Dissolved Oxygen (mg/l): \_\_\_\_\_ pH (S.U.): \_\_\_\_\_ Conductivity (µmhos/cm): \_\_\_\_\_

Is the sampling reach representative of the stream (Y/N): Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: \_\_\_\_\_

**BIOTIC EVALUATION**

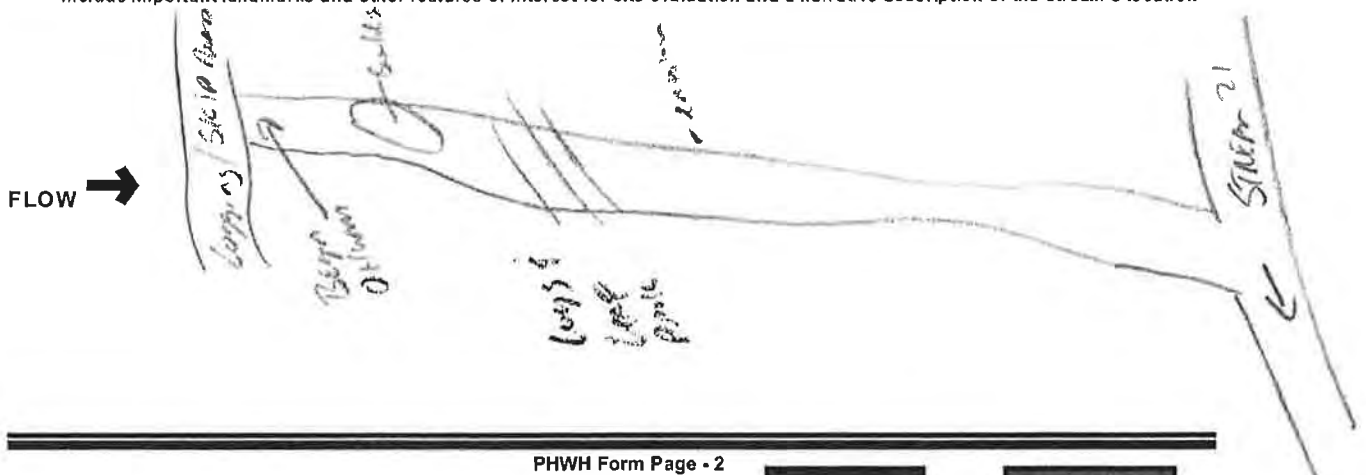
Performed? (Y/N): Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N): N Voucher? (Y/N): N Salamanders Observed? (Y/N): N Voucher? (Y/N): N  
Frogs or Tadpoles Observed? (Y/N): N Voucher? (Y/N): N Aquatic Macroinvertebrates Observed? (Y/N): N Voucher? (Y/N): N

Comments Regarding Biology: No aquatic species observed during HHEI evaluation.

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 22** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.07**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.86838** LONG. **-82.92831** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **08/06/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	10%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	15%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input checked="" type="checkbox"/> COBBLE (65-256 mm) [12 pts]	25%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	5%
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	45%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **35.00%** (A) Substrate Percentage Check **100%** (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 21** **TOTAL NUMBER OF SUBSTRATE TYPES: 5**

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**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS **Dry channel.** **MAXIMUM POOL DEPTH (centimeters): 0**

---

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 2.90**

HHEI Metric Points

Substrate Max = 40

26

A + B

---

Pool Depth Max = 30

0

---

Bankfull Width Max=30

20

This information must also be completed

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN ZONE WIDTH		FLOODPLAIN QUALITY		L R	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS **Moist channel, no pools.**

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input checked="" type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Candy Run</b>	Distance from Evaluated Stream	<b>0.42</b>
<input type="checkbox"/> CWH Name:	Distance from Evaluated Stream	
<input type="checkbox"/> EWH Name:	Distance from Evaluated Stream	

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: **Lucasville** NRCS Soil Map Page: **21** NRCS Soil Map Stream Order: **2**  
County: **Scloto** Township / City: **Jefferson TWP/ Lucasville**

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **08/05/12** Quantity: **0.02**

Photograph Information: **See ESR.**

Elevated Turbidity? (Y/N): **N** Canopy (% open): **40%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: \_\_\_\_\_

Field Measures: Temp (°C) \_\_\_\_\_ Dissolved Oxygen (mg/l) \_\_\_\_\_ pH (S.U.) \_\_\_\_\_ Conductivity (µmhos/cm) \_\_\_\_\_

Is the sampling reach representative of the stream (Y/N): **Y** If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: \_\_\_\_\_

**BIOTIC EVALUATION**

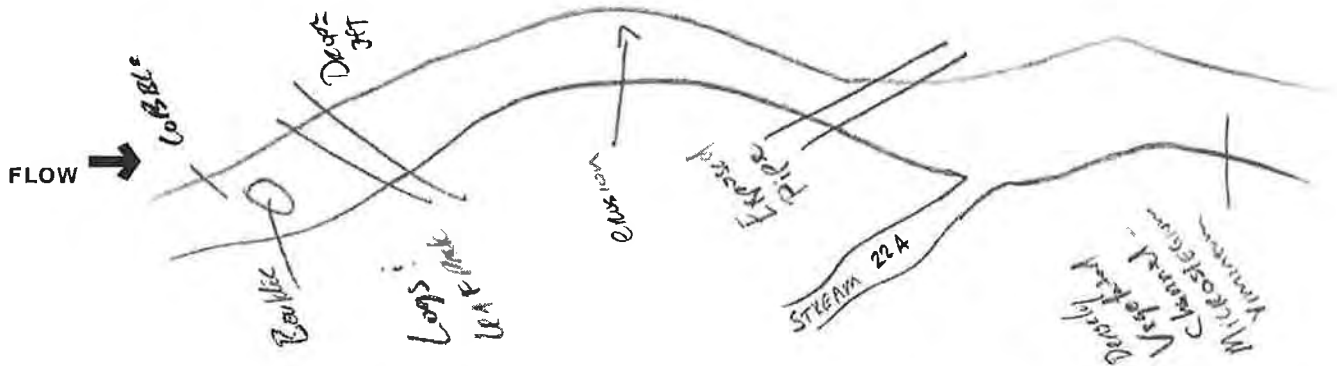
Performed? (Y/N): **Y** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N): **N** Voucher? (Y/N): **N** Salamanders Observed? (Y/N): **N** Voucher? (Y/N): **N**  
Frogs or Tadpoles Observed? (Y/N): **N** Voucher? (Y/N): **N** Aquatic Macroinvertebrates Observed? (Y/N): **N** Voucher? (Y/N): **N**

Comments Regarding Biology: **Only terrestrial species observed.**

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 22A** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.00**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.86825** LONG. **-82.92983** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **08/06/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

<table border="0"> <thead> <tr> <th>TYPE</th> <th>PERCENT</th> <th>TYPE</th> <th>PERCENT</th> </tr> </thead> <tbody> <tr> <td><input type="checkbox"/> BLDR SLABS [16 pts]</td> <td style="text-align: center;">0%</td> <td><input type="checkbox"/> SILT [3 pt]</td> <td style="text-align: center;">0%</td> </tr> <tr> <td><input type="checkbox"/> BOULDER (&gt;256 mm) [16 pts]</td> <td style="text-align: center;">10%</td> <td><input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]</td> <td style="text-align: center;">25%</td> </tr> <tr> <td><input type="checkbox"/> BEDROCK [16 pt]</td> <td style="text-align: center;">0%</td> <td><input type="checkbox"/> FINE DETRITUS [3 pts]</td> <td style="text-align: center;">0%</td> </tr> <tr> <td><input type="checkbox"/> COBBLE (65-256 mm) [12 pts]</td> <td style="text-align: center;">20%</td> <td><input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]</td> <td style="text-align: center;">45%</td> </tr> <tr> <td><input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]</td> <td style="text-align: center;">0%</td> <td><input type="checkbox"/> MUCK [0 pts]</td> <td style="text-align: center;">0%</td> </tr> <tr> <td><input type="checkbox"/> SAND (&lt;2 mm) [6 pts]</td> <td style="text-align: center;">0%</td> <td><input type="checkbox"/> ARTIFICIAL [3 pts]</td> <td style="text-align: center;">0%</td> </tr> </tbody> </table> <p style="text-align: center;">Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock <b>30.00%</b> (A)</p>	TYPE	PERCENT	TYPE	PERCENT	<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%	<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	10%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	25%	<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%	<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	20%	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	45%	<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	0%	<input type="checkbox"/> MUCK [0 pts]	0%	<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%	<table border="0"> <thead> <tr> <th>PERCENT</th> <th>(B)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">100%</td> <td style="text-align: center;">Substrate Presently Check</td> </tr> </tbody> </table>	PERCENT	(B)	100%	Substrate Presently Check
TYPE	PERCENT	TYPE	PERCENT																														
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%																														
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<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%																														
PERCENT	(B)																																
100%	Substrate Presently Check																																

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **3** TOTAL NUMBER OF SUBSTRATE TYPES: **4**

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS **Dry channel.** MAXIMUM POOL DEPTH (centimeters): **0**

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): **1.30**

**HHEI Metric Points**

Substrate Max = 40

7

A + B

Pool Depth Max = 30

0

Bankfull Width Max=30

15

This information must also be completed

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS: \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS **Moist channel, no pools.**

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**  Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)



**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

WWH Name: Candy Run Distance from Evaluated Stream 0.40  
 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: Lucasville NRCS Soil Map Page: 21 NRCS Soil Map Stream Order: 1  
County: Scioto Township / City: Jefferson TWP/ Lucasville

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 08/05/12 Quantity: 0.02

Photograph Information: See ESR.

Elevated Turbidity? (Y/N): N Canopy (% open): 20%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: \_\_\_\_\_

Field Measures: Temp (°C) \_\_\_\_\_ Dissolved Oxygen (mg/l) \_\_\_\_\_ pH (S.U.) \_\_\_\_\_ Conductivity (µmhos/cm) \_\_\_\_\_

Is the sampling reach representative of the stream (Y/N): Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: \_\_\_\_\_

**BIOTIC EVALUATION**

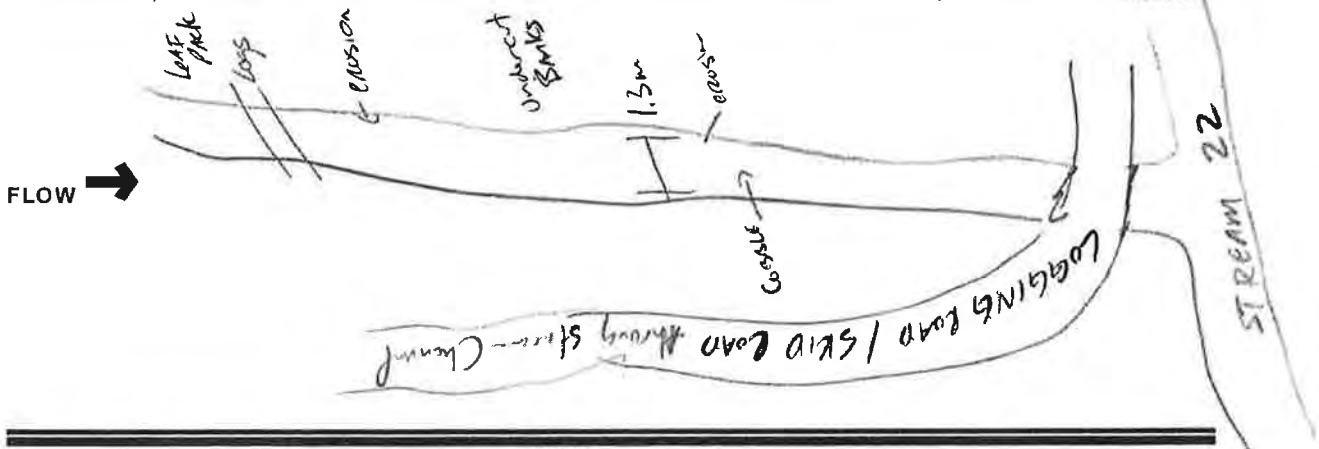
Performed? (Y/N): Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N): N Voucher? (Y/N): N Salamanders Observed? (Y/N): N Voucher? (Y/N): N  
Frogs or Tadpoles Observed? (Y/N): N Voucher? (Y/N): N Aquatic Macroinvertebrates Observed? (Y/N): N Voucher? (Y/N): N

Comments Regarding Biology: No aquatic species observed during HHEI evaluation.

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location





# Primary Headwater Habitat Evaluation Form

12

**HHEI Score (sum of metrics 1, 2, 3) :**

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 22B** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.00**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.86951** LONG. **-82.92777** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **08/06/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	15%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	35%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	10%	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	40%
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	0%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **25.00%** (A) (B) **100%**

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3** **TOTAL NUMBER OF SUBSTRATE TYPES: 4**

---

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters): 0**

---

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (<= 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 0.90**

**HHEI Metric Points**

Substrate Max = 40

7

A + B

Pool Depth Max = 30

0

Bankfull Width Max=30

5

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream ☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED?  Yes  No QHEI Score: \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Candy Run</b>	Distance from Evaluated Stream	<b>0.50</b>
<input type="checkbox"/> CWH Name: _____	Distance from Evaluated Stream	_____
<input type="checkbox"/> EWH Name: _____	Distance from Evaluated Stream	_____

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: **Lucasville** NRCS Soil Map Page: **21** NRCS Soil Map Stream Order: **1**  
 County: **Scioto** Township / City: **Jefferson TWP/Lucasville**

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **08/05/12** Quantity: **0.02**  
 Photograph Information: **See ESR.**  
 Elevated Turbidity? (Y/N): **N** Canopy (% open): **35%**  
 Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: \_\_\_\_\_  
 Field Measures: Temp (°C): \_\_\_\_\_ Dissolved Oxygen (mg/l): \_\_\_\_\_ pH (S.U.): \_\_\_\_\_ Conductivity (µmhos/cm): \_\_\_\_\_  
 Is the sampling reach representative of the stream (Y/N): **Y** If not, please explain: \_\_\_\_\_

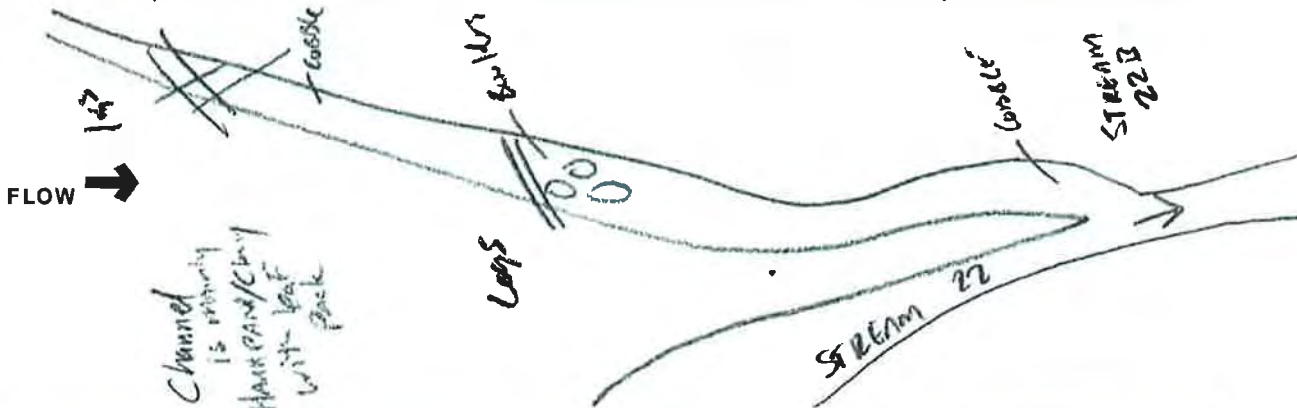
Additional comments/description of pollution impacts: \_\_\_\_\_

**BIOTIC EVALUATION**

Performed? (Y/N): **Y** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
 Fish Observed? (Y/N): **N** Voucher? (Y/N): **N** Salamanders Observed? (Y/N): **N** Voucher? (Y/N): **N**  
 Frogs or Tadpoles Observed? (Y/N): **N** Voucher? (Y/N): **N** Aquatic Macroinvertebrates Observed? (Y/N): **N** Voucher? (Y/N): **N**  
 Comments Regarding Biology: **No aquatic species observed during ecological evaluation.**

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location





# Primary Headwater Habitat Evaluation Form

12

HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 22C** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.00**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.86843** LONG. **-82.92732** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **08/06/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

<table border="0"> <thead> <tr> <th>TYPE</th> <th>PERCENT</th> <th>TYPE</th> <th>PERCENT</th> </tr> </thead> <tbody> <tr> <td><input type="checkbox"/> BLDR SLABS [16 pts]</td> <td style="text-align: center;">0%</td> <td><input type="checkbox"/> SILT [3 pt]</td> <td style="text-align: center;">0%</td> </tr> <tr> <td><input type="checkbox"/> BOULDER (&gt;256 mm) [16 pts]</td> <td style="text-align: center;">20%</td> <td><input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]</td> <td style="text-align: center;">45%</td> </tr> <tr> <td><input type="checkbox"/> BEDROCK [16 pt]</td> <td style="text-align: center;">0%</td> <td><input type="checkbox"/> FINE DETRITUS [3 pts]</td> <td style="text-align: center;">0%</td> </tr> <tr> <td><input type="checkbox"/> COBBLE (65-256 mm) [12 pts]</td> <td style="text-align: center;">0%</td> <td><input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]</td> <td style="text-align: center;">25%</td> </tr> <tr> <td><input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]</td> <td style="text-align: center;">10%</td> <td><input type="checkbox"/> MUCK [0 pts]</td> <td style="text-align: center;">0%</td> </tr> <tr> <td><input type="checkbox"/> SAND (&lt;2 mm) [6 pts]</td> <td style="text-align: center;">0%</td> <td><input type="checkbox"/> ARTIFICIAL [3 pts]</td> <td style="text-align: center;">0%</td> </tr> </tbody> </table> <p>Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock <b>20.00%</b> (A)</p>	TYPE	PERCENT	TYPE	PERCENT	<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%	<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	20%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	45%	<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%	<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	0%	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	25%	<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	10%	<input type="checkbox"/> MUCK [0 pts]	0%	<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%	<table border="0"> <thead> <tr> <th>PERCENT</th> <th>(B)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">100%</td> <td style="text-align: center;">4</td> </tr> </tbody> </table>	PERCENT	(B)	100%	4
TYPE	PERCENT	TYPE	PERCENT																														
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%																														
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PERCENT	(B)																																
100%	4																																

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3**      **TOTAL NUMBER OF SUBSTRATE TYPES: 4**

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts] <input type="checkbox"/> > 22.5 - 30 cm [30 pts] <input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts] <input type="checkbox"/> < 5 cm [5 pts] <input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]
--	--

COMMENTS **Dry channel.**      **MAXIMUM POOL DEPTH (centimeters): 0**

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts] <input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] <input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	<input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] <input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
--	--

COMMENTS \_\_\_\_\_      **AVERAGE BANKFULL WIDTH (meters): 0.90**

**HHEI Metric Points**

Substrate Max = 40

7

A + B

Pool Depth Max = 30

0

Bankfull Width Max=30

5

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank) Wide >10m		(Most Predominant per Bank) Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing <input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent) <input type="checkbox"/> Dry channel, no water (Ephemeral)
--	---

COMMENTS \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None <input type="checkbox"/> 0.5	<input checked="" type="checkbox"/> 1.0 <input type="checkbox"/> 1.5	<input type="checkbox"/> 2.0 <input type="checkbox"/> 2.5	<input type="checkbox"/> 3.0 <input type="checkbox"/> >3
---	---	--	---

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)     Flat to Moderate     Moderate (2 ft/100 ft)     Moderate to Severe     Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED?  Yes  No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: Candy Run	Distance from Evaluated Stream: 0.45
<input type="checkbox"/> CWH Name:	Distance from Evaluated Stream:
<input type="checkbox"/> EWH Name:	Distance from Evaluated Stream:

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: Lucasville NRCS Soil Map Page: 21 NRCS Soil Map Stream Order: 1  
 County: Scioto Township / City: Jefferson TWP/ Lucasville

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 08/05/12 Quantity: 0.02  
 Photograph Information: See ESR.  
 Elevated Turbidity? (Y/N): N Canopy (% open): 30%  
 Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: \_\_\_\_\_  
 Field Measures: Temp (°C): \_\_\_\_\_ Dissolved Oxygen (mg/l): \_\_\_\_\_ pH (S.U.): \_\_\_\_\_ Conductivity (µmhos/cm): \_\_\_\_\_  
 Is the sampling reach representative of the stream (Y/N): Y If not, please explain: \_\_\_\_\_

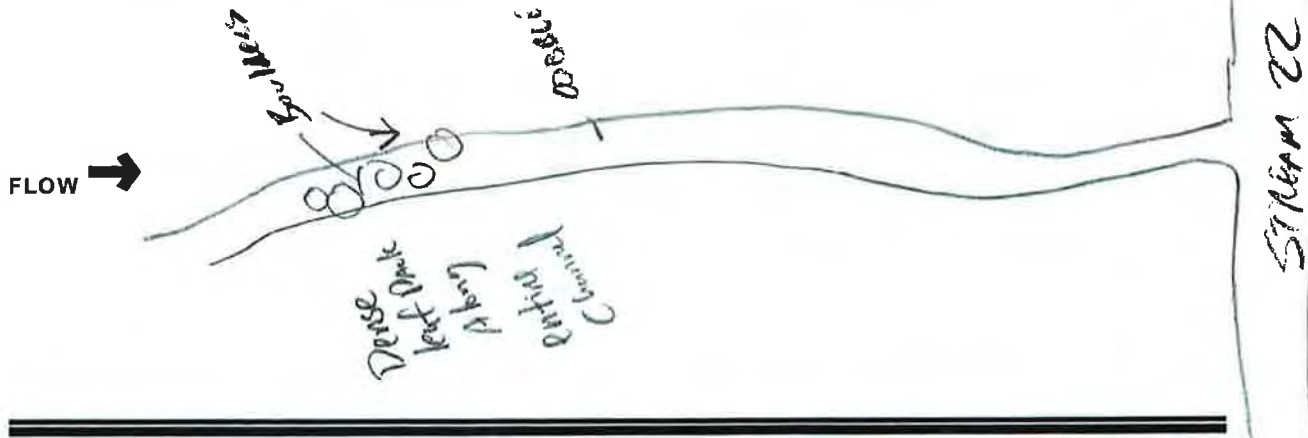
Additional comments/description of pollution impacts: \_\_\_\_\_

**BIOTIC EVALUATION**

Performed? (Y/N): Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
 Fish Observed? (Y/N): N Voucher? (Y/N): N Salamanders Observed? (Y/N): N Voucher? (Y/N): N  
 Frogs or Tadpoles Observed? (Y/N): N Voucher? (Y/N): N Aquatic Macroinvertebrates Observed? (Y/N): N Voucher? (Y/N): N  
 Comments Regarding Biology: Only terrestrial species observed.

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location





# Primary Headwater Habitat Evaluation Form

**46**

HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 23** RIVER BASIN: \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.09**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.86701** LONG. **-82.92331** RIVER CODE: \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **08/06/12** SCORER **JME** COMMENTS: \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWHH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	10%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	15%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input checked="" type="checkbox"/> COBBLE (65-256 mm) [12 pts]	30%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	5%
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	40%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **40.00%** (A) Substrate Percentage Check: 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 21** **TOTAL NUMBER OF SUBSTRATE TYPES: 5**

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS **Dry channel.** **MAXIMUM POOL DEPTH (centimeters): 0**

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (<= 3' 3") [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 2.00**

**HHEI Metric Points**

Substrate Max = 40

**26**

A + B

Pool Depth Max = 30

**0**

Bankfull Width Max=30

**20**

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream ☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank) Wide >10m		(Most Predominant per Bank) Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS **Moist channel, no pools.**

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input checked="" type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Candy Run</b>	Distance from Evaluated Stream	<b>0.28</b>
<input type="checkbox"/> CWH Name: _____	Distance from Evaluated Stream	_____
<input type="checkbox"/> EWH Name: _____	Distance from Evaluated Stream	_____

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: **Lucasville** NRCS Soil Map Page: **22** NRCS Soil Map Stream Order: **2**  
County: **Scloto** Township / City: **Jefferson TWP/ Lucasville**

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **08/05/12** Quantity: **0.02**  
Photograph Information: **See ESR.**  
Elevated Turbidity? (Y/N): **N** Canopy (% open): **30%**  
Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: \_\_\_\_\_  
Field Measures: Temp (°C): \_\_\_\_\_ Dissolved Oxygen (mg/l): \_\_\_\_\_ pH (S.U.): \_\_\_\_\_ Conductivity (µmhos/cm): \_\_\_\_\_  
Is the sampling reach representative of the stream (Y/N): **Y** If not, please explain: \_\_\_\_\_

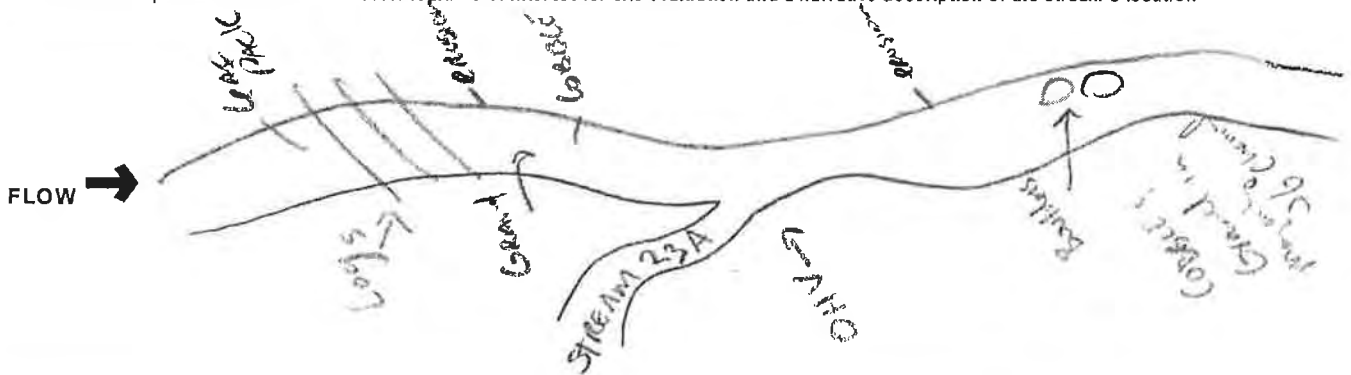
Additional comments/description of pollution impacts: \_\_\_\_\_

**BIOTIC EVALUATION**

Performed? (Y/N): **Y** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N): **N** Voucher? (Y/N): **N** Salamanders Observed? (Y/N): **N** Voucher? (Y/N): **N**  
Frogs or Tadpoles Observed? (Y/N): **N** Voucher? (Y/N): **N** Aquatic Macroinvertebrates Observed? (Y/N): **N** Voucher? (Y/N): **N**  
Comments Regarding Biology: **Only terrestrial species observed.**

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 23A** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.00**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.86776** LONG. **-82.92427** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **08/06/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> Bldr Slabs [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	40%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	10%	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	35%
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	15%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **10.00%** (A) Substrate Percentages Total **100%** (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3 TOTAL NUMBER OF SUBSTRATE TYPES: 4**

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**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

**COMMENTS Dry channel. MAXIMUM POOL DEPTH (centimeters): 0**

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**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (<= 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

**COMMENTS \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): 1.20**

**HHEI Metric Points**

Substrate Max = 40

7

A + B

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Pool Depth Max = 30

0

---

Bankfull Width Max=30

15

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)



**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Candy Run</b>	Distance from Evaluated Stream	<b>0.48</b>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: **Lucasville** NRCS Soil Map Page: **22** NRCS Soil Map Stream Order: **1**  
County: **Scioto** Township / City: **Jefferson TWP/ Lucasville**

**MISCELLANEOUS**

Base Flow Conditions? (Y/N):  Y Date of last precipitation: **08/05/12** Quantity: **0.02**  
Photograph Information: **See ESR.**  
Elevated Turbidity? (Y/N):  N Canopy (% open): **10%**  
Were samples collected for water chemistry? (Y/N):  N (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
Is the sampling reach representative of the stream (Y/N)  Y If not, please explain:   
Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N):  Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N):  N Voucher? (Y/N):  N Salamanders Observed? (Y/N):  N Voucher? (Y/N):  N  
Frogs or Tadpoles Observed? (Y/N):  N Voucher? (Y/N):  N Aquatic Macroinvertebrates Observed? (Y/N):  N Voucher? (Y/N):  N  
Comments Regarding Biology: **Only terrestrial species observed.**

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 23B** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.01**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.86885** LONG. **-82.92418** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **08/06/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

<b>TYPE</b>	<b>PERCENT</b>	<b>TYPE</b>	<b>PERCENT</b>
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	25%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	20%	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	40%
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	15%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **20.00%** (A) Substrate Percentage Check: 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3** **TOTAL NUMBER OF SUBSTRATE TYPES: 4**

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**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS **Dry channel.** **MAXIMUM POOL DEPTH (centimeters): 0**

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**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input checked="" type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 0.90**

**HHEI Metric Points**

Substrate Max = 40

7

A + B

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Pool Depth Max = 30

0

---

Bankfull Width Max=30

5

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: Candy Run	Distance from Evaluated Stream	0.54
<input type="checkbox"/> CWH Name:	Distance from Evaluated Stream	
<input type="checkbox"/> EWH Name:	Distance from Evaluated Stream	

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: Lucasville NRCS Soil Map Page: 22 NRCS Soil Map Stream Order: 1  
 County: Scioto Township / City: Jefferson TWP/ Lucasville

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 08/05/12 Quantity: 0.02  
 Photograph Information: See ESR.  
 Elevated Turbidity? (Y/N): N Canopy (% open): 10%  
 Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: \_\_\_\_\_  
 Field Measures: Temp (°C): \_\_\_\_\_ Dissolved Oxygen (mg/l) \_\_\_\_\_ pH (S.U.) \_\_\_\_\_ Conductivity (µmhos/cm) \_\_\_\_\_  
 Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_

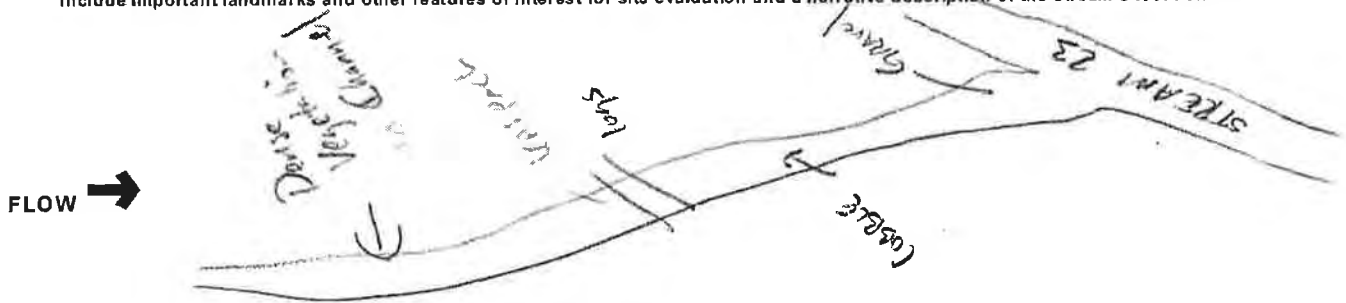
Additional comments/description of pollution impacts: \_\_\_\_\_

**BIOTIC EVALUATION**

Performed? (Y/N): Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
 Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N  
 Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N  
 Comments Regarding Biology: Only terrestrial species observed.

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location





# Primary Headwater Habitat Evaluation Form

**46**

HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 24** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.00**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.86767** LONG. **-82.92222** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **08/06/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> SILT [3 pt]	<input type="checkbox"/> 0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input checked="" type="checkbox"/> 20%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input checked="" type="checkbox"/> 10%
<input type="checkbox"/> BEDROCK [16 pt]	<input type="checkbox"/> 0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="checkbox"/> 0%
<input checked="" type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input checked="" type="checkbox"/> 30%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="checkbox"/> 5%
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input checked="" type="checkbox"/> 35%	<input type="checkbox"/> MUCK [0 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="checkbox"/> 0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **50.00%** (A) Stream Percentage Chart 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 21** **TOTAL NUMBER OF SUBSTRATE TYPES: 5**

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS **Dry channel.** **MAXIMUM POOL DEPTH (centimeters): 0**

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 2.00**

**HHEI Metric Points**

Substrate Max = 40

**26**  
A + B

Pool Depth Max = 30

**0**

Bankfull Width Max=30

**20**

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS: \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS: \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input checked="" type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**  Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: Candy Run	Distance from Evaluated Stream	0.40
<input type="checkbox"/> CWH Name:	Distance from Evaluated Stream	
<input type="checkbox"/> EWH Name:	Distance from Evaluated Stream	

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: Lucasville NRCS Soil Map Page: 22 NRCS Soil Map Stream Order: 1  
County: Scioto Township / City: Jefferson TWP/ Lucasville

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 08/05/12 Quantity: 0.02  
Photograph Information: See ESR.  
Elevated Turbidity? (Y/N): N Canopy (% open): 30%  
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: \_\_\_\_\_  
Field Measures: Temp (°C): \_\_\_\_\_ Dissolved Oxygen (mg/l): \_\_\_\_\_ pH (S.U.): \_\_\_\_\_ Conductivity (µmhos/cm): \_\_\_\_\_  
Is the sampling reach representative of the stream (Y/N): Y If not, please explain: \_\_\_\_\_

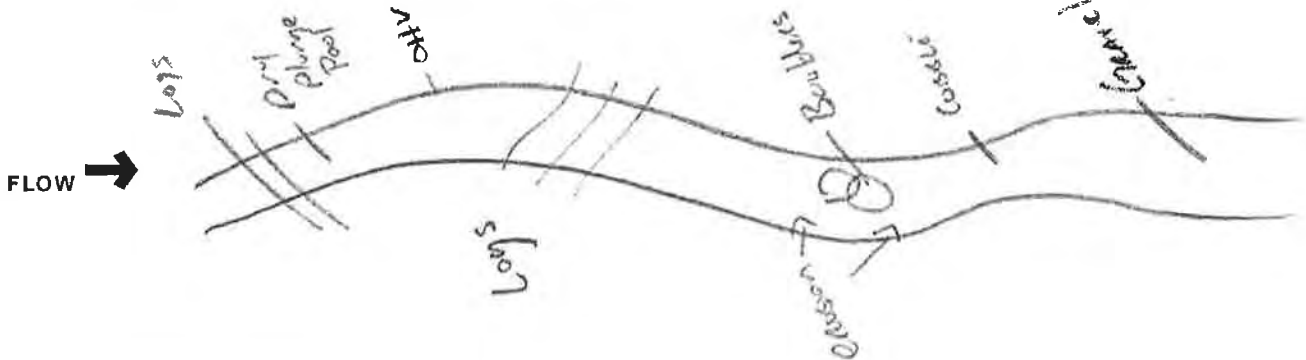
Additional comments/description of pollution impacts: \_\_\_\_\_

**BIOTIC EVALUATION**

Performed? (Y/N): Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N): N Voucher? (Y/N): N Salamanders Observed? (Y/N): N Voucher? (Y/N): N  
Frogs or Tadpoles Observed? (Y/N): N Voucher? (Y/N): N Aquatic Macroinvertebrates Observed? (Y/N): N Voucher? (Y/N): N  
Comments Regarding Biology: Only terrestrial species observed.

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location





# Primary Headwater Habitat Evaluation Form

11

HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 24A** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.00**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.86870** LONG. **-82.92178** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **08/06/12** SCORER **JME** COMMENTS \_\_\_\_\_

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS:  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="checkbox"/> 0%	<input checked="" type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="checkbox"/> 45%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="checkbox"/> 40%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="checkbox"/> 15%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="checkbox"/> 0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **0.00%** (A) 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **3** TOTAL NUMBER OF SUBSTRATE TYPES: **3**

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS **Dry channel.** MAXIMUM POOL DEPTH (centimeters): **0**

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (<= 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): **0.75**

**HHEI Metric Points**

Substrate Max = 40

6

A + B

---

Pool Depth Max = 30

0

---

Bankfull Width Max=30

5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank) Wide >10m		(Most Predominant per Bank) Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input checked="" type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED?  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/>	WWH Name: <b>Candy Run</b>	Distance from Evaluated Stream: <b>0.40</b>
<input type="checkbox"/>	CWH Name: <input type="text"/>	Distance from Evaluated Stream: <input type="text"/>
<input type="checkbox"/>	EWH Name: <input type="text"/>	Distance from Evaluated Stream: <input type="text"/>

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: **Lucasville** NRCS Soil Map Page: **22** NRCS Soil Map Stream Order: **1**  
 County: **Scioto** Township / City: **Jefferson TWP/ Lucasville**

**MISCELLANEOUS**

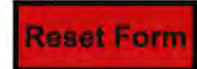
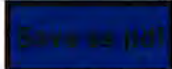
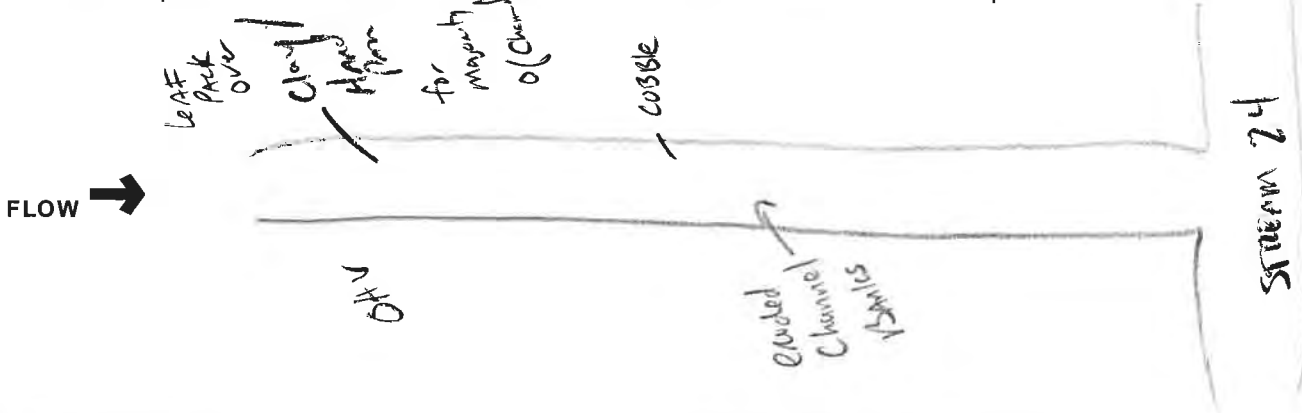
Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **08/05/12** Quantity: **0.02**  
 Photograph Information: **See ESR.**  
 Elevated Turbidity? (Y/N): **N** Canopy (% open): **25%**  
 Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number:   
 Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
 Is the sampling reach representative of the stream (Y/N): **Y** If not, please explain:   
 Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N): **Y** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
 Fish Observed? (Y/N): **N** Voucher? (Y/N): **N** Salamanders Observed? (Y/N): **N** Voucher? (Y/N): **N**  
 Frogs or Tadpoles Observed? (Y/N): **N** Voucher? (Y/N): **N** Aquatic Macroinvertebrates Observed? (Y/N): **N** Voucher? (Y/N): **N**  
 Comments Regarding Biology: **Only terrestrial species observed.**

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location





# Primary Headwater Habitat Evaluation Form

12

**HHEI Score (sum of metrics 1, 2, 3) :**

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 25** RIVER BASIN: \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.04**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.86754** LONG. **-82.91943** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **08/07/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)				<b>HHEI Metric Points</b>
TYPE	PERCENT	TYPE	PERCENT	
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%	Substrate Max = 40  <b>7</b> A + B
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	25%	
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	15%	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	40%	
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	20%	<input type="checkbox"/> MUCK [0 pts]	0%	
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock <b>15.00%</b> (A)		100% (B)		
<b>SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3</b>		<b>TOTAL NUMBER OF SUBSTRATE TYPES: 4</b>		
<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):</b>				Pool Depth Max = 30  <b>0</b>
<input type="checkbox"/> > 30 centimeters [20 pts] <input type="checkbox"/> > 22.5 - 30 cm [30 pts] <input type="checkbox"/> > 10 - 22.5 cm [25 pts]		<input type="checkbox"/> > 5 cm - 10 cm [15 pts] <input checked="" type="checkbox"/> < 5 cm [5 pts] <input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]		
COMMENTS <b>Dry channel.</b>		MAXIMUM POOL DEPTH (centimeters): <b>0</b>		Bankfull Width Max=30  <b>5</b>
<b>3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):</b>				
<input type="checkbox"/> > 4.0 meters (> 13') [30 pts] <input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] <input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]		<input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] <input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]		
COMMENTS _____		AVERAGE BANKFULL WIDTH (meters): <b>0.50</b>		

This information must also be completed

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank)		(Most Predominant per Bank)			
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

Stream Flowing  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  3.0

0.5  1.5  2.5  >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)



**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED?  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/>	WWH Name: <b>Candy Run</b>	Distance from Evaluated Stream	<b>0.43</b>
<input type="checkbox"/>	CWH Name:	Distance from Evaluated Stream	
<input type="checkbox"/>	EWH Name:	Distance from Evaluated Stream	

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: **Lucasville** NRCS Soil Map Page: **22** NRCS Soil Map Stream Order: **1**  
 County: **Scioto** Township / City: **Jefferson TWP/ Lucasville**

**MISCELLANEOUS**

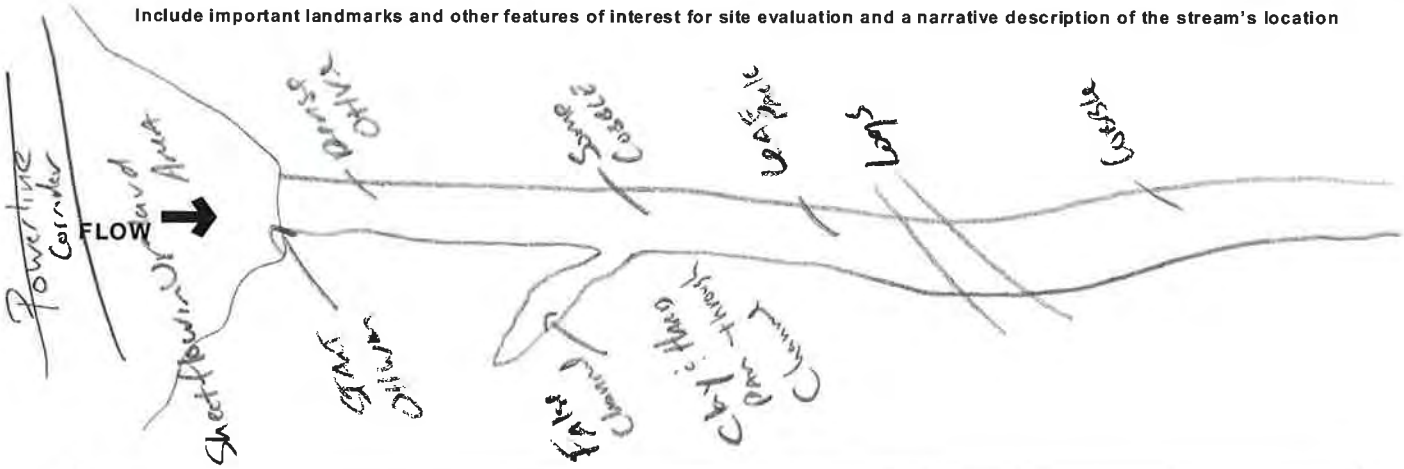
Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **08/05/12** Quantity: **0.02**  
 Photograph Information: **See ESR.**  
 Elevated Turbidity? (Y/N): **N** Canopy (% open): **15%**  
 Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number:   
 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): **Y** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
 Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**  
 Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**  
 Comments Regarding Biology: **Only terrestrial species observed.**

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location





# Primary Headwater Habitat Evaluation Form

12

HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 26** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.06**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.86761** LONG. **-82.91581** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **08/07/12** SCORER **JME** COMMENTS **Stream in mowed area/pasture.**

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)				<b>HHEI Metric Points</b>
TYPE	PERCENT	TYPE	PERCENT	
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%	Substrate Max = 40  <b>7</b>  A + B
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	20%	
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	10%	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	60%	
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	10%	<input type="checkbox"/> MUCK [0 pts]	0%	
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock <b>10.00%</b> (A)		100% (B)		
<b>SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3</b>		<b>TOTAL NUMBER OF SUBSTRATE TYPES: 4</b>		
2. <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):</b>				Pool Depth Max = 30  <b>0</b>
<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]	<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]	
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]	COMMENTS <b>Dry channel.</b>		MAXIMUM POOL DEPTH (centimeters): <b>0</b>
3. <b>BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):</b>				Bankfull Width Max=30  <b>5</b>
<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]	
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	COMMENTS _____		AVERAGE BANKFULL WIDTH (meters): <b>0.60</b>	

This information must also be completed

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank) Wide >10m		(Most Predominant per Bank) Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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  1.0  2.0  3.0

0.5  1.5  2.5  >3

**STREAM GRADIENT ESTIMATE**  Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED?  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: Long Run	Distance from Evaluated Stream	1.66
<input type="checkbox"/> CWH Name:	Distance from Evaluated Stream	
<input type="checkbox"/> EWH Name:	Distance from Evaluated Stream	

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name:  Lucasville NRCS Soil Map Page:  22 NRCS Soil Map Stream Order  1  
 County:  Scioto Township / City:  Jefferson TWP/ Lucasville

**MISCELLANEOUS**

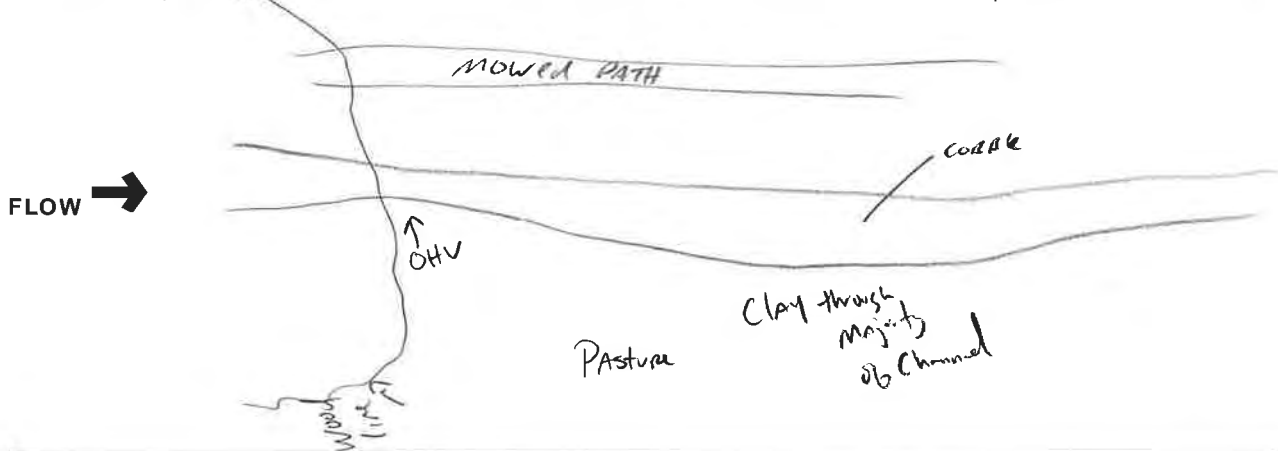
Base Flow Conditions? (Y/N):  Y Date of last precipitation:  08/05/12 Quantity:  0.02  
 Photograph Information:  See ESR.  
 Elevated Turbidity? (Y/N):  N Canopy (% open):  95%  
 Were samples collected for water chemistry? (Y/N):  N (Note lab sample no. or id. and attach results) Lab Number:   
 Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
 Is the sampling reach representative of the stream (Y/N)  Y If not, please explain:   
 Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N):  Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
 Fish Observed? (Y/N)  N Voucher? (Y/N)  N Salamanders Observed? (Y/N)  N Voucher? (Y/N)  N  
 Frogs or Tadpoles Observed? (Y/N)  N Voucher? (Y/N)  N Aquatic Macroinvertebrates Observed? (Y/N)  N Voucher? (Y/N)  N  
 Comments Regarding Biology:  Only terrestrial species observed.

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location





# Primary Headwater Habitat Evaluation Form

12

HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 26A** RIVER BASIN: \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.00**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. \_\_\_\_\_ LONG. \_\_\_\_\_ RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **08/07/12** SCORER **JME** COMMENTS **Stream in mowed area/pasture.**

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	20%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	10%	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	60%
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	10%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **10.00%** (A) 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **3** TOTAL NUMBER OF SUBSTRATE TYPES: **4**

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS **Dry channel.** MAXIMUM POOL DEPTH (centimeters): **0**

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input checked="" type="checkbox"/> ≤ 1.0 m (<= 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): **0.60**

**HHEI Metric Points**

Substrate Max = 40

**7**

A + B

Pool Depth Max = 30

**0**

Bankfull Width Max=30

**5**

This information must also be completed

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED?  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Long Run</b>	Distance from Evaluated Stream	<b>1.67</b>
<input type="checkbox"/> CWH Name:	Distance from Evaluated Stream	
<input type="checkbox"/> EWH Name:	Distance from Evaluated Stream	

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: **Lucasville** NRCS Soil Map Page: **22** NRCS Soil Map Stream Order: **1**  
County: **Scioto** Township / City: **Jefferson TWP**

**MISCELLANEOUS**

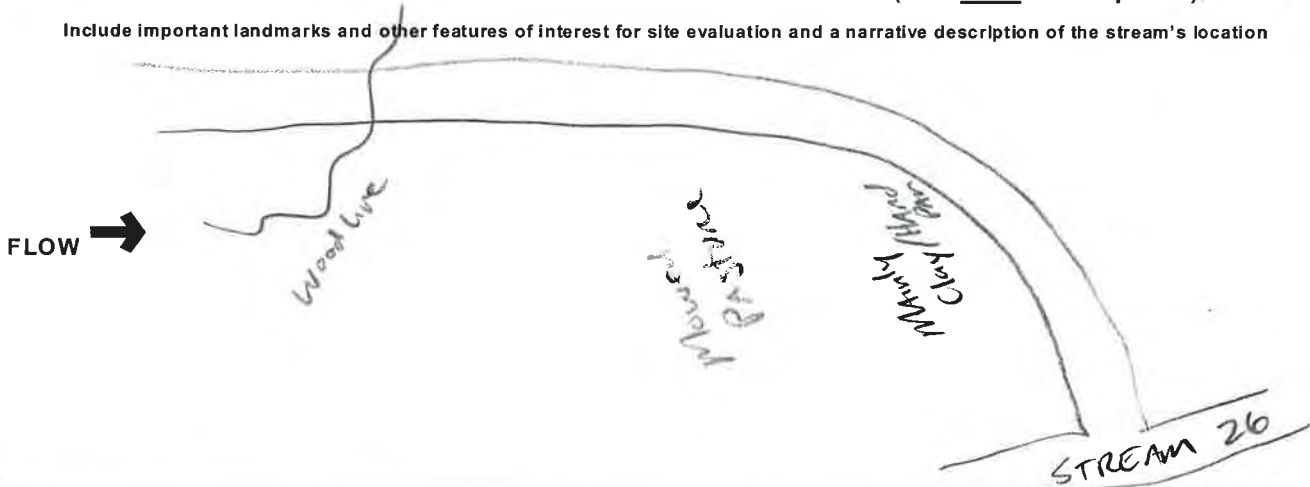
Base Flow Conditions? (Y/N):  Y Date of last precipitation: **08/05/12** Quantity: **0.02**  
Photograph Information: **See ESR.**  
Elevated Turbidity? (Y/N):  N Canopy (% open): **100%**  
Were samples collected for water chemistry? (Y/N):  N (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
Is the sampling reach representative of the stream (Y/N):  Y If not, please explain:   
Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N):  Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N)  N Voucher? (Y/N)  N Salamanders Observed? (Y/N)  N Voucher? (Y/N)  N  
Frogs or Tadpoles Observed? (Y/N)  N Voucher? (Y/N)  N Aquatic Macroinvertebrates Observed? (Y/N)  N Voucher? (Y/N)  N  
Comments Regarding Biology: **Only terrestrial species observed.**

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location





# Primary Headwater Habitat Evaluation Form

46

HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 27** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.15**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.86837** LONG. **-82.90852** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **08/29/12** SCORER **JME** COMMENTS **Captured stream along Blue Run Road.**

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	<input type="checkbox"/> 5%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="checkbox"/> 10%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	<input type="checkbox"/> 20%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input checked="" type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="checkbox"/> 25%	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="checkbox"/> 0%
<input checked="" type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="checkbox"/> 40%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="checkbox"/> 0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **50.00%** (A) 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **21** TOTAL NUMBER OF SUBSTRATE TYPES: **5**

**HHEI Metric Points**

Substrate Max = 40

**26**

A + B

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS **One plunge pool at culvert.** MAXIMUM POOL DEPTH (centimeters): **0**

Pool Depth Max = 30

**0**

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (<= 3' 3") [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): **2.50**

Bankfull Width Max=30

**20**

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank) Wide >10m		(Most Predominant per Bank) Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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 **Moist channel, no pools aside from plunge pool at culvert.**

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**  
 None  1.0  2.0  3.0  
 0.5  1.5  2.5  >3

**STREAM GRADIENT ESTIMATE**  Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED?  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: Long Run	Distance from Evaluated Stream	1.55
<input type="checkbox"/> CWH Name:	Distance from Evaluated Stream	
<input type="checkbox"/> EWH Name:	Distance from Evaluated Stream	

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name:  Lucasville NRCS Soil Map Page:  21 NRCS Soil Map Stream Order  2  
County:  Scioto Township / City:  Jefferson TWP/ Lucasville

**MISCELLANEOUS**

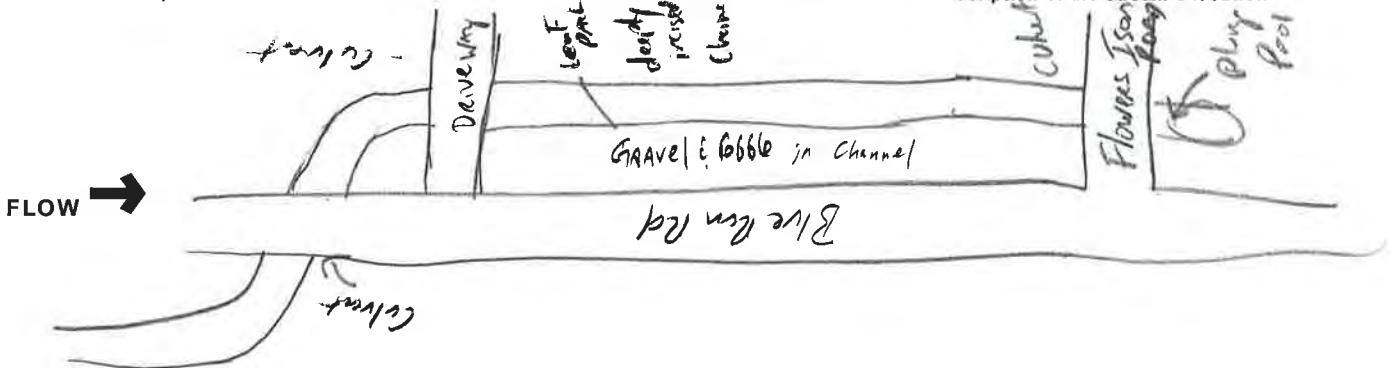
Base Flow Conditions? (Y/N):  Y Date of last precipitation:  08/28/12 Quantity:  0.03  
Photograph Information:  See ESR.  
Elevated Turbidity? (Y/N):  N Canopy (% open):  50%  
Were samples collected for water chemistry? (Y/N):  N (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
Is the sampling reach representative of the stream (Y/N)  Y If not, please explain:   
Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N):  Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N):  N Voucher? (Y/N):  N Salamanders Observed? (Y/N):  N Voucher? (Y/N):  N  
Frogs or Tadpoles Observed? (Y/N):  N Voucher? (Y/N):  N Aquatic Macroinvertebrates Observed? (Y/N):  N Voucher? (Y/N):  N  
Comments Regarding Biology:  Only terrestrial species observed. Nothing found in plunge pool.

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location





# Primary Headwater Habitat Evaluation Form

22

HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 27B** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.04**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.86844** LONG. **-82.90711** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **08/29/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

TYPE	PERCENT	TYPE	PERCENT	
<input type="checkbox"/> BLDR SLABS [16 pts]	5%	<input type="checkbox"/> SILT [3 pt]	0%	<b>HHEI Metric Points</b> Substrate Max = 40 <div style="border: 1px solid black; padding: 5px; text-align: center; font-size: 24px; margin: 5px 0;">17</div> A + B
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	35%	
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	10%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	0%	
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	45%	<input type="checkbox"/> MUCK [0 pts]	0%	
<input type="checkbox"/> SAND (<2 mm) [6 pts]	5%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock <b>15.00%</b> (A)		100%		
<b>SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12</b>		<b>TOTAL NUMBER OF SUBSTRATE TYPES: 5</b>		<b>17</b>
<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):</b>				<b>Pool Depth Max = 30</b>  <div style="border: 1px solid black; padding: 5px; text-align: center; font-size: 24px; margin: 5px 0;">0</div>
<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]			
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input checked="" type="checkbox"/> < 5 cm [5 pts]			
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]			<b>0</b>
<b>COMMENTS</b> <u>One plunge pool at culvert.</u>				<b>MAXIMUM POOL DEPTH (centimeters): 0</b>
<b>3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):</b>				<b>Bankfull Width Max=30</b>  <div style="border: 1px solid black; padding: 5px; text-align: center; font-size: 24px; margin: 5px 0;">5</div>
<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]			
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (<=3' 3") [5 pts]			
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]				<b>0.80</b>
<b>COMMENTS</b> _____				<b>AVERAGE BANKFULL WIDTH (meters): 0.80</b>

This information must also be completed

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input checked="" type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)



**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: Long Run	Distance from Evaluated Stream	1.55
<input type="checkbox"/> CWH Name:	Distance from Evaluated Stream	
<input type="checkbox"/> 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:

**MISCELLANEOUS**

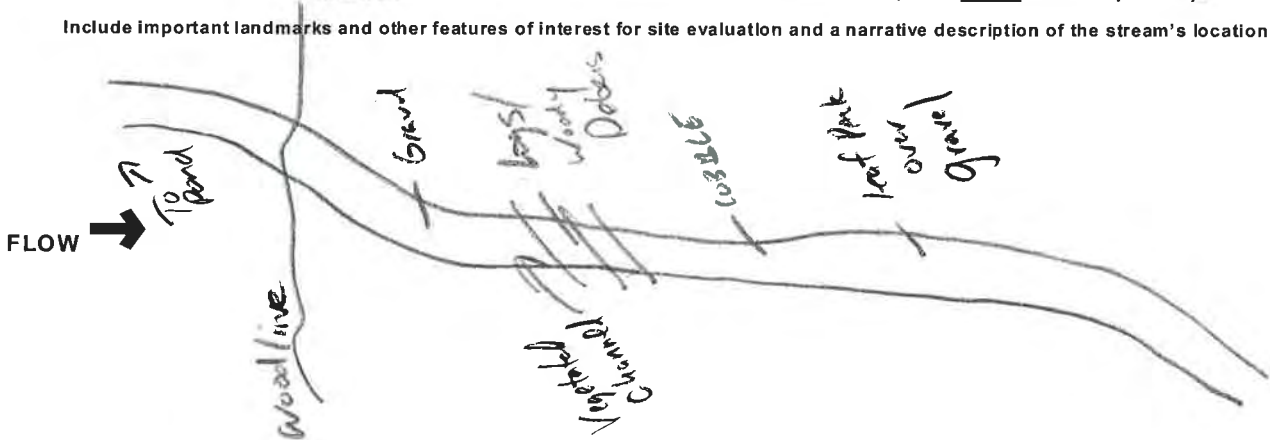
Base Flow Conditions? (Y/N):  Y Date of last precipitation:  Quantity:   
Photograph Information:   
Elevated Turbidity? (Y/N):  N Canopy (% open):   
Were samples collected for water chemistry? (Y/N):  N (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
Is the sampling reach representative of the stream (Y/N)  Y If not, please explain:   
Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N):  Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N)  N Voucher? (Y/N)  N Salamanders Observed? (Y/N)  N Voucher? (Y/N)  N  
Frogs or Tadpoles Observed? (Y/N)  N Voucher? (Y/N)  N Aquatic Macroinvertebrates Observed? (Y/N)  N Voucher? (Y/N)  N  
Comments Regarding Biology:

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location





# Primary Headwater Habitat Evaluation Form

23

HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 2**

SITE NUMBER **Stream 28** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.01**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.86698** LONG. **-82.90223** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **08/29/12** SCORER **JME** COMMENTS **Channel ends in project area.**

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	<b>15%</b>	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	<b>0%</b>
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<b>0%</b>	<input type="checkbox"/> <input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<b>25%</b>
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	<b>0%</b>	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	<b>0%</b>
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<b>20%</b>	<input checked="" type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	<b>35%</b>
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<b>5%</b>	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	<b>0%</b>
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	<b>0%</b>	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	<b>0%</b>

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **35.00%** (A) 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **3** TOTAL NUMBER OF SUBSTRATE TYPES: **5**

**HHEI Metric Points**

Substrate Max = 40

**8**

A + B

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS **One plunge pool at culvert.** MAXIMUM POOL DEPTH (centimeters): **0**

Pool Depth Max = 30

**0**

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (<=3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): **1.20**

Bankfull Width Max=30

**15**

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank) Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input checked="" type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**  Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED?  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Long Run</b>	Distance from Evaluated Stream	<b>1.43</b>
<input type="checkbox"/> CWH Name:	Distance from Evaluated Stream	
<input type="checkbox"/> EWH Name:	Distance from Evaluated Stream	

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: **Lucasville** NRCS Soil Map Page: **22** NRCS Soil Map Stream Order: **1**  
 County: **Scioto** Township / City: **Jefferson TWP/ Lucasville**

**MISCELLANEOUS**

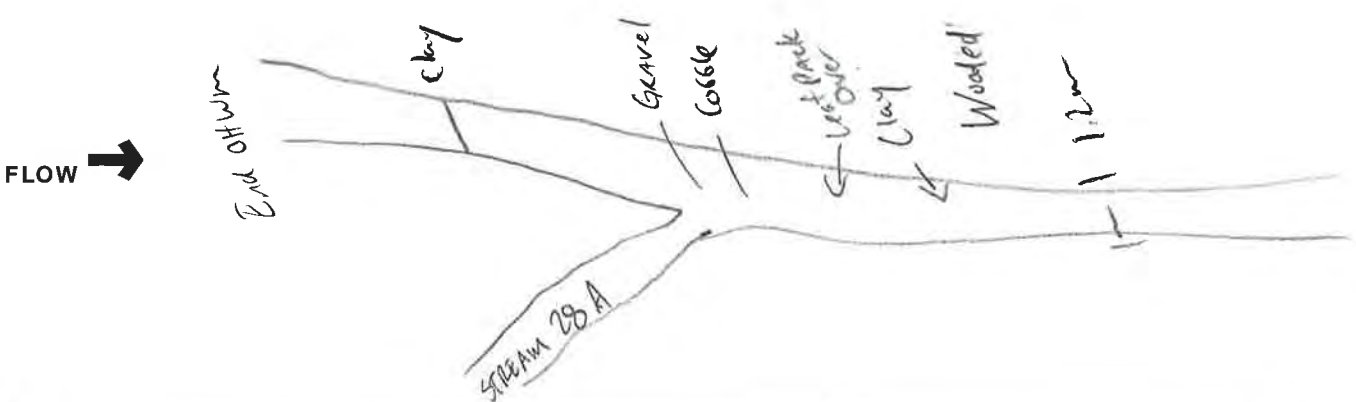
Base Flow Conditions? (Y/N):  Y Date of last precipitation: **08/28/12** Quantity: **0.03**  
 Photograph Information: **See ESR.**  
 Elevated Turbidity? (Y/N):  N Canopy (% open): **10%**  
 Were samples collected for water chemistry? (Y/N):  N (Note lab sample no. or id. and attach results) Lab Number:   
 Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
 Is the sampling reach representative of the stream (Y/N):  Y If not, please explain:   
 Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N):  Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
 Fish Observed? (Y/N):  N Voucher? (Y/N):  N Salamanders Observed? (Y/N):  N Voucher? (Y/N):  N  
 Frogs or Tadpoles Observed? (Y/N):  N Voucher? (Y/N):  N Aquatic Macroinvertebrates Observed? (Y/N):  N Voucher? (Y/N):  N  
 Comments Regarding Biology: **Only terrestrial species observed.**

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location





# Primary Headwater Habitat Evaluation Form

**83**

HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **Stream 29** RIVER BASIN: \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.48**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.82816** LONG. **-82.85389** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **09/17/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	5%	<input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	5%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	15%
<input type="checkbox"/> BEDROCK [16 pt]	15%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input checked="" type="checkbox"/> COBBLE (65-256 mm) [12 pts]	30%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	0%
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	20%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	10%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **55.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 21**      **TOTAL NUMBER OF SUBSTRATE TYPES: 7**

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input checked="" type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

**COMMENTS One plunge pool at culvert.**      **MAXIMUM POOL DEPTH (centimeters): 12**

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input checked="" type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (<= 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

**COMMENTS**      **AVERAGE BANKFULL WIDTH (meters): 5.00**

**HHEI Metric Points**

Substrate Max = 40

28

A + B

Pool Depth Max = 30

25

Bankfull Width Max=30

30

**This information must also be completed**

### RIPARIAN ZONE AND FLOODPLAIN QUALITY

☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank) Wide >10m		(Most Predominant per Bank) Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS: \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS: \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input checked="" type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)     Flat to Moderate     Moderate (2 ft/100 ft)     Moderate to Severe     Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/>	WWH Name: <u>Little Scioto River</u>	Distance from Evaluated Stream	<u>0.31</u>
<input type="checkbox"/>	CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/>	EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: Minford NRCS Soil Map Page: 31 NRCS Soil Map Stream Order 3  
 County: Scioto Township / City: Harrison TWP

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/14/12 Quantity: 0.05  
 Photograph Information: See ESR.  
 Elevated Turbidity? (Y/N): N Canopy (% open): 30%  
 Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:   
 Field Measures: Temp (°C) 9.38 Dissolved Oxygen (mg/l) 6.66 pH (S.U.) 6.72 Conductivity (µmhos/cm) 1  
 Is the sampling reach representative of the stream (Y/N) Y If not, please explain:

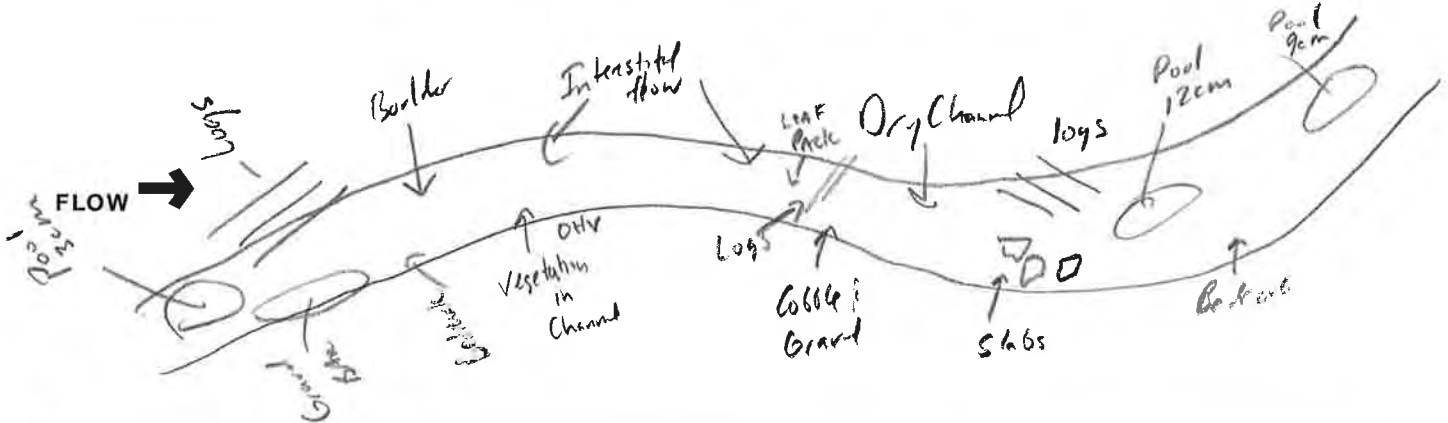
Additional comments/description of pollution impacts:  
Lots of trash in channel. Channel used to dispose of trash.

**BIOTIC EVALUATION**

Performed? (Y/N): Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
 Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) Y Voucher? (Y/N) N  
 Frogs or Tadpoles Observed? (Y/N) Y Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) Y Voucher? (Y/N) N  
 Comments Regarding Biology:  
Unidentified frogs, waterstriders, sow bugs, riffle beetles, water penny beetles, stonefly nymph and 2-line salamanders observed.

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



## 1. Fish:

Voucher Specimens Retained? (select)  NTime Spent (minutes): Sample Method No EvaluationStream Length Assessed (meters) 

Species	Number Caught	Notes
Blank	0	
Blank	0	
Blank	0	
Blank	0	
	0	
	0	
	0	
	0	

## 2. Salamanders:

Voucher Specimens Retained? (circle)  NTime Spent (minutes): Sample Method Dip Net + Hand SortingStream Length Assessed (meters) 

Species (Genus)	# Larvae	# Juveniles/Adults	Total Number
Mountain Dusky ( <i>Desmognathus ochrophaeus</i> )	0	0	0
Northern Dusky ( <i>Desmognathus fuscus</i> )	0	0	0
Two-lined ( <i>Eurycea bislineata</i> )	2	3	5
Long-tailed ( <i>Eurycea longicauda</i> )	0	0	0
Cave ( <i>Eurycea lucifuga</i> )	0	0	0
Red ( <i>Pseudotriton ruber</i> )	0	0	0
Mud ( <i>Pseudotriton montanus</i> )	0	0	0
Spring ( <i>Gyrinophilus porphyriticus</i> )	0	0	0
Mole spp. ( <i>Ambystoma spp.</i> )	0	0	0
Four-toed ( <i>Hemidactylium scutatum</i> )	0	0	0
Other (name) <input type="text"/>	0	0	0
<b>Total</b>	<b>2</b>	<b>3</b>	<b>5</b>

Notes on Vertebrates:

09/17/12

### 3. Macroinvertebrate Scoring Sheet:

#### THE HEADWATER MACROINVERTEBRATE FIELD EVALUATION INDEX (HMFEI) SCORING SHEET

Indicate Abundance of Each Taxa Above each White Box.

Record HMFEI Scoring Value Points Within each Box.

For EPT taxa, also indicate the different taxa present.

**Key: V = Very Abundant (> 50); A = Abundant (10 -50); C = Common (3 -9); R = Rare (< 3)**

Sessile Animals ( <b>Porifera</b> , <b>Cnidaria, Bryozoa</b> ) (HMFEI pts = 1)	Crayfish ( <b>Decapoda</b> ) (HMFEI pts = 2)	Fishfly Larvae ( <b>Corydalidae</b> ) (HMFEI pts = 3)
NA 0	NA 0	NA 0
Aquatic Worms ( <b>Turbellaria, Hirudinea</b> , <b>Oligochaeta</b> ) (HMFEI pts = 1)	Dragonfly Nymphs ( <b>Anisoptera</b> ) (HMFEI pts = 2)	Water Penny Beetles ( <b>Psephenidae</b> ) (HMFEI pts = 3)
NA 0	NA 0	C 3
Sow Bugs ( <b>Isopoda</b> ) (HMFEI pts = 1)	Riffle Beetles ( <b>Dryopidae</b> , <b>Elmidae, Ptilodactylidae</b> ) (HMFEI pts = 2)	Cranefly Larvae ( <b>Tipulidae</b> ) (HMFEI pts = 3)
R 1	R 2	NA 0
Scuds ( <b>Amphipoda</b> ) (HMFEI pts = 1)	Larvae of other Flies (enter name in comments) ( <b>Diptera</b> ): (HMFEI pts = 1)	<b>EPT TAXA*</b> Total No. EPT Taxa = <u>1</u>
NA 0	NA 0	
Water Mites ( <b>Hydracarina</b> ) (HMFEI pts = 1)	Midges ( <b>Chironomidae</b> ) (HMFEI pts = 1)	Mayfly Nymphs ( <b>Ephemeroptera</b> ) Taxa Present: <u>0</u> HMFEI pts = <u>NA</u> No. Taxa (x) 3] <u>0</u>
NA 0	NA 0	
Damselfly Nymphs ( <b>Zygoptera</b> ) (HMFEI pts = 1)	Snails ( <b>Gastropoda</b> ) (HMFEI pts = 1)	
NA 0	NA 0	
Alderfly Larvae ( <b>Sialidae</b> ) (HMFEI pts = 1)	Clams ( <b>Bivalvia</b> ) (HMFEI pts = 1)	Stonefly Nymphs ( <b>Plecoptera</b> ) Taxa Present: <u>1</u> HMFEI pts = <u>R</u> No. Taxa (x) 3] <u>3</u>
NA 0	NA 0	
Other Beetles ( <b>Coleoptera</b> ) (HMFEI pts = 1)	Other Taxa : <input type="text"/>	
NA 0		
Other Taxa: <input type="text"/>	Other Taxa: <input type="text"/>	Caddisfly Larvae ( <b>Trichoptera</b> ) Taxa Present: <u>0</u> HMFEI pts = <u>NA</u> No. Taxa (x) 3] <u>0</u>
Other Taxa: <input type="text"/>	Other Taxa <input type="text"/>	

\*Note: EPT identification based upon Family or Genus level of taxonomy

Voucher Sample ID  Time Spent (minutes): 20

Notes on Macroinvertebrates: (Predominant Organisms; Other Common Organisms; Diversity Estimate)

<input type="text"/>
<input type="text"/>

Final HMFEI Calculated Score (Sum of All White Box Scores) =

**9**

IF Final HMFEI Score is > 19, Then CLASS III PHWH STREAM  
 IF Final HMFEI Score is 7 to 19, Then CLASS II PHWH STREAM  
 IF Final HMFEI Score is < 7, Then CLASS I PHWH STREAM



SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **Stream 30** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.02**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.82505** LONG. **-82.85442** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **09/27/12** SCORER **JME** COMMENTS **Channel ends in project area.**

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	5%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	30%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	15%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	10%
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	35%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	5%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **20.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:** 12 **TOTAL NUMBER OF SUBSTRATE TYPES:** 6

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**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

**COMMENTS:** no water in channel despite rain early in day. **MAXIMUM POOL DEPTH (centimeters):** 0

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**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

**COMMENTS:** \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters):** 2.30

**HHEI Metric Points**

Substrate Max = 40

18

A + B

Pool Depth Max = 30

0

Bankfull Width Max=30

20

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream ☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY		L R	
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS: \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS: \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input checked="" type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**  Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)





SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **Stream 31** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.04**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.82388** LONG. **-82.85544** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **09/27/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

<b>1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A &amp; B.</b>				<b>HHEI Metric Points</b>  Substrate Max = 40  <span style="border: 1px solid black; padding: 5px; font-size: 1.2em;">17</span> A + B
<b>TYPE</b>		<b>PERCENT</b>		
<input type="checkbox"/> BLDR SLABS [16 pts]		5%	<input type="checkbox"/> SILT [3 pt]	
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		0%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	
<input type="checkbox"/> BEDROCK [16 pt]		0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]		10%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]		40%	<input type="checkbox"/> MUCK [0 pts]	
<input type="checkbox"/> SAND (<2 mm) [6 pts]		0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	
	Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock	15.00%	(A) 100% (B)	
<b>SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:</b> <span style="border: 1px solid black; padding: 2px;">12</span>		<b>TOTAL NUMBER OF SUBSTRATE TYPES:</b> <span style="border: 1px solid black; padding: 2px;">5</span>		
<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):</b>				Pool Depth Max = 30  <span style="border: 1px solid black; padding: 5px; font-size: 1.2em;">15</span>
<input type="checkbox"/> > 30 centimeters [20 pts]		<input checked="" type="checkbox"/> > 5 cm - 10 cm [15 pts]		
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]		<input type="checkbox"/> < 5 cm [5 pts]		
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]		<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]		
<b>COMMENTS</b> <span style="border: 1px solid black; padding: 2px;">1 natural plunge pool</span>		<b>MAXIMUM POOL DEPTH (centimeters):</b> <span style="border: 1px solid black; padding: 2px;">8</span>		
<b>3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):</b>				Bankfull Width Max=30  <span style="border: 1px solid black; padding: 5px; font-size: 1.2em;">20</span>
<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]		<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]		
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]		<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]		
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]				
<b>COMMENTS</b> _____		<b>AVERAGE BANKFULL WIDTH (meters):</b> <span style="border: 1px solid black; padding: 2px;">2.80</span>		

This information must also be completed

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

<b>RIPARIAN WIDTH</b>		<b>FLOODPLAIN QUALITY</b>			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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 Moist channel due to morning rain.

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

None  1.0  2.0  3.0

0.5  1.5  2.5  >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score: \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: Little Scioto River	Distance from Evaluated Stream	0.49
<input type="checkbox"/> CWH Name:	Distance from Evaluated Stream	
<input type="checkbox"/> EWH Name:	Distance from Evaluated Stream	

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: Minford NRCS Soil Map Page: 31 NRCS Soil Map Stream Order: 1  
County: Scioto Township / City: Harrison TWP

**MISCELLANEOUS**

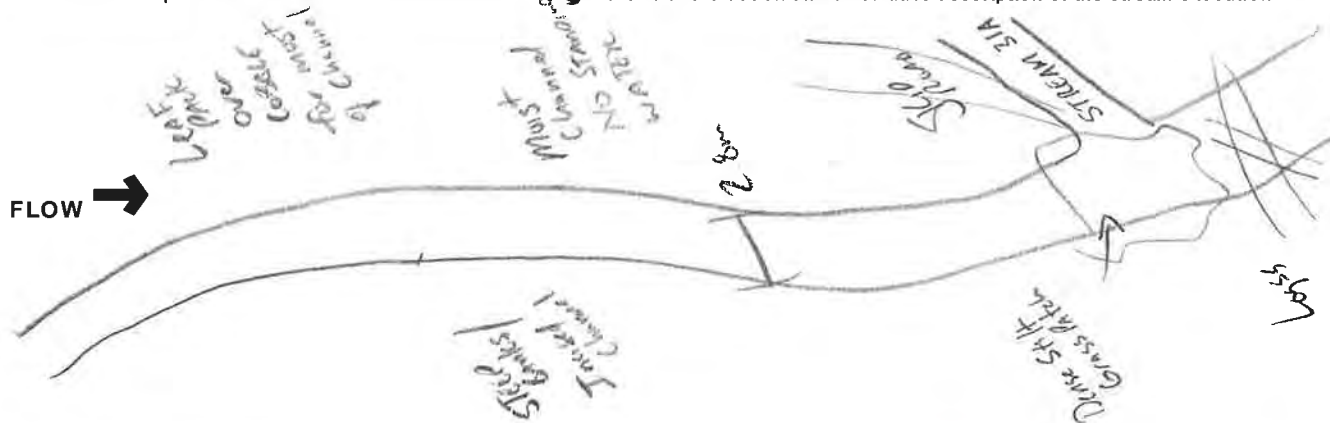
Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/26/12 Quantity: 0.45  
Photograph Information: See ESR.  
Elevated Turbidity? (Y/N): N Canopy (% open): 20%  
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: \_\_\_\_\_  
Field Measures: Temp (°C): 9.72 Dissolved Oxygen (mg/l): 6.30 pH (S.U.): 5.82 Conductivity (µmhos/cm): 0  
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): Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N): N Voucher? (Y/N): N Salamanders Observed? (Y/N): N Voucher? (Y/N): N  
Frogs or Tadpoles Observed? (Y/N): N Voucher? (Y/N): N Aquatic Macroinvertebrates Observed? (Y/N): N Voucher? (Y/N): N  
Comments Regarding Biology: No aquatic macroinvertebrates observed.

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



**HHEI Score (sum of metrics 1, 2, 3) :**

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **Stream 31A** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.00**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.82416** LONG. **-82.85427** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **09/27/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**     NONE / NATURAL CHANNEL     RECOVERED     RECOVERING     RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> <input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	35%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	5%	<input checked="" type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	50%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	10%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock    **5.00%**    (A)    100%    (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:** 3    **TOTAL NUMBER OF SUBSTRATE TYPES:** 4

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

**COMMENTS:** \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters):** 0

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> < 1.0 m (<= 3' 3") [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

**COMMENTS:** Stream was used as logging skid road.    **AVERAGE BANKFULL WIDTH (meters):** 2.50

**HHEI Metric Points**

Substrate Max = 40

7

A + B

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Pool Depth Max = 30

0

---

Bankfull Width Max=30

20

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY**    ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

**COMMENTS:** \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

**COMMENTS:** Moist channel, no pools. Rained earlier in the day.

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input checked="" type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)     Flat to Moderate     Moderate (2 ft/100 ft)     Moderate to Severe     Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED?  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <u>Little Scioto River</u>	Distance from Evaluated Stream	<u>0.51</u>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: Minford NRCS Soil Map Page: 31 NRCS Soil Map Stream Order 1  
County: Scioto Township / City: Harrison

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/26/12 Quantity: 0.45  
Photograph Information: See ESR.  
Elevated Turbidity? (Y/N): N Canopy (% open): 25%  
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
Is the sampling reach representative of the stream (Y/N) Y If not, please explain:  
Stream channel was used as logging road in the past.

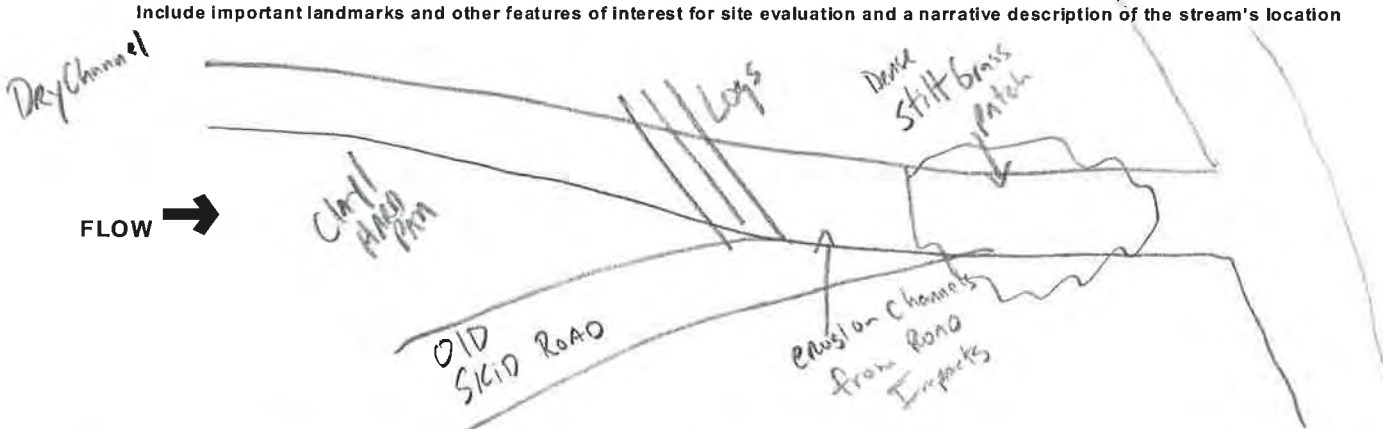
Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N): Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N  
Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N  
Comments Regarding Biology:  
Only terrestrial species observed.

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **Stream 32** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (m<sup>2</sup>) **0.03**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.82158** LONG. **-82.85690** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **10/03/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="checkbox"/> 5%	<input type="checkbox"/> <input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="checkbox"/> 25%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="checkbox"/> 20%	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="checkbox"/> 0%
<input checked="" type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="checkbox"/> 40%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="checkbox"/> 10%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="checkbox"/> 0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **25.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:** 12 **TOTAL NUMBER OF SUBSTRATE TYPES:** 5

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**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts] <input type="checkbox"/> > 22.5 - 30 cm [30 pts] <input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts] <input type="checkbox"/> < 5 cm [5 pts] <input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]
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**COMMENTS:** \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters):** 0

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**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts] <input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] <input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	<input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] <input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
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**COMMENTS:** \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters):** 1.30

**HHEI Metric Points**

Substrate Max = 40

17

A + B

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Pool Depth Max = 30

0

---

Bankfull Width Max=30

15

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH	FLOODPLAIN QUALITY	L R																								
<table border="0"> <tr><td><input checked="" type="checkbox"/> <input checked="" type="checkbox"/></td><td>Wide &gt;10m</td></tr> <tr><td><input type="checkbox"/> <input type="checkbox"/></td><td>Moderate 5-10m</td></tr> <tr><td><input type="checkbox"/> <input type="checkbox"/></td><td>Narrow &lt;5m</td></tr> <tr><td><input type="checkbox"/> <input type="checkbox"/></td><td>None</td></tr> </table>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	Wide >10m	<input type="checkbox"/> <input type="checkbox"/>	Moderate 5-10m	<input type="checkbox"/> <input type="checkbox"/>	Narrow <5m	<input type="checkbox"/> <input type="checkbox"/>	None	<table border="0"> <tr><td><input type="checkbox"/> <input type="checkbox"/></td><td>Mature Forest, Wetland</td></tr> <tr><td><input checked="" type="checkbox"/> <input checked="" type="checkbox"/></td><td>Immature Forest, Shrub or Old Field</td></tr> <tr><td><input type="checkbox"/> <input type="checkbox"/></td><td>Residential, Park, New Field</td></tr> <tr><td><input type="checkbox"/> <input type="checkbox"/></td><td>Fenced Pasture</td></tr> </table>	<input type="checkbox"/> <input type="checkbox"/>	Mature Forest, Wetland	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field	<input type="checkbox"/> <input type="checkbox"/>	Residential, Park, New Field	<input type="checkbox"/> <input type="checkbox"/>	Fenced Pasture	<table border="0"> <tr><td><input type="checkbox"/> <input type="checkbox"/></td><td>Conservation Tillage</td></tr> <tr><td><input type="checkbox"/> <input type="checkbox"/></td><td>Urban or Industrial</td></tr> <tr><td><input type="checkbox"/> <input type="checkbox"/></td><td>Open Pasture, Row Crop</td></tr> <tr><td><input type="checkbox"/> <input type="checkbox"/></td><td>Mining or Construction</td></tr> </table>	<input type="checkbox"/> <input type="checkbox"/>	Conservation Tillage	<input type="checkbox"/> <input type="checkbox"/>	Urban or Industrial	<input type="checkbox"/> <input type="checkbox"/>	Open Pasture, Row Crop	<input type="checkbox"/> <input type="checkbox"/>	Mining or Construction
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	Wide >10m																									
<input type="checkbox"/> <input type="checkbox"/>	Moderate 5-10m																									
<input type="checkbox"/> <input type="checkbox"/>	Narrow <5m																									
<input type="checkbox"/> <input type="checkbox"/>	None																									
<input type="checkbox"/> <input type="checkbox"/>	Mature Forest, Wetland																									
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field																									
<input type="checkbox"/> <input type="checkbox"/>	Residential, Park, New Field																									
<input type="checkbox"/> <input type="checkbox"/>	Fenced Pasture																									
<input type="checkbox"/> <input type="checkbox"/>	Conservation Tillage																									
<input type="checkbox"/> <input type="checkbox"/>	Urban or Industrial																									
<input type="checkbox"/> <input type="checkbox"/>	Open Pasture, Row Crop																									
<input type="checkbox"/> <input type="checkbox"/>	Mining or Construction																									

**COMMENTS:** \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing <input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent) <input type="checkbox"/> Dry channel, no water (Ephemeral)
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**COMMENTS:** \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None <input type="checkbox"/> 0.5	<input type="checkbox"/> 1.0 <input type="checkbox"/> 1.5	<input type="checkbox"/> 2.0 <input checked="" type="checkbox"/> 2.5	<input type="checkbox"/> 3.0 <input type="checkbox"/> >3
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**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <u>Little Scioto River</u>	Distance from Evaluated Stream: <u>0.52</u>
<input type="checkbox"/> CWH Name: _____	Distance from Evaluated Stream: _____
<input type="checkbox"/> EWH Name: _____	Distance from Evaluated Stream: _____

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: Minford NRCS Soil Map Page: 40 NRCS Soil Map Stream Order: 1  
 County: Scioto Township / City: Harrison TWP

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/02/12 Quantity: 0.12  
 Photograph Information: See ESR.  
 Elevated Turbidity? (Y/N): N Canopy (% open): 15%  
 Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: \_\_\_\_\_  
 Field Measures: Temp (°C) 11.06 Dissolved Oxygen (mg/l) 7.22 pH (S.U.) 6.66 Conductivity (µmhos/cm) 0  
 Is the sampling reach representative of the stream (Y/N): Y If not, please explain: \_\_\_\_\_

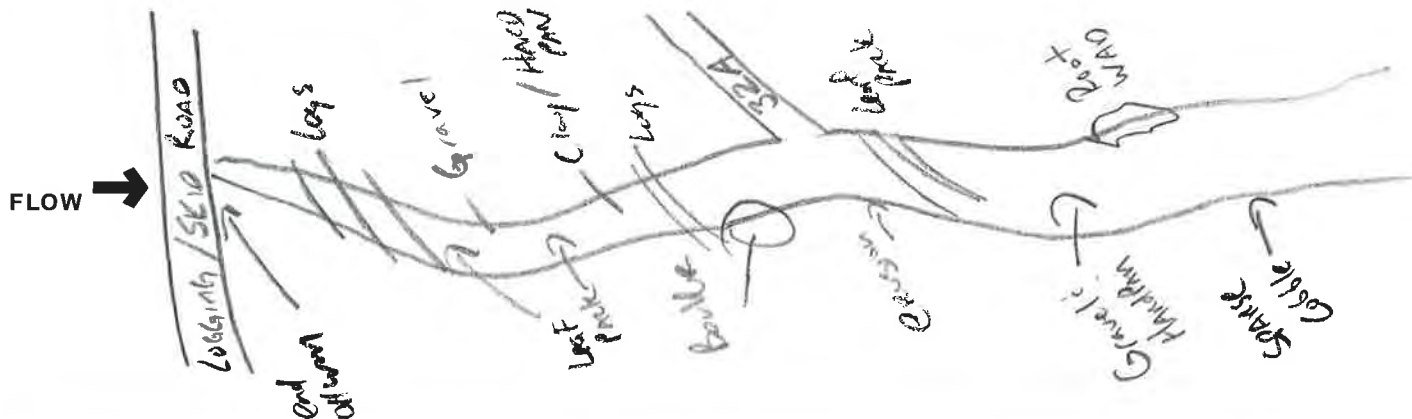
Additional comments/description of pollution impacts: \_\_\_\_\_

**BIOTIC EVALUATION**

Performed? (Y/N): Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
 Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N  
 Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N  
 Comments Regarding Biology: Only terrestrial species observed.

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **Stream 32A** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (m<sup>2</sup>) **0.00**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.82187** LONG. **-82.85653** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **10/03/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**     NONE / NATURAL CHANNEL     RECOVERED     RECOVERING     RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	<input type="checkbox"/> 5%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="checkbox"/> 0%	<input checked="" type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="checkbox"/> 35%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="checkbox"/> 10%	<input type="checkbox"/> <input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="checkbox"/> 25%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="checkbox"/> 20%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="checkbox"/> 5%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="checkbox"/> 0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **10.00%**    (A)    100%    (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:** 3    **TOTAL NUMBER OF SUBSTRATE TYPES:** 6

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

**COMMENTS:** No pools.    **MAXIMUM POOL DEPTH (centimeters):** 0

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (<= 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

**COMMENTS:** \_\_\_\_\_    **AVERAGE BANKFULL WIDTH (meters):** 1.50

**HHEI Metric Points**

Substrate Max = 40

9

A + B

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Pool Depth Max = 30

0

---

Bankfull Width Max=30

15

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY**    ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

**COMMENTS:** \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

**COMMENTS:** Moist channel, no pools. Rained previous day.

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)     Flat to Moderate     Moderate (2 ft/100 ft)     Moderate to Severe     Severe (10 ft/100 ft)



**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <u>Little Scioto River</u>	Distance from Evaluated Stream	<u>0.58</u>
<input type="checkbox"/> CWH Name: <u></u>	Distance from Evaluated Stream	<u></u>
<input type="checkbox"/> EWH Name: <u></u>	Distance from Evaluated Stream	<u></u>

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: Minford NRCS Soil Map Page: 40 NRCS Soil Map Stream Order 1  
 County: Scioto Township / City: Harrison TWP

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/02/12 Quantity: 0.12  
 Photograph Information: See ESR.  
 Elevated Turbidity? (Y/N): N Canopy (% open): 0%  
 Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:   
 Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
 Is the sampling reach representative of the stream (Y/N) Y If not, please explain:

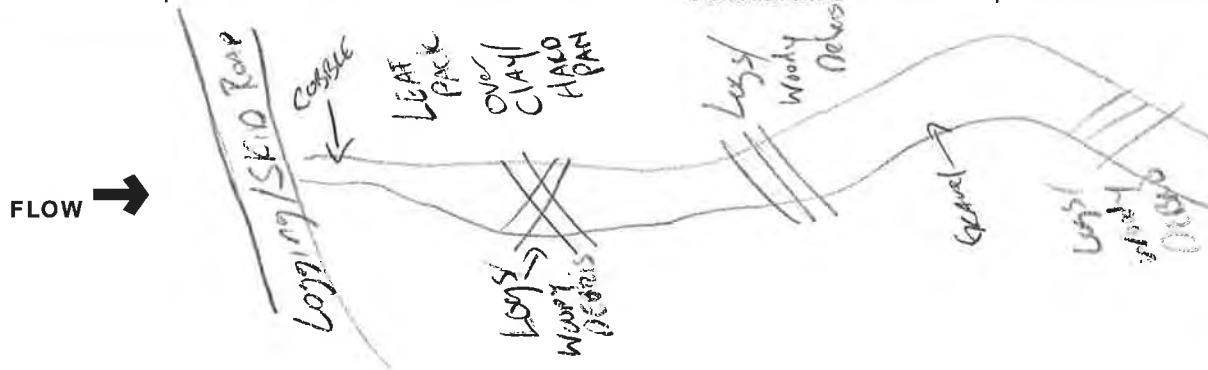
Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N): Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
 Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N  
 Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N  
 Comments Regarding Biology: Only terrestrial species observed.

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **Stream 32B** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.00**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.82190** LONG. **-82.85619** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **10/04/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**     NONE / NATURAL CHANNEL     RECOVERED     RECOVERING     RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	<input type="checkbox"/> 10%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="checkbox"/> 0%	<input checked="" type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="checkbox"/> 40%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="checkbox"/> 10%	<input type="checkbox"/> <input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="checkbox"/> 25%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="checkbox"/> 15%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="checkbox"/> 0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock    **20.00%**    (A)    100%    (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:** 3    **TOTAL NUMBER OF SUBSTRATE TYPES:** 5

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts] <input type="checkbox"/> > 22.5 - 30 cm [30 pts] <input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts] <input type="checkbox"/> < 5 cm [5 pts] <input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]
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COMMENTS \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters):** 0

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts] <input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] <input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] <input checked="" type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
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COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters):** 0.60

**HHEI Metric Points**

Substrate Max = 40

8

A + B

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Pool Depth Max = 30

0

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Bankfull Width Max=30

5

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY**    ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing <input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent) <input type="checkbox"/> Dry channel, no water (Ephemeral)
--	---

COMMENTS \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None <input type="checkbox"/> 0.5	<input checked="" type="checkbox"/> 1.0 <input type="checkbox"/> 1.5	<input type="checkbox"/> 2.0 <input type="checkbox"/> 2.5	<input type="checkbox"/> 3.0 <input type="checkbox"/> >3
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**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)   
  Flat to Moderate   
  Moderate (2 ft/100 ft)   
  Moderate to Severe   
  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <u>Little Scioto River</u>	Distance from Evaluated Stream	<u>0.52</u>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: Minford NRCS Soil Map Page: 40 NRCS Soil Map Stream Order 1  
 County: Scioto Township / City: Harrison TWP

**MISCELLANEOUS**

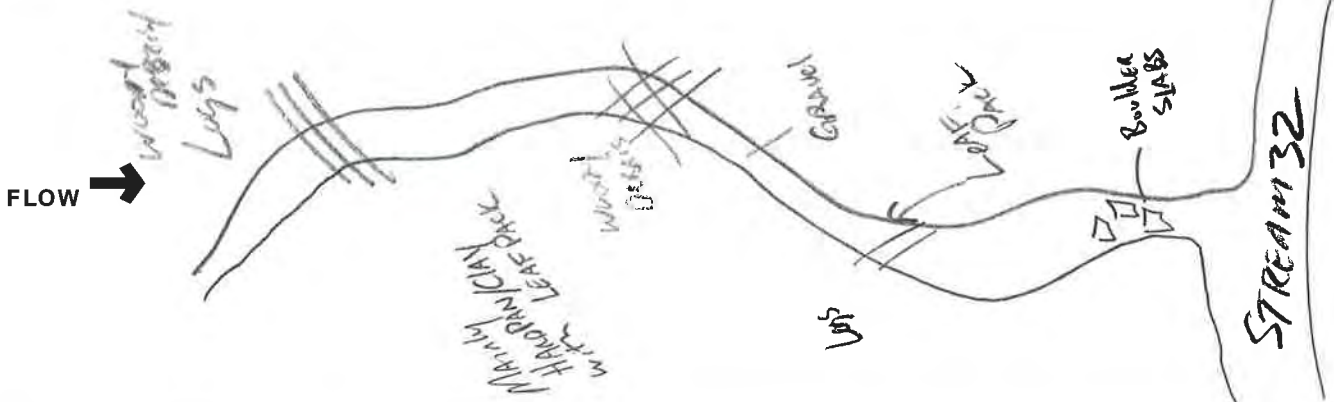
Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/02/12 Quantity: 0.12  
 Photograph Information: See ESR.  
 Elevated Turbidity? (Y/N): N Canopy (% open): 20%  
 Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:   
 Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
 Is the sampling reach representative of the stream (Y/N): Y If not, please explain:   
 Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N): Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
 Fish Observed? (Y/N): N Voucher? (Y/N): N Salamanders Observed? (Y/N): N Voucher? (Y/N): N  
 Frogs or Tadpoles Observed? (Y/N): N Voucher? (Y/N): N Aquatic Macroinvertebrates Observed? (Y/N): N Voucher? (Y/N): N  
 Comments Regarding Biology: No aquatic species observed.

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **Stream 32C** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.00**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.82193** LONG. **-82.85583** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **10/03/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> <input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	30%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input checked="" type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	30%	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	20%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	20%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **30.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15** **TOTAL NUMBER OF SUBSTRATE TYPES: 4**

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**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters): 0**

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**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input checked="" type="checkbox"/> ≤ 1.0 m (<= 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 0.90**

**HHEI Metric Points**

Substrate Max = 40

19

A + B

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Pool Depth Max = 30

0

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Bankfull Width Max=30

5

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream ☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <u>Little Scioto River</u>	Distance from Evaluated Stream	<u>0.52</u>
<input type="checkbox"/> CWH Name: <u></u>	Distance from Evaluated Stream	<u></u>
<input type="checkbox"/> EWH Name: <u></u>	Distance from Evaluated Stream	<u></u>

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: Minford NRCS Soil Map Page: 40 NRCS Soil Map Stream Order: 1  
 County: Scioto Township / City: Harrison

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/02/12 Quantity: 0.12  
 Photograph Information: See ESR.  
 Elevated Turbidity? (Y/N): N Canopy (% open): 25%  
 Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:   
 Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
 Is the sampling reach representative of the stream (Y/N) Y If not, please explain:

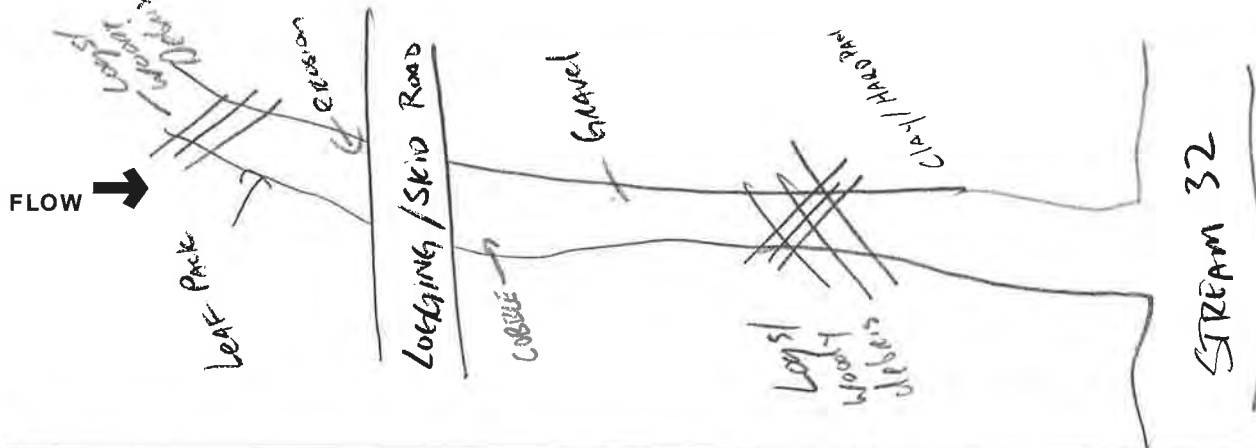
Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N): Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
 Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N  
 Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N  
 Comments Regarding Biology: No aquatic species observed.

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **Stream 32D** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.00**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.82223** LONG. **-82.85537** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **10/04/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	<input type="checkbox"/> 10%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="checkbox"/> 0%	<input checked="" type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="checkbox"/> 35%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="checkbox"/> 20%	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="checkbox"/> 10%
<input type="checkbox"/> <input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="checkbox"/> 25%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="checkbox"/> 0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **30.00%** (A) 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **12** TOTAL NUMBER OF SUBSTRATE TYPES: **5**

**HHEI Metric Points**

Substrate Max = 40

**17**

A + B

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): **0**

Pool Depth Max = 30

**0**

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input checked="" type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): **0.60**

Bankfull Width Max=30

**5**

This information must also be completed

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank)	(Most Predominant per Bank)			Conservation Tillage	
Wide >10m	Mature Forest, Wetland	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop	
Moderate 5-10m	Immature Forest, Shrub or Old Field	<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Narrow <5m	Residential, Park, New Field				
<input type="checkbox"/>	<input type="checkbox"/>				
None	Fenced Pasture				

COMMENTS: Previously logged.

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS: \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input checked="" type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**  Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <u>Little Scioto River</u>	Distance from Evaluated Stream	<u>0.52</u>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: Minford NRCS Soil Map Page: 40 NRCS Soil Map Stream Order: 1  
County: Scioto Township / City: Harrison TWP

**MISCELLANEOUS**

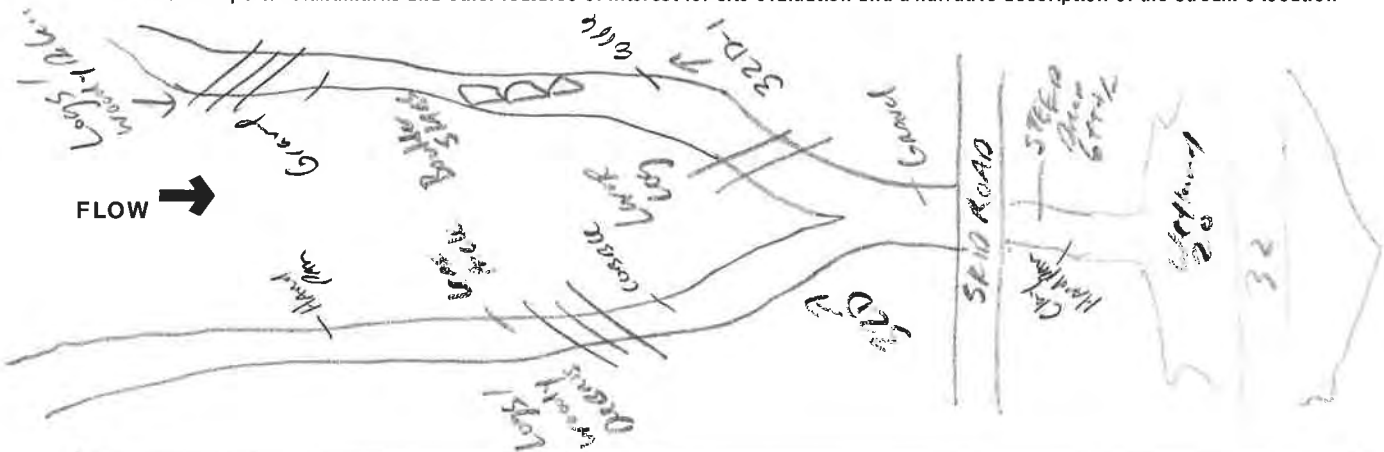
Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/02/12 Quantity: 0.12  
Photograph Information: See ESR.  
Elevated Turbidity? (Y/N): N Canopy (% open): 15%  
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: 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): Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N): N Voucher? (Y/N): N Salamanders Observed? (Y/N): N Voucher? (Y/N): N  
Frogs or Tadpoles Observed? (Y/N): N Voucher? (Y/N): N Aquatic Macroinvertebrates Observed? (Y/N): N Voucher? (Y/N): N  
Comments Regarding Biology: No aquatic species observed.

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **32D1** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.00**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.82246** LONG. **-82.85534** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **10/04/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	10%	<input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	35%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	20%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	10%
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	25%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **30.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:** 12 **TOTAL NUMBER OF SUBSTRATE TYPES:** 5

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**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

**COMMENTS:** \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters):** 0

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**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input checked="" type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

**COMMENTS:** \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters):** 0.60

**HHEI Metric Points**

Substrate Max = 40

17

A + B

Pool Depth Max = 30

0

Bankfull Width Max=30

5

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS Previously logged.

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input checked="" type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)



**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: Little Scioto River	Distance from Evaluated Stream	0.52
<input type="checkbox"/> CWH Name:	Distance from Evaluated Stream	
<input type="checkbox"/> 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:

**MISCELLANEOUS**

Base Flow Conditions? (Y/N):  Y Date of last precipitation:  Quantity:   
Photograph Information:   
Elevated Turbidity? (Y/N):  N Canopy (% open):   
Were samples collected for water chemistry? (Y/N):  N (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
Is the sampling reach representative of the stream (Y/N):  Y If not, please explain:   
Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N):  Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N)  N Voucher? (Y/N)  N Salamanders Observed? (Y/N)  N Voucher? (Y/N)  N  
Frogs or Tadpoles Observed? (Y/N)  N Voucher? (Y/N)  N Aquatic Macroinvertebrates Observed? (Y/N)  N Voucher? (Y/N)  N  
Comments Regarding Biology:

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

SEE STREAM 32D  
DRAWING

FLOW →





# Primary Headwater Habitat Evaluation Form

**51**

HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **Stream 33** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.13**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.81974** LONG. **-82.85774** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **10/04/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	<input type="checkbox"/> 5%	<input type="checkbox"/> SILT [3 pt]	<input type="checkbox"/> 0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="checkbox"/> 15%
<input type="checkbox"/> BEDROCK [16 pt]	<input type="checkbox"/> 0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="checkbox"/> 0%
<input checked="" type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="checkbox"/> 25%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="checkbox"/> 20%
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="checkbox"/> 35%	<input type="checkbox"/> MUCK [0 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="checkbox"/> 0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **30.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 21** **TOTAL NUMBER OF SUBSTRATE TYPES: 5**

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters): 0**

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input checked="" type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS **Braided channel in portion of stream** **AVERAGE BANKFULL WIDTH (meters): 3.20**

**HHEI Metric Points**

Substrate Max = 40

**26**

A + B

Pool Depth Max = 30

**0**

Bankfull Width Max=30

**25**

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank) Wide >10m		(Most Predominant per Bank) Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS **Moist channel, no pools.**

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input checked="" type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED?  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <u>Little Scioto River</u>	Distance from Evaluated Stream	<u>0.52</u>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: Minford NRCS Soil Map Page: 40 NRCS Soil Map Stream Order: 2  
County: Scioto Township / City: Harrison TWP

**MISCELLANEOUS**

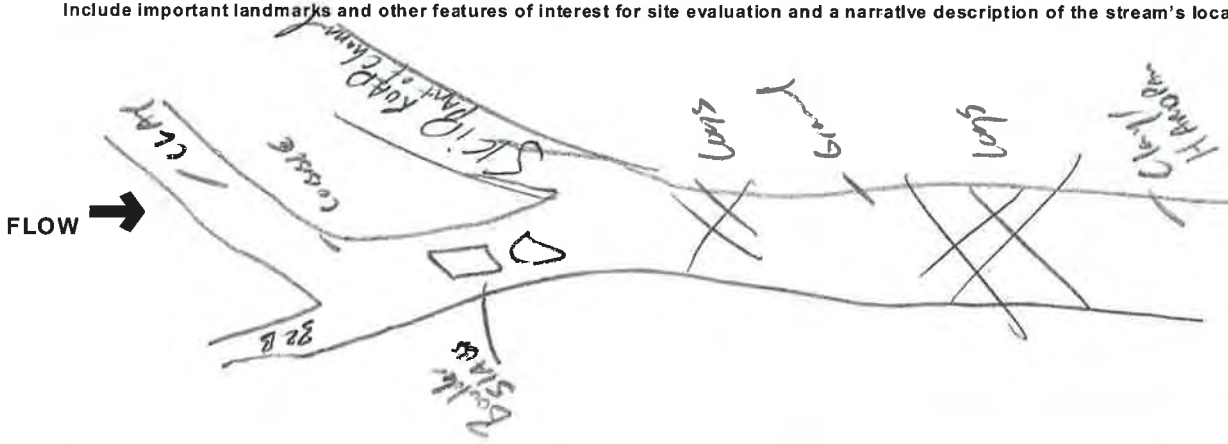
Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/02/12 Quantity: 0.12  
Photograph Information: See ESR.  
Elevated Turbidity? (Y/N): N Canopy (% open): 50%  
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
Is the sampling reach representative of the stream (Y/N) Y If not, please explain:   
Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N): Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N): N Voucher? (Y/N): N Salamanders Observed? (Y/N): N Voucher? (Y/N): N  
Frogs or Tadpoles Observed? (Y/N): N Voucher? (Y/N): N Aquatic Macroinvertebrates Observed? (Y/N): N Voucher? (Y/N): N  
Comments Regarding Biology: No aquatic species observed.

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **Stream 33A**

RIVER BASIN

DRAINAGE AREA (mi<sup>2</sup>) **0.00**

LENGTH OF STREAM REACH (ft)

LAT. **38.82135**

LONG. **-82.85796**

RIVER CODE

RIVER MILE

DATE **10/03/12**

SCORER **JME**

COMMENTS

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**

NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	<input type="checkbox"/> 5%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="checkbox"/> 0%	<input checked="" type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input checked="" type="checkbox"/> 40%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input checked="" type="checkbox"/> 15%	<input type="checkbox"/> <input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	<input checked="" type="checkbox"/> 25%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input checked="" type="checkbox"/> 15%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	<input type="checkbox"/> 0%
<input checked="" type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="checkbox"/> 0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **20.00%** (A)

100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **3**

TOTAL NUMBER OF SUBSTRATE TYPES: **5**

**HHEI Metric Points**

Substrate Max = 40

**8**

A + B

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): **0**

Pool Depth Max = 30

**0**

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): **1.40**

Bankfull Width Max=30

**15**

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank)		(Most Predominant per Bank)		Conservation Tillage	
Wide >10m		Mature Forest, Wetland		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field	
Moderate 5-10m		Field		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field	
Narrow <5m		Fenced Pasture		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>			Open Pasture, Row Crop	
None				<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>			Mining or Construction	

COMMENTS \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input checked="" type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Little Scioto River</b>	Distance from Evaluated Stream	<b>0.59</b>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: **Minford** NRCS Soil Map Page: **40** NRCS Soil Map Stream Order: **1**  
 County: **Scioto** Township / City: **Harrison TWP**

**MISCELLANEOUS**

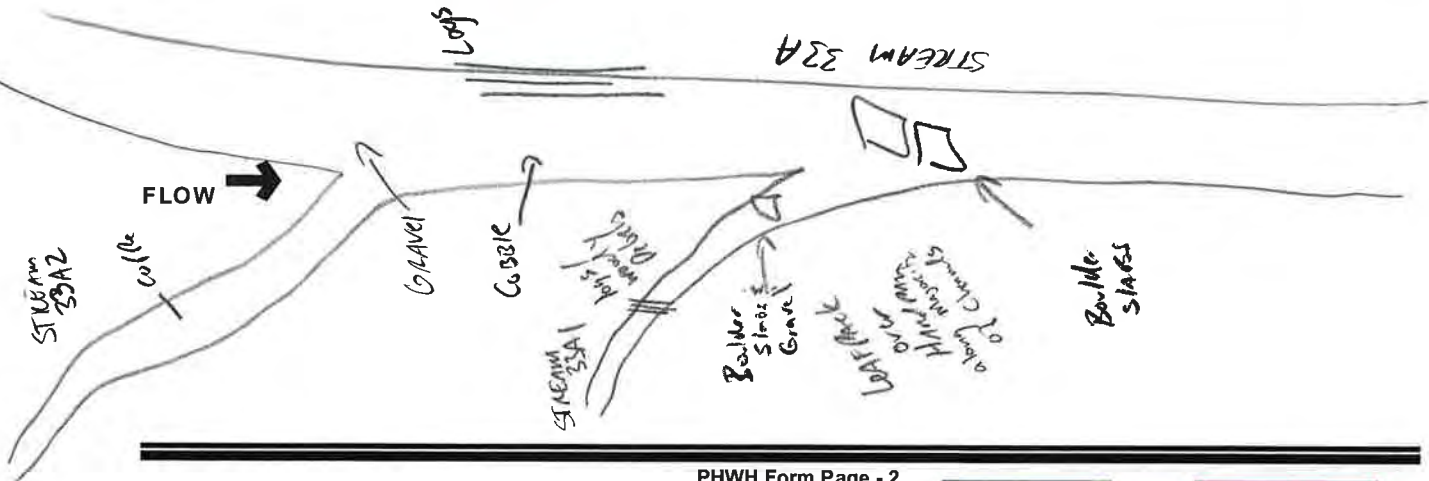
Base Flow Conditions? (Y/N):  Y Date of last precipitation: **10/02/12** Quantity: **0.12**  
 Photograph Information: **See ESR.**  
 Elevated Turbidity? (Y/N):  N Canopy (% open): **15%**  
 Were samples collected for water chemistry? (Y/N):  N (Note lab sample no. or id. and attach results) Lab Number:   
 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):  Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
 Fish Observed? (Y/N)  N Voucher? (Y/N)  N Salamanders Observed? (Y/N)  N Voucher? (Y/N)  N  
 Frogs or Tadpoles Observed? (Y/N)  N Voucher? (Y/N)  N Aquatic Macroinvertebrates Observed? (Y/N)  N Voucher? (Y/N)  N  
 Comments Regarding Biology:  
**No aquatic species observed.**

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **33A2**

RIVER BASIN

DRAINAGE AREA (mi<sup>2</sup>) **0.00**

LENGTH OF STREAM REACH (ft)

LAT. **38.82135**

LONG. **-82.85796**

RIVER CODE

RIVER MILE

DATE **10/03/12**

SCORER **JME**

COMMENTS

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**

NONE / NATURAL CHANNEL

RECOVERED

RECOVERING

RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	<input type="checkbox"/> 5%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="checkbox"/> 0%	<input checked="" type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="checkbox"/> 40%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="checkbox"/> 15%	<input type="checkbox"/> <input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="checkbox"/> 25%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="checkbox"/> 15%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="checkbox"/> 0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **20.00%** (A)

100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **3**

TOTAL NUMBER OF SUBSTRATE TYPES: **5**

**HHEI Metric Points**

Substrate Max = 40

**8**

A + B

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): **0**

Pool Depth Max = 30

**0**

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input checked="" type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): **0.80**

Bankfull Width Max=30

**5**

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank)	Wide >10m	(Most Predominant per Bank)	Mature Forest, Wetland	Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS: \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS: \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input checked="" type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)

Flat to Moderate

Moderate (2 ft/100 ft)

Moderate to Severe

Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <input type="text" value="Little Scioto River"/>	Distance from Evaluated Stream: <input type="text" value="0.59"/>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream: <input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream: <input type="text"/>

**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:

**MISCELLANEOUS**

Base Flow Conditions? (Y/N):  Date of last precipitation:  Quantity:   
Photograph Information:   
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):   
Frogs or Tadpoles Observed? (Y/N):  Voucher? (Y/N):  Aquatic Macroinvertebrates Observed? (Y/N):  Voucher? (Y/N):   
Comments Regarding Biology:

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

*SEE STREAM 33A drawing*



HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **Stream 33B** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.04**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.82059** LONG. **-82.85901** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **10/03/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input checked="" type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	40%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	10%	<input type="checkbox"/> <input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	30%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	20%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **10.00%** (A) (B) **100%**

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3** **TOTAL NUMBER OF SUBSTRATE TYPES: 4**

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**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters): 0**

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**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input checked="" type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 0.80**

**HHEI Metric Points**

Substrate Max = 40

7

A + B

---

Pool Depth Max = 30

0

---

Bankfull Width Max=30

5

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input checked="" type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)



**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <input type="text" value="Little Scioto River"/>	Distance from Evaluated Stream	<input type="text" value="0.51"/>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

**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:

**MISCELLANEOUS**

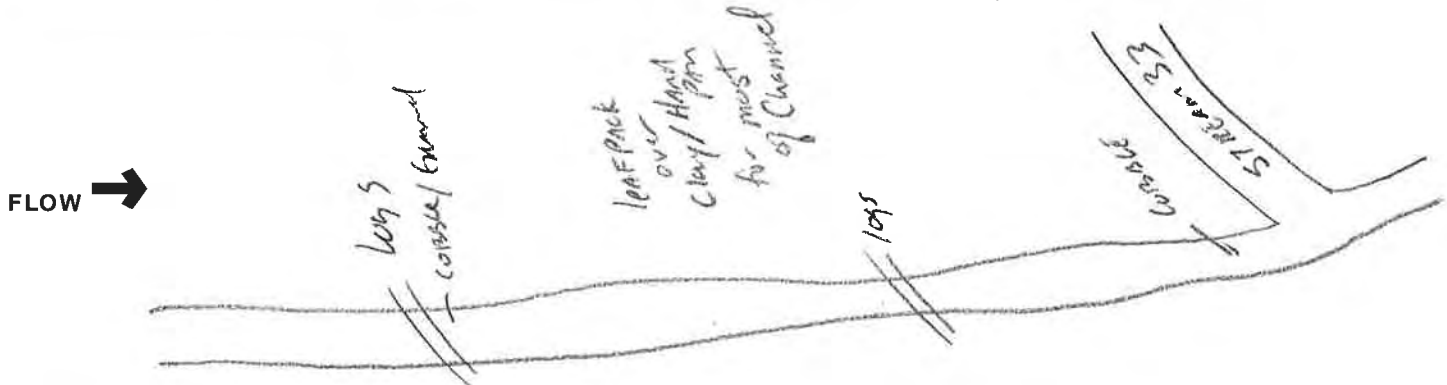
Base Flow Conditions? (Y/N):  Y Date of last precipitation:  Quantity:   
Photograph Information:   
Elevated Turbidity? (Y/N):  N Canopy (% open):   
Were samples collected for water chemistry? (Y/N):  N (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C):  Dissolved Oxygen (mg/l):  pH (S.U.):  Conductivity (µmhos/cm):   
Is the sampling reach representative of the stream (Y/N):  Y If not, please explain:   
Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N):  Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N):  N Voucher? (Y/N):  N Salamanders Observed? (Y/N):  N Voucher? (Y/N):  N  
Frogs or Tadpoles Observed? (Y/N):  N Voucher? (Y/N):  N Aquatic Macroinvertebrates Observed? (Y/N):  N Voucher? (Y/N):  N  
Comments Regarding Biology:

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



Stream & Location: STREAM 34- SCI-823-0.00 RM: Date: 10/3/12

Scorers Full Name & Affiliation: Jason Enck - ASC Group

River Code: STORET #: Lat./Long.: 38.81643 182.85980 Office verified location

1] SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present. Check ONE (Or 2 & average). BEST TYPES: BLDR /SLABS [10], BOULDER [9], COBBLE [8], GRAVEL [7], SAND [6], BEDROCK [5]. OTHER TYPES: HARDPAN [4], DETRITUS [3], MUCK [2], SILT [2], ARTIFICIAL [0]. ORIGIN: LIMESTONE [1], TILLS [1], WETLANDS [0], HARDPAN [0], SANDSTONE [0], RIP/RAP [0], LACUSTURINE [0], SHALE [-1], COAL FINES [-2]. QUALITY: HEAVY [-2], MODERATE [-1], NORMAL [0], FREE [1], EXTENSIVE [-2], MODERATE [-1], NORMAL [0], NONE [1]. Substrate Maximum 20. Score: 17.

2] INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts. AMOUNT: Check ONE (Or 2 & average). UNDERCUT BANKS [1], OVERHANGING VEGETATION [1], SHALLOWS (IN SLOW WATER) [1], ROOTMATS [1]. POOLS > 70cm [2], ROOTWADS [1], BOULDERS [1]. OXBOWS, BACKWATERS [1], AQUATIC MACROPHYTES [1], LOGS OR WOODY DEBRIS [1]. EXTENSIVE >75% [11], MODERATE 25-75% [7], SPARSE 5-<25% [3], NEARLY ABSENT <5% [1]. Cover Maximum 20. Score: 15.

3] CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average). SINUOSITY: HIGH [4], MODERATE [3], LOW [2], NONE [1]. DEVELOPMENT: EXCELLENT [7], GOOD [5], FAIR [3], POOR [1]. CHANNELIZATION: NONE [6], RECOVERED [4], RECOVERING [3], RECENT OR NO RECOVERY [1]. STABILITY: HIGH [3], MODERATE [2], LOW [1]. Channel Maximum 20. Score: 14.

4] BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average). River right looking downstream. EROSION: NONE / LITTLE [3], MODERATE [2], HEAVY / SEVERE [1]. RIPARIAN WIDTH: WIDE > 50m [4], MODERATE 10-50m [3], NARROW 5-10m [2], VERY NARROW < 5m [1], NONE [0]. FLOOD PLAIN QUALITY: FOREST, SWAMP [3], SHRUB OR OLD FIELD [2], RESIDENTIAL, PARK, NEW FIELD [1], FENCED PASTURE [1], OPEN PASTURE, ROWCROP [0]. CONSERVATION TILLAGE [1], URBAN OR INDUSTRIAL [0], MINING / CONSTRUCTION [0]. Indicate predominant land use(s) past 100m riparian. Riparian Maximum 10. Score: 8.

5] POOL / GLIDE AND RIFFLE / RUN QUALITY. MAXIMUM DEPTH: > 1m [6], 0.7-<1m [4], 0.4-<0.7m [2], 0.2-<0.4m [1], < 0.2m [0]. CHANNEL WIDTH: POOL WIDTH > RIFFLE WIDTH [2], POOL WIDTH = RIFFLE WIDTH [1], POOL WIDTH < RIFFLE WIDTH [0]. CURRENT VELOCITY: TORRENTIAL [-1], VERY FAST [1], FAST [1], MODERATE [1], SLOW [1], INTERSTITIAL [-1], INTERMITTENT [-2], EDDIES [1]. Indicate for reach - pools and riffles. Recreation Potential: Primary Contact, Secondary Contact. Pool / Current Maximum 12. Score: 5.

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Check ONE (Or 2 & average). NO RIFFLE [metric=0]. RIFFLE DEPTH: BEST AREAS > 10cm [2], BEST AREAS 5-10cm [1], BEST AREAS < 5cm [metric=0]. RUN DEPTH: MAXIMUM > 50cm [2], MAXIMUM < 50cm [1]. RIFFLE / RUN SUBSTRATE: STABLE (e.g., Cobble, Boulder) [2], MOD. STABLE (e.g., Large Gravel) [1], UNSTABLE (e.g., Fine Gravel, Sand) [0]. RIFFLE / RUN EMBEDDEDNESS: NONE [2], LOW [1], MODERATE [0], EXTENSIVE [-1]. Riffle / Run Maximum 8. Score: 0.

6] GRADIENT ( 10 ft/mi) DRAINAGE AREA ( 1.53 mi^2). VERY LOW - LOW [2-4], MODERATE [6-10], HIGH - VERY HIGH [10-6]. %POOL: 60, %GLIDE: 25, %RUN: , %RIFFLE: 15. Gradient Maximum 10. Score: 6.

**A) SAMPLED REACH**

Check ALL that apply

Comment RE: Reach consistency/Is reach typical of stream?, Recreation/ Observed - Inferred, Other/ Sampling observations, Concerns, Access directions, etc.

**METHOD**

- BOAT
- WADE
- L. LINE
- OTHER

**STAGE**

- HIGH
- UP
- NORMAL
- LOW
- DRY

**DISTANCE**

- 0.5 Km
- 0.2 Km
- 0.15 Km
- 0.12 Km
- OTHER

**CLARITY**

- 1st --sample pass-- 2nd
- < 20 cm
  - 20-<40 cm
  - 40-70 cm
  - > 70 cm/CTB
  - SECCCHI DEPTH

**B) AESTHETICS**

- NUISANCE ALGAE
- INVASIVE MACROPHYTES
- EXCESS TURBIDITY
- DISCOLORATION
- FOAM / SCUM
- OIL SHEEN
- TRASH / LITTER
- NUISANCE ODOR
- SLUDGE DEPOSITS
- CSOS/ISSOS/OUTFALLS

**D) MAINTENANCE**

- PUBLIC / PRIVATE / BOTH / NA
- ACTIVE / HISTORIC / BOTH / NA
- YOUNG-SUCCESSION-OLD
- SPRAY / SNAG / REMOVED
- MODIFIED / DIPPED OUT / NA
- LEVEED / ONE SIDED
- RELOCATED / CUTOFFS
- MOVING-BEDLOAD-STABLE
- ARMOURED / SLUMPS
- ISLANDS / SCoured
- IMPOUNDED / DESICCATED
- FLOOD CONTROL / DRAINAGE

Circle some & COMMENT

**E) ISSUES**

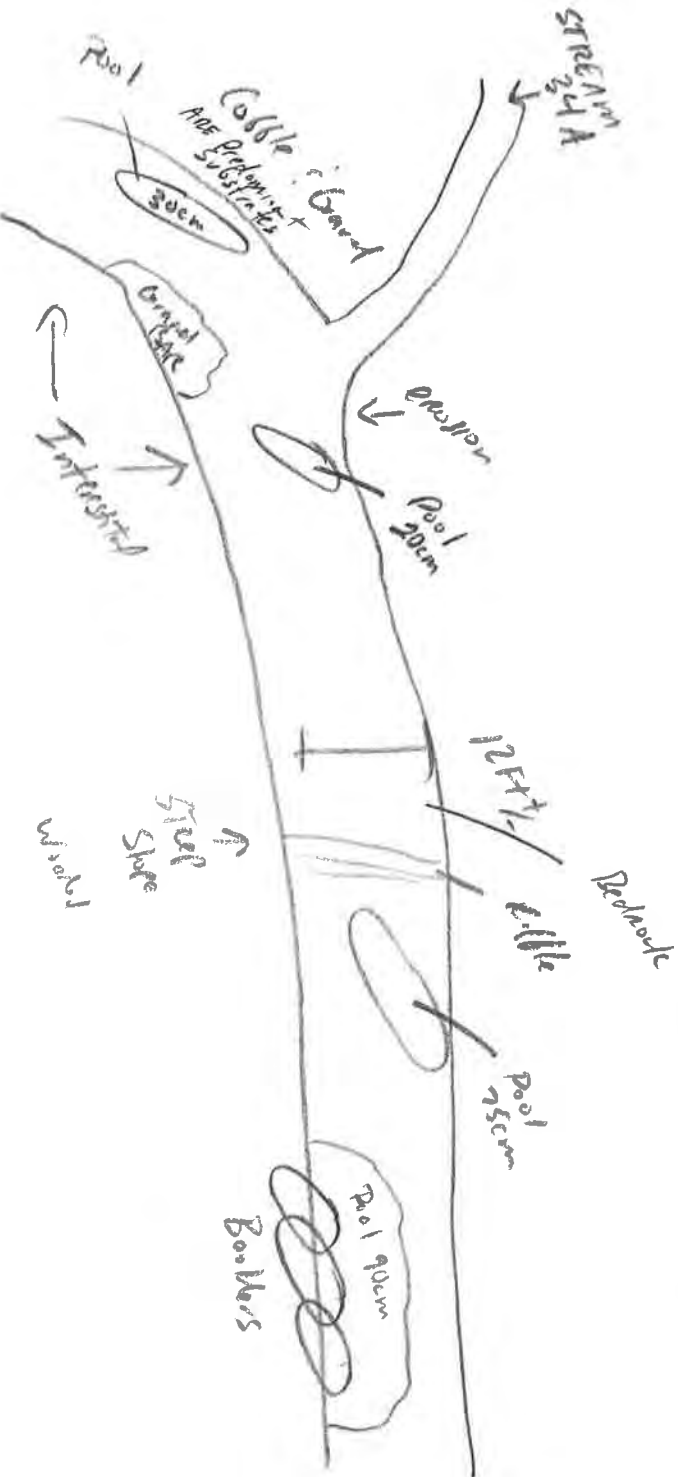
- WWTP / CSO / NPDES / INDUSTRY
- HARDENED / URBAN / DIRT&GRIME
- CONTAMINATED / LANDFILL
- BMPs-CONSTRUCTION-SEDIMENT
- LOGGING / IRRIGATION / COOLING
- BANK / EROSION / SURFACE
- FALSE BANK / MANURE / LAGOON
- WASH H<sub>2</sub>O / TILE / H<sub>2</sub>O TABLE
- ACID / MINE / QUARRY / FLOW
- NATURAL / WETLAND / STAGNANT
- PARK / GOLF / LAWN / HOME
- ATMOSPHERE / DATA PAUCITY

**F) MEASUREMENTS**

- $\bar{x}$  width
- $\bar{x}$  depth
- max. depth
- $\bar{x}$  bankfull width
- bankfull  $\bar{x}$  depth
- W/D ratio
- bankfull max. depth
- floodprone  $\bar{x}$  width
- entrench. ratio

Legacy Tree:

**Stream Drawing:**



- > 85% OPEN
- 55%<-85%
- 30%<-55%
- 10%<-30%
- <10% CLOSED

**C) RECREATION**

- AREA
- DEPTH
- POOL:  >100ft  >3ft

HHEI Score (sum of metrics 1, 2, 3):

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **Stream 34A** RIVER BASIN: \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.54**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.81683** LONG. **-82.86094** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **10/03/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	1%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	4%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> <input checked="" type="checkbox"/> COBBLE (65-256 mm) [12 pts]	35%	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	0%
<input checked="" type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	55%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	5%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **36.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 21** **TOTAL NUMBER OF SUBSTRATE TYPES: 5**

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input checked="" type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS **one pool** **MAXIMUM POOL DEPTH (centimeters): 5**

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input checked="" type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (<= 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 3.20**

**HHEI Metric Points**

Substrate Max = 40

26

A + B

Pool Depth Max = 30

5

Bankfull Width Max=30

25

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank) Wide >10m		(Most Predominant per Bank) Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS **Only one pool in sample reach.**

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input checked="" type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Little Scioto River</b>	Distance from Evaluated Stream	<b>0.58</b>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: **Minford** NRCS Soil Map Page: **39** NRCS Soil Map Stream Order: **3**  
County: **Scioto** Township / City: **Harrison TWP**

**MISCELLANEOUS**

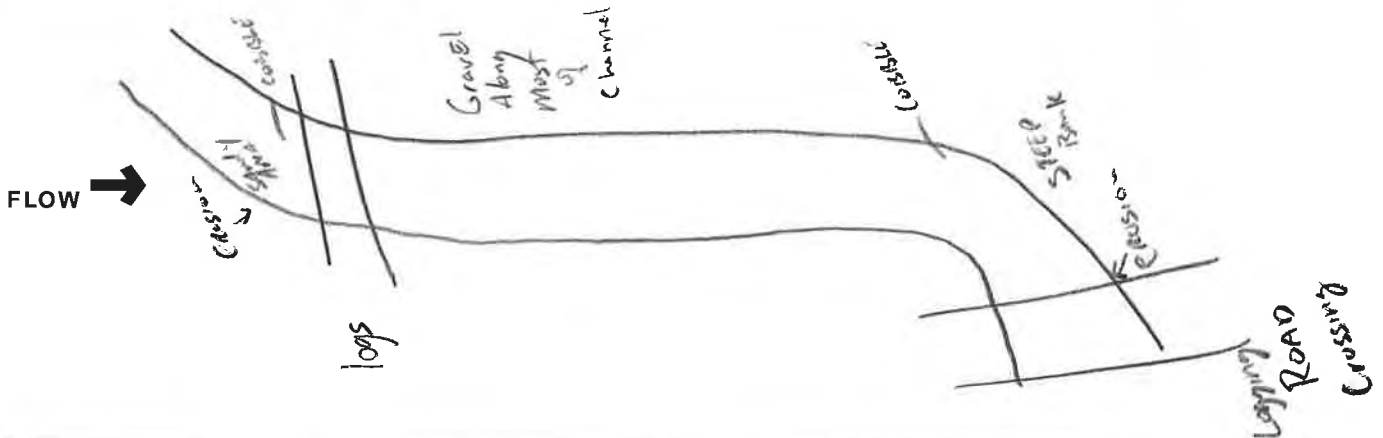
Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **10/02/12** Quantity: **0.12**  
Photograph Information: **See ESR.**  
Elevated Turbidity? (Y/N): **N** Canopy (% open): **15%**  
Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C) **10.94** Dissolved Oxygen (mg/l) **2.20** pH (S.U.) **5.33** Conductivity (µmhos/cm) **0**  
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): **Y** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N): **N** Voucher? (Y/N): **N** Salamanders Observed? (Y/N): **N** Voucher? (Y/N): **N**  
Frogs or Tadpoles Observed? (Y/N): **N** Voucher? (Y/N): **N** Aquatic Macroinvertebrates Observed? (Y/N): **N** Voucher? (Y/N): **N**  
Comments Regarding Biology: **No aquatic species observed.**

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



**HHEI Score (sum of metrics 1, 2, 3) :**

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **Stream 34B** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.00**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. \_\_\_\_\_ LONG. \_\_\_\_\_ RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **10/04/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	15%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	20%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	10%	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	25%
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	30%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **25.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:** 9 **TOTAL NUMBER OF SUBSTRATE TYPES:** 5

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

**COMMENTS:** \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters):** 0

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input checked="" type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

**COMMENTS:** \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters):** 0.90

**HHEI Metric Points**

Substrate Max = 40

14

A + B

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Pool Depth Max = 30

0

---

Bankfull Width Max=30

5

This information must also be completed

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L R	(Per Bank)	L R	(Most Predominant per Bank)	L R	
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	Wide >10m	<input type="checkbox"/> <input type="checkbox"/>	Mature Forest, Wetland	<input type="checkbox"/> <input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/> <input type="checkbox"/>	Moderate 5-10m	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field	<input type="checkbox"/> <input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/> <input type="checkbox"/>	Narrow <5m	<input type="checkbox"/> <input type="checkbox"/>	Residential, Park, New Field	<input type="checkbox"/> <input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/> <input type="checkbox"/>	None	<input type="checkbox"/> <input type="checkbox"/>	Fenced Pasture	<input type="checkbox"/> <input type="checkbox"/>	Mining or Construction

**COMMENTS:** \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry channel, no water (Ephemeral)

**COMMENTS:** \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <u>Little Scioto River</u>	Distance from Evaluated Stream	<u>0.69</u>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: Minford NRCS Soil Map Page: 40 NRCS Soil Map Stream Order 1  
 County: Scioto Township / City: Harrison TWP

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/02/12 Quantity: 0.12  
 Photograph Information: See ESR.  
 Elevated Turbidity? (Y/N): N Canopy (% open): 25%  
 Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:   
 Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
 Is the sampling reach representative of the stream (Y/N): Y If not, please explain:

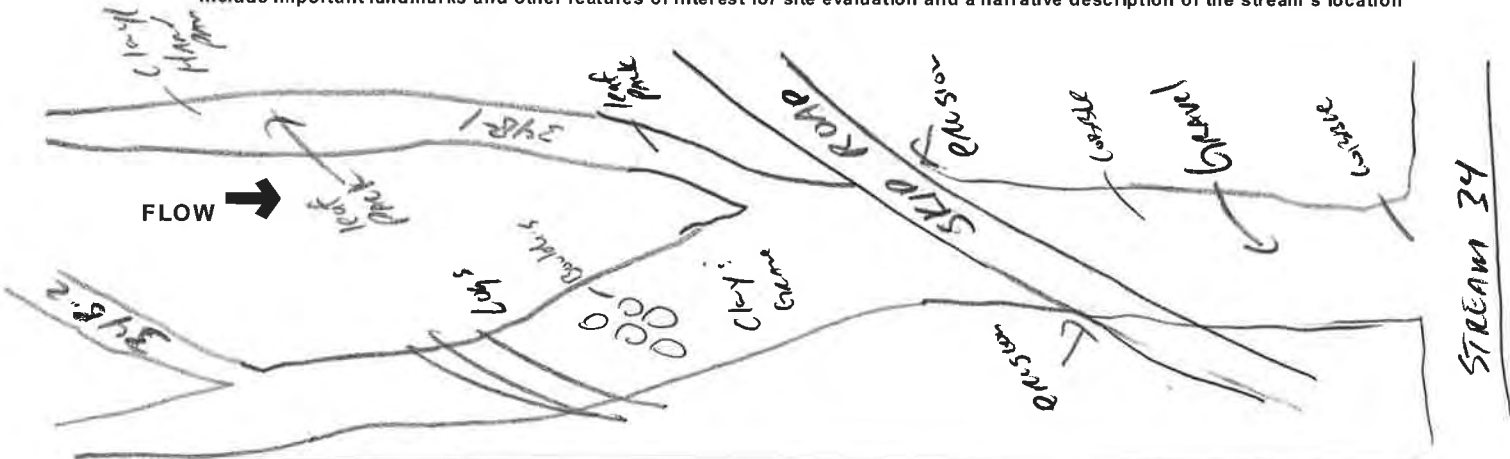
Additional comments/description of pollution impacts:  
Trash dumped in channel.

**BIOTIC EVALUATION**

Performed? (Y/N): Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
 Fish Observed? (Y/N): N Voucher? (Y/N): N Salamanders Observed? (Y/N): N Voucher? (Y/N): N  
 Frogs or Tadpoles Observed? (Y/N): N Voucher? (Y/N): N Aquatic Macroinvertebrates Observed? (Y/N): N Voucher? (Y/N): N  
 Comments Regarding Biology:  
No aquatic species observed.

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **34B1** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.00**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.81490** LONG. **-82.86065** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **10/04/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	10%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> <input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	30%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	5%	<input checked="" type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	35%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	20%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **15.00%** (A) 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **3** TOTAL NUMBER OF SUBSTRATE TYPES: **5**

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): **0**

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input checked="" type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): **0.40**

**HHEI Metric Points**

Substrate Max = 40

8

A + B

Pool Depth Max = 30

0

Bankfull Width Max=30

5

This information must also be completed

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)



**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

WWH Name:  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:

**MISCELLANEOUS**

Base Flow Conditions? (Y/N):  Date of last precipitation:  Quantity:   
Photograph Information:   
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):   
Frogs or Tadpoles Observed? (Y/N):  Voucher? (Y/N):  Aquatic Macroinvertebrates Observed? (Y/N):  Voucher? (Y/N):   
Comments Regarding Biology:

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

*SEE STREAM 34 B DRAWING*

FLOW →



HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **34B2** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (m<sup>2</sup>) **0.00**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.81484** LONG. **-82.86021** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **10/04/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	15%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> <input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	30%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	5%	<input checked="" type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	35%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	15%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **20.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3**      **TOTAL NUMBER OF SUBSTRATE TYPES: 5**

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters): 0**

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input checked="" type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 0.50**

**HHEI Metric Points**

Substrate Max = 40

8

A + B

---

Pool Depth Max = 30

0

---

Bankfull Width Max=30

5

This information **must** also be completed

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank) Wide >10m		(Most Predominant per Bank) Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input checked="" type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)     Flat to Moderate     Moderate (2 ft/100 ft)     Moderate to Severe     Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED?  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: Little Scioto River	Distance from Evaluated Stream	0.53
<input type="checkbox"/> CWH Name:	Distance from Evaluated Stream	
<input type="checkbox"/> EWH Name:	Distance from Evaluated Stream	

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: Minford NRCS Soil Map Page: 39 NRCS Soil Map Stream Order: 1  
 County: Scioto Township / City: Harrison TWP

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/02/12 Quantity: 0.12  
 Photograph Information: See ESR.  
 Elevated Turbidity? (Y/N): N Canopy (% open): 15%  
 Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:   
 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:

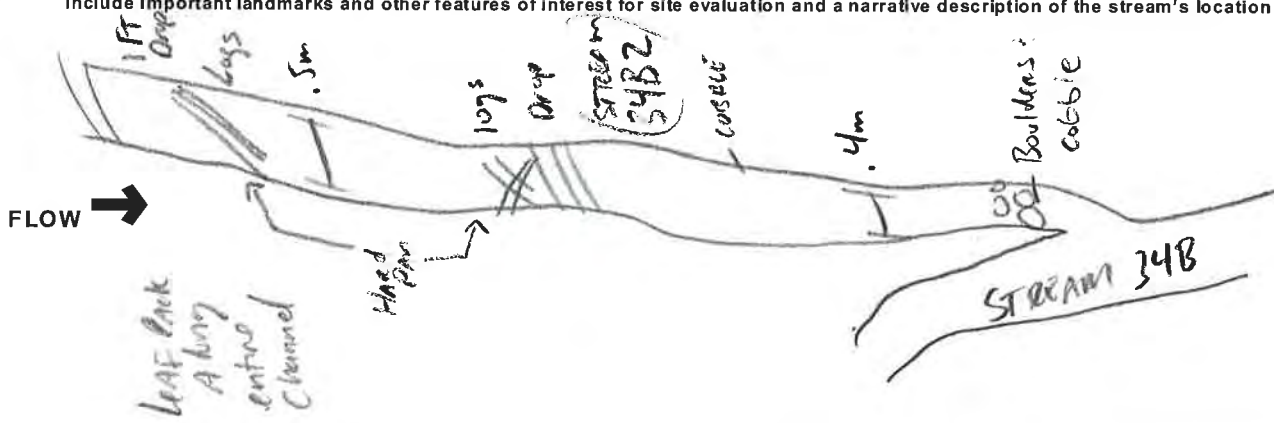
Additional comments/description of pollution impacts:  
Trash in channel.

**BIOTIC EVALUATION**

Performed? (Y/N): Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
 Fish Observed? (Y/N): N Voucher? (Y/N): N Salamanders Observed? (Y/N): N Voucher? (Y/N): N  
 Frogs or Tadpoles Observed? (Y/N): N Voucher? (Y/N): N Aquatic Macroinvertebrates Observed? (Y/N): N Voucher? (Y/N): N  
 Comments Regarding Biology:  
No aquatic species observed.

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **Stream 35A** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.00**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.80971** LONG. **-82.86274** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **10/05/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	10%	<input type="checkbox"/> SILT [3 pt]	5%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	5%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	15%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input checked="" type="checkbox"/> COBBLE (65-256 mm) [12 pts]	25%	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	25%
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	15%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **40.00%** (A) Substrate Percentages Cross 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12** **TOTAL NUMBER OF SUBSTRATE TYPES: 6**

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**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters): 0**

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**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 1.40**

**HHEI Metric Points**

Substrate Max = 40

18

A + B

Pool Depth Max = 30

0

Bankfull Width Max=30

15

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS **Moist channel, no pools.**

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score: \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: Little Scioto River	Distance from Evaluated Stream	1.41
<input type="checkbox"/> CWH Name: _____	Distance from Evaluated Stream	_____
<input type="checkbox"/> EWH Name: _____	Distance from Evaluated Stream	_____

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: Minford NRCS Soil Map Page: 39 NRCS Soil Map Stream Order: 1  
 County: Scioto Township / City: Harrison TWP

**MISCELLANEOUS**

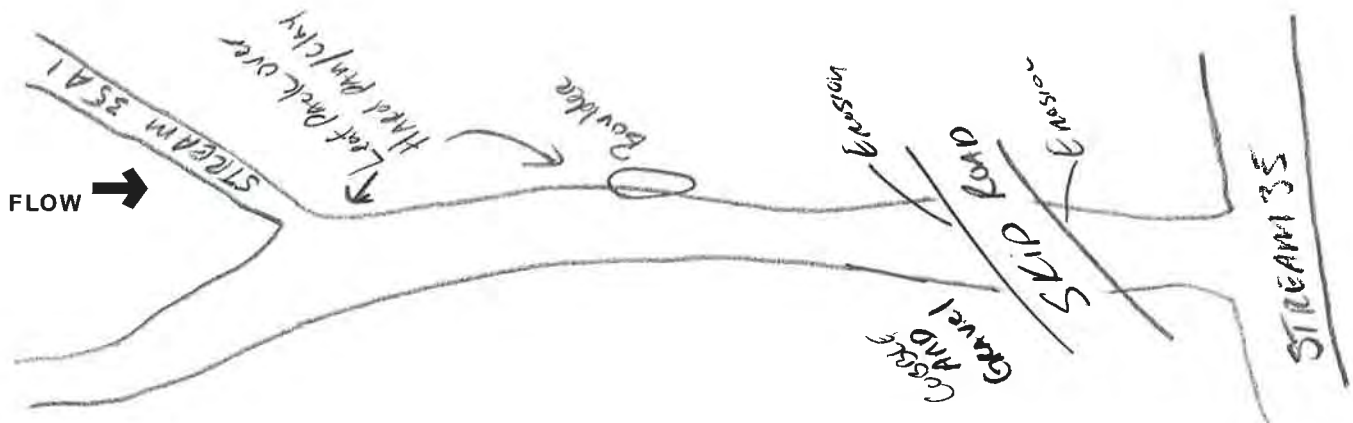
Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/02/12 Quantity: 0.12  
 Photograph Information: See ESR.  
 Elevated Turbidity? (Y/N): N Canopy (% open): 60%  
 Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: \_\_\_\_\_  
 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): Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
 Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N  
 Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N  
 Comments Regarding Biology: No aquatic species observed.

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **35A1**

RIVER BASIN

DRAINAGE AREA (mi<sup>2</sup>) **0.00**

LENGTH OF STREAM REACH (ft)

LAT. **38.80961**

LONG. **-82.86348**

RIVER CODE

RIVER MILE

DATE **10/05/12**

SCORER **JME**

COMMENTS

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**

NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="checkbox"/> 0%	<input checked="" type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="checkbox"/> 50%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="checkbox"/> 50%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="checkbox"/> 0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **0.00%**

(A)

100%

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **3**

TOTAL NUMBER OF SUBSTRATE TYPES: **2**

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH (centimeters): **0**

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input checked="" type="checkbox"/> ≤ 1.0 m (<= 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters): **0.40**

**HHEI Metric Points**

Substrate Max = 40

**5**

A + B

Pool Depth Max = 30

**0**

Bankfull Width Max=30

**5**

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank)	Wide >10m	(Most Predominant per Bank)	Mature Forest, Wetland	Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input checked="" type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score:  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

WWH Name:  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:

**MISCELLANEOUS**

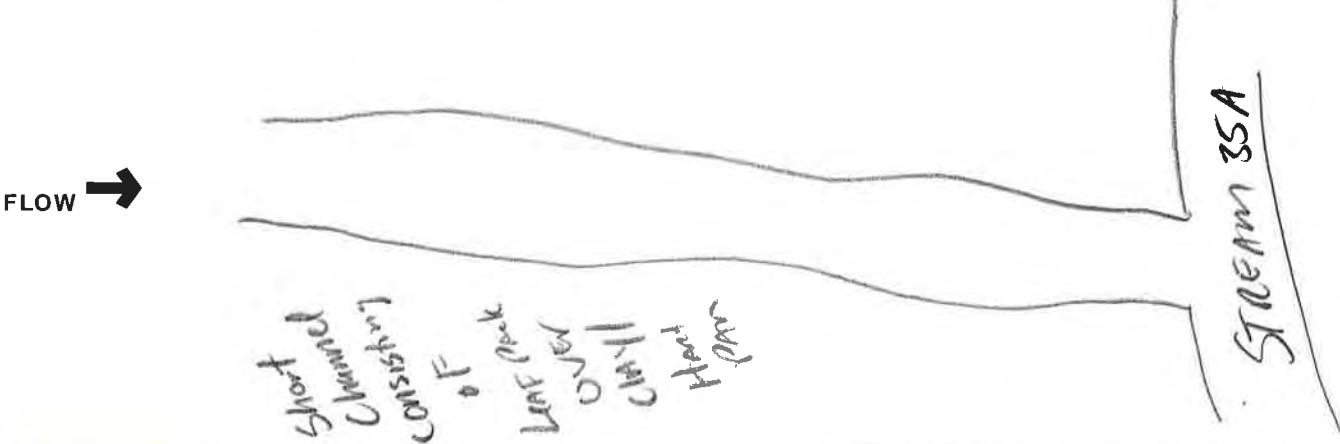
Base Flow Conditions? (Y/N):  Date of last precipitation:  Quantity:   
Photograph Information:   
Elevated Turbidity? (Y/N):  Canopy (% open):   
Were samples collected for water chemistry? (Y/N):  (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (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)   
Frogs or Tadpoles Observed? (Y/N)  Voucher? (Y/N)  Aquatic Macroinvertebrates Observed? (Y/N)  Voucher? (Y/N)   
Comments Regarding Biology:

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



**HHEI Score (sum of metrics 1, 2, 3) :**

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **Stream 36** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.64**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.80079** LONG. **-82.86265** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **10/11/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	5%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	25%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input checked="" type="checkbox"/> COBBLE (65-256 mm) [12 pts]	30%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	0%
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	20%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	20%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **35.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15** **TOTAL NUMBER OF SUBSTRATE TYPES: 5**

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**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters): 0**

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**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input checked="" type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 4.10**

**HHEI Metric Points**

Substrate Max = 40

20

A + B

Pool Depth Max = 30

0

Bankfull Width Max=30

30

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY		L R	
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS: \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS: \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input checked="" type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)



**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED?  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

WWH Name: Little Scioto River Distance from Evaluated Stream 1.88  
 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: Minford NRCS Soil Map Page: 39 NRCS Soil Map Stream Order 1  
County: Scioto Township / City: Harrison TWP

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/08/12 Quantity: 0.07

Photograph Information: See ESR.

Elevated Turbidity? (Y/N): N Canopy (% open): 50%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:

Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)

Is the sampling reach representative of the stream (Y/N) Y If not, please explain:

Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

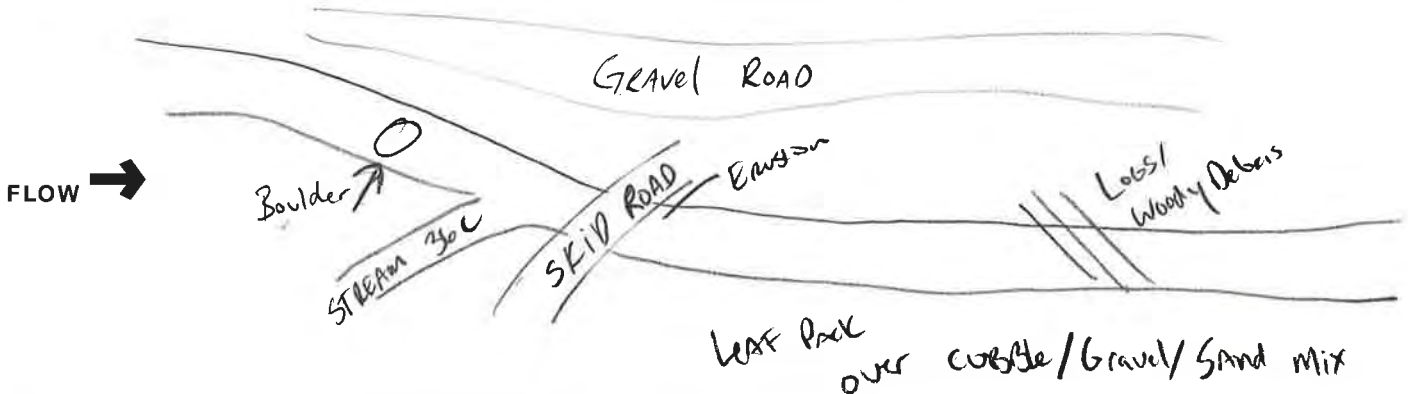
Performed? (Y/N): Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N  
Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments Regarding Biology: No aquatic species observed.

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location





# Primary Headwater Habitat Evaluation Form

**21**

HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **Stream 36A** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.03**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.80079** LONG. **-82.86265** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **10/11/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="checkbox"/> 35%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="checkbox"/> 15%	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="checkbox"/> 10%
<input checked="" type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="checkbox"/> 40%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="checkbox"/> 0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **15.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12** **TOTAL NUMBER OF SUBSTRATE TYPES: 4**

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters): 0**

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 0.00**

**HHEI Metric Points**

Substrate Max = 40

**16**

A + B

Pool Depth Max = 30

**0**

Bankfull Width Max=30

**5**

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank)	Wide >10m	(Most Predominant per Bank)	Mature Forest, Wetland	Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Immature Forest, Shrub or Old Field	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture	Mining or Construction
<input type="checkbox"/>	<input type="checkbox"/>				
	None				

COMMENTS \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input checked="" type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <u>Little Scioto River</u>	Distance from Evaluated Stream	<u>0.52</u>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: Minford NRCS Soil Map Page: 40 NRCS Soil Map Stream Order: 1  
 County: Scioto Township / City: Harrison TWP

**MISCELLANEOUS**

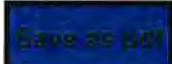
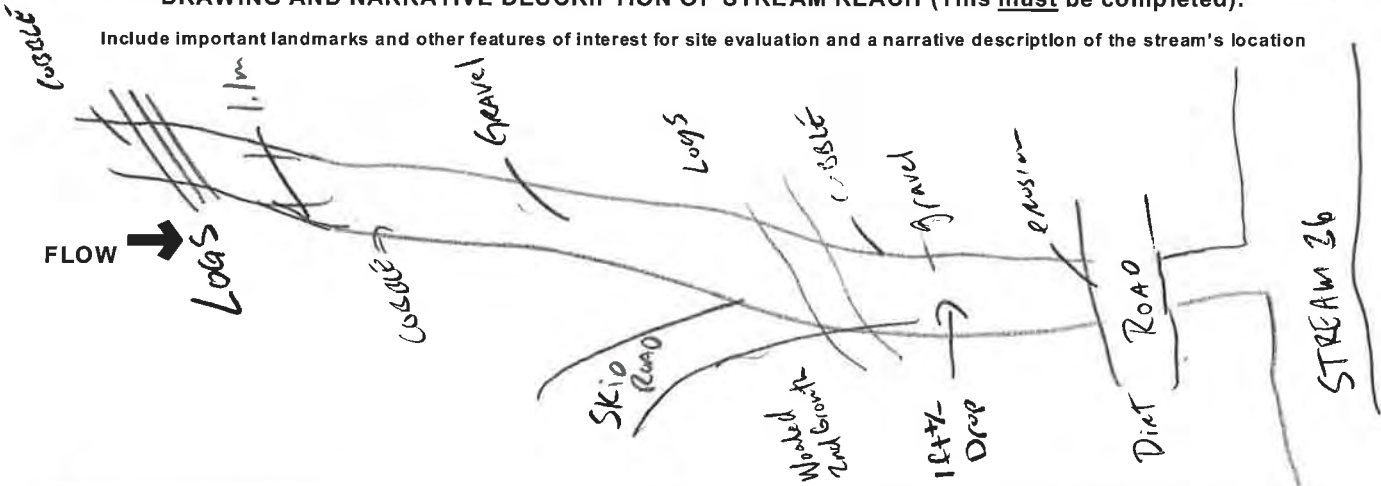
Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/08/12 Quantity: 0.07  
 Photograph Information: See ESR.  
 Elevated Turbidity? (Y/N): N Canopy (% open): 25%  
 Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:   
 Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
 Is the sampling reach representative of the stream (Y/N): Y If not, please explain:   
 Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N): Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
 Fish Observed? (Y/N): N Voucher? (Y/N): N Salamanders Observed? (Y/N): N Voucher? (Y/N): N  
 Frogs or Tadpoles Observed? (Y/N): N Voucher? (Y/N): N Aquatic Macroinvertebrates Observed? (Y/N): N Voucher? (Y/N): N  
 Comments Regarding Biology: No aquatic species observed.

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **36A1** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.00**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.80253** LONG. **-82.86343** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **10/11/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	15%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input checked="" type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	30%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	10%	<input type="checkbox"/> <input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	30%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	15%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **25.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3**      **TOTAL NUMBER OF SUBSTRATE TYPES: 5**

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**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts] <input type="checkbox"/> > 22.5 - 30 cm [30 pts] <input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts] <input type="checkbox"/> < 5 cm [5 pts] <input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]
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COMMENTS \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters): 0**

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**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts] <input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] <input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] <input checked="" type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
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COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 0.30**

**HHEI Metric Points**

Substrate Max = 40

8

A + B

Pool Depth Max = 30

0

Bankfull Width Max=30

5

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank) Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing <input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent) <input type="checkbox"/> Dry channel, no water (Ephemeral)
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COMMENTS **Moist channel, no pools.**

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input checked="" type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)     Flat to Moderate     Moderate (2 ft/100 ft)     Moderate to Severe     Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score: \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: Little Scioto River	Distance from Evaluated Stream	1.90
<input type="checkbox"/> CWH Name: _____	Distance from Evaluated Stream	_____
<input type="checkbox"/> EWH Name: _____	Distance from Evaluated Stream	_____

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: Minford NRCS Soil Map Page: 39 NRCS Soil Map Stream Order: 1  
 County: Scioto Township / City: Harrison TWP

**MISCELLANEOUS**

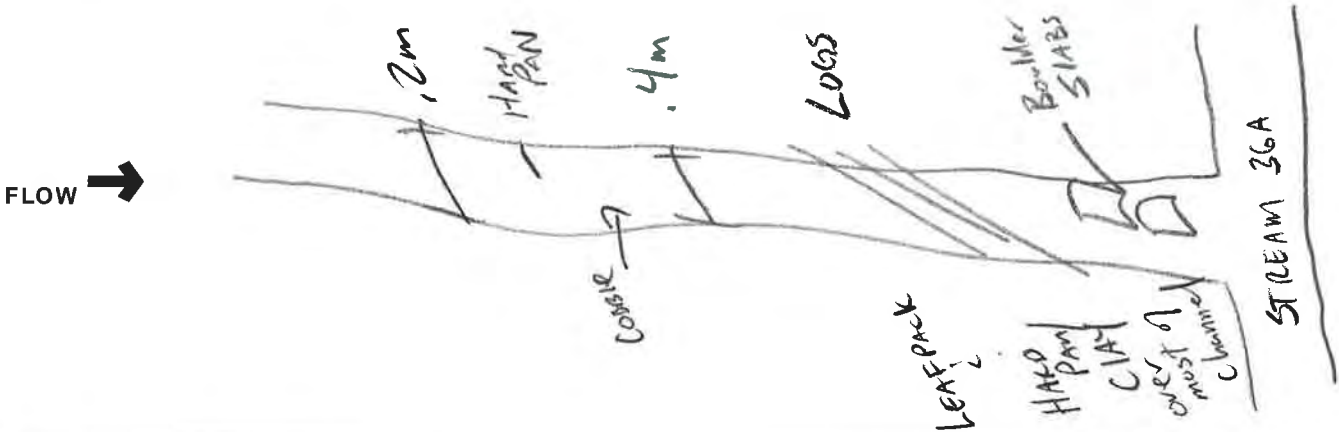
Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/08/12 Quantity: 0.07  
 Photograph Information: See ESR.  
 Elevated Turbidity? (Y/N): N Canopy (% open): 30%  
 Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: \_\_\_\_\_  
 Field Measures: Temp (°C) \_\_\_\_\_ Dissolved Oxygen (mg/l) \_\_\_\_\_ pH (S.U.) \_\_\_\_\_ Conductivity (µmhos/cm) \_\_\_\_\_  
 Is the sampling reach representative of the stream (Y/N): Y If not, please explain: \_\_\_\_\_  
 Additional comments/description of pollution impacts: \_\_\_\_\_

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
 Fish Observed? (Y/N): N Voucher? (Y/N): N Salamanders Observed? (Y/N): N Voucher? (Y/N): N  
 Frogs or Tadpoles Observed? (Y/N): N Voucher? (Y/N): N Aquatic Macroinvertebrates Observed? (Y/N): N Voucher? (Y/N): N  
 Comments Regarding Biology: \_\_\_\_\_

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **Stream 36C** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.07**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.80052** LONG. **-82.86204** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **10/11/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> <input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	30%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	15%	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	20%
<input checked="" type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	35%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **15.00%** (A) Substrate Percentage Credit: 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12** **TOTAL NUMBER OF SUBSTRATE TYPES: 4**

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters): 0**

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS **Portions of channel braided from logging activity** **AVERAGE BANKFULL WIDTH (meters): 1.80**

**HHEI Metric Points**

Substrate Max = 40

16

A + B

Pool Depth Max = 30

0

Bankfull Width Max=30

20

This information must also be completed

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank) Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS **Stream was used as logging access road.**

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <u>Little Scioto River</u>	Distance from Evaluated Stream	<u>1.91</u>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: Minford NRCS Soil Map Page: 39 NRCS Soil Map Stream Order: 1  
 County: Scioto Township / City: Harrison TWP

**MISCELLANEOUS**

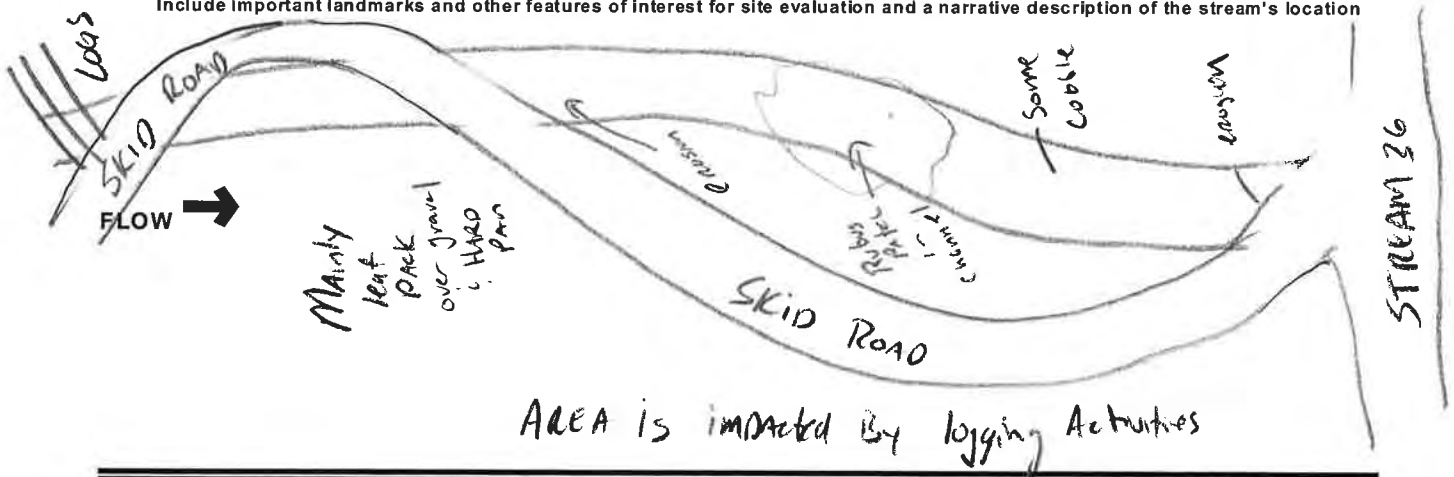
Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/08/12 Quantity: 0.07  
 Photograph Information: See ESR.  
 Elevated Turbidity? (Y/N): N Canopy (% open): 30%  
 Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:   
 Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
 Is the sampling reach representative of the stream (Y/N): Y If not, please explain:   
 Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N): Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
 Fish Observed? (Y/N): N Voucher? (Y/N): N Salamanders Observed? (Y/N): N Voucher? (Y/N): N  
 Frogs or Tadpoles Observed? (Y/N): N Voucher? (Y/N): N Aquatic Macroinvertebrates Observed? (Y/N): N Voucher? (Y/N): N  
 Comments Regarding Biology: No aquatic species observed.

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



**HHEI Score (sum of metrics 1, 2, 3) :**

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **36C2** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.00**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.79779** LONG. **-82.86408** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **10/11/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	10%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	5%	<input type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	15%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	10%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> <input checked="" type="checkbox"/> COBBLE (65-256 mm) [12 pts]	20%	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	10%
<input checked="" type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	30%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **45.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 21** **TOTAL NUMBER OF SUBSTRATE TYPES: 7**

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**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters): 0**

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**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (<= 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 1.50**

**HHEI Metric Points**

Substrate Max = 40

**28**

A + B

Pool Depth Max = 30

**0**

Bankfull Width Max=30

**15**

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank) Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input checked="" type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**  Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)





HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **36C3** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.00**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.79728** LONG. **-82.86351** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **10/11/12** SCORER **JK** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	5%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> <input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	20%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	5%	<input checked="" type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	60%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	5%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	5%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **5.00%** (A) (B) **100%**

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3** **TOTAL NUMBER OF SUBSTRATE TYPES: 6**

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**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

**COMMENTS** \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters): 0**

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**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

**COMMENTS** \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 1.50**

**HHEI Metric Points**

Substrate Max = 40

9

A + B

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Pool Depth Max = 30

0

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Bankfull Width Max=30

15

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

**COMMENTS** \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

**COMMENTS** \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <input type="text" value="Little Scioto River"/>	Distance from Evaluated Stream	<input type="text" value="2.20"/>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

**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:

**MISCELLANEOUS**

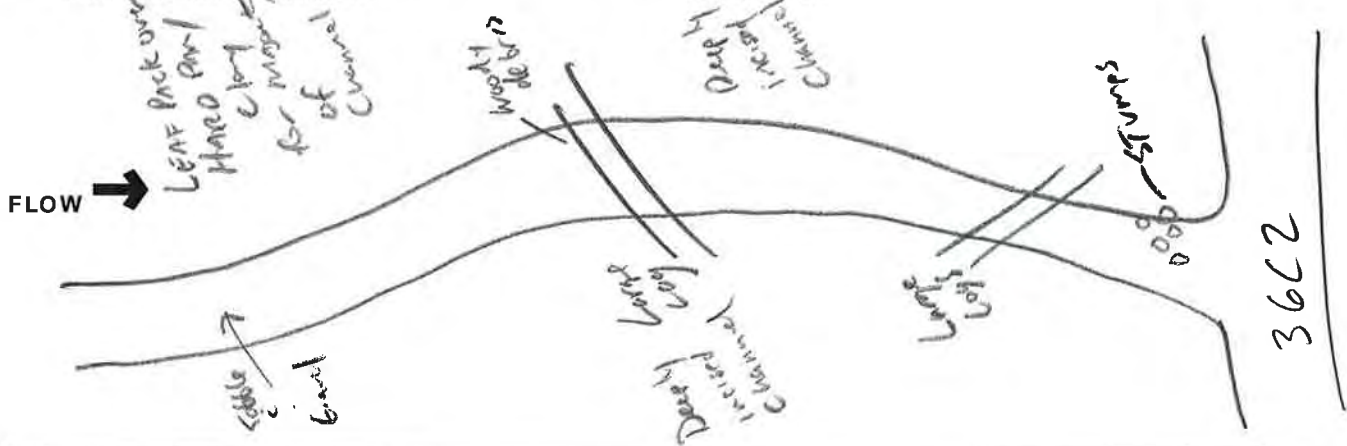
Base Flow Conditions? (Y/N):  Y Date of last precipitation:  Quantity:   
 Photograph Information:   
 Elevated Turbidity? (Y/N):  N Canopy (% open):   
 Were samples collected for water chemistry? (Y/N):  N (Note lab sample no. or id. and attach results) Lab Number:   
 Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
 Is the sampling reach representative of the stream (Y/N):  Y If not, please explain:   
 Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N):  N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
 Fish Observed? (Y/N):  N Voucher? (Y/N):  N Salamanders Observed? (Y/N):  N Voucher? (Y/N):  N  
 Frogs or Tadpoles Observed? (Y/N):  N Voucher? (Y/N):  N Aquatic Macroinvertebrates Observed? (Y/N):  N Voucher? (Y/N):  N  
 Comments Regarding Biology:

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location





# Primary Headwater Habitat Evaluation Form

13

HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **St - 36C4** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.00**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.79829** LONG. **-82.86458** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **10/11/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> SILT [3 pt]	<input type="checkbox"/> 0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input checked="" type="checkbox"/> 10%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input checked="" type="checkbox"/> 30%
<input type="checkbox"/> BEDROCK [16 pt]	<input type="checkbox"/> 0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input checked="" type="checkbox"/> 20%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	<input checked="" type="checkbox"/> 25%
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input checked="" type="checkbox"/> 15%	<input type="checkbox"/> MUCK [0 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="checkbox"/> 0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **30.00%** (A) Substrate Finest Grain Check 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3** **TOTAL NUMBER OF SUBSTRATE TYPES: 5**

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters): 0**

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input checked="" type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 0.70**

**HHEI Metric Points**

Substrate Max = 40

8

A + B

Pool Depth Max = 30

0

Bankfull Width Max=30

5

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input checked="" type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED?  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <u>Little Scioto River</u>	Distance from Evaluated Stream: <u>2.20</u>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream: <input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream: <input type="text"/>

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: Minford NRCS Soil Map Page: 39 NRCS Soil Map Stream Order: 1  
County: Scioto Township / City: Harrison TWP

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/08/12 Quantity: 0.07  
Photograph Information: See ESR.  
Elevated Turbidity? (Y/N): N Canopy (% open): 10%  
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
Is the sampling reach representative of the stream (Y/N): Y If not, please explain:

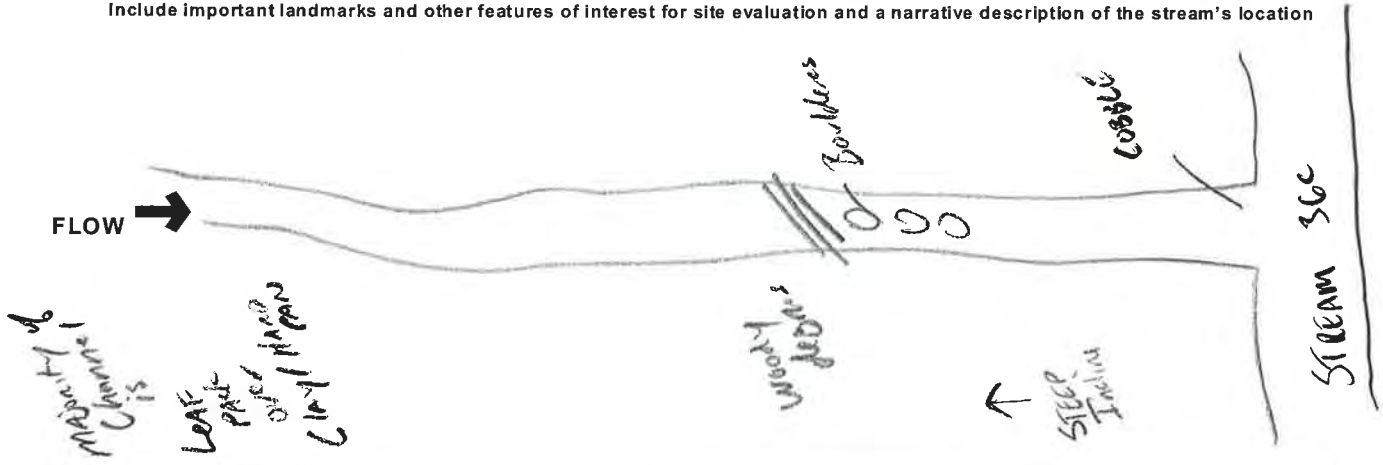
Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N): Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N  
Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N  
Comments Regarding Biology: Only terrestrial species observed.

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **Stream 37** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.13**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.79267** LONG. **-82.86359** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **10/11/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	5%	<input type="checkbox"/> <input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	25%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	10%	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	10%
<input checked="" type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	50%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **15.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12** **TOTAL NUMBER OF SUBSTRATE TYPES: 5**

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**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters): 0**

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**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 1.30**

**HHEI Metric Points**

Substrate Max = 40

17

A + B

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Pool Depth Max = 30

0

---

Bankfull Width Max=30

15

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS **Dense shrub/scrub at power line easement and second growth.**

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input checked="" type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

WWH Name: Little Scioto River Distance from Evaluated Stream 1.07  
 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: Minford NRCS Soil Map Page: 39 NRCS Soil Map Stream Order 2  
 County: Scioto Township / City: Harrison TWP

**MISCELLANEOUS**

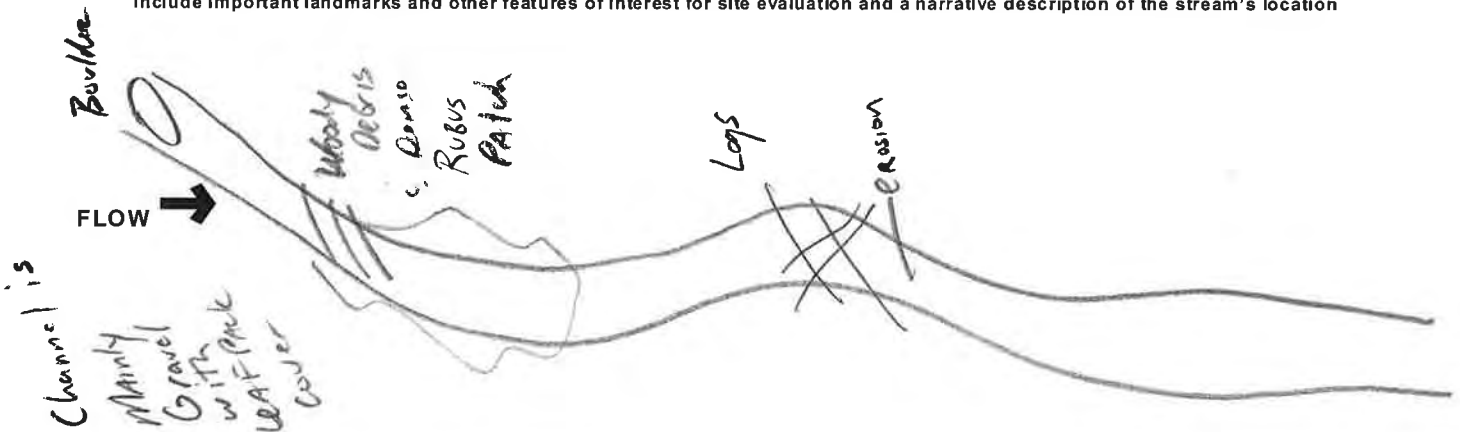
Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/08/12 Quantity: 0.07  
 Photograph Information: See ESR.  
 Elevated Turbidity? (Y/N): N Canopy (% open): 40%  
 Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:   
 Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
 Is the sampling reach representative of the stream (Y/N): Y If not, please explain:   
 Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N): Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
 Fish Observed? (Y/N): N Voucher? (Y/N): N Salamanders Observed? (Y/N): N Voucher? (Y/N): N  
 Frogs or Tadpoles Observed? (Y/N): N Voucher? (Y/N): N Aquatic Macroinvertebrates Observed? (Y/N): N Voucher? (Y/N): N  
 Comments Regarding Biology: No aquatic species observed.

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **Stream 37A** RIVER BASIN: \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.00**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.79308** LONG. **-82.86422** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **10/11/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

<b>TYPE</b>	<b>PERCENT</b>	<b>TYPE</b>	<b>PERCENT</b>
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	40%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	10%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	5%	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	30%
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	15%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **5.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3**      **TOTAL NUMBER OF SUBSTRATE TYPES: 1**

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**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters): 0**

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**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (<= 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 1.10**

**HHEI Metric Points**

Substrate Max = 40

**4**

A + B

Pool Depth Max = 30

**0**

Bankfull Width Max=30

**15**

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

<b>RIPARIAN WIDTH</b>		<b>FLOODPLAIN QUALITY</b>		
L	R	L	R	L
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank)	Wide >10m	(Most Predominant per Bank)	Mature Forest, Wetland	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Moderate 5-10m		Immature Forest, Shrub or Old Field	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Narrow <5m		Residential, Park, New Field	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	None		Fenced Pasture	Mining or Construction

COMMENTS shrub/scrub

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)     Flat to Moderate     Moderate (2 ft/100 ft)     Moderate to Severe     Severe (10 ft/100 ft)



**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

WWH Name: Little Scioto River Distance from Evaluated Stream 1.13  
 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: Minford NRCS Soil Map Page: 39 NRCS Soil Map Stream Order 1  
County: Scioto Township / City: Harrison TWP

**MISCELLANEOUS**

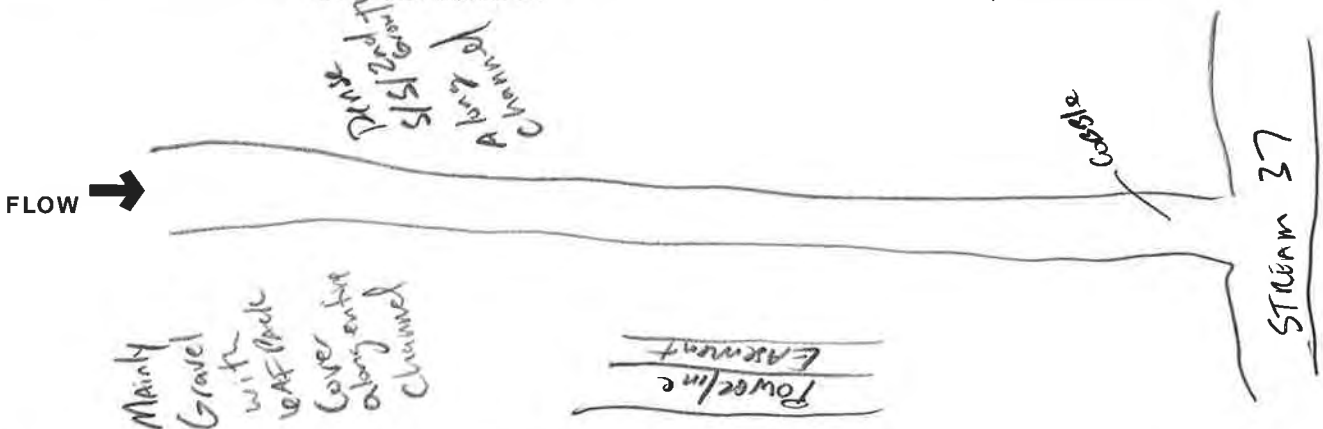
Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/08/12 Quantity: 0.07  
Photograph Information: See ESR.  
Elevated Turbidity? (Y/N): N Canopy (% open): 90%  
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
Is the sampling reach representative of the stream (Y/N) Y If not, please explain:   
Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N): Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N  
Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N  
Comments Regarding Biology: No aquatic species observed.

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **Stream 38** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.24**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.78509** LONG. **-82.86602** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **10/16/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	5%	<input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	5%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	15%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input checked="" type="checkbox"/> COBBLE (65-256 mm) [12 pts]	25%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	15%
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	30%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	5%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **35.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 21** **TOTAL NUMBER OF SUBSTRATE TYPES: 7**

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters): 0**

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 2.60**

**HHEI Metric Points**

Substrate Max = 40

28

A + B

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Pool Depth Max = 30

0

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Bankfull Width Max=30

20

This information must also be completed

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank) Wide >10m		(Most Predominant per Bank) Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS immature forest and shrub/scrub.

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input checked="" type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTEAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Little Scioto River</b>	Distance from Evaluated Stream	<b>1.18</b>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: **Minford** NRCS Soil Map Page: **48** NRCS Soil Map Stream Order: **2**  
 County: **Scioto** Township / City: **Harrison TWP**

**MISCELLANEOUS**

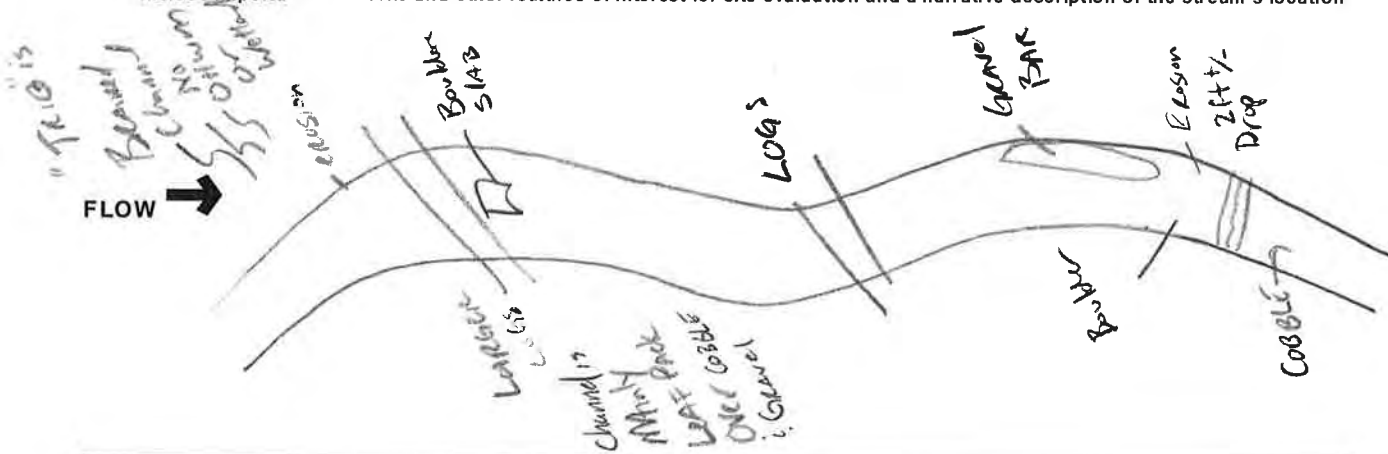
Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **10/15/12** Quantity: **0.09**  
 Photograph Information: **See ESR.**  
 Elevated Turbidity? (Y/N): **N** Canopy (% open): **20%**  
 Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number:   
 Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
 Is the sampling reach representative of the stream (Y/N): **Y** If not, please explain:   
 Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N): **Y** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
 Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**  
 Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**  
 Comments Regarding Biology: **No aquatic species observed.**

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **Stream 38A** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.48**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.78774** LONG. **-82.86547** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **10/16/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> Bldr Slabs [16 pts]	5%	<input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	5%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	25%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	15%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	20%
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	30%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **25.00%** (A)      Substrate Percentage Check **100%** (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12**      **TOTAL NUMBER OF SUBSTRATE TYPES: 6**

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**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters): 0**

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**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (<= 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 1.40**

**HHEI Metric Points**

Substrate Max = 40

18

A + B

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Pool Depth Max = 30

0

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Bankfull Width Max=30

15

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream ☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY		L R	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>		<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	
None		Fenced Pasture		Mining or Construction	
<input type="checkbox"/>					

COMMENTS \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input checked="" type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

<input type="checkbox"/> Flat (0.5 ft/100 ft)	<input checked="" type="checkbox"/> Flat to Moderate	<input type="checkbox"/> Moderate (2 ft/100 ft)	<input type="checkbox"/> Moderate to Severe	<input type="checkbox"/> Severe (10 ft/100 ft)
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**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED?  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: Little Scioto River	Distance from Evaluated Stream	1.30
<input type="checkbox"/> CWH Name:	Distance from Evaluated Stream	
<input type="checkbox"/> 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:

**MISCELLANEOUS**

Base Flow Conditions? (Y/N):  Date of last precipitation:  Quantity:

Photograph Information:

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)

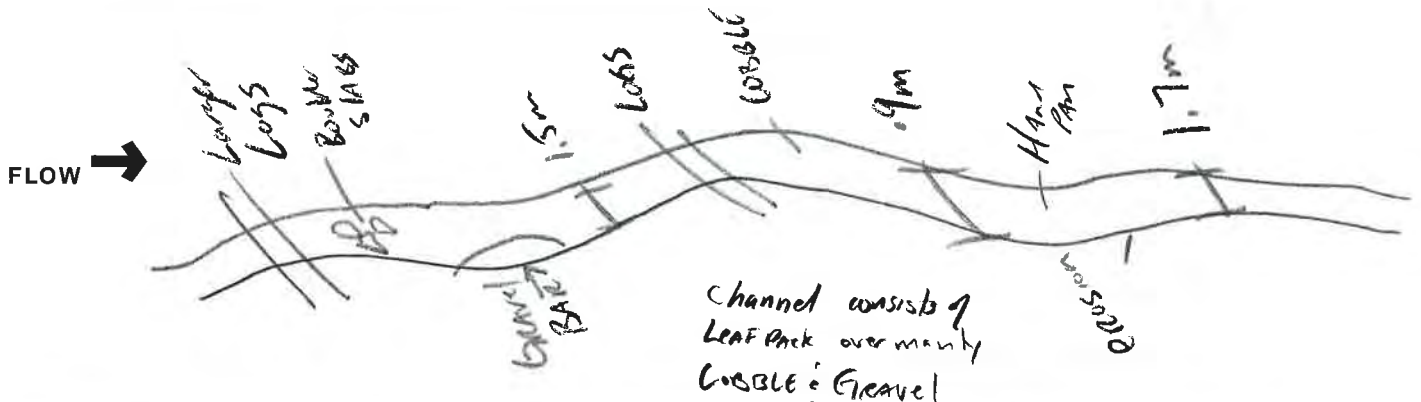
Fish Observed? (Y/N):  Voucher? (Y/N):  Salamanders Observed? (Y/N):  Voucher? (Y/N):

Frogs or Tadpoles Observed? (Y/N):  Voucher? (Y/N):  Aquatic Macroinvertebrates Observed? (Y/N):  Voucher? (Y/N):

Comments Regarding Biology:

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



HHEI Score (sum of metrics 1, 2, 3):

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **38A1** RIVER BASIN: \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.00**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.78941** LONG. **-82.86572** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **10/16/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)				HHEI Metric Points	
TYPE	PERCENT	TYPE	PERCENT		
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%	Substrate Max = 40  <div style="border: 1px solid black; padding: 5px; font-size: 24px; margin: 5px auto;">7</div> A + B	
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	30%		
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%		
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	5%	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	60%		
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	5%	<input type="checkbox"/> MUCK [0 pts]	0%		
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%		
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock <b>5.00%</b> (A)		100% (B)			
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: <b>3</b>		TOTAL NUMBER OF SUBSTRATE TYPES: <b>4</b>			
<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):</b>					Pool Depth Max = 30  <div style="border: 1px solid black; padding: 5px; font-size: 24px; margin: 5px auto;">0</div>
<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]	<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]		
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]	COMMENTS _____			
MAXIMUM POOL DEPTH (centimeters): <b>0</b>					
<b>3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):</b>				Bankfull Width Max=30  <div style="border: 1px solid black; padding: 5px; font-size: 24px; margin: 5px auto;">5</div>	
<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]		
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	COMMENTS _____		AVERAGE BANKFULL WIDTH (meters): <b>0.60</b>		

This information must also be completed

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank) Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <u>Little Scioto River</u>	Distance from Evaluated Stream: <u>1.36</u>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream: <input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream: <input type="text"/>

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: Minford NRCS Soil Map Page: 39 NRCS Soil Map Stream Order: 1  
County: Scioto Township / City: Harrison TWP

**MISCELLANEOUS**

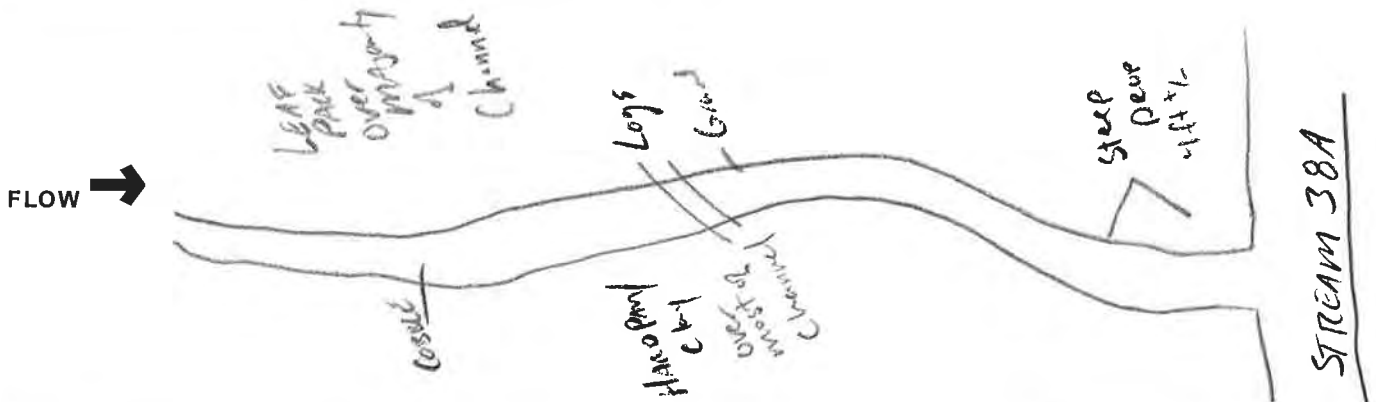
Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/15/12 Quantity: 0.09  
Photograph Information: See ESR.  
Elevated Turbidity? (Y/N): N Canopy (% open): 25%  
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.):  Conductivity (µmhos/cm)   
Is the sampling reach representative of the stream (Y/N): Y If not, please explain:   
Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N): Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N): N Voucher? (Y/N): N Salamanders Observed? (Y/N): N Voucher? (Y/N): N  
Frogs or Tadpoles Observed? (Y/N): N Voucher? (Y/N): N Aquatic Macroinvertebrates Observed? (Y/N): N Voucher? (Y/N): N  
Comments Regarding Biology: No aquatic species observed.

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **38A2**

RIVER BASIN

DRAINAGE AREA (mi<sup>2</sup>) **0.00**

LENGTH OF STREAM REACH (ft)

LAT. **38.78942**

LONG. **-82.86482**

RIVER CODE

RIVER MILE

DATE **10/16/12**

SCORER **JME**

COMMENTS

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**

NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="checkbox"/> 25%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="checkbox"/> 5%	<input checked="" type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="checkbox"/> 70%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="checkbox"/> 0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **5.00%**

(A)

100%

(B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **3**

TOTAL NUMBER OF SUBSTRATE TYPES: **3**

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS

MAXIMUM POOL DEPTH (centimeters): **0**

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input checked="" type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters): **0.60**

**HHEI Metric Points**

Substrate Max = 40

**6**

A + B

Pool Depth Max = 30

**0**

Bankfull Width Max=30

**5**

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank) Wide >10m		(Most Predominant per Bank) Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)



**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <u>Little Scioto River</u>	Distance from Evaluated Stream	<u>1.53</u>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: Minford NRCS Soil Map Page: 39 NRCS Soil Map Stream Order: 1  
 County: Scioto Township / City: Harrison TWP

**MISCELLANEOUS**

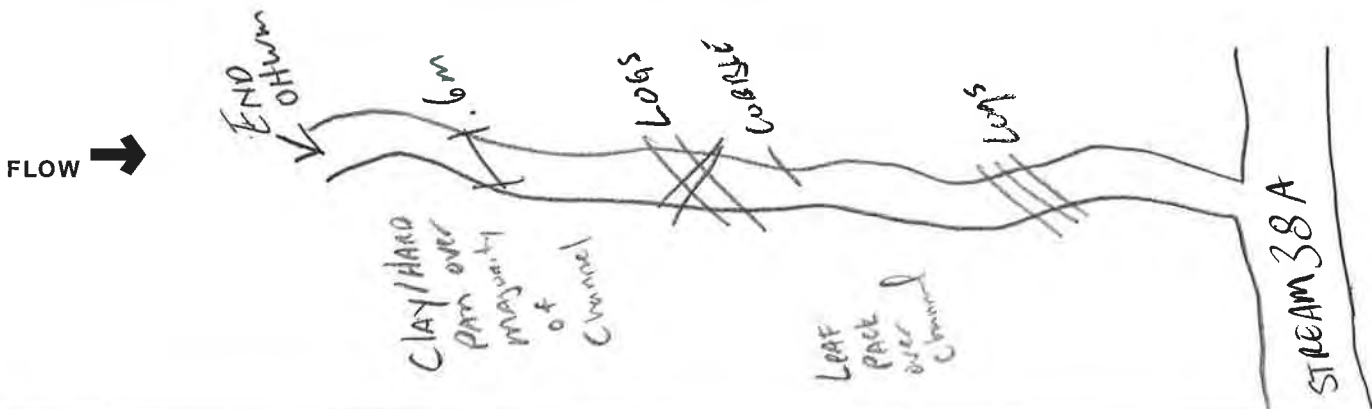
Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/15/12 Quantity: 0.09  
 Photograph Information: See ESR.  
 Elevated Turbidity? (Y/N): N Canopy (% open): 40%  
 Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:   
 Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
 Is the sampling reach representative of the stream (Y/N) Y If not, please explain:  
Channel is approximately 90 feet long.  
 Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
 Fish Observed? (Y/N): N Voucher? (Y/N): N Salamanders Observed? (Y/N): N Voucher? (Y/N): N  
 Frogs or Tadpoles Observed? (Y/N): N Voucher? (Y/N): N Aquatic Macroinvertebrates Observed? (Y/N): N Voucher? (Y/N): N  
 Comments Regarding Biology:  
No aquatic species observed.

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **38A3** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.00**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.78923** LONG. **-82.86475** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **10/11/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

<b>TYPE</b>	<b>PERCENT</b>	<b>TYPE</b>	<b>PERCENT</b>
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	5%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> <input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	25%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	5%	<input checked="" type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	65%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **10.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3**      **TOTAL NUMBER OF SUBSTRATE TYPES: 4**

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters): 0**

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input checked="" type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 0.60**

**HHEI Metric Points**

Substrate Max = 40

7

A + B

Pool Depth Max = 30

0

Bankfull Width Max=30

5

This information must also be completed

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

<b>RIPARIAN WIDTH</b>		<b>FLOODPLAIN QUALITY</b>			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank) Wide >10m		(Most Predominant per Bank) Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)     Flat to Moderate     Moderate (2 ft/100 ft)     Moderate to Severe     Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED?  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

WWH Name: Little Scioto River Distance from Evaluated Stream 1.51  
 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: Minford NRCS Soil Map Page: 39 NRCS Soil Map Stream Order: 1  
 County: Scioto Township / City: Harrison TWP

**MISCELLANEOUS**

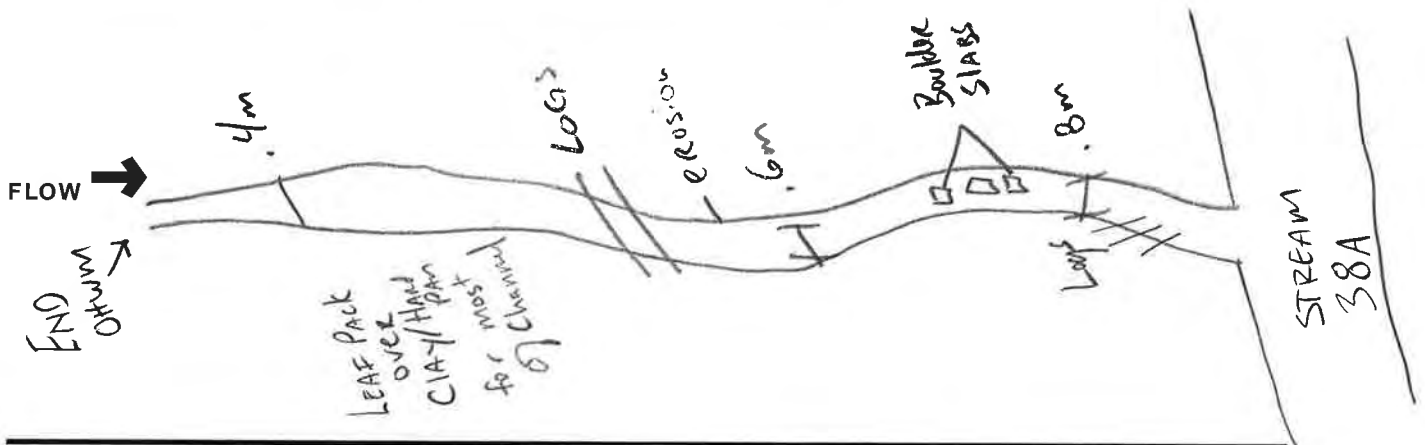
Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/15/12 Quantity: 0.09  
 Photograph Information: See ESR.  
 Elevated Turbidity? (Y/N): N Canopy (% open): 30%  
 Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:   
 Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
 Is the sampling reach representative of the stream (Y/N): Y If not, please explain:   
 Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
 Fish Observed? (Y/N): N Voucher? (Y/N): N Salamanders Observed? (Y/N): N Voucher? (Y/N): N  
 Frogs or Tadpoles Observed? (Y/N): N Voucher? (Y/N): N Aquatic Macroinvertebrates Observed? (Y/N): N Voucher? (Y/N): N  
 Comments Regarding Biology: No aquatic species observed.

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **38A4** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.00**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.78878** LONG. **-82.86492** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **10/16/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	5%	<input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	40%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	15%	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	30%
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	10%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **20.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3**      **TOTAL NUMBER OF SUBSTRATE TYPES: 5**

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters): 0**

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 1.30**

**HHEI Metric Points**

Substrate Max = 40

8

A + B

Pool Depth Max = 30

0

Bankfull Width Max=30

15

This information must also be completed

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS: \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS: \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

WWH Name: Little Scioto River Distance from Evaluated Stream 1.49  
 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: Minford NRCS Soil Map Page: 39 NRCS Soil Map Stream Order 1  
 County: Scioto Township / City: Harrison TWP

**MISCELLANEOUS**

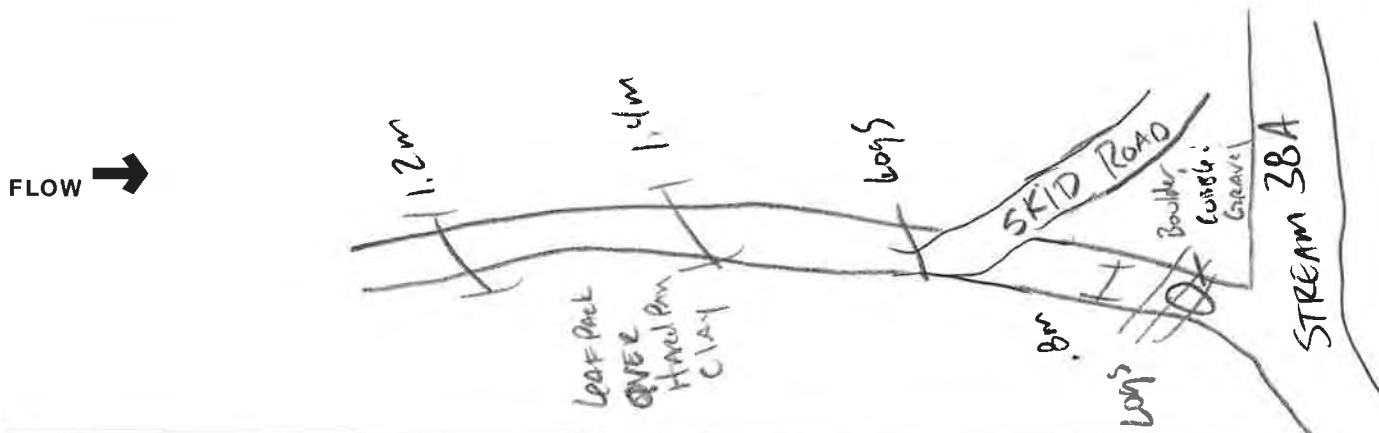
Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/15/12 Quantity: 0.09  
 Photograph Information: See ESR.  
 Elevated Turbidity? (Y/N): N Canopy (% open): 10%  
 Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:   
 Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
 Is the sampling reach representative of the stream (Y/N) Y If not, please explain:   
 Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N): Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
 Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N  
 Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N  
 Comments Regarding Biology: No aquatic species observed.

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **38A5** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.00**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.78836** LONG. **-82.86537** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **10/16/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.**

<b>TYPE</b>	<b>PERCENT</b>	<b>TYPE</b>	<b>PERCENT</b>
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	1%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	40%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	9%	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	40%
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	10%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **10.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3**      **TOTAL NUMBER OF SUBSTRATE TYPES: 5**

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**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

**COMMENTS** \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters): 0**

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**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input checked="" type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

**COMMENTS** \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 0.60**

**HHEI Metric Points**

Substrate Max = 40

8

A + B

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Pool Depth Max = 30

0

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Bankfull Width Max=30

5

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank) Wide >10m		(Most Predominant per Bank) Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

**COMMENTS** \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry channel, no water (Ephemeral)

**COMMENTS** \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**  Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score:  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <input type="text" value="Little Scioto River"/>	Distance from Evaluated Stream: <input type="text" value="1.47"/>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream: <input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream: <input type="text"/>

**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:

**MISCELLANEOUS**

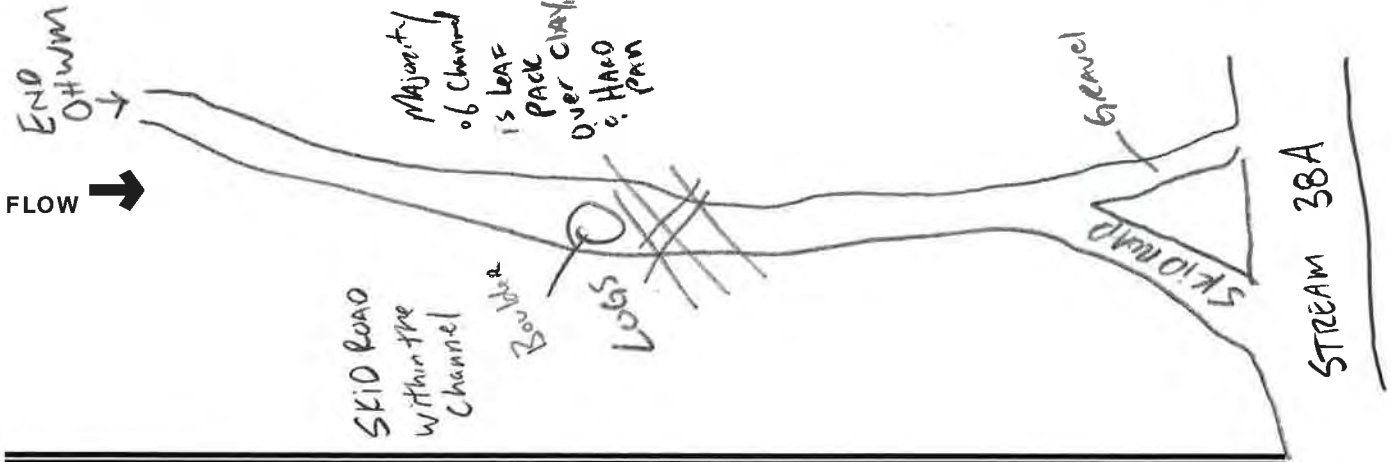
Base Flow Conditions? (Y/N):  Y Date of last precipitation:  Quantity:   
Photograph Information:   
Elevated Turbidity? (Y/N):  N Canopy (% open):   
Were samples collected for water chemistry? (Y/N):  N (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
Is the sampling reach representative of the stream (Y/N)  Y If not, please explain:   
Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N):  Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N)  N Voucher? (Y/N)  N Salamanders Observed? (Y/N)  N Voucher? (Y/N)  N  
Frogs or Tadpoles Observed? (Y/N)  N Voucher? (Y/N)  N Aquatic Macroinvertebrates Observed? (Y/N)  N Voucher? (Y/N)  N  
Comments Regarding Biology:

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **38A6** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.00**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.78829** LONG. **-82.86525** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **10/16/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input checked="" type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	45%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	10%	<input type="checkbox"/> <input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	30%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	15%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **10.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3**      **TOTAL NUMBER OF SUBSTRATE TYPES: 4**

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**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters): 0**

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**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input checked="" type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 0.30**

**HHEI Metric Points**

Substrate Max = 40

7

A + B

Pool Depth Max = 30

0

Bankfull Width Max=30

5

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY		L R	
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input checked="" type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)     Flat to Moderate     Moderate (2 ft/100 ft)     Moderate to Severe     Severe (10 ft/100 ft)



**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score: \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

WWH Name: Little Scioto River Distance from Evaluated Stream: 1.40  
 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: Minford NRCS Soil Map Page: 39 NRCS Soil Map Stream Order: 1  
 County: Scioto Township / City: Harrison TWP

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/15/12 Quantity: 0.09  
 Photograph Information: See ESR.  
 Elevated Turbidity? (Y/N): N Canopy (% open): 20%  
 Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: \_\_\_\_\_  
 Field Measures: Temp (°C) \_\_\_\_\_ Dissolved Oxygen (mg/l) \_\_\_\_\_ pH (S.U.) \_\_\_\_\_ Conductivity (µmhos/cm) \_\_\_\_\_  
 Is the sampling reach representative of the stream (Y/N): Y If not, please explain: \_\_\_\_\_

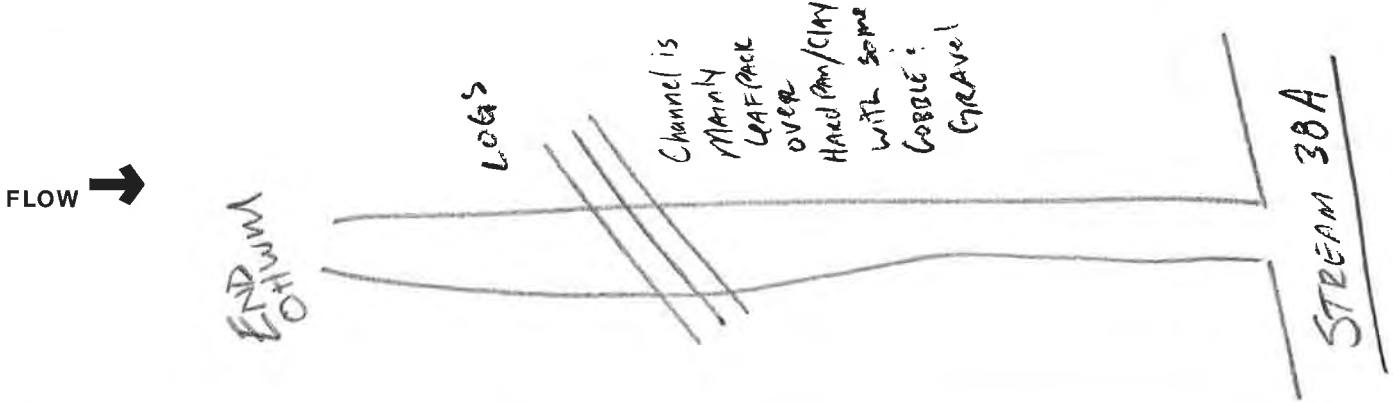
Additional comments/description of pollution impacts:  
Stream was incorporated into logging road and has been severely impacted by logging activities.

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
 Fish Observed? (Y/N): N Voucher? (Y/N): N Salamanders Observed? (Y/N): N Voucher? (Y/N): N  
 Frogs or Tadpoles Observed? (Y/N): N Voucher? (Y/N): N Aquatic Macroinvertebrates Observed? (Y/N): N Voucher? (Y/N): N  
 Comments Regarding Biology:  
No aquatic species observed.

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **Stream 38B** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.01**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.78386** LONG. **-82.86765** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **10/16/12** SCORER **JK** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	2%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	15%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	10%
<input checked="" type="checkbox"/> COBBLE (65-256 mm) [12 pts]	25%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	0%
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	30%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	18%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: **27.00%** (A)      Substrate Percentage: **100%** (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 21**      **TOTAL NUMBER OF SUBSTRATE TYPES: 6**

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters): 0**

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 2.00**

**HHEI Metric Points**

Substrate Max = 40

27

A + B

Pool Depth Max = 30

0

Bankfull Width Max=30

20

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank)	Wide >10m	(Most Predominant per Bank)	Mature Forest, Wetland	Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Moderate 5-10m		Immature Forest, Shrub or Old Field	Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Narrow <5m		Residential, Park, New Field	Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	None		Fenced Pasture	Mining or Construction	

COMMENTS \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS **Moist channel, no pools.**

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)     Flat to Moderate     Moderate (2 ft/100 ft)     Moderate to Severe     Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <u>Little Scioto River</u>	Distance from Evaluated Stream	<u>1.12</u>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: Minford NRCS Soil Map Page: 48 NRCS Soil Map Stream Order: 1  
 County: Scioto Township / City: Harrison TWP

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/15/12 Quantity: 0.09  
 Photograph Information: See ESR.  
 Elevated Turbidity? (Y/N): N Canopy (% open): 85%  
 Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:   
 Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
 Is the sampling reach representative of the stream (Y/N) Y If not, please explain:  
Stream disappears becomes braided channel with no discernible OHWM before its confluence with Stream 38A.

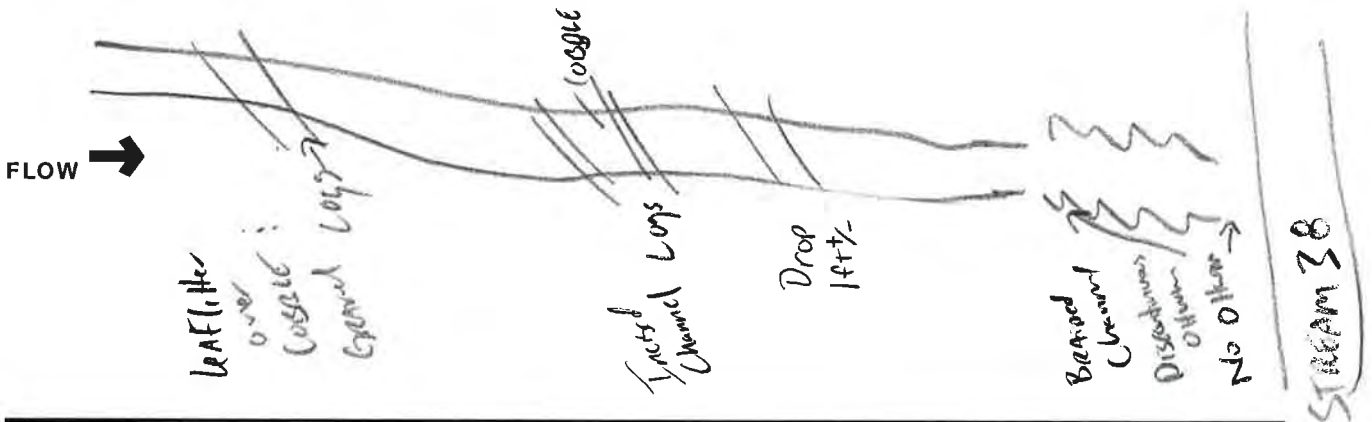
Additional comments/description of pollution impacts:  
Previously logged.

**BIOTIC EVALUATION**

Performed? (Y/N): Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
 Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N  
 Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N  
 Comments Regarding Biology:  
Only terrestrial species observed.

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



HHEI Score (sum of metrics 1, 2, 3):

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **38B1** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.00**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.78396** LONG. **-82.86839** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **10/16/12** SCORER **JK** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

<b>TYPE</b>	<b>PERCENT</b>	<b>TYPE</b>	<b>PERCENT</b>
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	5%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	30%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	15%	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	40%
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	10%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **20.00%** (A)      Separate Percentage Check **100%** (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3**      **TOTAL NUMBER OF SUBSTRATE TYPES: 5**

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters): 0**

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (<= 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 1.50**

**HHEI Metric Points**

Substrate Max = 40

**8**

A + B

Pool Depth Max = 30

**0**

Bankfull Width Max=30

**15**

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

<b>RIPARIAN WIDTH</b>		<b>FLOODPLAIN QUALITY</b>		
L	R	L	R	L
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank) Wide >10m		(Most Predominant per Bank) Mature Forest, Wetland		Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction

COMMENTS \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS **Moist channel, no pools.**

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5
		<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)     Flat to Moderate     Moderate (2 ft/100 ft)     Moderate to Severe     Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

WWH Name: Little Scioto River Distance from Evaluated Stream 1.13  
 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: Minford NRCS Soil Map Page: 48 NRCS Soil Map Stream Order 1  
County: Scioto Township / City: Harrison TWP

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/15/12 Quantity: 0.09  
Photograph Information: See ESR.  
Elevated Turbidity? (Y/N): N Canopy (% open): 85%  
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
Is the sampling reach representative of the stream (Y/N): Y If not, please explain:

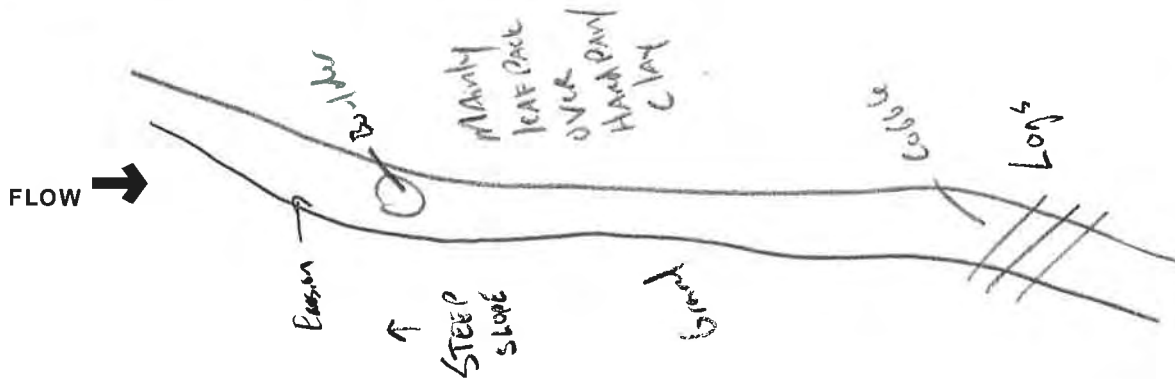
Additional comments/description of pollution impacts:  
Stream highly impacted by logging activities in lower reach of channel.

**BIOTIC EVALUATION**

Performed? (Y/N): Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N): N Voucher? (Y/N): N Salamanders Observed? (Y/N): N Voucher? (Y/N): N  
Frogs or Tadpoles Observed? (Y/N): N Voucher? (Y/N): N Aquatic Macroinvertebrates Observed? (Y/N): N Voucher? (Y/N): N  
Comments Regarding Biology:  
Only terrestrial species observed.

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **Stream 38D**

RIVER BASIN

DRAINAGE AREA (mi<sup>2</sup>) **0.00**

LENGTH OF STREAM REACH (ft)

LAT. **38.78180**

LONG. **-82.86766**

RIVER CODE

RIVER MILE

DATE **10/17/12**

SCORER **JME**

COMMENTS

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**

NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	5%	<input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	25%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	20%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	20%
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	30%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **25.00%** (A)

100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **12**

TOTAL NUMBER OF SUBSTRATE TYPES: **5**

**HHEI Metric Points**

Substrate Max = 40

**17**

A + B

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): **0**

Pool Depth Max = 30

**0**

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): **1.20**

Bankfull Width Max=30

**15**

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank)		(Most Predominant per Bank)		Conservation Tillage	
Wide >10m		Mature Forest, Wetland		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Immature Forest, Shrub or Old Field		<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field		<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		<input type="checkbox"/>	<input type="checkbox"/>	Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	Fenced Pasture		<input type="checkbox"/>	<input type="checkbox"/>
None				Mining or Construction	

COMMENTS \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input checked="" type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED?  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Little Scioto River</b>	Distance from Evaluated Stream	<b>1.06</b>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: **Minford** NRCS Soil Map Page: **48** NRCS Soil Map Stream Order: **1**  
County: **Scioto** Township / City: **Harrison TWP**

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **10/15/12** Quantity: **0.09**  
Photograph Information: **See ESR.**  
Elevated Turbidity? (Y/N): **N** Canopy (% open): **35%**  
Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
Is the sampling reach representative of the stream (Y/N): **Y** If not, please explain:

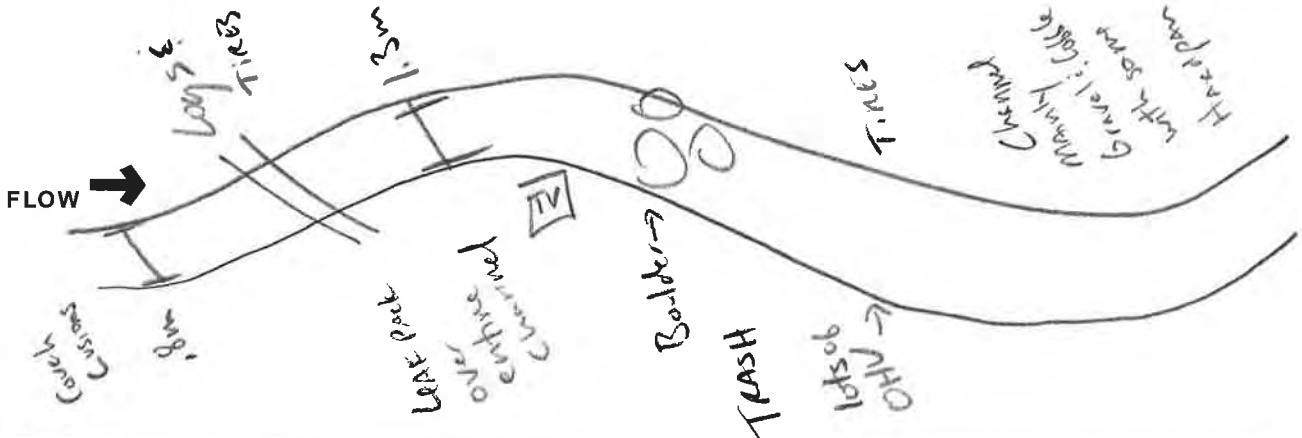
Additional comments/description of pollution impacts:  
**Previously logged. Channel covered in household debris including hypodermic needles, tires, mattresses, TVs, and couches.**

**BIOTIC EVALUATION**

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N): **N** Voucher? (Y/N): **N** Salamanders Observed? (Y/N): **N** Voucher? (Y/N): **N**  
Frogs or Tadpoles Observed? (Y/N): **N** Voucher? (Y/N): **N** Aquatic Macroinvertebrates Observed? (Y/N): **N** Voucher? (Y/N): **N**  
Comments Regarding Biology:  
**Not sampled due to trash.**

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **Stream 39** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.02**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.77490** LONG. **-82.87262** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **10/17/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	10%	<input checked="" type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	30%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	5%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	10%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	10%	<input type="checkbox"/> <input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	20%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	15%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **25.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:** 3 **TOTAL NUMBER OF SUBSTRATE TYPES:** 7

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

**COMMENTS:** \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters):** 0

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

**COMMENTS:** \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters):** 2.10

**HHEI Metric Points**

Substrate Max = 40

10

A + B

---

Pool Depth Max = 30

0

---

Bankfull Width Max=30

20

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank) Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS: \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS: \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input checked="" type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**  Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)



**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <u>Little Scioto River</u>	Distance from Evaluated Stream	<u>0.11</u>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: Minford NRCS Soil Map Page: 48 NRCS Soil Map Stream Order: 1  
 County: Scioto Township / City: Harrison TWP

**MISCELLANEOUS**

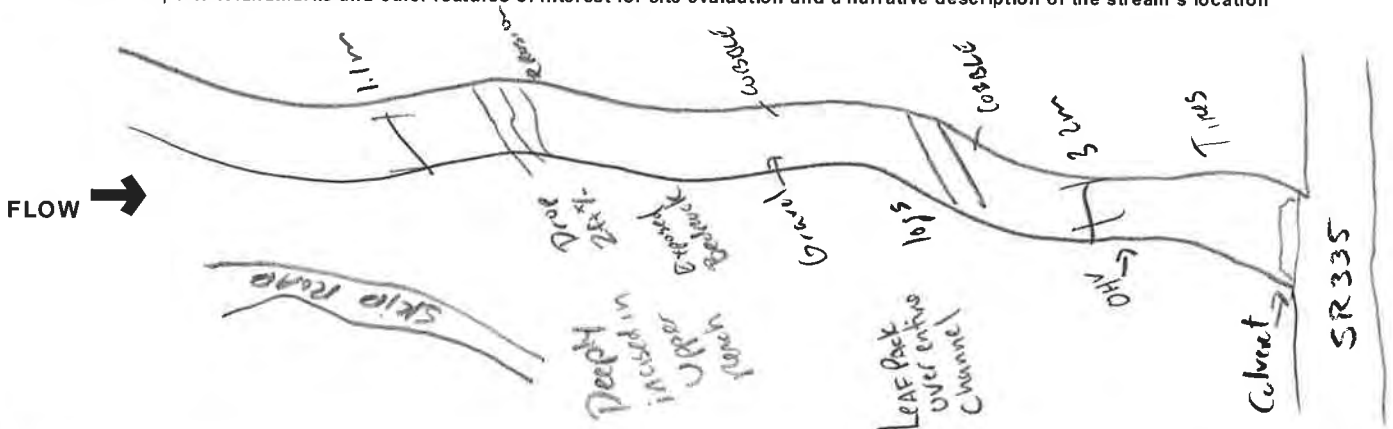
Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/15/12 Quantity: 0.09  
 Photograph Information: See ESR.  
 Elevated Turbidity? (Y/N): N Canopy (% open): 15%  
 Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:   
 Field Measures: 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): Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
 Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N  
 Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N  
 Comments Regarding Biology: Only terrestrial species observed.

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **Stream 39A** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.00**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.77506** LONG. **-82.87299** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **10/17/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)				<b>HHEI Metric Points</b>
TYPE	PERCENT	TYPE	PERCENT	
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	0%	Substrate Max = 40  <div style="border: 1px solid black; padding: 5px; font-size: 24px; margin: 5px auto;">7</div> A + B
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> <input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	40%	
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%	
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	5%	<input checked="" type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	45%	
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	10%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%	
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	0%	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock <b>5.00%</b> (A)		100% (B)		
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: <b>3</b>		TOTAL NUMBER OF SUBSTRATE TYPES: <b>4</b>		
2. <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):</b>				Pool Depth Max = 30  <div style="border: 1px solid black; padding: 5px; font-size: 24px; margin: 5px auto;">0</div>
<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]	<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]	
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]	COMMENTS _____		
COMMENTS _____		MAXIMUM POOL DEPTH (centimeters): <b>0</b>		
3. <b>BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):</b>				Bankfull Width Max=30  <div style="border: 1px solid black; padding: 5px; font-size: 24px; margin: 5px auto;">5</div>
<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]	
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	COMMENTS _____		AVERAGE BANKFULL WIDTH (meters): <b>0.60</b>	

This information must also be completed

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY		L R	
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> (Per Bank)	Wide >10m	<input type="checkbox"/> <input type="checkbox"/> (Most Predominant per Bank)	Mature Forest, Wetland	<input type="checkbox"/> <input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/> <input type="checkbox"/>	Moderate 5-10m	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field	<input type="checkbox"/> <input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/> <input type="checkbox"/>	Narrow <5m	<input type="checkbox"/> <input type="checkbox"/>	Residential, Park, New Field	<input type="checkbox"/> <input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/> <input type="checkbox"/>	None	<input type="checkbox"/> <input type="checkbox"/>	Fenced Pasture	<input type="checkbox"/> <input type="checkbox"/>	Mining or Construction

COMMENTS \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input checked="" type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

<input type="checkbox"/> Flat (0.5 ft/100 ft)	<input type="checkbox"/> Flat to Moderate	<input type="checkbox"/> Moderate (2 ft/100 ft)	<input type="checkbox"/> Moderate to Severe	<input checked="" type="checkbox"/> Severe (10 ft/100 ft)
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**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <u>Little Scioto River</u>	Distance from Evaluated Stream	<u>0.25</u>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: Minford NRCS Soil Map Page: 48 NRCS Soil Map Stream Order 1  
County: Scioto Township / City: Harrison TWP

**MISCELLANEOUS**

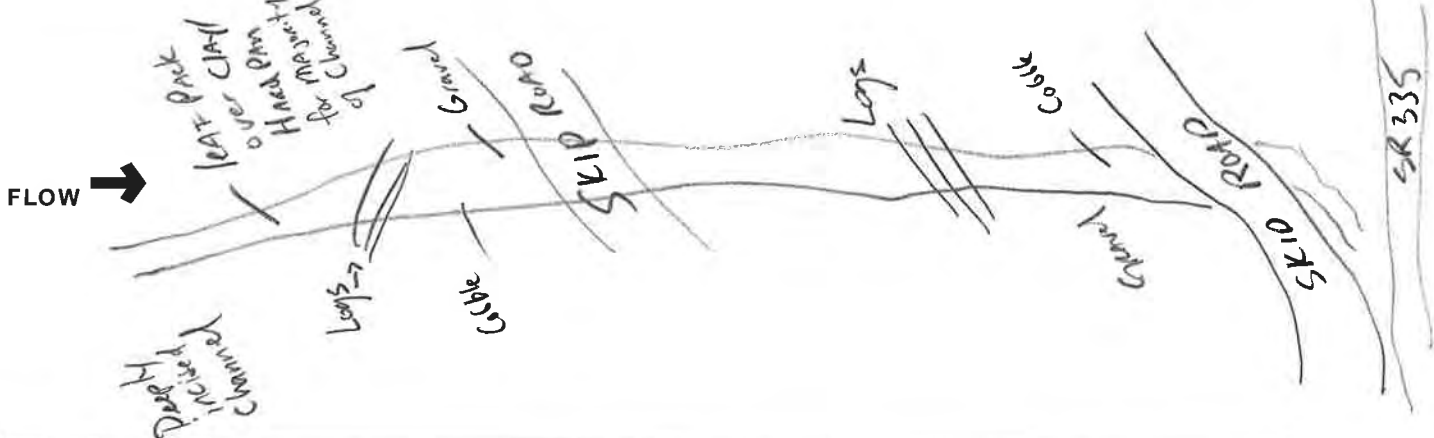
Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/15/12 Quantity: 0.09  
Photograph Information: See ESR.  
Elevated Turbidity? (Y/N): N Canopy (% open): 0%  
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
Is the sampling reach representative of the stream (Y/N): Y If not, please explain:   
Additional comments/description of pollution impacts:   
**Stream recently disturbed by logging road and ATV traffic.**

**BIOTIC EVALUATION**

Performed? (Y/N): Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N): N Voucher? (Y/N): N Salamanders Observed? (Y/N): N Voucher? (Y/N): N  
Frogs or Tadpoles Observed? (Y/N): N Voucher? (Y/N): N Aquatic Macroinvertebrates Observed? (Y/N): N Voucher? (Y/N): N  
Comments Regarding Biology: Only terrestrial species observed.

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **Stream 40** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.04**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.77232** LONG. **-82.87408** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **10/23/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	20%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	0%	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	35%
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	0%	<input checked="" type="checkbox"/> MUCK [0 pts]	30%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	15%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **0.00%** (A) Substrate Percentages Check **100%** (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 0** **TOTAL NUMBER OF SUBSTRATE TYPES: 4**

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**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

**COMMENTS** \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters): 5**

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**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input checked="" type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

**COMMENTS** \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 0.80**

HHEI Metric Points

Substrate Max = 40

4

A + B

---

Pool Depth Max = 30

5

---

Bankfull Width Max=30

5

This information must also be completed

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(Per Bank) Wide >10m	Conservation Tillage
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Narrow <5m	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None	Mining or Construction

**COMMENTS** \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

**COMMENTS** \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input checked="" type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**  Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score: \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/>	WWH Name: Little Scioto River	Distance from Evaluated Stream	0.14
<input type="checkbox"/>	CWH Name:	Distance from Evaluated Stream	
<input type="checkbox"/>	EWH Name:	Distance from Evaluated Stream	

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: Minford NRCS Soil Map Page: 48 NRCS Soil Map Stream Order: 1  
 County: Scioto Township / City: Portsmouth

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/19/12 Quantity: 0.02

Photograph Information: See ESR.

Elevated Turbidity? (Y/N): N Canopy (% open): 15%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: \_\_\_\_\_

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: \_\_\_\_\_

**Stream was not sampled due to strong septic smell in portions of channel near residential area.**

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

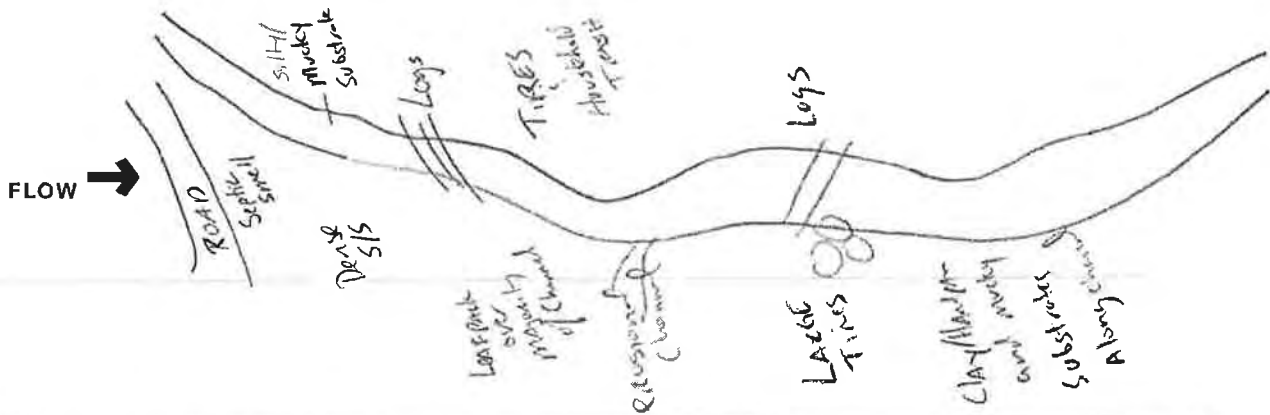
Fish Observed? (Y/N): N Voucher? (Y/N): N Salamanders Observed? (Y/N): N Voucher? (Y/N): N  
 Frogs or Tadpoles Observed? (Y/N): N Voucher? (Y/N): N Aquatic Macroinvertebrates Observed? (Y/N): N Voucher? (Y/N): N

Comments Regarding Biology: \_\_\_\_\_

**Stream was not sampled due to strong septic smell in portions of channel near residential area.**

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location





# Primary Headwater Habitat Evaluation Form

11

HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **Stream 40A** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.00**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.77197** LONG. **-82.87395** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **10/23/13** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)				<b>HHEI Metric Points</b> Substrate Max = 40
TYPE	PERCENT	TYPE	PERCENT	
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%	<b>6</b>
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	50%	
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	0%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	40%	
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	0%	<input type="checkbox"/> MUCK [0 pts]	10%	
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock <b>0.00%</b> (A)		Substrate Percentage Change: 100% (B)		
<b>SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3</b>		<b>TOTAL NUMBER OF SUBSTRATE TYPES: 3</b>		
<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):</b>				<b>Pool Depth Max = 30</b>
<input type="checkbox"/> > 30 centimeters [20 pts] <input type="checkbox"/> > 5 cm - 10 cm [15 pts] <input type="checkbox"/> > 22.5 - 30 cm [30 pts] <input type="checkbox"/> < 5 cm [5 pts] <input type="checkbox"/> > 10 - 22.5 cm [25 pts] <input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]				
<b>COMMENTS:</b> _____ <b>MAXIMUM POOL DEPTH (centimeters):</b> <b>0</b>				<b>0</b>
<b>3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):</b>				
<input type="checkbox"/> > 4.0 meters (> 13') [30 pts] <input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] <input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] <input type="checkbox"/> ≤ 1.0 m (<=3' 3") [5 pts] <input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]				<b>Bankfull Width Max=30</b>
<b>COMMENTS:</b> _____ <b>AVERAGE BANKFULL WIDTH (meters):</b> <b>0.70</b>				
<b>5</b>				

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

**COMMENTS:** Stream forms from sheet flow from adjacent yard.

**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:** Moist channel, no pools.

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

None       1.0       2.0       3.0  
 0.5       1.5       2.5       >3

**STREAM GRADIENT ESTIMATE**  Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED?  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: Little Scioto River	Distance from Evaluated Stream	0.20
<input type="checkbox"/> CWH Name:	Distance from Evaluated Stream	
<input type="checkbox"/> 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:

**MISCELLANEOUS**

Base Flow Conditions? (Y/N):  Y Date of last precipitation:  Quantity:   
 Photograph Information:   
 Elevated Turbidity? (Y/N):  N Canopy (% open):   
 Were samples collected for water chemistry? (Y/N):  N (Note lab sample no. or id. and attach results) Lab Number:   
 Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
 Is the sampling reach representative of the stream (Y/N):  Y If not, please explain:

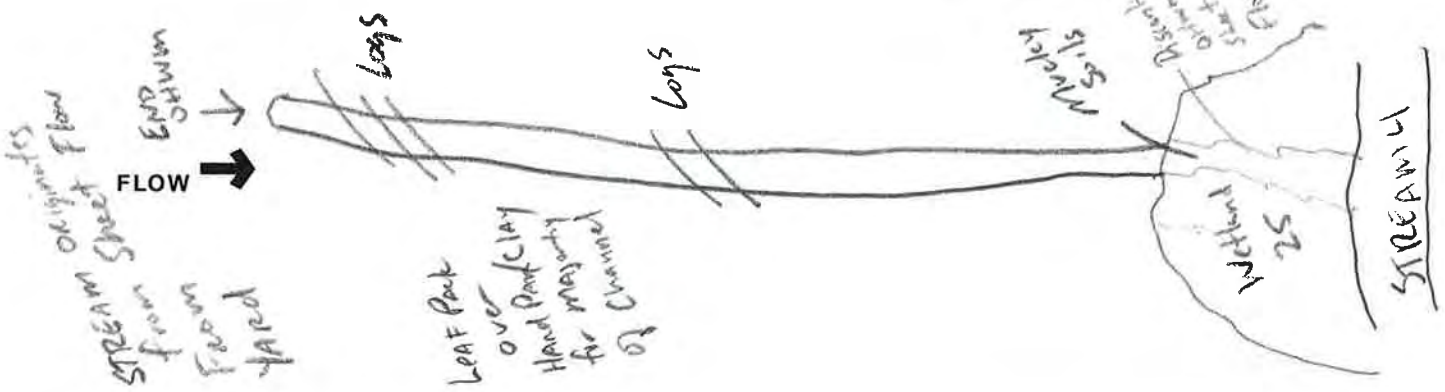
Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N):  N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
 Fish Observed? (Y/N):  N Voucher? (Y/N):  N Salamanders Observed? (Y/N):  N Voucher? (Y/N):  N  
 Frogs or Tadpoles Observed? (Y/N):  N Voucher? (Y/N):  N Aquatic Macroinvertebrates Observed? (Y/N):  N Voucher? (Y/N):  N  
 Comments Regarding Biology:

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **Stream 40B** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.00**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.77179** LONG. **-82.87310** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **10/23/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input checked="" type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	50%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	0%	<input type="checkbox"/> <input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	40%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	10%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **0.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:** 3 **TOTAL NUMBER OF SUBSTRATE TYPES:** 3

**2. Maximum Pool Depth** (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

<input type="checkbox"/> > 30 centimeters [20 pts] <input type="checkbox"/> > 22.5 - 30 cm [30 pts] <input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts] <input type="checkbox"/> < 5 cm [5 pts] <input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]
--	--

COMMENTS \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters):** 0

**3. BANK FULL WIDTH** (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts] <input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] <input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] <input checked="" type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
--	--

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters):** 0.40

**HHEI Metric Points**

Substrate Max = 40

6

A + B

Pool Depth Max = 30

0

Bankfull Width Max=30

5

This information must also be completed

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY				
L	R	L	R	L	R	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	(Per Bank) Wide >10m	<input type="checkbox"/>	(Most Predominant per Bank) Mature Forest, Wetland	<input type="checkbox"/>	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m	<input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field	<input type="checkbox"/>	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	Narrow <5m	<input type="checkbox"/>	Residential, Park, New Field	<input type="checkbox"/>	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	None	<input type="checkbox"/>	Fenced Pasture	<input type="checkbox"/>	Mining or Construction

COMMENTS \_\_\_\_\_

**FLOW REGIME** (At Time of Evaluation) (Check *ONLY* one box):

<input type="checkbox"/> Stream Flowing <input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent) <input type="checkbox"/> Dry channel, no water (Ephemeral)
--	---

COMMENTS **Moist channel, no pools.**

**SINUOSITY** (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

<input checked="" type="checkbox"/> None <input type="checkbox"/> 0.5	<input type="checkbox"/> 1.0 <input type="checkbox"/> 1.5	<input type="checkbox"/> 2.0 <input type="checkbox"/> 2.5	<input type="checkbox"/> 3.0 <input type="checkbox"/> >3
--	--	--	---

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)



**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

WWH Name: Little Scioto River Distance from Evaluated Stream 0.30  
 CWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_  
 EWH Name: \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: Minford NRCS Soil Map Page: 48 NRCS Soil Map Stream Order 1  
County: Scioto Township / City: Portsmouth

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/19/12 Quantity: 0.02

Photograph Information: See ESR.

Elevated Turbidity? (Y/N): N Canopy (% open): 25%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: \_\_\_\_\_

Field Measures: Temp (°C) \_\_\_\_\_ Dissolved Oxygen (mg/l) \_\_\_\_\_ pH (S.U.) \_\_\_\_\_ Conductivity (µmhos/cm) \_\_\_\_\_

Is the sampling reach representative of the stream (Y/N): Y If not, please explain: \_\_\_\_\_  
\_\_\_\_\_

Additional comments/description of pollution impacts: \_\_\_\_\_  
**Stream was not sampled due to strong septic smell in portions of channel near residential area.**

**BIOTIC EVALUATION**

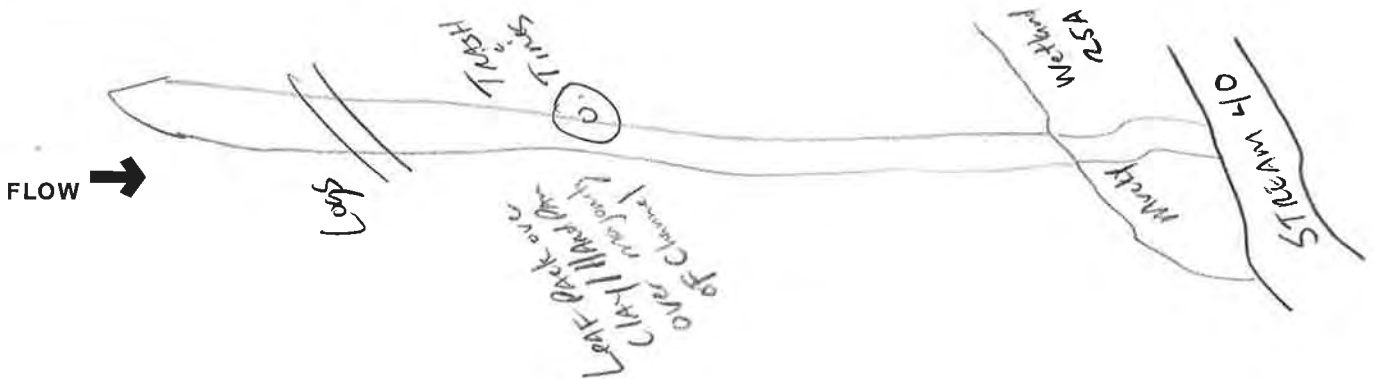
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N): N Voucher? (Y/N): N Salamanders Observed? (Y/N): N Voucher? (Y/N): N  
Frogs or Tadpoles Observed? (Y/N): N Voucher? (Y/N): N Aquatic Macroinvertebrates Observed? (Y/N): N Voucher? (Y/N): N

Comments Regarding Biology: \_\_\_\_\_  
**Stream was not sampled due to strong septic smell in portions of channel near residential area.**

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location





# Primary Headwater Habitat Evaluation Form

**12**

HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **Stream 41** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.04**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.77026** LONG. **-82.87426** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **10/23/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="checkbox"/> 0%	<input checked="" type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="checkbox"/> 40%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="checkbox"/> 35%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="checkbox"/> 15%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="checkbox"/> 10%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **0.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3** **TOTAL NUMBER OF SUBSTRATE TYPES: 4**

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

**COMMENTS** \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters): 0**

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input checked="" type="checkbox"/> ≤ 1.0 m (<= 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

**COMMENTS** \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 0.75**

**HHEI Metric Points**

Substrate Max = 40

**7**

A + B

Pool Depth Max = 30

**0**

Bankfull Width Max=30

**5**

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank) Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

**COMMENTS** \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

**COMMENTS** \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

WWH Name: Little Scioto River Distance from Evaluated Stream: 0.19  
 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: Minford NRCS Soil Map Page: 48 NRCS Soil Map Stream Order: 1  
County: Scioto Township / City: Portsmouth

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/19/12 Quantity: 0.02

Photograph Information: See ESR.

Elevated Turbidity? (Y/N): N Canopy (% open): 45%

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:

Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)

Is the sampling reach representative of the stream (Y/N): Y If not, please explain:

Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

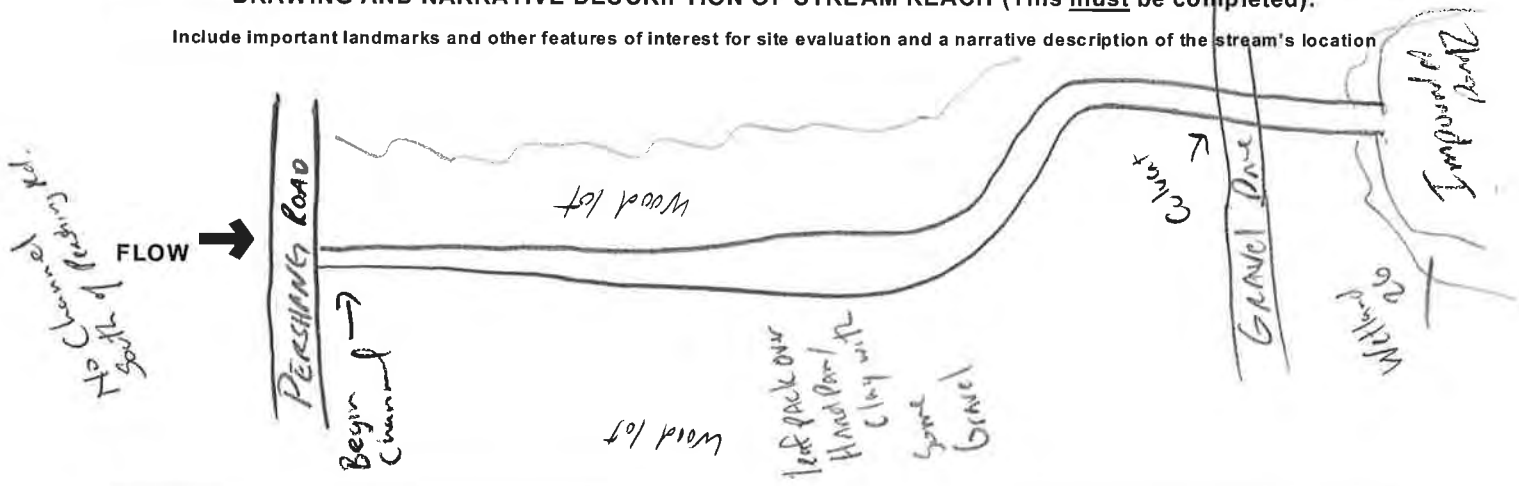
Performed? (Y/N): Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N): N Voucher? (Y/N): N Salamanders Observed? (Y/N): N Voucher? (Y/N): N  
Frogs or Tadpoles Observed? (Y/N): N Voucher? (Y/N): N Aquatic Macroinvertebrates Observed? (Y/N): N Voucher? (Y/N): N

Comments Regarding Biology: Only terrestrial species observed.

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **Stream 42** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.05**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. \_\_\_\_\_ LONG. \_\_\_\_\_ RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **10/23/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	5%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	20%	<input type="checkbox"/> <input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	35%
<input checked="" type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	40%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **25.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9**      **TOTAL NUMBER OF SUBSTRATE TYPES: 4**

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters): 0**

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input checked="" type="checkbox"/> ≤ 1.0 m (<= 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 0.80**

**HHEI Metric Points**

Substrate Max = 40

13

A + B

---

Pool Depth Max = 30

0

---

Bankfull Width Max=30

5

This information must also be completed

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input type="checkbox"/>	<input type="checkbox"/>	(Per Bank)	(Most Predominant per Bank)	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Wide >10m	Mature Forest, Wetland	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m	Immature Forest, Shrub or Old Field	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Narrow <5m	Residential, Park, New Field	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	None	Fenced Pasture	<input type="checkbox"/>	<input type="checkbox"/>

COMMENTS **Open pasture used for grazing cattle.**

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input checked="" type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED?  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <u>Little Scioto River</u>	Distance from Evaluated Stream	<u>0.58</u>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: Minford NRCS Soil Map Page: 48 NRCS Soil Map Stream Order: 1  
County: Scioto Township / City: Porter TWP

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/19/12 Quantity: 0.02  
Photograph Information: See ESR.  
Elevated Turbidity? (Y/N): N Canopy (% open): 100%  
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
Is the sampling reach representative of the stream (Y/N): Y If not, please explain:   
Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N  
Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N  
Comments Regarding Biology: Not sampled. Stream channel dry and impacted by cattle grazing.

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location





# Primary Headwater Habitat Evaluation Form

10

HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **Stream 42A** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.00**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.76306** LONG. **-82.87284** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **10/23/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	40%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	0%	<input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	60%
<input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	0%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **0.00%** (A)      Substrate From Inflow Creek **100%** (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3**      **TOTAL NUMBER OF SUBSTRATE TYPES: 2**

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**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input checked="" type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters): 0**

---

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 0.40**

**HHEI Metric Points**

Substrate Max = 40

5

A + B

---

Pool Depth Max = 30

0

---

Bankfull Width Max=30

5

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank) Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5
		<input type="checkbox"/> 3.0
		<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)     Flat to Moderate     Moderate (2 ft/100 ft)     Moderate to Severe     Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <u>Little Scioto River</u>	Distance from Evaluated Stream	<u>0.75</u>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: Minford NRCS Soil Map Page: 48 NRCS Soil Map Stream Order: 1  
County: Scioto Township / City: Porter TWP

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation:  Quantity:   
Photograph Information: See ESR.  
Elevated Turbidity? (Y/N): N Canopy (% open): 40%  
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
Is the sampling reach representative of the stream (Y/N): Y If not, please explain:

**OHWM originates in project area.**

Additional comments/description of pollution impacts:

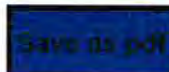
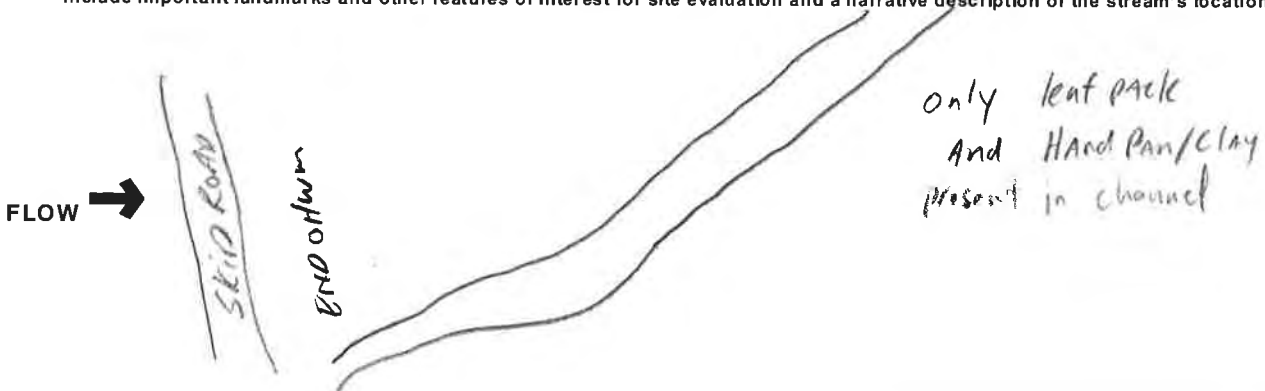
**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N): N Voucher? (Y/N): N Salamanders Observed? (Y/N): N Voucher? (Y/N): N  
Frogs or Tadpoles Observed? (Y/N): N Voucher? (Y/N): N Aquatic Macroinvertebrates Observed? (Y/N): N Voucher? (Y/N): N  
Comments Regarding Biology:

**Only the upper reach of the stream was located in the project area therefore no aquatic habitat present at time of investigation.**

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **Stream 43** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.04**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.75667** LONG. **-82.87333** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **10/23/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	15%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	15%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> <input checked="" type="checkbox"/> COBBLE (65-256 mm) [12 pts]	25%	<input checked="" type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	40%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	5%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **40.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12** **TOTAL NUMBER OF SUBSTRATE TYPES: 5**

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters): 0**

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input checked="" type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS **Deeply incised along majority of channel** **AVERAGE BANKFULL WIDTH (meters): 0.70**

**HHEI Metric Points**

Substrate Max = 40

**17**

A + B

Pool Depth Max = 30

**0**

Bankfull Width Max=30

**5**

This information must also be completed

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY		L R	
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank) Wide >10m		(Most Predominant per Bank) Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS **portion of stream impounded by ODNR wetland (Wetland 30)**

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS **Moist channel, no pools. No outflow from impounded wetland at time of survey.**

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)



**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED?  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <u>Scioto River</u>	Distance from Evaluated Stream	<u>0.63</u>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: Minford & New Boston NRCS Soil Map Page: 48 NRCS Soil Map Stream Order: 1  
County: Scioto Township / City: Porter TWP, Portsmouth

**MISCELLANEOUS**

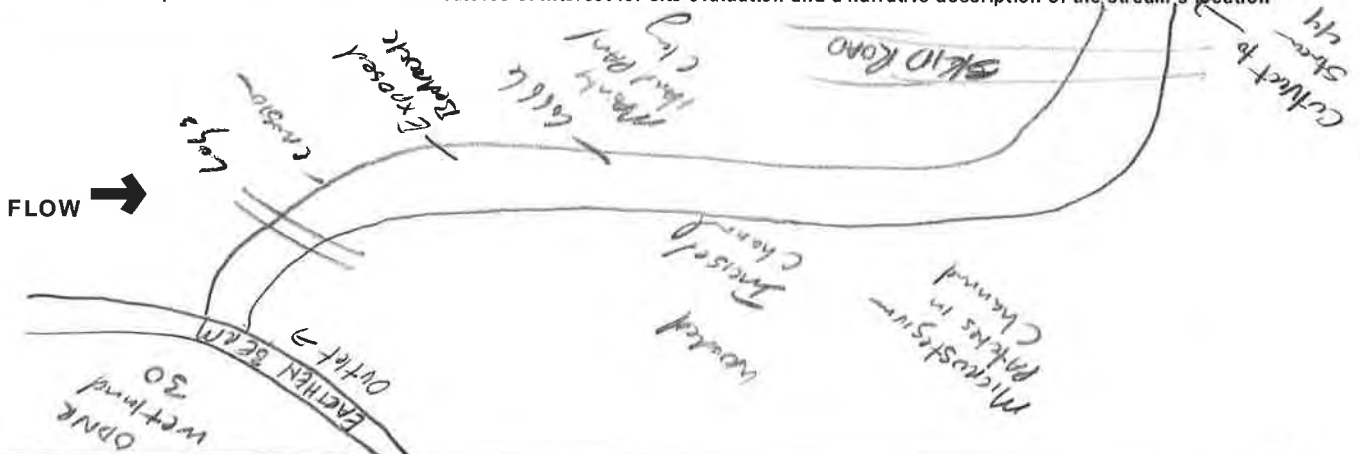
Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/24/12 Quantity: 0.03  
Photograph Information: See ESR.  
Elevated Turbidity? (Y/N): N Canopy (% open): 80%  
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
Is the sampling reach representative of the stream (Y/N): Y If not, please explain:   
Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N): Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N  
Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N  
Comments Regarding Biology: Only terrestrial species observed.

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **Stream 44** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.15**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.75602** LONG. **-82.87293** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **10/24/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	5%	<input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	20%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	15%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	10%
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	34%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	15%	<input type="checkbox"/> ARTIFICIAL [3 pts]	1%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **20.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12**      **TOTAL NUMBER OF SUBSTRATE TYPES: 7**

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters): 0**

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input checked="" type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 3.80**

**HHEI Metric Points**

Substrate Max = 40

19

A + B

---

Pool Depth Max = 30

0

---

Bankfull Width Max=30

25

This information **must** also be completed

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank) Wide >10m		(Most Predominant per Bank) Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS **Moist channel, no pools.**

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED?  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <u>Scioto River</u>	Distance from Evaluated Stream	<u>0.30</u>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: Minford NRCS Soil Map Page: 48 NRCS Soil Map Stream Order: 2  
 County: Scioto Township / City: Porter TWP, Portsmouth

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/24/12 Quantity: 0.03  
 Photograph Information: See ESR.  
 Elevated Turbidity? (Y/N): N Canopy (% open): 45%  
 Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:   
 Field Measures: Temp (°C) 8.09 Dissolved Oxygen (mg/l) 11.68 pH (S.U.) 7.77 Conductivity (µmhos/cm) 1  
 Is the sampling reach representative of the stream (Y/N): Y If not, please explain:   
Water quality taken at confluence of Streams 44 & 46 south of Weber St.

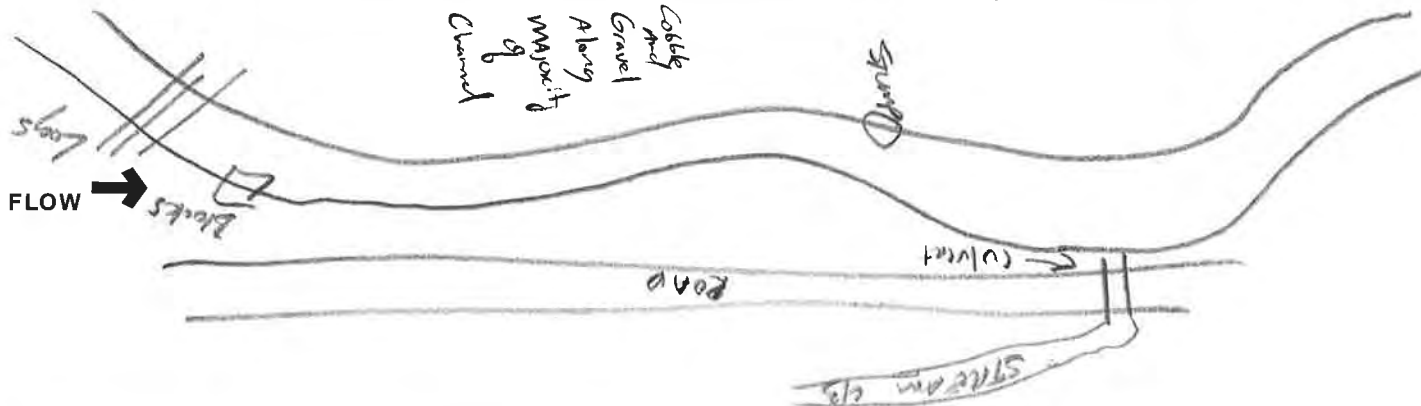
Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N): Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
 Fish Observed? (Y/N): N Voucher? (Y/N): N Salamanders Observed? (Y/N): N Voucher? (Y/N): N  
 Frogs or Tadpoles Observed? (Y/N): N Voucher? (Y/N): N Aquatic Macroinvertebrates Observed? (Y/N): N Voucher? (Y/N): N  
 Comments Regarding Biology: Conducted survey for 10 minutes and no aquatic species observed.

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



HHEI Score (sum of metrics 1, 2, 3):

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **Stream 45**

RIVER BASIN

DRAINAGE AREA (mi<sup>2</sup>) **0.00**

LENGTH OF STREAM REACH (ft)

LAT. **38.75560**

LONG. **-82.87421**

RIVER CODE

RIVER MILE

DATE **10/24/12**

SCORER **JME**

COMMENTS

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**

NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> <input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	25%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	15%	<input checked="" type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	35%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	20%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	5%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **15.00%** (A)

100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **3**

TOTAL NUMBER OF SUBSTRATE TYPES: **5**

**HHEI Metric Points**

Substrate Max = 40

**8**

A + B

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): **0**

Pool Depth Max = 30

**0**

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input checked="" type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): **0.90**

Bankfull Width Max=30

**5**

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank)		(Most Predominant per Bank)		Conservation Tillage	
Wide >10m		Mature Forest, Wetland		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field	
Moderate 5-10m		Field		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Residential, Park, New Field	
Narrow <5m		Fenced Pasture		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>			Open Pasture, Row Crop	
None				<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>			Mining or Construction	

COMMENTS \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

WWH Name: Scioto River Distance from Evaluated Stream 0.47  
 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: Minford & New Boston NRCS Soil Map Page: 48 NRCS Soil Map Stream Order 1  
County: Scioto Township / City: Portsmouth

**MISCELLANEOUS**

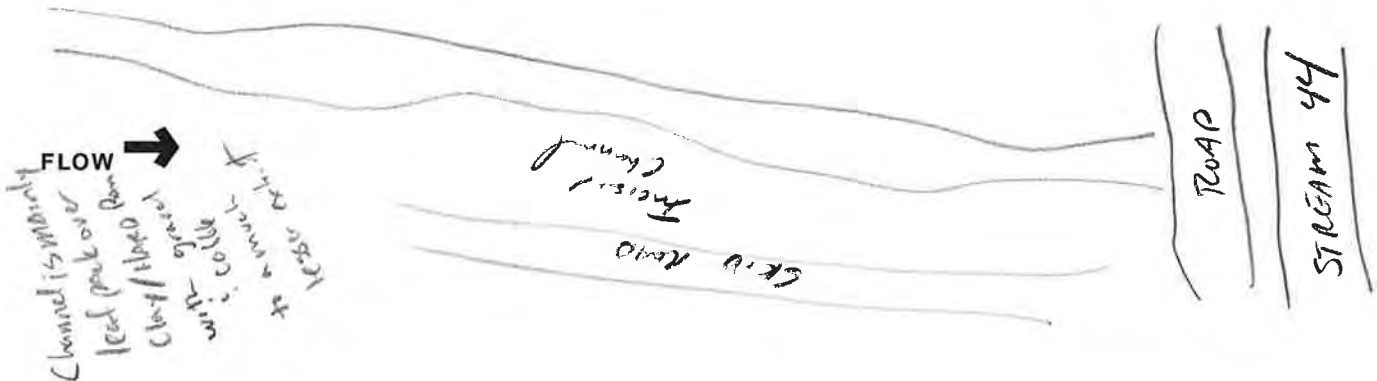
Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/24/12 Quantity: 0.03  
Photograph Information: See ESR.  
Elevated Turbidity? (Y/N): N Canopy (% open): 90%  
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
Is the sampling reach representative of the stream (Y/N): Y If not, please explain:   
Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N  
Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N  
Comments Regarding Biology:

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **Stream 46** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.11**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.75402** LONG. **-82.87256** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **10/24/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	5%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	20%
<input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input checked="" type="checkbox"/> COBBLE (65-256 mm) [12 pts]	25%	<input type="checkbox"/> CLAY or HARDPAN [0 pt]	0%
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	35%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [6 pts]	10%	<input type="checkbox"/> ARTIFICIAL [3 pts]	5%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **30.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 21**      **TOTAL NUMBER OF SUBSTRATE TYPES: 6**

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**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input checked="" type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

**COMMENTS** \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters): 14**

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**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (<= 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

**COMMENTS** \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 0.90**

**HHEI Metric Points**

Substrate Max = 40

27

A + B

Pool Depth Max = 30

25

Bankfull Width Max=30

5

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

**COMMENTS** \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input checked="" type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

**COMMENTS** \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)     Flat to Moderate     Moderate (2 ft/100 ft)     Moderate to Severe     Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED?  Yes  No QHEI Score: \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Scioto River</b>	Distance from Evaluated Stream: <b>0.39</b>
<input type="checkbox"/> CWH Name: _____	Distance from Evaluated Stream: _____
<input type="checkbox"/> EWH Name: _____	Distance from Evaluated Stream: _____

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: **Minford** NRCS Soil Map Page: **48** NRCS Soil Map Stream Order: **1**  
County: **Scioto** Township / City: **Porter TWP**

**MISCELLANEOUS**

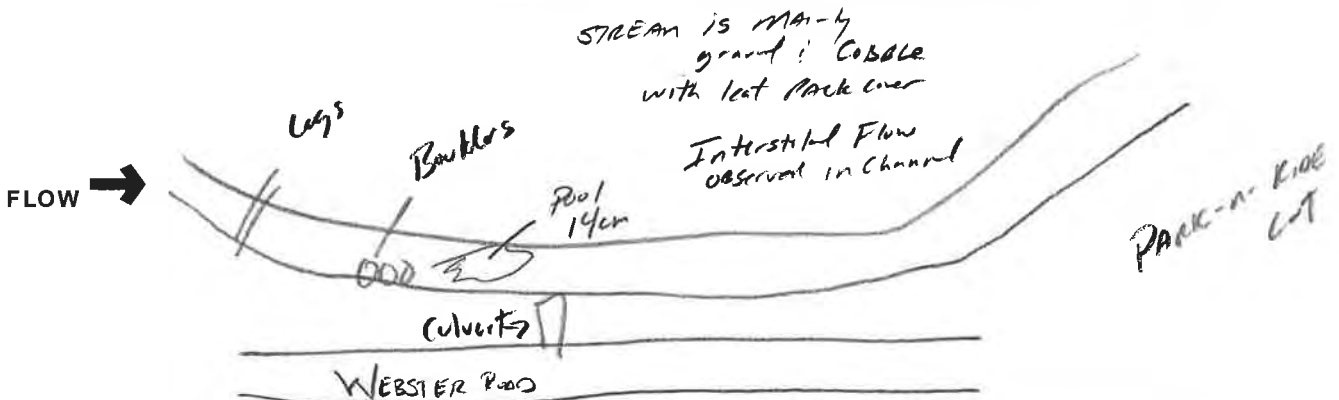
Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **10/24/12** Quantity: **0.03**  
Photograph Information: **See ESR.**  
Elevated Turbidity? (Y/N): **N** Canopy (% open): **35%**  
Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: \_\_\_\_\_  
Field Measures: Temp (°C): \_\_\_\_\_ Dissolved Oxygen (mg/l): \_\_\_\_\_ pH (S.U.): \_\_\_\_\_ Conductivity (µmhos/cm): \_\_\_\_\_  
Is the sampling reach representative of the stream (Y/N): **Y** If not, please explain: \_\_\_\_\_  
Additional comments/description of pollution impacts: \_\_\_\_\_

**BIOTIC EVALUATION**

Performed? (Y/N): **Y** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N): **N** Voucher? (Y/N): **N** Salamanders Observed? (Y/N): **N** Voucher? (Y/N): **N**  
Frogs or Tadpoles Observed? (Y/N): **Y** Voucher? (Y/N): **N** Aquatic Macroinvertebrates Observed? (Y/N): **Y** Voucher? (Y/N): **N**  
Comments Regarding Biology: **Unidentified frogs observed. Sow bugs very abundant 100+.**

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



## 1. Fish:

Voucher Specimens Retained? (select) Time Spent (minutes): Sample Method No EvaluationStream Length Assessed (meters) 

Species	Number Caught	Notes
Blank	<input type="text" value="0"/>	<input type="text"/>
Blank	<input type="text" value="0"/>	<input type="text"/>
Blank	<input type="text" value="0"/>	<input type="text"/>
Blank	<input type="text" value="0"/>	<input type="text"/>
	<input type="text" value="0"/>	<input type="text"/>
	<input type="text" value="0"/>	<input type="text"/>
	<input type="text" value="0"/>	<input type="text"/>
	<input type="text" value="0"/>	<input type="text"/>

## 2. Salamanders:

Voucher Specimens Retained? (circle) Time Spent (minutes): Sample Method No EvaluationStream Length Assessed (meters) 

Species (Genus)	# Larvae	# Juveniles/Adults	Total Number
Mountain Dusky ( <i>Desmognathus ochrophaeus</i> )	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Northern Dusky ( <i>Desmognathus fuscus</i> )	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Two-lined ( <i>Eurycea bislineata</i> )	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Long-tailed ( <i>Eurycea longicauda</i> )	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Cave ( <i>Eurycea lucifuga</i> )	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Red ( <i>Pseudotriton ruber</i> )	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Mud ( <i>Pseudotriton montanus</i> )	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Spring ( <i>Gyrinophilus porphyriticus</i> )	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Mole spp. ( <i>Ambystoma spp.</i> )	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Four-toed ( <i>Hemidactylium scutatum</i> )	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Other (name) <input type="text"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
<b>Total</b>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>

Notes on Vertebrates:



10/24/12

### 3. Macroinvertebrate Scoring Sheet:

#### THE HEADWATER MACROINVERTEBRATE FIELD EVALUATION INDEX (HMFEI) SCORING SHEET

Indicate Abundance of Each Taxa Above each White Box.

Record HMFEI Scoring Value Points Within each Box.

For EPT taxa, also indicate the different taxa present.

**Key:** V = Very Abundant (> 50); A = Abundant (10 -50); C = Common (3 -9); R = Rare (< 3)

Sessile Animals (Porifera, Cnidaria, Bryozoa) (HMFEI pts = 1)	Crayfish (Decapoda) (HMFEI pts = 2)	Fishfly Larvae (Corydalidae) (HMFEI pts = 3)
<input type="text" value="NA"/> <input type="text" value="0"/>	<input type="text" value="NA"/> <input type="text" value="0"/>	<input type="text" value="NA"/> <input type="text" value="0"/>
Aquatic Worms (Turbellaria, Hirudinea, Oligochaeta) (HMFEI pts = 1)	Dragonfly Nymphs (Anisoptera) (HMFEI pts = 2)	Water Penny Beetles (Psephenidae) (HMFEI pts = 3)
<input type="text" value="NA"/> <input type="text" value="0"/>	<input type="text" value="NA"/> <input type="text" value="0"/>	<input type="text" value="NA"/> <input type="text" value="0"/>
Sow Bugs (Isopoda) (HMFEI pts = 1)	Riffle Beetles (Dryopidae, Elmidae, Ptilodactylidae) (HMFEI pts = 2)	Crane-fly Larvae (Tipulidae) (HMFEI pts = 3)
<input type="text" value="V"/> <input type="text" value="1"/>	<input type="text" value="NA"/> <input type="text" value="0"/>	<input type="text" value="NA"/> <input type="text" value="0"/>
Scuds (Amphipoda) (HMFEI pts = 1)	Larvae of other Flies (enter name in comments) (Diptera): (HMFEI pts = 1)	EPT TAXA* Total No. EPT Taxa = <input type="text" value="0"/>
<input type="text" value="NA"/> <input type="text" value="0"/>	<input type="text" value="NA"/> <input type="text" value="0"/>	Mayfly Nymphs (Ephemeroptera) Taxa Present: <input type="text" value="0"/> HMFEI pts = <input type="text" value="NA"/> <input type="text" value="0"/> No. Taxa (x) 3]
Water Mites (Hydracarina) (HMFEI pts = 1)	Midges (Chironomidae) (HMFEI pts = 1)	Damsel Nymphs (Zygoptera) (HMFEI pts = 1)
<input type="text" value="NA"/> <input type="text" value="0"/>	<input type="text" value="NA"/> <input type="text" value="0"/>	<input type="text" value="NA"/> <input type="text" value="0"/>
Alderfly Larvae (Sialidae) (HMFEI pts = 1)	Snails (Gastropoda) (HMFEI pts = 1)	Stonefly Nymphs (Plecoptera) Taxa Present: <input type="text" value="0"/> HMFEI pts = <input type="text" value="NA"/> <input type="text" value="0"/> No. Taxa (x) 3]
<input type="text" value="NA"/> <input type="text" value="0"/>	<input type="text" value="NA"/> <input type="text" value="0"/>	<input type="text" value="NA"/> <input type="text" value="0"/>
Other Beetles (Coleoptera) (HMFEI pts = 1)	Other Taxa : <input type="text"/>	Caddisfly Larvae (Trichoptera) Taxa Present: <input type="text" value="0"/> HMFEI pts = <input type="text" value="NA"/> <input type="text" value="0"/> No. Taxa (x) 3]
<input type="text" value="NA"/> <input type="text" value="0"/>	<input type="text"/>	<input type="text" value="NA"/> <input type="text" value="0"/>
Other Taxa: <input type="text"/>	Other Taxa: <input type="text"/>	Other Taxa: <input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>

\*Note: EPT identification based upon Family or Genus level of taxonomy

Voucher Sample ID  Time Spent (minutes):

Notes on Macroinvertebrates: (Predominant Organisms; Other Common Organisms; Diversity Estimate)

**Sow bugs only aquatic macroinvertebrate observed. Several unidentified frogs observed.**

Final HMFEI Calculated Score (Sum of All White Box Scores) =

IF Final HMFEI Score is > 19, Then CLASS III PHWH STREAM  
 IF Final HMFEI Score is 7 to 19, Then CLASS II PHWH STREAM  
 IF Final HMFEI Score is < 7, Then CLASS I PHWH STREAM



HHEI Score (sum of metrics 1, 2, 3):

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **Stream 46A** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.00**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.75354** LONG. **-82.87169** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **10/24/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input checked="" type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	45%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	15%	<input type="checkbox"/> <input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	35%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	5%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **15.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3** **TOTAL NUMBER OF SUBSTRATE TYPES: 4**

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**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts] <input type="checkbox"/> > 22.5 - 30 cm [30 pts] <input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts] <input type="checkbox"/> < 5 cm [5 pts] <input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]
--	--

COMMENTS \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters): 0**

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**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts] <input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] <input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] <input checked="" type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
--	--

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 0.75**

**HHEI Metric Points**

Substrate Max = 40

7

A + B

---

Pool Depth Max = 30

0

---

Bankfull Width Max=30

5

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank) Wide >10m		Mature Forest, Wetland		Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture		Mining or Construction	

COMMENTS \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing <input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent) <input type="checkbox"/> Dry channel, no water (Ephemeral)
--	---

COMMENTS \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None <input type="checkbox"/> 0.5	<input checked="" type="checkbox"/> 1.0 <input type="checkbox"/> 1.5	<input type="checkbox"/> 2.0 <input type="checkbox"/> 2.5	<input type="checkbox"/> 3.0 <input type="checkbox"/> >3
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**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Scioto River</b>	Distance from Evaluated Stream: <b>0.43</b>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream: <input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream: <input type="text"/>

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: **Minford** NRCS Soil Map Page: **48** NRCS Soil Map Stream Order: **1**  
County: **Scioto** Township / City: **Porter TWP**

**MISCELLANEOUS**

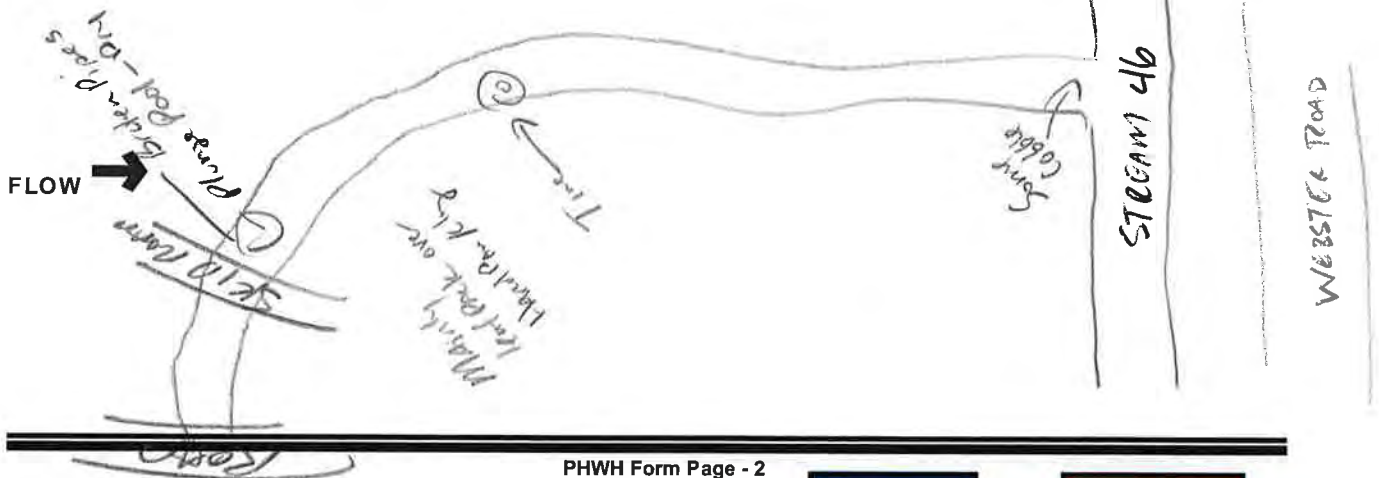
Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **10/24/12** Quantity: **0.03**  
Photograph Information: **See ESR.**  
Elevated Turbidity? (Y/N): **N** Canopy (% open): **20%**  
Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
Is the sampling reach representative of the stream (Y/N): **Y** If not, please explain:   
Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N): **Y** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N): **N** Voucher? (Y/N): **N** Salamanders Observed? (Y/N): **N** Voucher? (Y/N): **N**  
Frogs or Tadpoles Observed? (Y/N): **N** Voucher? (Y/N): **N** Aquatic Macroinvertebrates Observed? (Y/N): **N** Voucher? (Y/N): **N**  
Comments Regarding Biology: **Only terrestrial species observed.**

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



**HHEI Score (sum of metrics 1, 2, 3) :**

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **Stream 47** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.06**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.74825** LONG. **-82.87133** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **10/24/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> <input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	25%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	0%	<input checked="" type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	40%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	15%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	5%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	15%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **0.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3**      **TOTAL NUMBER OF SUBSTRATE TYPES: 5**

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**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input checked="" type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters): 20**

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**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 1.20**

**HHEI Metric Points**

Substrate Max = 40

8

A + B

Pool Depth Max = 30

25

Bankfull Width Max=30

15

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input type="checkbox"/>	<input type="checkbox"/>	(Per Bank)	(Most Predominant per Bank)	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Wide >10m	Mature Forest, Wetland	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	Moderate 5-10m	Immature Forest, Shrub or Old Field	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Narrow <5m	Residential, Park, New Field	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	None	Fenced Pasture	<input type="checkbox"/>	<input type="checkbox"/>

COMMENTS \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input checked="" type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Scioto River</b>	Distance from Evaluated Stream	<b>0.28</b>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: **Minford & Wheelersburg** NRCS Soil Map Page: **57** NRCS Soil Map Stream Order: **1**  
 County: **Scioto** Township / City: **Porter TWP**

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **10/24/12** Quantity: **0.03**  
 Photograph Information: **See ESR.**  
 Elevated Turbidity? (Y/N): **N** Canopy (% open): **100%**  
 Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number:   
 Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)   
 Is the sampling reach representative of the stream (Y/N): **Y** If not, please explain:

Additional comments/description of pollution impacts:  
**Not sampled due to septic smell.**

**BIOTIC EVALUATION**

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
 Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**  
 Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**  
 Comments Regarding Biology:  
**Not sampled due to septic smell.**

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



Stream & Location: STREAM 48 @ US 52 - SCI - 023 - 0.00 RM: Date: 1/7/12

Scorers Full Name & Affiliation: Jason Emley ASG Group Office verified location [ ] Lat./ Long.: 38.7429 182.8687 (NAD 83 - decimal 2)

River Code: STORET #: Check ONLY Two substrate TYPE BOXES; estimate % or note every type present Check ONE (Or 2 & average)

1] SUBSTRATE BEST TYPES: BLDR /SLABS [10], BOULDER [9], COBBLE [8], GRAVEL [7], SAND [6], BEDROCK [5]. OTHER TYPES: HARDPAN [4], DETRITUS [3], MUCK [2], SILT [2], ARTIFICIAL [0]. POOL RIFFLE: 5, 10, 5, 35, 45, 20. ORIGIN: LIMESTONE [1], TILLS [1], WETLANDS [0], HARDPAN [0], SANDSTONE [0], RIP/RAP [0], LACUSTURINE [0], SHALE [-1], COAL FINES [-2]. QUALITY: HEAVY [-2], MODERATE [-1], NORMAL [0], FREE [1], EXTENSIVE [-2], MODERATE [-1], NORMAL [0], NONE [1]. NUMBER OF BEST TYPES: 4 or more [2], 3 or less [0]. Comments: Embedment: SILT, EMBEDDEDNESS. Substrate: 16, Maximum 20.

2] INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools. Check ONE (Or 2 & average). UNDERCUT BANKS [1], OVERHANGING VEGETATION [1], SHALLOWS (IN SLOW WATER) [1], ROOTMATS [1]. POOLS > 70cm [2], ROOTWADS [1], BOULDERS [1]. OXBOWS, BACKWATERS [1], AQUATIC MACROPHYTES [1], LOGS OR WOODY DEBRIS [1]. AMOUNT: EXTENSIVE >75% [1], MODERATE 25-75% [7], SPARSE 5-<25% [3], NEARLY ABSENT <5% [1]. Comments: Cover Maximum 20, 8.

3] CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average). SINUOSITY: HIGH [4], MODERATE [3], LOW [2], NONE [1]. DEVELOPMENT: EXCELLENT [7], GOOD [5], FAIR [3], POOR [1]. CHANNELIZATION: NONE [6], RECOVERED [4], RECOVERING [3], RECENT OR NO RECOVERY [1]. STABILITY: HIGH [3], MODERATE [2], LOW [1]. Comments: Channel Maximum 20, 12.5.

4] BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average). River right looking downstream. EROSION: NONE / LITTLE [3], MODERATE [2], HEAVY / SEVERE [1]. RIPARIAN WIDTH: WIDE > 50m [4], MODERATE 10-50m [3], NARROW 5-10m [2], VERY NARROW < 5m [1], NONE [0]. FLOOD PLAIN QUALITY: FOREST, SWAMP [3], SHRUB OR OLD FIELD [2], RESIDENTIAL, PARK, NEW FIELD [1], FENCED PASTURE [1], OPEN PASTURE, ROWCROP [0]. CONSERVATION TILLAGE [1], URBAN OR INDUSTRIAL [0], MINING / CONSTRUCTION [0]. Indicate predominant land use(s) past 100m riparian. Comments: Riparian Maximum 10, 7.

5] POOL / GLIDE AND RIFFLE / RUN QUALITY MAXIMUM DEPTH: > 1m [6], 0.7-<1m [4], 0.4-<0.7m [2], 0.2-<0.4m [1], < 0.2m [0]. CHANNEL WIDTH: POOL WIDTH > RIFFLE WIDTH [2], POOL WIDTH = RIFFLE WIDTH [1], POOL WIDTH < RIFFLE WIDTH [0]. CURRENT VELOCITY: TORRENTIAL [-1], VERY FAST [1], FAST [1], MODERATE [1], SLOW [1], INTERSTITIAL [-1], INTERMITTENT [-2], EDDIES [1]. Indicate for reach - pools and riffles. Recreation Potential: Primary Contact, Secondary Contact. Comments: Pool / Current Maximum 12, 7.

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Check ONE (Or 2 & average). NO RIFFLE [metric=0]. RIFFLE DEPTH: BEST AREAS > 10cm [2], BEST AREAS 5-10cm [1], BEST AREAS < 5cm [metric=0]. RUN DEPTH: MAXIMUM > 50cm [2], MAXIMUM < 50cm [1]. RIFFLE / RUN SUBSTRATE: STABLE (e.g., Cobble, Boulder) [2], MOD. STABLE (e.g., Large Gravel) [1], UNSTABLE (e.g., Fine Gravel, Sand) [0]. RIFFLE / RUN EMBEDDEDNESS: NONE [2], LOW [1], MODERATE [0], EXTENSIVE [-1]. Comments: Riffle / Run Maximum 8, 5.

6] GRADIENT ( // ft/mi) DRAINAGE AREA ( 0.97 mi^2) VERY LOW - LOW [2-4], MODERATE [6-10], HIGH - VERY HIGH [10-6]. %POOL: 60, %GLIDE: 10, %RUN: 10, %RIFFLE: 20. Gradient Maximum 10, 6.

Comment RE: Reach consistency/Is reach typical of stream?, Recreation/Observed - Inferred, Other/ Sampling observations, Concerns, Access directions, etc.

**AJ SAMPLED REACH**

Check ALL that apply

**METHOD**

- BOAT
- WADE
- L. LINE
- OTHER

**DISTANCE**

- 0.5 Km
- 0.2 Km
- 0.15 Km
- 0.12 Km
- OTHER

**CLARITY**

- 1st --sample pass-- 2nd
- < 20 cm
  - 20-40 cm
  - 40-70 cm
  - > 70 cm/ CTB
  - SECCHI DEPTH

**CANOPY**

- > 85%- OPEN
- 55%-85%
- 30%-55%
- 10%-30%
- <10%- CLOSED

Fish observed in Pools - Not Collected likely Creek Chubs and for Sunners

Temp = 3.78°C, cond = 0.529, D.O. = 5.32, pH = 7.53

**BJAESTHETICS**

- NUISANCE ALGAE
- INVASIVE MACROPHYTES
- EXCESS TURBIDITY
- DISCOLORATION
- FOAM / SCUM
- OIL SHEEN
- TRASH / LITTER
- NUISANCE ODOR
- SLUDGE DEPOSITS
- CSOs/SSOs/OUTFALLS

**DJ MAINTENANCE**

- PUBLIC / PRIVATE / BOTH / NA
- ACTIVE / HISTORIC / BOTH / NA
- YOUNG-SUCCESSION-OLD
- SPRAY / SNAG / REMOVED
- MODIFIED / DIPPED OUT / NA
- LEVEED / ONE SIDED
- RELOCATED / CUTOFFS
- MOVING-BEDLOAD-STABLE
- ARMOURRED / SLUMPS
- ISLANDS / SCoured
- IMPOUNDED / DESICCATED
- FLOOD CONTROL / DRAINAGE

**EJ ISSUES**

- WWTP / CSO / NPDES / INDUSTRY
- HARDENED / URBAN / DIRT&GRIME
- CONTAMINATED / LANDFILL
- BMPs-CONSTRUCTION-SEDIMENT
- LOGGING / IRRIGATION / COOLING
- BANK / EROSION / SURFACE
- FALSE BANK / MANURE / LAGOON
- WASH H<sub>2</sub>O / TILE / H<sub>2</sub>O TABLE
- ACID / MINE / QUARRY / FLOW
- NATURAL / WETLAND / STAGNANT
- PARK / GOLF / LAWN / HOME
- ATMOSPHERE / DATA PAUCITY

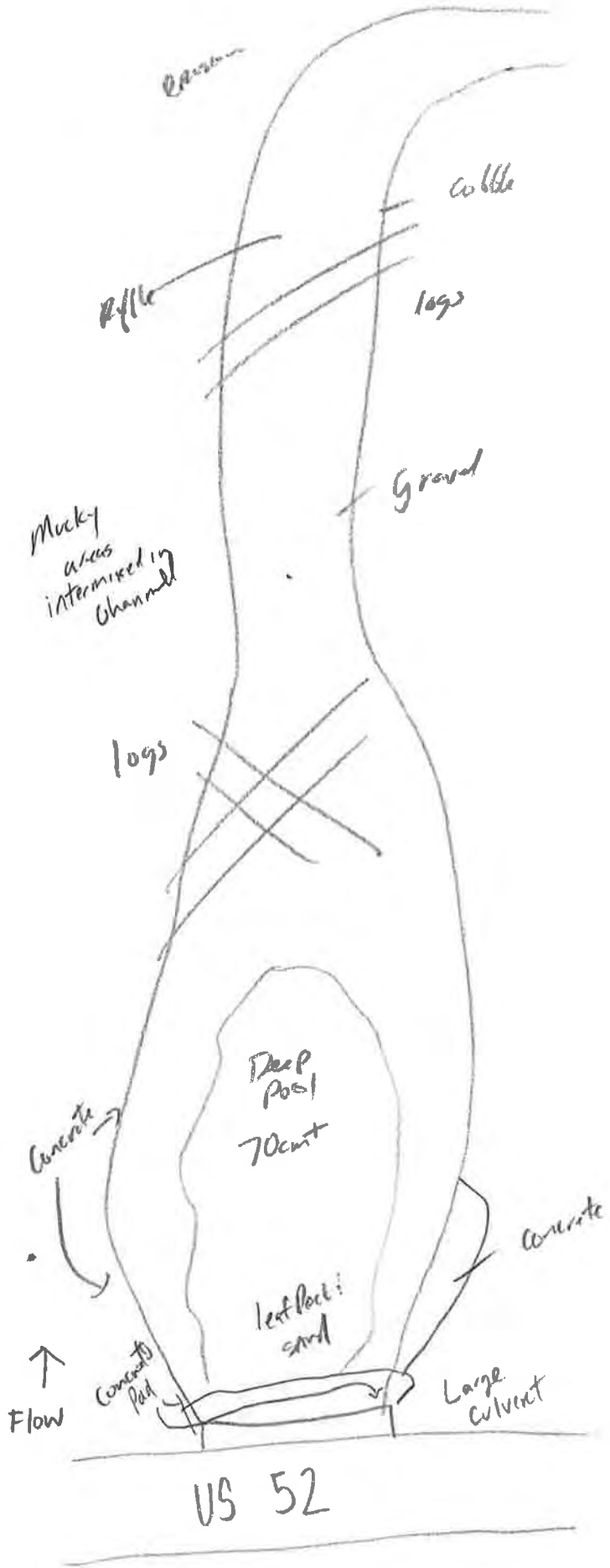
**FJ MEASUREMENTS**

- $\bar{x}$  width
- $\bar{x}$  depth
- max. depth
- $\bar{x}$  bankfull width
- bankfull  $\bar{x}$  depth
- W/D ratio
- bankfull max. depth
- floodprone  $\bar{x}^2$  width
- entrench. ratio

**CJ RECREATION**

- AREA DEPTH  
POOL:  >100ft<sup>2</sup>  >3ft

**Stream Drawing:**



SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

 SITE NUMBER **Stream 48A**

RIVER BASIN \_\_\_\_\_

 DRAINAGE AREA (mi<sup>2</sup>) **0.04**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_

 LAT. **38.74357**

 LONG. **-82.86914**

RIVER CODE \_\_\_\_\_

RIVER MILE \_\_\_\_\_

 DATE **11/07/12**

 SCORER **JME**

COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**
**STREAM CHANNEL MODIFICATIONS:**
 NONE / NATURAL CHANNEL
  RECOVERED
  RECOVERING
  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="checkbox"/> 0%	<input checked="" type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="checkbox"/> 50%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="checkbox"/> 10%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="checkbox"/> 30%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="checkbox"/> 10%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	<input type="checkbox"/> 0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="checkbox"/> 0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="checkbox"/> 0%

 Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **0.00%**
**(A)**

100%

**(B)**
**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:** **3**
**TOTAL NUMBER OF SUBSTRATE TYPES:** **4**
**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input checked="" type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS \_\_\_\_\_

**MAXIMUM POOL DEPTH (centimeters):** **4**
**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input checked="" type="checkbox"/> ≤ 1.0 m (<=3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS \_\_\_\_\_

**AVERAGE BANKFULL WIDTH (meters):** **0.60**
**HHEI Metric Points**

Substrate Max = 40

**7**
**A + B**

Pool Depth Max = 30

**5**

Bankfull Width Max=30

**5**
**This information must also be completed**
**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank)	Wide >10m	(Most Predominant per Bank)	Mature Forest, Wetland	Conservation Tillage	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Moderate 5-10m		Immature Forest, Shrub or Old Field	Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Narrow <5m		Residential, Park, New Field	Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	None		Fenced Pasture	Mining or Construction	

 COMMENTS **Located within a floodplain.**
**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input checked="" type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**
 Flat (0.5 ft/100 ft)
  Flat to Moderate
  Moderate (2 ft/100 ft)
  Moderate to Severe
  Severe (10 ft/100 ft)



**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input checked="" type="checkbox"/> WWH Name: <b>Scioto River</b>	Distance from Evaluated Stream	<b>0.39</b>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name: **Wheelersburg** NRCS Soil Map Page: **57** NRCS Soil Map Stream Order: **1**  
County: **Scioto** Township / City: **Wheelersburg**

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: **11/03/12** Quantity: **0.17**  
Photograph Information: **See ESR.**  
Elevated Turbidity? (Y/N): **N** Canopy (% open): **10%**  
Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number:   
Field Measures: Temp (°C):  Dissolved Oxygen (mg/l):  pH (S.U.):  Conductivity (µmhos/cm):   
Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain:  
**Stream was too shallow to collect water quality data.**

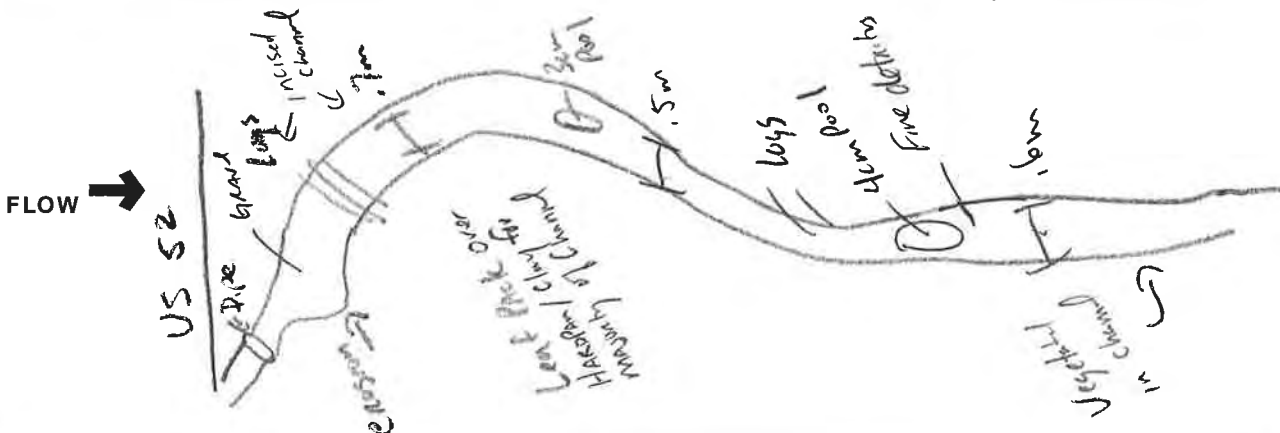
Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N): **Y** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**  
Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**  
Comments Regarding Biology:  
**Only terrestrial species observed.**

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **SCI - 823 Portsmouth Bypass Phase 3**

SITE NUMBER **Stream 49** RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>) **0.35**

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. **38.74077** LONG. **-82.86777** RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **11/07/12** SCORER **JME** COMMENTS \_\_\_\_\_

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input checked="" type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	50%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	0%	<input type="checkbox"/> <input checked="" type="checkbox"/> CLAY or HARDPAN [0 pt]	50%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **0.00%** (A) 100% (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:** 3 **TOTAL NUMBER OF SUBSTRATE TYPES:** 2

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**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts] <input type="checkbox"/> > 22.5 - 30 cm [30 pts] <input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input checked="" type="checkbox"/> > 5 cm - 10 cm [15 pts] <input type="checkbox"/> < 5 cm [5 pts] <input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]
--	--

**COMMENTS:** \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters):** 8

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**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts] <input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] <input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] <input checked="" type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
--	--

**COMMENTS:** \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters):** 0.90

**HHEI Metric Points**

Substrate Max = 40

5

A + B

---

Pool Depth Max = 30

15

---

Bankfull Width Max=30

5

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R	L	R
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank)		(Most Predominant per Bank)		Conservation Tillage	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland		Urban or Industrial	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field		Open Pasture, Row Crop	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field		Mining or Construction	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture			

COMMENTS \_\_\_\_\_

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input checked="" type="checkbox"/> Stream Flowing <input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent) <input type="checkbox"/> Dry channel, no water (Ephemeral)
---	--

COMMENTS \_\_\_\_\_

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input checked="" type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

WWH Name: Scioto River Distance from Evaluated Stream 0.58  
 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: Minford NRCS Soil Map Page: 57 NRCS Soil Map Stream Order 1  
 County: Scioto Township / City: Wheelersburg

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: 11/03/12 Quantity: 0.17  
 Photograph Information: See ESR.  
 Elevated Turbidity? (Y/N): N Canopy (% open): 25%  
 Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: \_\_\_\_\_  
 Field Measures: Temp (°C) 3.76 Dissolved Oxygen (mg/l) 5.43 pH (S.U.) 6.87 Conductivity (µmhos/cm) 1  
 Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_  
 \_\_\_\_\_

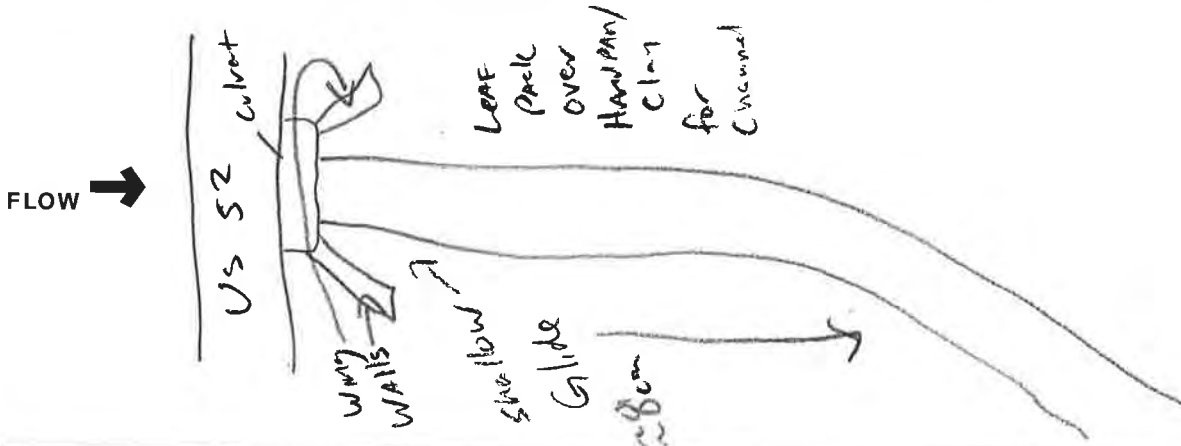
Additional comments/description of pollution impacts: \_\_\_\_\_  
 \_\_\_\_\_

**BIOTIC EVALUATION**

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  
 Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N  
 Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N  
 Comments Regarding Biology: \_\_\_\_\_  
 \_\_\_\_\_

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



## **ORAM v. 5.0 Forms**

## Background Information

Name:	JASON EARLEY	
Date:	MARCH 6, 2013	
Affiliation:	ASC Group, Inc.	
Address:	800 Freeway Drive North, Suite 101, Columbus, OH 43224	
Phone Number:	(614) 268-2514 ext 3444	
e-mail address:	jearley@ascgroup.net	
Name of Wetland:	Phase 2 - Wetlands 1-19	
Vegetation Community(ies):	VARIOUS - see ESR	
HGM Class(es):	VARIOUS	
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.		
SEE Figure 1 in ESR		
Lat/Long or UTM Coordinate	VARIOUS	
USGS Quad Name	VARIOUS	
County	Scioto	
Township	VARIOUS	
Section and Subsection	VARIOUS	
Hydrologic Unit Code	VARIOUS	
Site Visit	Yes	
National Wetland Inventory Map	Yes - See ESR Figure 7	
Ohio Wetland Inventory Map	Yes - See ESR Figure 7	
Soil Survey	Yes - See ESR Figure 9	
Delineation report/map	Yes - See ESR Figures 11 & 12	

Name of Wetland: Wetlands 1-19- SEE ESR - Construction Phase 2 Wetland TABLE	
Wetland Size (acres, hectares):	VARIOUS - SEE ESR TABLE
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc. SEE ESR FIGURES 11 & 12	
Comments, Narrative Discussion, Justification of Category Changes: VARIOUS - SEE ESR	
Final score :	VARIOUS - SEE ESR
Category:	N/A

## Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the “scoring boundaries” of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the “jurisdictional boundaries.” For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland’s jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. *Areas with a high degree of hydrologic interaction should be scored as a single wetland.* In determining a wetland’s scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	✓	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	✓	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	✓	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	✓	
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.	✓	

**End of Scoring Boundary Determination. Begin Narrative Rating on next page.**

## Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), <http://www.dnr.state.oh.us/dnap>. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	<b>Critical Habitat.</b> Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	YES  Wetland should be evaluated for possible Category 3 status  Go to Question 2	<input checked="" type="radio"/> NO  Go to Question 2
2	<b>Threatened or Endangered Species.</b> Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES  Wetland is a Category 3 wetland.  Go to Question 3	<input checked="" type="radio"/> NO  Go to Question 3
3	<b>Documented High Quality Wetland.</b> Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES  Wetland is a Category 3 wetland  Go to Question 4	<input checked="" type="radio"/> NO  Go to Question 4
4	<b>Significant Breeding or Concentration Area.</b> Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES  Wetland is a Category 3 wetland  Go to Question 5	<input checked="" type="radio"/> NO  Go to Question 5
5	<b>Category 1 Wetlands.</b> Is the wetland less than 0.5 hectares (1 acre) in size and <b>hydrologically isolated</b> and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea</i> , <i>Lythrum salicaria</i> , or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES  Wetland is a Category 1 wetland  Go to Question 6	<input checked="" type="radio"/> NO  Go to Question 6
6	<b>Bogs.</b> Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES  Wetland is a Category 3 wetland  Go to Question 7	<input checked="" type="radio"/> NO  Go to Question 7
7	<b>Fens.</b> Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES  Wetland is a Category 3 wetland  Go to Question 8a	<input checked="" type="radio"/> NO  Go to Question 8a
8a	<b>"Old Growth Forest."</b> Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES  Wetland is a Category 3 wetland.  Go to Question 8b	<input checked="" type="radio"/> NO  Go to Question 8b



8b	<b>Mature forested wetlands.</b> Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	YES  Wetland should be evaluated for possible Category 3 status.  Go to Question 9a	NO  Go to Question 9a
9a	<b>Lake Erie coastal and tributary wetlands.</b> Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES  Go to Question 9b	NO  Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES  Wetland should be evaluated for possible Category 3 status  Go to Question 10	NO  Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	YES  Go to Question 9d	NO  Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES  Wetland is a Category 3 wetland  Go to Question 10	NO  Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES  Wetland should be evaluated for possible Category 3 status  Go to Question 10	NO  Go to Question 10
10	<b>Lake Plain Sand Prairies (Oak Openings)</b> Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	YES  Wetland is a Category 3 wetland.  Go to Question 11	NO  Go to Question 11
11	<b>Relict Wet Prairies.</b> Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	YES  Wetland should be evaluated for possible Category 3 status  Complete Quantitative Rating	NO  Complete Quantitative Rating

**Table 1. Characteristic plant species.**

<b>invasive/exotic spp</b>	<b>fen species</b>	<b>bog species</b>	<b>Oak Opening species</b>	<b>wet prairie species</b>
<i>Lythrum salicaria</i>	<i>Zygadenus elegans</i> var. <i>glaucus</i>	<i>Calla palustris</i>	<i>Carex cryptolepis</i>	<i>Calamagrostis canadensis</i>
<i>Myriophyllum spicatum</i>	<i>Cacalia plantaginea</i>	<i>Carex atlantica</i> var. <i>capillacea</i>	<i>Carex lasiocarpa</i>	<i>Calamagrostis stricta</i>
<i>Najas minor</i>	<i>Carex flava</i>	<i>Carex echinata</i>	<i>Carex stricta</i>	<i>Carex atherodes</i>
<i>Phalaris arundinacea</i>	<i>Carex sterilis</i>	<i>Carex oligosperma</i>	<i>Cladium mariscoides</i>	<i>Carex buxbaumii</i>
<i>Phragmites australis</i>	<i>Carex stricta</i>	<i>Carex trisperma</i>	<i>Calamagrostis stricta</i>	<i>Carex pellita</i>
<i>Potamogeton crispus</i>	<i>Deschampsia caespitosa</i>	<i>Chamaedaphne calyculata</i>	<i>Calamagrostis canadensis</i>	<i>Carex sartwellii</i>
<i>Ranunculus ficaria</i>	<i>Eleocharis rostellata</i>	<i>Decodon verticillatus</i>	<i>Quercus palustris</i>	<i>Gentiana andrewsii</i>
<i>Rhamnus frangula</i>	<i>Eriophorum viridicarinarum</i>	<i>Eriophorum virginicum</i>		<i>Helianthus grosseserratus</i>
<i>Typha angustifolia</i>	<i>Gentianopsis</i> spp.	<i>Larix laricina</i>		<i>Liatris spicata</i>
<i>Typha xglauca</i>	<i>Lobelia kalmii</i>	<i>Nemopanthus mucronatus</i>		<i>Lysimachia quadriflora</i>
	<i>Parnassia glauca</i>	<i>Scheuchzeria palustris</i>		<i>Lythrum alatum</i>
	<i>Potentilla fruticosa</i>	<i>Sphagnum</i> spp.		<i>Pycnanthemum virginianum</i>
	<i>Rhamnus alnifolia</i>	<i>Vaccinium macrocarpon</i>		<i>Silphium terebinthinaceum</i>
	<i>Rhynchospora capillacea</i>	<i>Vaccinium corymbosum</i>		<i>Sorghastrum nutans</i>
	<i>Salix candida</i>	<i>Vaccinium oxycoccos</i>		<i>Spartina pectinata</i>
	<i>Salix myricoides</i>	<i>Woodwardia virginica</i>		<i>Solidago riddellii</i>
	<i>Salix serissima</i>	<i>Xyris difformis</i>		
	<i>Solidago ohioensis</i>			
	<i>Tofieldia glutinosa</i>			
	<i>Triglochin maritimum</i>			
	<i>Triglochin palustre</i>			

**End of Narrative Rating. Begin Quantitative Rating on next page.**

## ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1. Critical Habitat	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 4. Significant bird habitat	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 1.
	Question 6. Bogs	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 7. Fens	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 8a. Old Growth Forest	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands - Unrestricted with native plants	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, evaluate for Category 3; may also be 1 or 2.
Question 10. Oak Openings	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3	
Question 11. Relict Wet Prairies	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, evaluate for Category 3; may also be 1 or 2.	
Quantitative Rating	Metric 1. Size	VARIOUS	
	Metric 2. Buffers and surrounding land use	VARIOUS	
	Metric 3. Hydrology	VARIOUS	
	Metric 4. Habitat	VARIOUS	
	Metric 5. Special Wetland Communities	VARIOUS	
	Metric 6. Plant communities, interspersions, microtopography	VARIOUS	
	TOTAL SCORE	SEE ESR :	Category based on score breakpoints

*ORAM Summary sheets*

**Complete Wetland Categorization Worksheet.**

## Wetland Categorization Worksheet

Choices	Circle one	Evaluation of Categorization Result of ORAM
<p>Did you answer "Yes" to any of the following questions:</p> <p>Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10</p>	<p>YES</p> <p>Wetland is categorized as a Category 3 wetland</p>	<p>NO</p> <p>Is quantitative rating score <i>less</i> than the Category 2 scoring threshold (<i>excluding</i> gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been over-categorized by the ORAM</p>
<p>Did you answer "Yes" to any of the following questions:</p> <p>Narrative Rating Nos. 1, 8b, 9b, 9e, 11</p>	<p>YES</p> <p>Wetland should be evaluated for possible Category 3 status</p>	<p>NO</p> <p>Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.</p>
<p>Did you answer "Yes" to</p> <p>Narrative Rating No. 5</p>	<p>YES</p> <p>Wetland is categorized as a Category 1 wetland</p>	<p>NO</p> <p>Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold (<i>including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM</p>
<p>Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?</p>	<p>YES</p> <p>Wetland is assigned to the appropriate category based on the scoring range</p>	<p>NO</p> <p>If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.</p>
<p>Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?</p>	<p>YES</p> <p>Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria</p>	<p>NO</p> <p>Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).</p>
<p>Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was <i>not</i> categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?</p>	<p>YES</p> <p>Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form</p>	<p>NO</p> <p>Wetland is assigned to category as determined by the ORAM.</p> <p>A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.</p>

See ESK TABLE

Final Category			
Choose one	Category 1	Category 2	Category 3

**End of Ohio Rapid Assessment Method for Wetlands.**

Site: Wetland 1- Portsmouth Bypass Rater(s): JME / LM Date: 6/25/2012

3	3
max 6 pts.	subtotal

### Metric 1. Wetland Area (size).

- Select one size class and assign score.
- >50 acres (>20.2ha) (6 pts)
  - 25 to <50 acres (10.1 to <20.2ha) (5 pts)
  - 10 to <25 acres (4 to <10.1ha) (4 pts)
  - 3 to <10 acres (1.2 to <4ha) (3 pts)
  - 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
  - 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
  - <0.1 acres (0.04ha) (0 pts)

1	4
max 14 pts.	subtotal

### Metric 2. Upland buffers and surrounding land use.

- 2a. Calculate average buffer width. Select only one and assign score. Do not double check.
- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
  - MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
  - NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
  - VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)
- 2b. Intensity of surrounding land use. Select one or double check and average.
- VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
  - LOW. Old field (>10 years), shrub land, young second growth forest. (5)
  - MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
  - HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

15	19
max 30 pts.	subtotal

### Metric 3. Hydrology.

- 3a. Sources of Water. Score all that apply.
- High pH groundwater (5)
  - Other groundwater (3)
  - Precipitation (1)
  - Seasonal/Intermittent surface water (3)
  - Perennial surface water (lake or stream) (5)
- 3b. Connectivity. Score all that apply.
- 100 year floodplain (1)
  - Between stream/lake and other human use (1)
  - Part of wetland/upland (e.g. forest), complex (1)
  - Part of riparian or upland corridor (1)
- 3c. Maximum water depth. Select only one and assign score.
- >0.7 (27.6in) (3)
  - 0.4 to 0.7m (15.7 to 27.6in) (2)
  - <0.4m (<15.7in) (1)
- 3d. Duration inundation/saturation. Score one or dbl check.
- Semi- to permanently inundated/saturated (4)
  - Regularly inundated/saturated (3)
  - Seasonally inundated (2)
  - Seasonally saturated in upper 30cm (12in) (1)
- 3e. Modifications to natural hydrologic regime. Score one or double check and average.
- |   |  |  |
|---|--|--|
| <ul style="list-style-type: none"> <li><input type="checkbox"/> None or none apparent (12)</li> <li><input type="checkbox"/> Recovered (7)</li> <li><input checked="" type="checkbox"/> Recovering (3)</li> <li><input type="checkbox"/> Recent or no recovery (1)</li> </ul> | <p>Check all disturbances observed</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> ditch</li> <li><input checked="" type="checkbox"/> tile</li> <li><input type="checkbox"/> dike</li> <li><input type="checkbox"/> weir</li> <li><input checked="" type="checkbox"/> stormwater input</li> </ul> | <ul style="list-style-type: none"> <li><input type="checkbox"/> point source (nonstormwater)</li> <li><input checked="" type="checkbox"/> filling/grading</li> <li><input checked="" type="checkbox"/> road bed/RR track</li> <li><input type="checkbox"/> dredging</li> <li><input type="checkbox"/> other</li> </ul> |
|---|--|--|

14	33
max 20 pts.	subtotal

### Metric 4. Habitat Alteration and Development.

- 4a. Substrate disturbance. Score one or double check and average.
- None or none apparent (4)
  - Recovered (3)
  - Recovering (2)
  - Recent or no recovery (1)
- 4b. Habitat development. Select only one and assign score.
- Excellent (7)
  - Very good (6)
  - Good (5)
  - Moderately good (4)
  - Fair (3)
  - Poor to fair (2)
  - Poor (1)
- 4c. Habitat alteration. Score one or double check and average.
- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li><input type="checkbox"/> None or none apparent (9)</li> <li><input checked="" type="checkbox"/> Recovered (6)</li> <li><input type="checkbox"/> Recovering (3)</li> <li><input type="checkbox"/> Recent or no recovery (1)</li> </ul> | <p>Check all disturbances observed</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> mowing</li> <li><input type="checkbox"/> grazing</li> <li><input type="checkbox"/> clearcutting</li> <li><input type="checkbox"/> selective cutting</li> <li><input type="checkbox"/> woody debris removal</li> <li><input type="checkbox"/> toxic pollutants</li> <li><input checked="" type="checkbox"/> shrub/sapling removal</li> <li><input type="checkbox"/> herbaceous/aquatic bed removal</li> <li><input type="checkbox"/> sedimentation</li> <li><input type="checkbox"/> dredging</li> <li><input checked="" type="checkbox"/> farming</li> <li><input checked="" type="checkbox"/> nutrient enrichment</li> </ul> |
|--|--|

33
subtotal this page

Site: Wetland 1 - Portsmouth Bypass Rater(s): JME / LM Date: 6/25/12

33

  
subtotal first page

0	33
<small>max 10 pts.</small>	<small>subtotal</small>

### Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- Bog (10)
- Fen (10)
- Old growth forest (10)
- Mature forested wetland (5)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- Lake Erie coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See Question 1 Qualitative Rating (-10)

12	45
<small>max 20 pts.</small>	<small>subtotal</small>

### Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- Aquatic bed
- 2 Emergent
- 1 Shrub
- 1 Forest
- Mudflats
- 1 Open water
- Other \_\_\_\_\_

6b. horizontal (plan view) Interspersion.

Select only one.

- High (5)
- Moderately high(4)
- 3 Moderate (3)
- Moderately low (2)
- Low (1)
- None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- 0 Nearly absent <5% cover (0)
- Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- Vegetated hummocks/tussucks
- 1 Coarse woody debris >15cm (6in)
- 1 Standing dead >25cm (10in) dbh
- 2 Amphibian breeding pools

#### Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

#### Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

#### Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

#### Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

45

End of Quantitative Rating. Complete Categorization Worksheets.

<b>Site:</b> <i>Wetland 2 SCI-B23-0.00</i>	<b>Rater(s):</b> <i>R.P.</i>	<b>Date:</b> <i>6/25/12</i>
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<b>2</b>	<b>2</b>	<b>Metric 1. Wetland Area (size).</b>
max 6 pts.	subtotal	

- Select one size class and assign score.
- >50 acres (>20.2ha) (6 pts)
  - 25 to <50 acres (10.1 to <20.2ha) (5 pts)
  - 10 to <25 acres (4 to <10.1ha) (4 pts)
  - 3 to <10 acres (1.2 to <4ha) (3 pts)
  - 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
  - 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
  - <0.1 acres (0.04ha) (0 pts)

<b>1</b>	<b>3</b>	<b>Metric 2. Upland buffers and surrounding land use.</b>
max 14 pts.	subtotal	

- 2a. Calculate average buffer width. Select only one and assign score. Do not double check.
- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
  - MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
  - NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
  - VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)
- 2b. Intensity of surrounding land use. Select one or double check and average.
- VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
  - LOW. Old field (>10 years), shrub land, young second growth forest. (5)
  - MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
  - HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

<b>11</b>	<b>14</b>	<b>Metric 3. Hydrology.</b>
max 30 pts.	subtotal	

- 3a. Sources of Water. Score all that apply.
- High pH groundwater (5)
  - Other groundwater (3)
  - Precipitation (1)
  - Seasonal/Intermittent surface water (3)
  - Perennial surface water (lake or stream) (5)
- 3b. Connectivity. Score all that apply.
- 100 year floodplain (1)
  - Between stream/lake and other human use (1)
  - Part of wetland/upland (e.g. forest), complex (1)
  - Part of riparian or upland corridor (1)
- 3c. Maximum water depth. Select only one and assign score.
- >0.7 (27.6in) (3)
  - 0.4 to 0.7m (15.7 to 27.6in) (2)
  - <0.4m (<15.7in) (1)
- 3d. Duration inundation/saturation. Score one or dbl check.
- Semi- to permanently inundated/saturated (4)
  - Regularly inundated/saturated (3)
  - Seasonally inundated (2)
  - Seasonally saturated in upper 30cm (12in) (1)
- 3e. Modifications to natural hydrologic regime. Score one or double check and average.

Check all disturbances observed	
<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> ditch</li> <li><input checked="" type="checkbox"/> tile</li> <li><input type="checkbox"/> dike</li> <li><input type="checkbox"/> weir</li> <li><input checked="" type="checkbox"/> stormwater input</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> point source (nonstormwater)</li> <li><input checked="" type="checkbox"/> filling/grading</li> <li><input checked="" type="checkbox"/> road bed/RR track</li> <li><input checked="" type="checkbox"/> dredging</li> <li><input type="checkbox"/> other _____</li> </ul>

<b>6</b>	<b>20</b>	<b>Metric 4. Habitat Alteration and Development.</b>
max 20 pts.	subtotal	

- 4a. Substrate disturbance. Score one or double check and average.
- None or none apparent (4)
  - Recovered (3)
  - Recovering (2)
  - Recent or no recovery (1)
- 4b. Habitat development. Select only one and assign score.
- Excellent (7)
  - Very good (6)
  - Good (5)
  - Moderately good (4)
  - Fair (3)
  - Poor to fair (2)
  - Poor (1)
- 4c. Habitat alteration. Score one or double check and average.

Check all disturbances observed	
<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> mowing</li> <li><input type="checkbox"/> grazing</li> <li><input type="checkbox"/> clearcutting</li> <li><input type="checkbox"/> selective cutting</li> <li><input type="checkbox"/> woody debris removal</li> <li><input type="checkbox"/> toxic pollutants</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> shrub/sapling removal</li> <li><input type="checkbox"/> herbaceous/aquatic bed removal</li> <li><input checked="" type="checkbox"/> sedimentation</li> <li><input type="checkbox"/> dredging</li> <li><input checked="" type="checkbox"/> farming</li> <li><input type="checkbox"/> nutrient enrichment</li> </ul>

<b>20</b>
subtotal this page

Site: Wetland 2. SCI-823-0.00 Rater(s): RP Date: 6/25/12

20

  
subtotal first page

0	20
max 10 pts.	subtotal

### Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- Bog (10)
- Fen (10)
- Old growth forest (10)
- Mature forested wetland (5)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- Lake Erie coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See Question 1 Qualitative Rating (-10)

1	21
max 20 pts.	subtotal

### Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- Aquatic bed
- Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other \_\_\_\_\_

6b. horizontal (plan view) Interspersion.

Select only one.

- High (5)
- Moderately high(4)
- Moderate (3)
- Moderately low (2)
- Low (1)
- None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- Vegetated hummocks/tussocks
- Coarse woody debris >15cm (6in)
- Standing dead >25cm (10in) dbh
- Amphibian breeding pools

#### Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

#### Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

#### Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

#### Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

21

**End of Quantitative Rating. Complete Categorization Worksheets.**



Site: Wetland 3-SCI-823-0.00 Rater(s): R.P. Date: 6/25/12

2	2
max 6 pts.	subtotal

**Metric 1. Wetland Area (size).**

- Select one size class and assign score.
- >50 acres (>20.2ha) (6 pts)
  - 25 to <50 acres (10.1 to <20.2ha) (5 pts)
  - 10 to <25 acres (4 to <10.1ha) (4 pts)
  - 3 to <10 acres (1.2 to <4ha) (3 pts)
  - 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
  - 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
  - <0.1 acres (0.04ha) (0 pts)

1	3
max 14 pts.	subtotal

**Metric 2. Upland buffers and surrounding land use.**

- 2a. Calculate average buffer width. Select only one and assign score. Do not double check.
- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
  - MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
  - NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
  - VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)
- 2b. Intensity of surrounding land use. Select one or double check and average.
- VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
  - LOW. Old field (>10 years), shrub land, young second growth forest. (5)
  - MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
  - HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

16	19
max 30 pts.	subtotal

**Metric 3. Hydrology.**

- 3a. Sources of Water. Score all that apply.
- High pH groundwater (5)
  - Other groundwater (3)
  - Precipitation (1)
  - Seasonal/Intermittent surface water (3)
  - Perennial surface water (lake or stream) (5)
- 3b. Connectivity. Score all that apply.
- 100 year floodplain (1)
  - Between stream/lake and other human use (1)
  - Part of wetland/upland (e.g. forest), complex (1)
  - Part of riparian or upland corridor (1)
- 3c. Maximum water depth. Select only one and assign score.
- >0.7 (27.6in) (3)
  - 0.4 to 0.7m (15.7 to 27.6in) (2)
  - <0.4m (<15.7in) (1)
- 3d. Duration inundation/saturation. Score one or dbl check.
- Semi- to permanently inundated/saturated (4)
  - Regularly inundated/saturated (3)
  - Seasonally inundated (2)
  - Seasonally saturated in upper 30cm (12in) (1)
- 3e. Modifications to natural hydrologic regime. Score one or double check and average.

<p>None or none apparent (12)</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Recovered (7)</li> <li><input type="checkbox"/> Recovering (3)</li> <li><input type="checkbox"/> Recent or no recovery (1)</li> </ul>	<p>Check all disturbances observed</p> <table style="width: 100%;"> <tr> <td><input checked="" type="checkbox"/> ditch</td> <td><input type="checkbox"/> point source (nonstormwater)</td> </tr> <tr> <td><input type="checkbox"/> tile</td> <td><input checked="" type="checkbox"/> filling/grading</td> </tr> <tr> <td><input type="checkbox"/> dike</td> <td><input checked="" type="checkbox"/> road bed/RR track</td> </tr> <tr> <td><input type="checkbox"/> weir</td> <td><input type="checkbox"/> dredging</td> </tr> <tr> <td><input checked="" type="checkbox"/> stormwater input</td> <td><input type="checkbox"/> other _____</td> </tr> </table>	<input checked="" type="checkbox"/> ditch	<input type="checkbox"/> point source (nonstormwater)	<input type="checkbox"/> tile	<input checked="" type="checkbox"/> filling/grading	<input type="checkbox"/> dike	<input checked="" type="checkbox"/> road bed/RR track	<input type="checkbox"/> weir	<input type="checkbox"/> dredging	<input checked="" type="checkbox"/> stormwater input	<input type="checkbox"/> other _____
<input checked="" type="checkbox"/> ditch	<input type="checkbox"/> point source (nonstormwater)										
<input type="checkbox"/> tile	<input checked="" type="checkbox"/> filling/grading										
<input type="checkbox"/> dike	<input checked="" type="checkbox"/> road bed/RR track										
<input type="checkbox"/> weir	<input type="checkbox"/> dredging										
<input checked="" type="checkbox"/> stormwater input	<input type="checkbox"/> other _____										

9	28
max 20 pts.	subtotal

**Metric 4. Habitat Alteration and Development.**

- 4a. Substrate disturbance. Score one or double check and average.
- None or none apparent (4)
  - Recovered (3)
  - Recovering (2)
  - Recent or no recovery (1)
- 4b. Habitat development. Select only one and assign score.
- Excellent (7)
  - Very good (6)
  - Good (5)
  - Moderately good (4)
  - Fair (3)
  - Poor to fair (2)
  - Poor (1)
- 4c. Habitat alteration. Score one or double check and average.
- None or none apparent (9)
  - Recovered (6)
  - Recovering (3)
  - Recent or no recovery (1)

<p>Check all disturbances observed</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> mowing</li> <li><input type="checkbox"/> grazing</li> <li><input type="checkbox"/> clearcutting</li> <li><input type="checkbox"/> selective cutting</li> <li><input type="checkbox"/> woody debris removal</li> <li><input type="checkbox"/> toxic pollutants</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> shrub/sapling removal</li> <li><input type="checkbox"/> herbaceous/aquatic bed removal</li> <li><input type="checkbox"/> sedimentation</li> <li><input type="checkbox"/> dredging</li> <li><input type="checkbox"/> farming</li> <li><input type="checkbox"/> nutrient enrichment</li> </ul>
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28
subtotal this page

Site: Wetland 3- SCI 823-0,00 Rater(s): R. P. Date: 6/25/12

28

subtotal first page

0	28
max 10 pts.	subtotal

### Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- Bog (10)
- Fen (10)
- Old growth forest (10)
- Mature forested wetland (5)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- Lake Erie coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See Question 1 Qualitative Rating (-10)

2	30
max 20 pts.	subtotal

### Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- Aquatic bed
- Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other \_\_\_\_\_

6b. horizontal (plan view) Interspersion.

Select only one.

- High (5)
- Moderately high(4)
- Moderate (3)
- Moderately low (2)
- Low (1)
- None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- Vegetated hummocks/tussucks
- Coarse woody debris >15cm (6in)
- Standing dead >25cm (10in) dbh
- Amphibian breeding pools

#### Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

#### Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

#### Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

#### Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

30

**End of Quantitative Rating. Complete Categorization Worksheets.**

**Site:** Wetland 4- SCI- 823- 0,00      **Rater(s):** R.P.      **Date:** 6/25/12

0	0
max 6 pts.	subtotal

**Metric 1. Wetland Area (size).**

- Select one size class and assign score.
- >50 acres (>20.2ha) (6 pts)
  - 25 to <50 acres (10.1 to <20.2ha) (5 pts)
  - 10 to <25 acres (4 to <10.1ha) (4 pts)
  - 3 to <10 acres (1.2 to <4ha) (3 pts)
  - 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
  - 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
  - <0.1 acres (0.04ha) (0 pts)

14	14
max 14 pts.	subtotal

**Metric 2. Upland buffers and surrounding land use.**

- 2a. Calculate average buffer width. Select only one and assign score. Do not double check.
- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
  - MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
  - NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
  - VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)
- 2b. Intensity of surrounding land use. Select one or double check and average.
- VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
  - LOW. Old field (>10 years), shrub land, young second growth forest. (5)
  - MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
  - HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

17	31
max 30 pts.	subtotal

**Metric 3. Hydrology.**

- 3a. Sources of Water. Score all that apply.
- High pH groundwater (5)
  - Other groundwater (3)
  - Precipitation (1)
  - Seasonal/Intermittent surface water (3)
  - Perennial surface water (lake or stream) (5)
- 3b. Connectivity. Score all that apply.
- 100 year floodplain (1)
  - Between stream/lake and other human use (1)
  - Part of wetland/upland (e.g. forest), complex (1)
  - Part of riparian or upland corridor (1)
- 3c. Maximum water depth. Select only one and assign score.
- >0.7 (27.6in) (3)
  - 0.4 to 0.7m (15.7 to 27.6in) (2)
  - <0.4m (<15.7in) (1)
- 3d. Duration inundation/saturation. Score one or dbl check.
- Semi- to permanently inundated/saturated (4)
  - Regularly inundated/saturated (3)
  - Seasonally inundated (2)
  - Seasonally saturated in upper 30cm (12in) (1)
- 3e. Modifications to natural hydrologic regime. Score one or double check and average.

12	<input checked="" type="checkbox"/> None or none apparent (12) <input type="checkbox"/> Recovered (7) <input type="checkbox"/> Recovering (3) <input type="checkbox"/> Recent or no recovery (1)	<input type="checkbox"/> point source (nonstormwater) <input type="checkbox"/> filling/grading <input type="checkbox"/> road bed/RR track <input type="checkbox"/> dredging <input type="checkbox"/> other
	<input type="checkbox"/> Check all disturbances observed <input type="checkbox"/> ditch <input type="checkbox"/> tile <input type="checkbox"/> dike <input type="checkbox"/> weir <input type="checkbox"/> stormwater input	

8	39
max 20 pts.	subtotal

**Metric 4. Habitat Alteration and Development.**

- 4a. Substrate disturbance. Score one or double check and average.
- None or none apparent (4)
  - Recovered (3)
  - Recovering (2)
  - Recent or no recovery (1)
- 4b. Habitat development. Select only one and assign score.
- Excellent (7)
  - Very good (6)
  - Good (5)
  - Moderately good (4)
  - Fair (3)
  - Poor to fair (2)
  - Poor (1)
- 4c. Habitat alteration. Score one or double check and average.

3	<input type="checkbox"/> None or none apparent (9) <input type="checkbox"/> Recovered (6) <input checked="" type="checkbox"/> Recovering (3) <input type="checkbox"/> Recent or no recovery (1)	<input checked="" type="checkbox"/> Check all disturbances observed <input checked="" type="checkbox"/> mowing <input type="checkbox"/> grazing <input type="checkbox"/> clearcutting <input type="checkbox"/> selective cutting <input type="checkbox"/> woody debris removal <input type="checkbox"/> toxic pollutants	<input checked="" type="checkbox"/> shrub/sapling removal <input type="checkbox"/> herbaceous/aquatic bed removal <input type="checkbox"/> sedimentation <input type="checkbox"/> dredging <input type="checkbox"/> farming <input type="checkbox"/> nutrient enrichment
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39
subtotal this page

Site: Wetland 4- SCD- 823-0,00 Rater(s): R. P. Date: 6/25/12

39

subtotal first page

0

39

max 10 pts.

subtotal

### Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- Bog (10)
- Fen (10)
- Old growth forest (10)
- Mature forested wetland (5)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- Lake Erie coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See Question 1 Qualitative Rating (-10)

2

41

max 20 pts.

subtotal

### Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- Aquatic bed
- Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other \_\_\_\_\_

6b. horizontal (plan view) Interspersion.

Select only one.

- High (5)
- Moderately high(4)
- Moderate (3)
- Moderately low (2)
- Low (1)
- None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- Vegetated hummocks/tussocks
- Coarse woody debris >15cm (6in)
- Standing dead >25cm (10in) dbh
- Amphibian breeding pools

#### Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

#### Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

#### Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

#### Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

41

**End of Quantitative Rating. Complete Categorization Worksheets.**

<b>Site:</b> <u>Wetland 5- SCI-823-0,00</u>	<b>Rater(s):</b> <u>R.P.</u>	<b>Date:</b> <u>6/25/12</u>
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0	0
max 6 pts.	subtotal

**Metric 1. Wetland Area (size).**

- Select one size class and assign score.
- >50 acres (>20.2ha) (6 pts)
  - 25 to <50 acres (10.1 to <20.2ha) (5 pts)
  - 10 to <25 acres (4 to <10.1ha) (4 pts)
  - 3 to <10 acres (1.2 to <4ha) (3 pts)
  - 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
  - 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
  - <0.1 acres (0.04ha) (0 pts)

14	14
max 14 pts.	subtotal

**Metric 2. Upland buffers and surrounding land use.**

- 2a. Calculate average buffer width. Select only one and assign score. Do not double check.
- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
  - MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
  - NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
  - VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)
- 2b. Intensity of surrounding land use. Select one or double check and average.
- VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
  - LOW. Old field (>10 years), shrub land, young second growth forest. (5)
  - MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
  - HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

17	31
max 30 pts.	subtotal

**Metric 3. Hydrology.**

- 3a. Sources of Water. Score all that apply.
- High pH groundwater (5)
  - Other groundwater (3)
  - Precipitation (1)
  - Seasonal/Intermittent surface water (3)
  - Perennial surface water (lake or stream) (5)
- 3b. Connectivity. Score all that apply.
- 100 year floodplain (1)
  - Between stream/lake and other human use (1)
  - Part of wetland/upland (e.g. forest), complex (1)
  - Part of riparian or upland corridor (1)
- 3c. Maximum water depth. Select only one and assign score.
- >0.7 (27.6in) (3)
  - 0.4 to 0.7m (15.7 to 27.6in) (2)
  - <0.4m (<15.7in) (1)
- 3d. Duration inundation/saturation. Score one or dbl check.
- Semi- to permanently inundated/saturated (4)
  - Regularly inundated/saturated (3)
  - Seasonally inundated (2)
  - Seasonally saturated in upper 30cm (12in) (1)
- 3e. Modifications to natural hydrologic regime. Score one or double check and average.
- None or none apparent (12)
  - Recovered (7)
  - Recovering (3)
  - Recent or no recovery (1)

Check all disturbances observed	
<input type="checkbox"/> ditch	<input type="checkbox"/> point source (nonstormwater)
<input type="checkbox"/> tile	<input type="checkbox"/> filling/grading
<input type="checkbox"/> dike	<input type="checkbox"/> road bed/RR track
<input type="checkbox"/> weir	<input type="checkbox"/> dredging
<input type="checkbox"/> stormwater input	<input type="checkbox"/> other _____

8	39
max 20 pts.	subtotal

**Metric 4. Habitat Alteration and Development.**

- 4a. Substrate disturbance. Score one or double check and average.
- None or none apparent (4)
  - Recovered (3)
  - Recovering (2)
  - Recent or no recovery (1)
- 4b. Habitat development. Select only one and assign score.
- Excellent (7)
  - Very good (6)
  - Good (5)
  - Moderately good (4)
  - Fair (3)
  - Poor to fair (2)
  - Poor (1)
- 4c. Habitat alteration. Score one or double check and average.
- None or none apparent (9)
  - Recovered (6)
  - Recovering (3)
  - Recent or no recovery (1)

Check all disturbances observed	
<input checked="" type="checkbox"/> mowing	<input type="checkbox"/> shrub/sapling removal
<input type="checkbox"/> grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input checked="" type="checkbox"/> clearcutting	<input type="checkbox"/> sedimentation
<input checked="" type="checkbox"/> selective cutting	<input type="checkbox"/> dredging
<input type="checkbox"/> woody debris removal	<input type="checkbox"/> farming
<input type="checkbox"/> toxic pollutants	<input type="checkbox"/> nutrient enrichment

39
subtotal this page

Site: <u>Wetland S- SCI - 823-0.00</u>	Rater(s): <u>R.P.</u>	Date: <u>6/25/12</u>
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39

subtotal first page

0	39
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max 10 pts. subtotal

### Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- Bog (10)
- Fen (10)
- Old growth forest (10)
- Mature forested wetland (5)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- Lake Erie coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See Question 1 Qualitative Rating (-10)

2	41
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max 20 pts. subtotal

### Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- Aquatic bed
- Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other

6b. horizontal (plan view) Interspersion.

Select only one.

- High (5)
- Moderately high(4)
- Moderate (3)
- Moderately low (2)
- Low (1)
- None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- Vegetated hummocks/tussocks
- Coarse woody debris >15cm (6in)
- Standing dead >25cm (10in) dbh
- Amphibian breeding pools

#### Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

#### Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

#### Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

#### Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

41
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**End of Quantitative Rating. Complete Categorization Worksheets.**

<b>Site:</b> <u>Wetland 6 - SCI-823-0.00</u>	<b>Rater(s):</b> <u>JME</u>	<b>Date:</b> <u>6/25/12</u>
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0	0
max 6 pts.	subtotal

### Metric 1. Wetland Area (size).

- Select one size class and assign score.
- >50 acres (>20.2ha) (6 pts)
  - 25 to <50 acres (10.1 to <20.2ha) (5 pts)
  - 10 to <25 acres (4 to <10.1ha) (4 pts)
  - 3 to <10 acres (1.2 to <4ha) (3 pts)
  - 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
  - 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
  - <0.1 acres (0.04ha) (0 pts)

13	13
max 14 pts.	subtotal

### Metric 2. Upland buffers and surrounding land use.

- 2a. Calculate average buffer width. Select only one and assign score. Do not double check.
- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
  - MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
  - NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
  - VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)
- 2b. Intensity of surrounding land use. Select one or double check and average.
- VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
  - LOW. Old field (>10 years), shrub land, young second growth forest. (5)
  - MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
  - HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

16.5	29.5
max 30 pts.	subtotal

### Metric 3. Hydrology.

- 3a. Sources of Water. Score all that apply.
- High pH groundwater (5)
  - Other groundwater (3)
  - Precipitation (1)
  - Seasonal/Intermittent surface water (3)
  - Perennial surface water (lake or stream) (5)
- 3b. Connectivity. Score all that apply.
- 100 year floodplain (1)
  - Between stream/lake and other human use (1)
  - Part of wetland/upland (e.g. forest), complex (1)
  - Part of riparian or upland corridor (1)
- 3c. Maximum water depth. Select only one and assign score.
- >0.7 (27.6in) (3)
  - 0.4 to 0.7m (15.7 to 27.6in) (2)
  - <0.4m (<15.7in) (1)
- 3d. Duration inundation/saturation. Score one or dbl check.
- Semi- to permanently inundated/saturated (4)
  - Regularly inundated/saturated (3)
  - Seasonally inundated (2)
  - Seasonally saturated in upper 30cm (12in) (1)
- 3e. Modifications to natural hydrologic regime. Score one or double check and average.
- |   |  |                                |   |                               |  |                               |  |                               |                                   |   |                                      |
|---|--|--------------------------------|---|-------------------------------|--|-------------------------------|--|-------------------------------|-----------------------------------|---|--------------------------------------|
| <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> None or none apparent (12)</li> <li><input type="checkbox"/> Recovered (7)</li> <li><input type="checkbox"/> Recovering (3)</li> <li><input type="checkbox"/> Recent or no recovery (1)</li> </ul> | <p>Check all disturbances observed</p> <table style="width:100%;"> <tr> <td><input type="checkbox"/> ditch</td> <td><input type="checkbox"/> point source (nonstormwater)</td> </tr> <tr> <td><input type="checkbox"/> tile</td> <td><input type="checkbox"/> filling/grading</td> </tr> <tr> <td><input type="checkbox"/> dike</td> <td><input type="checkbox"/> road bed/RR track</td> </tr> <tr> <td><input type="checkbox"/> weir</td> <td><input type="checkbox"/> dredging</td> </tr> <tr> <td><input type="checkbox"/> stormwater input</td> <td><input type="checkbox"/> other _____</td> </tr> </table> | <input type="checkbox"/> ditch | <input type="checkbox"/> point source (nonstormwater) | <input type="checkbox"/> tile | <input type="checkbox"/> filling/grading | <input type="checkbox"/> dike | <input type="checkbox"/> road bed/RR track | <input type="checkbox"/> weir | <input type="checkbox"/> dredging | <input type="checkbox"/> stormwater input | <input type="checkbox"/> other _____ |
| <input type="checkbox"/> ditch  | <input type="checkbox"/> point source (nonstormwater)  |                                |   |                               |  |                               |  |                               |                                   |   |                                      |
| <input type="checkbox"/> tile   | <input type="checkbox"/> filling/grading   |                                |   |                               |  |                               |  |                               |                                   |   |                                      |
| <input type="checkbox"/> dike   | <input type="checkbox"/> road bed/RR track   |                                |   |                               |  |                               |  |                               |                                   |   |                                      |
| <input type="checkbox"/> weir   | <input type="checkbox"/> dredging  |                                |   |                               |  |                               |  |                               |                                   |   |                                      |
| <input type="checkbox"/> stormwater input   | <input type="checkbox"/> other _____   |                                |   |                               |  |                               |  |                               |                                   |   |                                      |

6.5	36
max 20 pts.	subtotal

### Metric 4. Habitat Alteration and Development.

- 4a. Substrate disturbance. Score one or double check and average.
- None or none apparent (4)
  - Recovered (3)
  - Recovering (2)
  - Recent or no recovery (1)
- 4b. Habitat development. Select only one and assign score.
- Excellent (7)
  - Very good (6)
  - Good (5)
  - Moderately good (4)
  - Fair (3)
  - Poor to fair (2)
  - Poor (1)
- 4c. Habitat alteration. Score one or double check and average.
- |   |   |  |  |                                  |   |                                       |  |  |                                   |   |   |   |  |
|---|---|--|--|----------------------------------|---|---------------------------------------|--|--|-----------------------------------|---|---|---|--|
| <ul style="list-style-type: none"> <li><input type="checkbox"/> None or none apparent (9)</li> <li><input type="checkbox"/> Recovered (6)</li> <li><input checked="" type="checkbox"/> Recovering (3)</li> <li><input checked="" type="checkbox"/> Recent or no recovery (1)</li> </ul> | <p>Check all disturbances observed</p> <table style="width:100%;"> <tr> <td><input checked="" type="checkbox"/> mowing</td> <td><input type="checkbox"/> shrub/sapling removal</td> </tr> <tr> <td><input type="checkbox"/> grazing</td> <td><input type="checkbox"/> herbaceous/aquatic bed removal</td> </tr> <tr> <td><input type="checkbox"/> clearcutting</td> <td><input type="checkbox"/> sedimentation</td> </tr> <tr> <td><input type="checkbox"/> selective cutting</td> <td><input type="checkbox"/> dredging</td> </tr> <tr> <td><input type="checkbox"/> woody debris removal</td> <td><input checked="" type="checkbox"/> farming</td> </tr> <tr> <td><input type="checkbox"/> toxic pollutants</td> <td><input type="checkbox"/> nutrient enrichment</td> </tr> </table> | <input checked="" type="checkbox"/> mowing | <input type="checkbox"/> shrub/sapling removal | <input type="checkbox"/> grazing | <input type="checkbox"/> herbaceous/aquatic bed removal | <input type="checkbox"/> clearcutting | <input type="checkbox"/> sedimentation | <input type="checkbox"/> selective cutting | <input type="checkbox"/> dredging | <input type="checkbox"/> woody debris removal | <input checked="" type="checkbox"/> farming | <input type="checkbox"/> toxic pollutants | <input type="checkbox"/> nutrient enrichment |
| <input checked="" type="checkbox"/> mowing  | <input type="checkbox"/> shrub/sapling removal  |  |  |                                  |   |                                       |  |  |                                   |   |   |   |  |
| <input type="checkbox"/> grazing  | <input type="checkbox"/> herbaceous/aquatic bed removal   |  |  |                                  |   |                                       |  |  |                                   |   |   |   |  |
| <input type="checkbox"/> clearcutting   | <input type="checkbox"/> sedimentation  |  |  |                                  |   |                                       |  |  |                                   |   |   |   |  |
| <input type="checkbox"/> selective cutting  | <input type="checkbox"/> dredging   |  |  |                                  |   |                                       |  |  |                                   |   |   |   |  |
| <input type="checkbox"/> woody debris removal   | <input checked="" type="checkbox"/> farming   |  |  |                                  |   |                                       |  |  |                                   |   |   |   |  |
| <input type="checkbox"/> toxic pollutants   | <input type="checkbox"/> nutrient enrichment  |  |  |                                  |   |                                       |  |  |                                   |   |   |   |  |

36
subtotal this page

Site: <i>Wetland 6-SCI-823-0.00</i>	Rater(s): <i>JME</i>	Date: <i>6/25/12</i>
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36

subtotal first page

0	36
max 10 pts.	subtotal

### Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- Bog (10)
- Fen (10)
- Old growth forest (10)
- Mature forested wetland (5)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- Lake Erie coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See Question 1 Qualitative Rating (-10)

2	38
max 20 pts.	subtotal

### Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- Aquatic bed
- Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other \_\_\_\_\_

6b. horizontal (plan view) Interspersion.

Select only one.

- High (5)
- Moderately high(4)
- Moderate (3)
- Moderately low (2)
- Low (1)
- None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- Vegetated hummocks/tussocks
- Coarse woody debris >15cm (6in)
- Standing dead >25cm (10in) dbh
- Amphibian breeding pools

#### Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

#### Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

#### Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

#### Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

38

**End of Quantitative Rating. Complete Categorization Worksheets.**



<b>Site:</b> <i>Wetland 7- SCI-B23-0.00</i>	<b>Rater(s):</b> <i>R.P.</i>	<b>Date:</b> <i>6/26/12</i>
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<b>2</b>	<b>2</b>
max 6 pts.	subtotal

**Metric 1. Wetland Area (size).**

Select one size class and assign score.

- >50 acres (>20.2ha) (6 pts)
- 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- 10 to <25 acres (4 to <10.1ha) (4 pts)
- 3 to <10 acres (1.2 to <4ha) (3 pts)
- 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- <0.1 acres (0.04ha) (0 pts)

<b>1</b>	<b>3</b>
max 14 pts.	subtotal

**Metric 2. Upland buffers and surrounding land use.**

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- LOW. Old field (>10 years), shrub land, young second growth forest. (5)
- MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

<b>12</b>	<b>15</b>
max 30 pts.	subtotal

**Metric 3. Hydrology.**

3a. Sources of Water. Score all that apply.

- High pH groundwater (5)
- Other groundwater (3)
- (4)**  Precipitation (1)
- Seasonal/Intermittent surface water (3)
- Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score.

- >0.7 (27.6in) (3)
- (1)**  0.4 to 0.7m (15.7 to 27.6in) (2)
- <0.4m (<15.7in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- None or none apparent (12)
- (4)**  Recovered (7)
- Recovering (3)
- Recent or no recovery (1)

3b. Connectivity. Score all that apply.

- 100 year floodplain (1)
- Between stream/lake and other human use (1)
- Part of wetland/upland (e.g. forest), complex (1)
- (1)**  Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check.

- Semi- to permanently inundated/saturated (4)
- Regularly inundated/saturated (3)
- (2)**  Seasonally inundated (2)
- Seasonally saturated in upper 30cm (12in) (1)

<b>Check all disturbances observed</b>	
<input checked="" type="checkbox"/> ditch	<input type="checkbox"/> point source (nonstormwater)
<input checked="" type="checkbox"/> tile	<input type="checkbox"/> filling/grading
<input type="checkbox"/> dike	<input checked="" type="checkbox"/> road bed/RR track
<input type="checkbox"/> weir	<input checked="" type="checkbox"/> dredging
<input checked="" type="checkbox"/> stormwater input	<input type="checkbox"/> other _____

<b>6</b>	<b>21</b>
max 20 pts.	subtotal

**Metric 4. Habitat Alteration and Development.**

4a. Substrate disturbance. Score one or double check and average.

- None or none apparent (4)
- Recovered (3)
- (2)**  Recovering (2)
- Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- Excellent (7)
- Very good (6)
- Good (5)
- (1)**  Moderately good (4)
- Fair (3)
- Poor to fair (2)
- Poor (1)

4c. Habitat alteration. Score one or double check and average.

- None or none apparent (9)
- Recovered (6)
- (3)**  Recovering (3)
- Recent or no recovery (1)

<b>Check all disturbances observed</b>	
<input checked="" type="checkbox"/> mowing	<input type="checkbox"/> shrub/sapling removal
<input type="checkbox"/> grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input type="checkbox"/> clearcutting	<input type="checkbox"/> sedimentation
<input type="checkbox"/> selective cutting	<input type="checkbox"/> dredging
<input type="checkbox"/> woody debris removal	<input type="checkbox"/> farming
<input type="checkbox"/> toxic pollutants	<input type="checkbox"/> nutrient enrichment

<b>21</b>
subtotal this page

Site: Wetland 7-SCI-823-0.00 Rater(s): RP Date: 6/26/12

21

subtotal first page

0	21
max 10 pts.	subtotal

**Metric 5. Special Wetlands.**

Check all that apply and score as indicated.

- Bog (10)
- Fen (10)
- Old growth forest (10)
- Mature forested wetland (5)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- Lake Erie coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See Question 1 Qualitative Rating (-10)

3	24
max 20 pts.	subtotal

**Metric 6. Plant communities, interspersions, microtopography.**

**6a. Wetland Vegetation Communities.**

Score all present using 0 to 3 scale.

- Aquatic bed
- Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other \_\_\_\_\_

**6b. horizontal (plan view) Interspersion.**

Select only one.

- High (5)
- Moderately high(4)
- Moderate (3)
- Moderately low (2)
- Low (1)
- None (0)

**6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage**

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- Absent (1)

**6d. Microtopography.**

Score all present using 0 to 3 scale.

- Vegetated hummocks/tussocks
- Coarse woody debris >15cm (6in)
- Standing dead >25cm (10in) dbh
- Amphibian breeding pools

**Vegetation Community Cover Scale**

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

**Narrative Description of Vegetation Quality**

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

**Mudflat and Open Water Class Quality**

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

**Microtopography Cover Scale**

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

24

**End of Quantitative Rating. Complete Categorization Worksheets.**

Site: <u>Wetland 9- SCI-823-0.00</u>	Rater(s): <u>R.P.</u>	Date: <u>6/26/12</u>
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1	1
max 6 pts.	subtotal

### Metric 1. Wetland Area (size).

- Select one size class and assign score.
- >50 acres (>20.2ha) (6 pts)
  - 25 to <50 acres (10.1 to <20.2ha) (5 pts)
  - 10 to <25 acres (4 to <10.1ha) (4 pts)
  - 3 to <10 acres (1.2 to <4ha) (3 pts)
  - 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
  - 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
  - <0.1 acres (0.04ha) (0 pts)

1	2
max 14 pts.	subtotal

### Metric 2. Upland buffers and surrounding land use.

- 2a. Calculate average buffer width. Select only one and assign score. Do not double check.
- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
  - MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
  - NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
  - VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)
- 2b. Intensity of surrounding land use. Select one or double check and average.
- VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
  - LOW. Old field (>10 years), shrub land, young second growth forest. (5)
  - MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
  - HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

13	15
max 30 pts.	subtotal

### Metric 3. Hydrology.

- 3a. Sources of Water. Score all that apply.
- High pH groundwater (5)
  - Other groundwater (3)
  - Precipitation (1)
  - Seasonal/Intermittent surface water (3)
  - Perennial surface water (lake or stream) (5)
- 3b. Connectivity. Score all that apply.
- 100 year floodplain (1)
  - Between stream/lake and other human use (1)
  - Part of wetland/upland (e.g. forest), complex (1)
  - Part of riparian or upland corridor (1)
- 3c. Maximum water depth. Select only one and assign score.
- >0.7 (27.6in) (3)
  - 0.4 to 0.7m (15.7 to 27.6in) (2)
  - <0.4m (<15.7in) (1)
- 3d. Duration inundation/saturation. Score one or dbl check.
- Semi- to permanently inundated/saturated (4)
  - Regularly inundated/saturated (3)
  - Seasonally inundated (2)
  - Seasonally saturated in upper 30cm (12in) (1)
- 3e. Modifications to natural hydrologic regime. Score one or double check and average.
- |   |   |
|---|---|
| <input checked="" type="checkbox"/> None or none apparent (12)<br><input checked="" type="checkbox"/> Recovered (7)<br><input checked="" type="checkbox"/> Recovering (3)<br><input type="checkbox"/> Recent or no recovery (1) | Check all disturbances observed<br><input checked="" type="checkbox"/> ditch<br><input checked="" type="checkbox"/> tile<br><input type="checkbox"/> dike<br><input type="checkbox"/> weir<br><input type="checkbox"/> stormwater input<br><input type="checkbox"/> point source (nonstormwater)<br><input type="checkbox"/> filling/grading<br><input checked="" type="checkbox"/> road bed/RR track<br><input checked="" type="checkbox"/> dredging<br><input type="checkbox"/> other |
|---|---|

7	22
max 20 pts.	subtotal

### Metric 4. Habitat Alteration and Development.

- 4a. Substrate disturbance. Score one or double check and average.
- None or none apparent (4)
  - Recovered (3)
  - Recovering (2)
  - Recent or no recovery (1)
- 4b. Habitat development. Select only one and assign score.
- Excellent (7)
  - Very good (6)
  - Good (5)
  - Moderately good (4)
  - Fair (3)
  - Poor to fair (2)
  - Poor (1)
- 4c. Habitat alteration. Score one or double check and average.
- |   |  |
|---|--|
| <input checked="" type="checkbox"/> None or none apparent (9)<br><input type="checkbox"/> Recovered (6)<br><input checked="" type="checkbox"/> Recovering (3)<br><input type="checkbox"/> Recent or no recovery (1) | Check all disturbances observed<br><input checked="" type="checkbox"/> mowing<br><input type="checkbox"/> grazing<br><input type="checkbox"/> clearcutting<br><input type="checkbox"/> selective cutting<br><input type="checkbox"/> woody debris removal<br><input type="checkbox"/> toxic pollutants<br><input type="checkbox"/> shrub/sapling removal<br><input type="checkbox"/> herbaceous/aquatic bed removal<br><input type="checkbox"/> sedimentation<br><input type="checkbox"/> dredging<br><input type="checkbox"/> farming<br><input type="checkbox"/> nutrient enrichment |
|---|--|

22
subtotal this page

Site: <u>Wetland 9-SCI 823-0.00</u>	Rater(s): <u>R.P.</u>	Date: <u>6/26/12</u>
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22

subtotal first page

0	22
max 10 pts.	subtotal

### Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- Bog (10)
- Fen (10)
- Old growth forest (10)
- Mature forested wetland (5)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- Lake Erie coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See Question 1 Qualitative Rating (-10)

-1	21
max 20 pts.	subtotal

### Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.  
Score all present using 0 to 3 scale.

- Aquatic bed
- Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other \_\_\_\_\_

6b. horizontal (plan view) Interspersion.  
Select only one.

- High (5)
- Moderately high(4)
- Moderate (3)
- Moderately low (2)
- Low (1)
- None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- Vegetated hummocks/tussocks
- Coarse woody debris >15cm (6in)
- Standing dead >25cm (10in) dbh
- Amphibian breeding pools

#### Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

#### Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

#### Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

#### Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

21

**End of Quantitative Rating. Complete Categorization Worksheets.**

Site: <u>Wetland 10-SCI-823-0.00</u>	Rater(s): <u>R.P.</u>	Date: <u>6/26/12</u>
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0	0
max 6 pts.	subtotal

### Metric 1. Wetland Area (size).

- Select one size class and assign score.
- >50 acres (>20.2ha) (6 pts)
  - 25 to <50 acres (10.1 to <20.2ha) (5 pts)
  - 10 to <25 acres (4 to <10.1ha) (4 pts)
  - 3 to <10 acres (1.2 to <4ha) (3 pts)
  - 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
  - 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
  - <0.1 acres (0.04ha) (0 pts)

1	1
max 14 pts.	subtotal

### Metric 2. Upland buffers and surrounding land use.

- 2a. Calculate average buffer width. Select only one and assign score. Do not double check.
- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
  - MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
  - NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
  - VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)
- 2b. Intensity of surrounding land use. Select one or double check and average.
- VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
  - LOW. Old field (>10 years), shrub land, young second growth forest. (5)
  - MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
  - HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

9	10
max 30 pts.	subtotal

### Metric 3. Hydrology.

- 3a. Sources of Water. Score all that apply.
- High pH groundwater (5)
  - Other groundwater (3)
  - Precipitation (1)
  - Seasonal/Intermittent surface water (3)
  - Perennial surface water (lake or stream) (5)
- 3b. Connectivity. Score all that apply.
- 100 year floodplain (1)
  - Between stream/lake and other human use (1)
  - Part of wetland/upland (e.g. forest), complex (1)
  - Part of riparian or upland corridor (1)
- 3c. Maximum water depth. Select only one and assign score.
- >0.7 (27.6in) (3)
  - 0.4 to 0.7m (15.7 to 27.6in) (2)
  - <0.4m (<15.7in) (1)
- 3d. Duration inundation/saturation. Score one or dbl check.
- Semi- to permanently inundated/saturated (4)
  - Regularly inundated/saturated (3)
  - Seasonally inundated (2)
  - Seasonally saturated in upper 30cm (12in) (1)
- 3e. Modifications to natural hydrologic regime. Score one or double check and average.
- |  |   |
|--|---|
| <input type="checkbox"/> None or none apparent (12)<br><input type="checkbox"/> Recovered (7)<br><input checked="" type="checkbox"/> Recovering (3)<br><input checked="" type="checkbox"/> Recent or no recovery (1) | Check all disturbances observed<br><input type="checkbox"/> ditch<br><input type="checkbox"/> tile<br><input type="checkbox"/> dike<br><input type="checkbox"/> weir<br><input type="checkbox"/> stormwater input<br><input type="checkbox"/> point source (nonstormwater)<br><input type="checkbox"/> filling/grading<br><input type="checkbox"/> road bed/RR track<br><input type="checkbox"/> dredging<br><input checked="" type="checkbox"/> other <u>Wallow Pit in Pasture</u> |
|--|---|

3	13
max 20 pts.	subtotal

### Metric 4. Habitat Alteration and Development.

- 4a. Substrate disturbance. Score one or double check and average.
- None or none apparent (4)
  - Recovered (3)
  - Recovering (2)
  - Recent or no recovery (1)
- 4b. Habitat development. Select only one and assign score.
- Excellent (7)
  - Very good (6)
  - Good (5)
  - Moderately good (4)
  - Fair (3)
  - Poor to fair (2)
  - Poor (1)
- 4c. Habitat alteration. Score one or double check and average.
- |  |  |
|--|--|
| <input type="checkbox"/> None or none apparent (9)<br><input type="checkbox"/> Recovered (6)<br><input type="checkbox"/> Recovering (3)<br><input checked="" type="checkbox"/> Recent or no recovery (1) | Check all disturbances observed<br><input checked="" type="checkbox"/> mowing<br><input checked="" type="checkbox"/> grazing<br><input type="checkbox"/> clearcutting<br><input type="checkbox"/> selective cutting<br><input type="checkbox"/> woody debris removal<br><input type="checkbox"/> toxic pollutants<br><input type="checkbox"/> shrub/sapling removal<br><input type="checkbox"/> herbaceous/aquatic bed removal<br><input type="checkbox"/> sedimentation<br><input type="checkbox"/> dredging<br><input type="checkbox"/> farming<br><input checked="" type="checkbox"/> nutrient enrichment |
|--|--|

13
subtotal this page

Site: <u>Wetland 10-SCI 823-0.00</u>	Rater(s): <u>R.P.</u>	Date: <u>6/26/12</u>
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13

subtotal first page

0	13
max 10 pts.	subtotal

### Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- Bog (10)
- Fen (10)
- Old growth forest (10)
- Mature forested wetland (5)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- Lake Erie coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See Question 1 Qualitative Rating (-10)

4	17
max 20 pts.	subtotal

### Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- Aquatic bed
- Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other \_\_\_\_\_

6b. horizontal (plan view) Interspersion.

Select only one.

- High (5)
- Moderately high(4)
- Moderate (3)
- Moderately low (2)
- Low (1)
- None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- Vegetated hummocks/tussocks
- Coarse woody debris >15cm (6in)
- Standing dead >25cm (10in) dbh
- Amphibian breeding pools

#### Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

#### Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

#### Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

#### Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

17

**End of Quantitative Rating. Complete Categorization Worksheets.**

Site: Wetland II- SCI- B23-0.00 Rater(s): JME / RP Date: 6-26-12

0	0
max 6 pts.	subtotal

**Metric 1. Wetland Area (size).**

- Select one size class and assign score.
- >50 acres (>20.2ha) (6 pts)
  - 25 to <50 acres (10.1 to <20.2ha) (5 pts)
  - 10 to <25 acres (4 to <10.1ha) (4 pts)
  - 3 to <10 acres (1.2 to <4ha) (3 pts)
  - 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
  - 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
  - <0.1 acres (0.04ha) (0 pts)

9	9
max 14 pts.	subtotal

**Metric 2. Upland buffers and surrounding land use.**

- 2a. Calculate average buffer width. Select only one and assign score. Do not double check.
- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
  - MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
  - NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
  - VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)
- 2b. Intensity of surrounding land use. Select one or double check and average.
- VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
  - LOW. Old field (>10 years), shrub land, young second growth forest. (5)
  - MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
  - HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

7	16
max 30 pts.	subtotal

**Metric 3. Hydrology.**

- 3a. Sources of Water. Score all that apply.
- High pH groundwater (5)
  - Other groundwater (3)
  - Precipitation (1)
  - Seasonal/Intermittent surface water (3)
  - Perennial surface water (lake or stream) (5)
- 3b. Connectivity. Score all that apply.
- 100 year floodplain (1)
  - Between stream/lake and other human use (1)
  - Part of wetland/upland (e.g. forest), complex (1)
  - Part of riparian or upland corridor (1)
- 3c. Maximum water depth. Select only one and assign score.
- >0.7 (27.6in) (3)
  - 0.4 to 0.7m (15.7 to 27.6in) (2)
  - <0.4m (<15.7in) (1)
- 3d. Duration inundation/saturation. Score one or dbl check.
- Semi- to permanently inundated/saturated (4)
  - Regularly inundated/saturated (3)
  - Seasonally inundated (2)
  - Seasonally saturated in upper 30cm (12in) (1)
- 3e. Modifications to natural hydrologic regime. Score one or double check and average.
- |   |   |   |
|---|---|---|
| <ul style="list-style-type: none"> <li><input type="checkbox"/> None or none apparent (12)</li> <li><input type="checkbox"/> Recovered (7)</li> <li><input checked="" type="checkbox"/> Recovering (3)</li> <li><input type="checkbox"/> Recent or no recovery (1)</li> </ul> | <p>Check all disturbances observed</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> ditch</li> <li><input type="checkbox"/> tile</li> <li><input type="checkbox"/> dike</li> <li><input type="checkbox"/> weir</li> <li><input type="checkbox"/> stormwater input</li> </ul> | <ul style="list-style-type: none"> <li><input type="checkbox"/> point source (nonstormwater)</li> <li><input checked="" type="checkbox"/> filling/grading</li> <li><input type="checkbox"/> road bed/RR track</li> <li><input type="checkbox"/> dredging</li> <li><input checked="" type="checkbox"/> other <u>Clear cut</u></li> </ul> |
|---|---|---|

6	22
max 20 pts.	subtotal

**Metric 4. Habitat Alteration and Development.**

- 4a. Substrate disturbance. Score one or double check and average.
- None or none apparent (4)
  - Recovered (3)
  - Recovering (2)
  - Recent or no recovery (1)
- 4b. Habitat development. Select only one and assign score.
- Excellent (7)
  - Very good (6)
  - Good (5)
  - Moderately good (4)
  - Fair (3)
  - Poor to fair (2)
  - Poor (1)
- 4c. Habitat alteration. Score one or double check and average.
- |  |  |  |
|--|--|--|
| <ul style="list-style-type: none"> <li><input type="checkbox"/> None or none apparent (9)</li> <li><input type="checkbox"/> Recovered (6)</li> <li><input checked="" type="checkbox"/> Recovering (3)</li> <li><input type="checkbox"/> Recent or no recovery (1)</li> </ul> | <p>Check all disturbances observed</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> mowing</li> <li><input checked="" type="checkbox"/> grazing</li> <li><input type="checkbox"/> clearcutting</li> <li><input type="checkbox"/> selective cutting</li> <li><input type="checkbox"/> woody debris removal</li> <li><input type="checkbox"/> toxic pollutants</li> </ul> | <ul style="list-style-type: none"> <li><input type="checkbox"/> shrub/sapling removal</li> <li><input type="checkbox"/> herbaceous/aquatic bed removal</li> <li><input type="checkbox"/> sedimentation</li> <li><input type="checkbox"/> dredging</li> <li><input type="checkbox"/> farming</li> <li><input type="checkbox"/> nutrient enrichment</li> </ul> |
|--|--|--|

22
subtotal this page

Site: Wetland 11-SCI 823-0.00 Rater(s): JME / R.P. Date: 6/26/12

22

  
subtotal first page

0	22
<small>max 10 pts.</small>	<small>subtotal</small>

### Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- Bog (10)
- Fen (10)
- Old growth forest (10)
- Mature forested wetland (5)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- Lake Erie coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See Question 1 Qualitative Rating (-10)

2	24
<small>max 20 pts.</small>	<small>subtotal</small>

### Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.  
 Score all present using 0 to 3 scale.

- Aquatic bed
- Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other \_\_\_\_\_

6b. horizontal (plan view) Interspersion.  
 Select only one.

- High (5)
- Moderately high (4)
- Moderate (3)
- Moderately low (2)
- Low (1)
- None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- Vegetated hummocks/tussocks
- Coarse woody debris >15cm (6in)
- Standing dead >25cm (10in) dbh
- Amphibian breeding pools

#### Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

#### Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

#### Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

#### Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

24

**End of Quantitative Rating. Complete Categorization Worksheets.**



Site: <u>Wetland 12-SCI-823-0.00</u>	Rater(s): <u>JME, RP</u>	Date: <u>6/27/12</u>
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0	0
max 6 pts.	subtotal

### Metric 1. Wetland Area (size).

Select one size class and assign score.

- >50 acres (>20.2ha) (6 pts)
- 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- 10 to <25 acres (4 to <10.1ha) (4 pts)
- 3 to <10 acres (1.2 to <4ha) (3 pts)
- 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- <0.1 acres (0.04ha) (0 pts)

11	11
max 14 pts.	subtotal

### Metric 2. Upland buffers and surrounding land use.

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- LOW. Old field (>10 years), shrub land, young second growth forest. (5)
- MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

9.5	20.5
max 30 pts.	subtotal

### Metric 3. Hydrology.

3a. Sources of Water. Score all that apply.

- High pH groundwater (5)
- Other groundwater (3)
- Precipitation (1)
- Seasonal/Intermittent surface water (3)
- Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score.

- >0.7 (27.6in) (3)
- 0.4 to 0.7m (15.7 to 27.6in) (2)
- <0.4m (<15.7in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- None or none apparent (12)
- Recovered (7)
- Recovering (3)
- Recent or no recovery (1)

3b. Connectivity. Score all that apply.

- 100 year floodplain (1)
- Between stream/lake and other human use (1)
- Part of wetland/upland (e.g. forest), complex (1)
- Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check.

- Semi- to permanently inundated/saturated (4)
- Regularly inundated/saturated (3)
- Seasonally inundated (2)
- Seasonally saturated in upper 30cm (12in) (1)

Check all disturbances observed	
<input type="checkbox"/> ditch	<input type="checkbox"/> point source (nonstormwater)
<input type="checkbox"/> tile	<input type="checkbox"/> filling/grading
<input type="checkbox"/> dike	<input type="checkbox"/> road bed/RR track
<input type="checkbox"/> weir	<input type="checkbox"/> dredging
<input type="checkbox"/> stormwater input	<input type="checkbox"/> other _____

4.5	25
max 20 pts.	subtotal

### Metric 4. Habitat Alteration and Development.

4a. Substrate disturbance. Score one or double check and average.

- None or none apparent (4)
- Recovered (3)
- Recovering (2)
- Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- Excellent (7)
- Very good (6)
- Good (5)
- Moderately good (4)
- Fair (3)
- Poor to fair (2)
- Poor (1)

4c. Habitat alteration. Score one or double check and average.

- None or none apparent (9)
- Recovered (6)
- Recovering (3)
- Recent or no recovery (1)

Check all disturbances observed	
<input type="checkbox"/> mowing	<input type="checkbox"/> shrub/sapling removal
<input checked="" type="checkbox"/> grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input type="checkbox"/> clearcutting	<input type="checkbox"/> sedimentation
<input type="checkbox"/> selective cutting	<input type="checkbox"/> dredging
<input type="checkbox"/> woody debris removal	<input type="checkbox"/> farming
<input type="checkbox"/> toxic pollutants	<input type="checkbox"/> nutrient enrichment

25
subtotal this page

Site: Wetland 12- SCI 823-0.00 Rater(s): JME / RP. Date: 6/27/12

25

subtotal first page

0	25
max 10 pts.	subtotal

### Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- Bog (10)
- Fen (10)
- Old growth forest (10)
- Mature forested wetland (5)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- Lake Erie coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See Question 1 Qualitative Rating (-10)

7	32
max 20 pts.	subtotal

### Metric 6. Plant communities, interspersions, microtopography.

#### 6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- Aquatic bed
- Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other \_\_\_\_\_

#### 6b. horizontal (plan view) Interspersion.

Select only one.

- High (5)
- Moderately high(4)
- Moderate (3)
- Moderately low (2)
- Low (1)
- None (0)

#### 6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- Absent (1)

#### 6d. Microtopography.

Score all present using 0 to 3 scale.

- Vegetated hummocks/tussucks
- Coarse woody debris >15cm (6in)
- Standing dead >25cm (10in) dbh
- Amphibian breeding pools

#### Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

#### Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

#### Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

#### Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

32

**End of Quantitative Rating. Complete Categorization Worksheets.**

Site: <u>Wetland 13- SCI 023-0.00</u>	Rater(s): <u>EP</u>	Date: <u>7-10-12</u>
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0	0
max 6 pts.	subtotal

### Metric 1. Wetland Area (size).

Select one size class and assign score.

- >50 acres (>20.2ha) (6 pts)
- 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- 10 to <25 acres (4 to <10.1ha) (4 pts)
- 3 to <10 acres (1.2 to <4ha) (3 pts)
- 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- <0.1 acres (0.04ha) (0 pts)

9	9
max 14 pts.	subtotal

### Metric 2. Upland buffers and surrounding land use.

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- LOW. Old field (>10 years), shrub land, young second growth forest. (5)
- MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

22	31
max 30 pts.	subtotal

### Metric 3. Hydrology.

3a. Sources of Water. Score all that apply.

- High pH groundwater (5)
- Other groundwater (3)
- Precipitation (1)
- Seasonal/Intermittent surface water (3)
- Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score.

- >0.7 (27.6in) (3)
- 0.4 to 0.7m (15.7 to 27.6in) (2)
- <0.4m (<15.7in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- None or none apparent (12)
- Recovered (7)
- Recovering (3)
- Recent or no recovery (1)

3b. Connectivity. Score all that apply.

- 100 year floodplain (1)
- Between stream/lake and other human use (1)
- Part of wetland/upland (e.g. forest), complex (1)
- Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check.

- Semi- to permanently inundated/saturated (4)
- Regularly inundated/saturated (3)
- Seasonally inundated (2)
- Seasonally saturated in upper 30cm (12in) (1)

Check all disturbances observed	
<input type="checkbox"/> ditch	<input type="checkbox"/> point source (nonstormwater)
<input type="checkbox"/> tile	<input type="checkbox"/> filling/grading
<input type="checkbox"/> dike	<input type="checkbox"/> road bed/RR track
<input type="checkbox"/> weir	<input type="checkbox"/> dredging
<input type="checkbox"/> stormwater input	<input type="checkbox"/> other

9	40
max 20 pts.	subtotal

### Metric 4. Habitat Alteration and Development.

4a. Substrate disturbance. Score one or double check and average.

- None or none apparent (4)
- Recovered (3)
- Recovering (2)
- Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- Excellent (7)
- Very good (6)
- Good (5)
- Moderately good (4)
- Fair (3)
- Poor to fair (2)
- Poor (1)

4c. Habitat alteration. Score one or double check and average.

- None or none apparent (9)
- Recovered (6)
- Recovering (3)
- Recent or no recovery (1)

Check all disturbances observed	
<input type="checkbox"/> mowing	<input type="checkbox"/> shrub/sapling removal
<input type="checkbox"/> grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input checked="" type="checkbox"/> clearcutting	<input type="checkbox"/> sedimentation
<input type="checkbox"/> selective cutting	<input type="checkbox"/> dredging
<input type="checkbox"/> woody debris removal	<input type="checkbox"/> farming
<input type="checkbox"/> toxic pollutants	<input type="checkbox"/> nutrient enrichment

40
subtotal this page

Site: <u>Wetland 13-SCI-823-0.00</u>	Rater(s): <u>RP</u>	Date: <u>7/10/12</u>
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40

subtotal first page

0	40
max 10 pts.	subtotal

### Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- Bog (10)
- Fen (10)
- Old growth forest (10)
- Mature forested wetland (5)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- Lake Erie coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See Question 1 Qualitative Rating (-10)

3	43
max 20 pts.	subtotal

### Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.  
Score all present using 0 to 3 scale.

- Aquatic bed
- Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other \_\_\_\_\_

6b. horizontal (plan view) Interspersion.  
Select only one.

- High (5)
- Moderately high(4)
- Moderate (3)
- Moderately low (2)
- Low (1)
- None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- Absent (1)

6d. Microtopography.  
Score all present using 0 to 3 scale.

- Vegetated hummocks/tussocks
- Coarse woody debris >15cm (6in)
- Standing dead >25cm (10in) dbh
- Amphibian breeding pools

#### Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

#### Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

#### Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

#### Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

43

**End of Quantitative Rating. Complete Categorization Worksheets.**

Site: <u>Wetland 14-SCE-823-0.00</u>	Rater(s): <u>RP</u>	Date: <u>7/10/12</u>
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0	0
max 6 pts.	subtotal

### Metric 1. Wetland Area (size).

Select one size class and assign score.

- >50 acres (>20.2ha) (6 pts)
- 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- 10 to <25 acres (4 to <10.1ha) (4 pts)
- 3 to <10 acres (1.2 to <4ha) (3 pts)
- 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- <0.1 acres (0.04ha) (0 pts)

9	9
max 14 pts.	subtotal

### Metric 2. Upland buffers and surrounding land use.

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- LOW. Old field (>10 years), shrub land, young second growth forest. (5)
- MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

22	31
max 30 pts.	subtotal

### Metric 3. Hydrology.

3a. Sources of Water. Score all that apply.

- High pH groundwater (5)
- Other groundwater (3)
- Precipitation (1)
- Seasonal/Intermittent surface water (3)
- Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score.

- >0.7 (27.6in) (3)
- 0.4 to 0.7m (15.7 to 27.6in) (2)
- <0.4m (<15.7in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- None or none apparent (12)
- Recovered (7)
- Recovering (3)
- Recent or no recovery (1)

3b. Connectivity. Score all that apply.

- 100 year floodplain (1)
- Between stream/lake and other human use (1)
- Part of wetland/upland (e.g. forest), complex (1)
- Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check.

- Semi- to permanently inundated/saturated (4)
- Regularly inundated/saturated (3)
- Seasonally inundated (2)
- Seasonally saturated in upper 30cm (12in) (1)

Check all disturbances observed	
<input type="checkbox"/> ditch	<input type="checkbox"/> point source (nonstormwater)
<input type="checkbox"/> tile	<input type="checkbox"/> filling/grading
<input type="checkbox"/> dike	<input type="checkbox"/> road bed/RR track
<input type="checkbox"/> weir	<input type="checkbox"/> dredging
<input type="checkbox"/> stormwater input	<input type="checkbox"/> other

9	40
max 20 pts.	subtotal

### Metric 4. Habitat Alteration and Development.

4a. Substrate disturbance. Score one or double check and average.

- None or none apparent (4)
- Recovered (3)
- Recovering (2)
- Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- Excellent (7)
- Very good (6)
- Good (5)
- Moderately good (4)
- Fair (3)
- Poor to fair (2)
- Poor (1)

4c. Habitat alteration. Score one or double check and average.

- None or none apparent (9)
- Recovered (6)
- Recovering (3)
- Recent or no recovery (1)

Check all disturbances observed	
<input type="checkbox"/> mowing	<input type="checkbox"/> shrub/sapling removal
<input checked="" type="checkbox"/> grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input type="checkbox"/> clearcutting	<input type="checkbox"/> sedimentation
<input type="checkbox"/> selective cutting	<input type="checkbox"/> dredging
<input type="checkbox"/> woody debris removal	<input type="checkbox"/> farming
<input type="checkbox"/> toxic pollutants	<input type="checkbox"/> nutrient enrichment

40
subtotal this page

Site: <u>Wetland 14-SCI-823-0.00</u>	Rater(s): <u>RP</u>	Date: <u>7-10-12</u>
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40

subtotal first page

0	40
max 10 pts.	subtotal

### Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- Bog (10)
- Fen (10)
- Old growth forest (10)
- Mature forested wetland (5)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- Lake Erie coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See Question 1 Qualitative Rating (-10)

1	41
max 20 pts.	subtotal

### Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- Aquatic bed
- Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other \_\_\_\_\_

6b. horizontal (plan view) Interspersion.

Select only one.

- High (5)
- Moderately high(4)
- Moderate (3)
- Moderately low (2)
- Low (1)
- None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- Vegetated hummocks/tussucks
- Coarse woody debris >15cm (6in)
- Standing dead >25cm (10in) dbh
- Amphibian breeding pools

#### Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

#### Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

#### Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

#### Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

41

**End of Quantitative Rating. Complete Categorization Worksheets.**

Site: <i>Wetland 15- SCE 823-0.00</i>	Rater(s): <i>JME</i>	Date: <i>7-23-12</i>
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<i>0</i>	<i>0</i>
max 6 pts.	subtotal

### Metric 1. Wetland Area (size).

- Select one size class and assign score.
- >50 acres (>20.2ha) (6 pts)
  - 25 to <50 acres (10.1 to <20.2ha) (5 pts)
  - 10 to <25 acres (4 to <10.1ha) (4 pts)
  - 3 to <10 acres (1.2 to <4ha) (3 pts)
  - 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
  - 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
  - <0.1 acres (0.04ha) (0 pts)

<i>11</i>	<i>11</i>
max 14 pts.	subtotal

### Metric 2. Upland buffers and surrounding land use.

- 2a. Calculate average buffer width. Select only one and assign score. Do not double check.
- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
  - MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
  - NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
  - VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)
- 2b. Intensity of surrounding land use. Select one or double check and average.
- VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
  - LOW. Old field (>10 years), shrub land, young second growth forest. (5)
  - MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
  - HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

<i>9.5</i>	<i>20.5</i>
max 30 pts.	subtotal

### Metric 3. Hydrology.

- 3a. Sources of Water. Score all that apply.
- High pH groundwater (5)
  - Other groundwater (3)
  - Precipitation (1)
  - Seasonal/Intermittent surface water (3)
  - Perennial surface water (lake or stream) (5)
- 3b. Connectivity. Score all that apply.
- 100 year floodplain (1)
  - Between stream/lake and other human use (1)
  - Part of wetland/upland (e.g. forest), complex (1)
  - Part of riparian or upland corridor (1)
- 3c. Maximum water depth. Select only one and assign score.
- >0.7 (27.6in) (3)
  - 0.4 to 0.7m (15.7 to 27.6in) (2)
  - <0.4m (<15.7in) (1)
- 3d. Duration inundation/saturation. Score one or dbl check.
- Semi- to permanently inundated/saturated (4)
  - Regularly inundated/saturated (3)
  - Seasonally inundated (2)
  - Seasonally saturated in upper 30cm (12in) (1)
- 3e. Modifications to natural hydrologic regime. Score one or double check and average.
- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li><input type="checkbox"/> None or none apparent (12)</li> <li><input type="checkbox"/> Recovered (7)</li> <li><input checked="" type="checkbox"/> Recovering (3)</li> <li><input checked="" type="checkbox"/> Recent or no recovery (1)</li> </ul>                                     | <p>Check all disturbances observed</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> ditch</li> <li><input type="checkbox"/> tile</li> <li><input type="checkbox"/> dike</li> <li><input type="checkbox"/> weir</li> <li><input type="checkbox"/> stormwater input</li> </ul> |
| <ul style="list-style-type: none"> <li><input type="checkbox"/> point source (nonstormwater)</li> <li><input checked="" type="checkbox"/> filling/grading</li> <li><input checked="" type="checkbox"/> road bed/RR track</li> <li><input type="checkbox"/> dredging</li> <li><input type="checkbox"/> other _____</li> </ul> |  |

<i>5.5</i>	<i>26</i>
max 20 pts.	subtotal

### Metric 4. Habitat Alteration and Development.

- 4a. Substrate disturbance. Score one or double check and average.
- None or none apparent (4)
  - Recovered (3)
  - Recovering (2)
  - Recent or no recovery (1)
- 4b. Habitat development. Select only one and assign score.
- Excellent (7)
  - Very good (6)
  - Good (5)
  - Moderately good (4)
  - Fair (3)
  - Poor to fair (2)
  - Poor (1)
- 4c. Habitat alteration. Score one or double check and average.
- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li><input type="checkbox"/> None or none apparent (9)</li> <li><input type="checkbox"/> Recovered (6)</li> <li><input checked="" type="checkbox"/> Recovering (3)</li> <li><input checked="" type="checkbox"/> Recent or no recovery (1)</li> </ul>  | <p>Check all disturbances observed</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> mowing</li> <li><input checked="" type="checkbox"/> grazing</li> <li><input type="checkbox"/> clearcutting</li> <li><input type="checkbox"/> selective cutting</li> <li><input type="checkbox"/> woody debris removal</li> <li><input type="checkbox"/> toxic pollutants</li> </ul> |
| <ul style="list-style-type: none"> <li><input type="checkbox"/> shrub/sapling removal</li> <li><input type="checkbox"/> herbaceous/aquatic bed removal</li> <li><input type="checkbox"/> sedimentation</li> <li><input type="checkbox"/> dredging</li> <li><input type="checkbox"/> farming</li> <li><input type="checkbox"/> nutrient enrichment</li> </ul> |  |

<i>26</i>
subtotal this page

Site: <u>Wetland 15- SCI 823-0-00</u>	Rater(s): <u>JME</u>	Date: <u>7-23-12</u>
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26
subtotal first page

0	26
max 10 pts.	subtotal

### Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- Bog (10)
- Fen (10)
- Old growth forest (10)
- Mature forested wetland (5)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- Lake Erie coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See Question 1 Qualitative Rating (-10)

2	28
max 20 pts.	subtotal

### Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- Aquatic bed
- Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other \_\_\_\_\_

6b. horizontal (plan view) Interspersion.

Select only one.

- High (5)
- Moderately high(4)
- Moderate (3)
- Moderately low (2)
- Low (1)
- None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- Vegetated hummocks/tussocks
- Coarse woody debris >15cm (6in)
- Standing dead >25cm (10in) dbh
- Amphibian breeding pools

#### Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

#### Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

#### Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

#### Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

28
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**End of Quantitative Rating. Complete Categorization Worksheets.**



Site: <u>Wetland 16-SCI-823-000</u>	Rater(s): <u>LM</u>	Date: <u>7-23-12</u>
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0	0
max 6 pts.	subtotal

### Metric 1. Wetland Area (size).

- Select one size class and assign score.
- >50 acres (>20.2ha) (6 pts)
  - 25 to <50 acres (10.1 to <20.2ha) (5 pts)
  - 10 to <25 acres (4 to <10.1ha) (4 pts)
  - 3 to <10 acres (1.2 to <4ha) (3 pts)
  - 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
  - 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
  - <0.1 acres (0.04ha) (0 pts)

11	11
max 14 pts.	subtotal

### Metric 2. Upland buffers and surrounding land use.

- 2a. Calculate average buffer width. Select only one and assign score. Do not double check.
- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
  - MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
  - NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
  - VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)
- 2b. Intensity of surrounding land use. Select one or double check and average.
- VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
  - LOW. Old field (>10 years), shrub land, young second growth forest. (5)
  - MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
  - HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

11.5	22.5
max 30 pts.	subtotal

### Metric 3. Hydrology.

- 3a. Sources of Water. Score all that apply.
- High pH groundwater (5)
  - Other groundwater (3)
  - Precipitation (1)
  - Seasonal/Intermittent surface water (3)
  - Perennial surface water (lake or stream) (5)
- 3b. Connectivity. Score all that apply.
- 100 year floodplain (1)
  - Between stream/lake and other human use (1)
  - Part of wetland/upland (e.g. forest), complex (1)
  - Part of riparian or upland corridor (1)
- 3c. Maximum water depth. Select only one and assign score.
- >0.7 (27.6in) (3)
  - 0.4 to 0.7m (15.7 to 27.6in) (2)
  - <0.4m (<15.7in) (1)
- 3d. Duration inundation/saturation. Score one or dbl check.
- Semi- to permanently inundated/saturated (4)
  - Regularly inundated/saturated (3)
  - Seasonally inundated (2)
  - Seasonally saturated in upper 30cm (12in) (1)
- 3e. Modifications to natural hydrologic regime. Score one or double check and average.
- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> None or none apparent (12)</li> <li><input type="checkbox"/> Recovered (7)</li> <li><input type="checkbox"/> Recovering (3)</li> <li><input type="checkbox"/> Recent or no recovery (1)</li> </ul>  | <p>Check all disturbances observed</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> ditch</li> <li><input type="checkbox"/> tile</li> <li><input type="checkbox"/> dike</li> <li><input type="checkbox"/> weir</li> <li><input type="checkbox"/> stormwater input</li> </ul> |
| <ul style="list-style-type: none"> <li><input type="checkbox"/> point source (nonstormwater)</li> <li><input checked="" type="checkbox"/> filling/grading</li> <li><input checked="" type="checkbox"/> road bed/RR track</li> <li><input type="checkbox"/> dredging</li> <li><input type="checkbox"/> other _____</li> </ul> |   |

4.5	27
max 20 pts.	subtotal

### Metric 4. Habitat Alteration and Development.

- 4a. Substrate disturbance. Score one or double check and average.
- None or none apparent (4)
  - Recovered (3)
  - Recovering (2)
  - Recent or no recovery (1)
- 4b. Habitat development. Select only one and assign score.
- Excellent (7)
  - Very good (6)
  - Good (5)
  - Moderately good (4)
  - Fair (3)
  - Poor to fair (2)
  - Poor (1)
- 4c. Habitat alteration. Score one or double check and average.
- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li><input type="checkbox"/> None or none apparent (9)</li> <li><input type="checkbox"/> Recovered (6)</li> <li><input type="checkbox"/> Recovering (3)</li> <li><input checked="" type="checkbox"/> Recent or no recovery (1)</li> </ul> | <p>Check all disturbances observed</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> mowing</li> <li><input checked="" type="checkbox"/> grazing</li> <li><input type="checkbox"/> clearcutting</li> <li><input type="checkbox"/> selective cutting</li> <li><input type="checkbox"/> woody debris removal</li> <li><input type="checkbox"/> toxic pollutants</li> <li><input checked="" type="checkbox"/> shrub/sapling removal</li> <li><input type="checkbox"/> herbaceous/aquatic bed removal</li> <li><input type="checkbox"/> sedimentation</li> <li><input type="checkbox"/> dredging</li> <li><input type="checkbox"/> farming</li> <li><input type="checkbox"/> nutrient enrichment</li> </ul> |
|--|---|

27
subtotal this page

Site: <u>Wetland 16-SCI-823-0.00</u>	Rater(s): <u>LM</u>	Date: <u>7-23-12</u>
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27

subtotal first page

0	27
max 10 pts.	subtotal

### Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- Bog (10)
- Fen (10)
- Old growth forest (10)
- Mature forested wetland (5)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- Lake Erie coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See Question 1 Qualitative Rating (-10)

4	31
max 20 pts.	subtotal

### Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.  
Score all present using 0 to 3 scale.

- Aquatic bed
- Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other \_\_\_\_\_

6b. horizontal (plan view) Interspersion.  
Select only one.

- High (5)
- Moderately high (4)
- Moderate (3)
- Moderately low (2)
- Low (1)
- None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- Absent (1)

6d. Microtopography.  
Score all present using 0 to 3 scale.

- Vegetated hummocks/tussocks
- Coarse woody debris >15cm (6in)
- Standing dead >25cm (10in) dbh
- Amphibian breeding pools

#### Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

#### Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

#### Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

#### Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

31

End of Quantitative Rating. Complete Categorization Worksheets.

Site: <u>Wetland 17- SCT- 8230.00</u>	Rater(s): <u>LM</u>	Date: <u>8-7-12</u>
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0	0
max 6 pts.	subtotal

### Metric 1. Wetland Area (size).

- Select one size class and assign score.
- >50 acres (>20.2ha) (6 pts)
  - 25 to <50 acres (10.1 to <20.2ha) (5 pts)
  - 10 to <25 acres (4 to <10.1ha) (4 pts)
  - 3 to <10 acres (1.2 to <4ha) (3 pts)
  - 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
  - 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
  - <0.1 acres (0.04ha) (0 pts)

13	13
max 14 pts.	subtotal

### Metric 2. Upland buffers and surrounding land use.

- 2a. Calculate average buffer width. Select only one and assign score. Do not double check.
- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
  - MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
  - NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
  - VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)
- 2b. Intensity of surrounding land use. Select one or double check and average.
- VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
  - LOW. Old field (>10 years), shrub land, young second growth forest. (5)
  - MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
  - HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

20	33
max 30 pts.	subtotal

### Metric 3. Hydrology.

- 3a. Sources of Water. Score all that apply.
- High pH groundwater (5)
  - Other groundwater (3)
  - Precipitation (1)
  - Seasonal/Intermittent surface water (3)
  - Perennial surface water (lake or stream) (5)
- 3b. Connectivity. Score all that apply.
- 100 year floodplain (1)
  - Between stream/lake and other human use (1)
  - Part of wetland/upland (e.g. forest), complex (1)
  - Part of riparian or upland corridor (1)
- 3c. Maximum water depth. Select only one and assign score.
- >0.7 (27.6in) (3)
  - 0.4 to 0.7m (15.7 to 27.6in) (2)
  - <0.4m (<15.7in) (1)
- 3d. Duration inundation/saturation. Score one or dbl check.
- Semi- to permanently inundated/saturated (4)
  - Regularly inundated/saturated (3)
  - Seasonally inundated (2)
  - Seasonally saturated in upper 30cm (12in) (1)
- 3e. Modifications to natural hydrologic regime. Score one or double check and average.
- None or none apparent (12)
  - Recovered (7)
  - Recovering (3)
  - Recent or no recovery (1)

Check all disturbances observed	
<input type="checkbox"/> ditch	<input type="checkbox"/> point source (nonstormwater)
<input type="checkbox"/> tile	<input type="checkbox"/> filling/grading
<input type="checkbox"/> dike	<input type="checkbox"/> road bed/RR track
<input type="checkbox"/> weir	<input type="checkbox"/> dredging
<input type="checkbox"/> stormwater input	<input type="checkbox"/> other _____

9.5	42.5
max 20 pts.	subtotal

### Metric 4. Habitat Alteration and Development.

- 4a. Substrate disturbance. Score one or double check and average.
- None or none apparent (4)
  - Recovered (3)
  - Recovering (2)
  - Recent or no recovery (1)
- 4b. Habitat development. Select only one and assign score.
- Excellent (7)
  - Very good (6)
  - Good (5)
  - Moderately good (4)
  - Fair (3)
  - Poor to fair (2)
  - Poor (1)
- 4c. Habitat alteration. Score one or double check and average.
- None or none apparent (9)
  - Recovered (6)
  - Recovering (3)
  - Recent or no recovery (1)

Check all disturbances observed	
<input checked="" type="checkbox"/> mowing	<input type="checkbox"/> shrub/sapling removal
<input type="checkbox"/> grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input type="checkbox"/> clearcutting	<input type="checkbox"/> sedimentation
<input type="checkbox"/> selective cutting	<input type="checkbox"/> dredging
<input type="checkbox"/> woody debris removal	<input type="checkbox"/> farming
<input type="checkbox"/> toxic pollutants	<input type="checkbox"/> nutrient enrichment

42.5
subtotal this page

Site: <u>Wetland 17- SCI-823-0,00</u>	Rater(s): <u>LM</u>	Date: <u>8-7-12</u>
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42.5

  
subtotal first page

0	42.5
max 10 pts.	subtotal

### Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- Bog (10)
- Fen (10)
- Old growth forest (10)
- Mature forested wetland (5)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- Lake Erie coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See Question 1 Qualitative Rating (-10)

3	45.5
max 20 pts.	subtotal

### Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.  
 Score all present using 0 to 3 scale.

- Aquatic bed
- Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other \_\_\_\_\_

6b. horizontal (plan view) Interspersion.  
 Select only one.

- High (5)
- Moderately high(4)
- Moderate (3)
- Moderately low (2)
- Low (1)
- None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- Vegetated hummocks/tussocks
- Coarse woody debris >15cm (6in)
- Standing dead >25cm (10in) dbh
- Amphibian breeding pools

#### Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

#### Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

#### Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

#### Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

45.5

**End of Quantitative Rating. Complete Categorization Worksheets.**

Site: <u>Wetland 18 - SCE 823 - 0.00</u>	Rater(s): <u>LM</u>	Date: <u>8-29-12</u>
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2	2
max 6 pts.	subtotal

### Metric 1. Wetland Area (size).

Select one size class and assign score.

- >50 acres (>20.2ha) (6 pts)
- 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- 10 to <25 acres (4 to <10.1ha) (4 pts)
- 3 to <10 acres (1.2 to <4ha) (3 pts)
- 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- <0.1 acres (0.04ha) (0 pts)

8	10
max 14 pts.	subtotal

### Metric 2. Upland buffers and surrounding land use.

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- LOW. Old field (>10 years), shrub land, young second growth forest. (5)
- MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

17.5	27.5
max 30 pts.	subtotal

### Metric 3. Hydrology.

3a. Sources of Water. Score all that apply.

- High pH groundwater (5)
- Other groundwater (3)
- Precipitation (1)
- Seasonal/Intermittent surface water (3)
- Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score.

- >0.7 (27.6in) (3)
- 0.4 to 0.7m (15.7 to 27.6in) (2)
- <0.4m (<15.7in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- None or none apparent (12)
- Recovered (7)
- Recovering (3)
- Recent or no recovery (1)

3b. Connectivity. Score all that apply.

- 100 year floodplain (1)
- Between stream/lake and other human use (1)
- Part of wetland/upland (e.g. forest), complex (1)
- Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check.

- Semi- to permanently inundated/saturated (4)
- Regularly inundated/saturated (3)
- Seasonally inundated (2)
- Seasonally saturated in upper 30cm (12in) (1)

Check all disturbances observed	
<input checked="" type="checkbox"/> ditch	<input type="checkbox"/> point source (nonstormwater)
<input type="checkbox"/> tile	<input checked="" type="checkbox"/> filling/grading
<input type="checkbox"/> dike	<input checked="" type="checkbox"/> road bed/RR track
<input type="checkbox"/> weir	<input type="checkbox"/> dredging
<input type="checkbox"/> stormwater input	<input type="checkbox"/> other _____

16	43.5
max 20 pts.	subtotal

### Metric 4. Habitat Alteration and Development.

4a. Substrate disturbance. Score one or double check and average.

- None or none apparent (4)
- Recovered (3)
- Recovering (2)
- Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- Excellent (7)
- Very good (6)
- Good (5)
- Moderately good (4)
- Fair (3)
- Poor to fair (2)
- Poor (1)

4c. Habitat alteration. Score one or double check and average.

- None or none apparent (9)
- Recovered (6)
- Recovering (3)
- Recent or no recovery (1)

Check all disturbances observed	
<input type="checkbox"/> mowing	<input type="checkbox"/> shrub/sapling removal
<input type="checkbox"/> grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input type="checkbox"/> clearcutting	<input type="checkbox"/> sedimentation
<input type="checkbox"/> selective cutting	<input type="checkbox"/> dredging
<input type="checkbox"/> woody debris removal	<input type="checkbox"/> farming
<input type="checkbox"/> toxic pollutants	<input type="checkbox"/> nutrient enrichment

43.5
subtotal this page

Site: <u>Wetland 18-SCI-823-0.00</u>	Rater(s): <u>LM</u>	Date: <u>8-29-12</u>
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43.5

subtotal first page

0	43.5
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max 10 pts. subtotal

### Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- Bog (10)
- Fen (10)
- Old growth forest (10)
- Mature forested wetland (5)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- Lake Erie coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See Question 1 Qualitative Rating (-10)

8	51.5
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max 20 pts. subtotal

### Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.  
Score all present using 0 to 3 scale.

- Aquatic bed
- Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other \_\_\_\_\_

6b. horizontal (plan view) Interspersion.  
Select only one.

- High (5)
- Moderately high(4)
- Moderate (3)
- Moderately low (2)
- Low (1)
- None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- Vegetated hummocks/tussocks
- Coarse woody debris >15cm (6in)
- Standing dead >25cm (10in) dbh
- Amphibian breeding pools

#### Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

#### Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

#### Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

#### Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

51.5

**End of Quantitative Rating. Complete Categorization Worksheets.**

Site: Wetland 19-SCI-823-0.00 Rater(s): LJM Date: 8-29-12

0 0  
max 6 pts. subtotal

**Metric 1. Wetland Area (size).**

- Select one size class and assign score.
- >50 acres (>20.2ha) (6 pts)
  - 25 to <50 acres (10.1 to <20.2ha) (5 pts)
  - 10 to <25 acres (4 to <10.1ha) (4 pts)
  - 3 to <10 acres (1.2 to <4ha) (3 pts)
  - 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
  - 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
  - <0.1 acres (0.04ha) (0 pts)

8 8  
max 14 pts. subtotal

**Metric 2. Upland buffers and surrounding land use.**

- 2a. Calculate average buffer width. Select only one and assign score. Do not double check.
- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
  - MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
  - NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
  - VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)
- 2b. Intensity of surrounding land use. Select one or double check and average.
- VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
  - LOW. Old field (>10 years), shrub land, young second growth forest. (5)
  - MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
  - HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

16 24  
max 30 pts. subtotal

**Metric 3. Hydrology.**

- 3a. Sources of Water. Score all that apply.
- High pH groundwater (5)
  - Other groundwater (3)
  - Precipitation (1)
  - Seasonal/Intermittent surface water (3)
  - Perennial surface water (lake or stream) (5)
- 3b. Connectivity. Score all that apply.
- 100 year floodplain (1)
  - Between stream/lake and other human use (1)
  - Part of wetland/upland (e.g. forest), complex (1)
  - Part of riparian or upland corridor (1)
- 3c. Maximum water depth. Select only one and assign score.
- >0.7 (27.6in) (3)
  - 0.4 to 0.7m (15.7 to 27.6in) (2)
  - <0.4m (<15.7in) (1)
- 3d. Duration inundation/saturation. Score one or dbl check.
- Semi- to permanently inundated/saturated (4)
  - Regularly inundated/saturated (3)
  - Seasonally inundated (2)
  - Seasonally saturated in upper 30cm (12in) (1)
- 3e. Modifications to natural hydrologic regime. Score one or double check and average.
- |  |  |   |
|--|--|---|
| <input checked="" type="checkbox"/> None or none apparent (12) | <input type="checkbox"/> Check all disturbances observed | <input type="checkbox"/> point source (nonstormwater) |
| <input type="checkbox"/> Recovered (7)                         | <input type="checkbox"/> ditch                           | <input type="checkbox"/> filling/grading              |
| <input type="checkbox"/> Recovering (3)                        | <input type="checkbox"/> tile                            | <input type="checkbox"/> road bed/RR track            |
| <input type="checkbox"/> Recent or no recovery (1)             | <input type="checkbox"/> dike                            | <input type="checkbox"/> dredging                     |
|  | <input type="checkbox"/> weir                            | <input type="checkbox"/> other                        |
|  | <input type="checkbox"/> stormwater input                |   |

12 36  
max 20 pts. subtotal

**Metric 4. Habitat Alteration and Development.**

- 4a. Substrate disturbance. Score one or double check and average.
- None or none apparent (4)
  - Recovered (3)
  - Recovering (2)
  - Recent or no recovery (1)
- 4b. Habitat development. Select only one and assign score.
- Excellent (7)
  - Very good (6)
  - Good (5)
  - Moderately good (4)
  - Fair (3)
  - Poor to fair (2)
  - Poor (1)
- 4c. Habitat alteration. Score one or double check and average.
- |   |  |   |
|---|--|---|
| <input checked="" type="checkbox"/> None or none apparent (9) | <input type="checkbox"/> Check all disturbances observed | <input type="checkbox"/> shrub/sapling removal          |
| <input checked="" type="checkbox"/> Recovered (6)             | <input checked="" type="checkbox"/> mowing               | <input type="checkbox"/> herbaceous/aquatic bed removal |
| <input type="checkbox"/> Recovering (3)                       | <input checked="" type="checkbox"/> grazing              | <input type="checkbox"/> sedimentation                  |
| <input type="checkbox"/> Recent or no recovery (1)            | <input type="checkbox"/> clearcutting                    | <input type="checkbox"/> dredging                       |
|   | <input type="checkbox"/> selective cutting               | <input type="checkbox"/> farming                        |
|   | <input type="checkbox"/> woody debris removal            | <input type="checkbox"/> nutrient enrichment            |
|   | <input type="checkbox"/> toxic pollutants                |   |

36  
subtotal this page

Site: Wetland 19 - SCI - 823-0.00 Rater(s): LM Date: 8-29-12

36

subtotal first page

0 36

max 10 pts. subtotal

**Metric 5. Special Wetlands.**

Check all that apply and score as indicated.

- Bog (10)
- Fen (10)
- Old growth forest (10)
- Mature forested wetland (5)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- Lake Erie coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See Question 1 Qualitative Rating (-10)

2 38

max 20 pts. subtotal

**Metric 6. Plant communities, interspersions, microtopography.**

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- Aquatic bed
- Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other \_\_\_\_\_

6b. horizontal (plan view) Interspersion.

Select only one.

- High (5)
- Moderately high(4)
- Moderate (3)
- Moderately low (2)
- Low (1)
- None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- Vegetated hummocks/tussocks
- Coarse woody debris >15cm (6in)
- Standing dead >25cm (10in) dbh
- Amphibian breeding pools

**Vegetation Community Cover Scale**

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

**Narrative Description of Vegetation Quality**

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

**Mudflat and Open Water Class Quality**

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

**Microtopography Cover Scale**

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

38

End of Quantitative Rating. Complete Categorization Worksheets.



## Background Information

Name:	JASON EARLEY	
Date:	March 6, 2013	
Affiliation:	ASC Group, Inc.	
Address:	800 Fireway Drive North, Suite 101, Columbus OH, 43229	
Phone Number:	(614) 268-2514 ext 3444	
e-mail address:	jearley@ascgroup.net	
Name of Wetland:	Phase 3 - Portsmouth Bypass Wetlands 20-36	
Vegetation Community(ies):	Various - See ESR	
HGM Class(es):	Various	
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.	SEE Figure 1 ESR	
Lat/Long or UTM Coordinate	VARIOUS	
USGS Quad Name	VARIOUS	
County	Scioto	
Township	VARIOUS	
Section and Subsection	VARIOUS	
Hydrologic Unit Code	VARIOUS	
Site Visit	Yes	
National Wetland Inventory Map	Yes - See Figure 7	
Ohio Wetland Inventory Map	Yes - See Figure 7	
Soil Survey	Yes - See Figure 9	
Delineation report/map	Yes - See Figures 11 & 12	

Name of Wetland: Wetlands 20-36 - See ESR - Construction Phase 3 Wetland Table	
Wetland Size (acres, hectares):	VARIOUS - See ESR
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc. SEE FIGURES 11; 12 in ESR	
Comments, Narrative Discussion, Justification of Category Changes: VARIOUS - See ESR	
Final score :	VARIOUS See ESR
Category:	N/A

## Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the “scoring boundaries” of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the “jurisdictional boundaries.” For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland’s jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. *Areas with a high degree of hydrologic interaction should be scored as a single wetland.* In determining a wetland’s scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	✓	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	✓	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	✓	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	✓	
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.	✓	

**End of Scoring Boundary Determination. Begin Narrative Rating on next page.**

## Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), <http://www.dnr.state.oh.us/dnap>. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	<b>Critical Habitat.</b> Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	YES  Wetland should be evaluated for possible Category 3 status  Go to Question 2	<input checked="" type="radio"/> NO  Go to Question 2
2	<b>Threatened or Endangered Species.</b> Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species? <i>*Wetland 24 complex has Riverbank Paspalum - Cat 3 wetland</i>	<input checked="" type="radio"/> YES *  Wetland is a Category 3 wetland.  Go to Question 3	<input checked="" type="radio"/> NO  Go to Question 3
3	<b>Documented High Quality Wetland.</b> Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES  Wetland is a Category 3 wetland  Go to Question 4	<input checked="" type="radio"/> NO  Go to Question 4
4	<b>Significant Breeding or Concentration Area.</b> Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES  Wetland is a Category 3 wetland  Go to Question 5	<input checked="" type="radio"/> NO  Go to Question 5
5	<b>Category 1 Wetlands.</b> Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea</i> , <i>Lythrum salicaria</i> , or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES  Wetland is a Category 1 wetland  Go to Question 6	<input checked="" type="radio"/> NO  Go to Question 6
6	<b>Bogs.</b> Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES  Wetland is a Category 3 wetland  Go to Question 7	<input checked="" type="radio"/> NO  Go to Question 7
7	<b>Fens.</b> Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral pH (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES  Wetland is a Category 3 wetland  Go to Question 8a	<input checked="" type="radio"/> NO  Go to Question 8a
8a	<b>"Old Growth Forest."</b> Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES  Wetland is a Category 3 wetland.  Go to Question 8b	<input checked="" type="radio"/> NO  Go to Question 8b

8b	<b>Mature forested wetlands.</b> Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	YES  Wetland should be evaluated for possible Category 3 status.  Go to Question 9a	NO  Go to Question 9a
9a	<b>Lake Erie coastal and tributary wetlands.</b> Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES  Go to Question 9b	NO  Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES  Wetland should be evaluated for possible Category 3 status  Go to Question 10	NO  Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	YES  Go to Question 9d	NO  Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES  Wetland is a Category 3 wetland  Go to Question 10	NO  Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES  Wetland should be evaluated for possible Category 3 status  Go to Question 10	NO  Go to Question 10
10	<b>Lake Plain Sand Prairies (Oak Openings)</b> Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	YES  Wetland is a Category 3 wetland.  Go to Question 11	NO  Go to Question 11
11	<b>Relict Wet Prairies.</b> Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	YES  Wetland should be evaluated for possible Category 3 status  Complete Quantitative Rating	NO  Complete Quantitative Rating

**Table 1. Characteristic plant species.**

<b>invasive/exotic spp</b>	<b>fen species</b>	<b>bog species</b>	<b>Oak Opening species</b>	<b>wet prairie species</b>
<i>Lythrum salicaria</i>	<i>Zygadenus elegans</i> var. <i>glaucus</i>	<i>Calla palustris</i>	<i>Carex cryptolepis</i>	<i>Calamagrostis canadensis</i>
<i>Myriophyllum spicatum</i>	<i>Cacalia plantaginea</i>	<i>Carex atlantica</i> var. <i>capillacea</i>	<i>Carex lasiocarpa</i>	<i>Calamagrostis stricta</i>
<i>Najas minor</i>	<i>Carex flava</i>	<i>Carex echinata</i>	<i>Carex stricta</i>	<i>Carex atherodes</i>
<i>Phalaris arundinacea</i>	<i>Carex sterilis</i>	<i>Carex oligosperma</i>	<i>Cladium mariscoides</i>	<i>Carex buxbaumii</i>
<i>Phragmites australis</i>	<i>Carex stricta</i>	<i>Carex trisperma</i>	<i>Calamagrostis stricta</i>	<i>Carex pellita</i>
<i>Potamogeton crispus</i>	<i>Deschampsia caespitosa</i>	<i>Chamaedaphne calyculata</i>	<i>Calamagrostis canadensis</i>	<i>Carex sartwellii</i>
<i>Ranunculus ficaria</i>	<i>Eleocharis rostellata</i>	<i>Decodon verticillatus</i>	<i>Quercus palustris</i>	<i>Gentiana andrewsii</i>
<i>Rhamnus frangula</i>	<i>Eriophorum viridicaratum</i>	<i>Eriophorum virginicum</i>		<i>Helianthus grosseserratus</i>
<i>Typha angustifolia</i>	<i>Gentianopsis</i> spp.	<i>Larix laricina</i>		<i>Liatris spicata</i>
<i>Typha xglauca</i>	<i>Lobelia kalmii</i>	<i>Nemopanthus mucronatus</i>		<i>Lysimachia quadriflora</i>
	<i>Parnassia glauca</i>	<i>Scheuchzeria palustris</i>		<i>Lythrum alatum</i>
	<i>Potentilla fruticosa</i>	<i>Sphagnum</i> spp.		<i>Pycnanthemum virginianum</i>
	<i>Rhamnus alnifolia</i>	<i>Vaccinium macrocarpon</i>		<i>Silphium terebinthinaceum</i>
	<i>Rhynchospora capillacea</i>	<i>Vaccinium corymbosum</i>		<i>Sorghastrum nutans</i>
	<i>Salix candida</i>	<i>Vaccinium oxycoccos</i>		<i>Spartina pectinata</i>
	<i>Salix myricoides</i>	<i>Woodwardia virginica</i>		<i>Solidago riddellii</i>
	<i>Salix serissima</i>	<i>Xyris difformis</i>		
	<i>Solidago ohioensis</i>			
	<i>Tofieldia glutinosa</i>			
	<i>Triglochin maritimum</i>			
	<i>Triglochin palustre</i>			

**End of Narrative Rating. Begin Quantitative Rating on next page.**

# ORAM Summary Worksheet

		circle answer or insert score	Result
<p>* Wetland 24 complex has T<sub>1</sub>E</p>	Question 1. Critical Habitat	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES <input checked="" type="radio"/> NO <input type="radio"/>	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 4. Significant bird habitat	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 1.
	Question 6. Bogs	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 7. Fens	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 8a. Old Growth Forest	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands - Unrestricted with native plants	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3
Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, evaluate for Category 3; may also be 1 or 2.	
Question 10. Oak Openings	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3	
Question 11. Relict Wet Prairies	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, evaluate for Category 3; may also be 1 or 2.	
Quantitative Rating	Metric 1. Size	Various	
	Metric 2. Buffers and surrounding land use	Various	
	Metric 3. Hydrology	Various	
	Metric 4. Habitat	Various	
	Metric 5. Special Wetland Communities	Various	
	Metric 6. Plant communities, interspersions, microtopography	Various	
	TOTAL SCORE	SEE ESR and ORAM Summary Sheets	Category based on score breakpoints

**Complete Wetland Categorization Worksheet.**

## Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
<p>* Wetland 24 complex</p> <p>Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10</p>	YES *	NO	Is quantitative rating score <i>less</i> than the Category 2 scoring threshold ( <i>excluding</i> gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been over-categorized by the ORAM
<p>Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11</p>	YES	NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
<p>Did you answer "Yes" to Narrative Rating No. 5</p>	YES	NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold ( <i>including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
<p>Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?</p>	YES	NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
<p>Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?</p> <p style="font-size: 1.2em; margin-left: 20px;">See ESR TABLE</p>	YES	NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
<p>Does the wetland otherwise exhibit moderate OR superior hydrologic OR habitat, OR recreational functions AND the wetland was <i>not</i> categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?</p>	YES	NO	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

### Final Category

Choose one	Category 1	Category 2	Category 3
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End of Ohio Rapid Assessment Method for Wetlands.



Site: <u>Wetland 20 - SCE 823- 0.00</u>	Rater(s): <u>LM</u>	Date: <u>10-4-12</u>
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0	0
max 6 pts.	subtotal

### Metric 1. Wetland Area (size).

Select one size class and assign score.

- >50 acres (>20.2ha) (6 pts)
- 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- 10 to <25 acres (4 to <10.1ha) (4 pts)
- 3 to <10 acres (1.2 to <4ha) (3 pts)
- 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- <0.1 acres (0.04ha) (0 pts)

14	14
max 14 pts.	subtotal

### Metric 2. Upland buffers and surrounding land use.

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- LOW. Old field (>10 years), shrub land, young second growth forest. (5)
- MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

19.5	33.5
max 30 pts.	subtotal

### Metric 3. Hydrology.

3a. Sources of Water. Score all that apply.

- High pH groundwater (5)
- Other groundwater (3)
- Precipitation (1)
- Seasonal/Intermittent surface water (3)
- Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- 100 year floodplain (1)
- Between stream/lake and other human use (1)
- Part of wetland/upland (e.g. forest), complex (1)
- Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

- >0.7 (27.6in) (3)
- 0.4 to 0.7m (15.7 to 27.6in) (2)
- <0.4m (<15.7in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

- Semi- to permanently inundated/saturated (4)
- Regularly inundated/saturated (3)
- Seasonally inundated (2)
- Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> None or none apparent (12)</li> <li><input checked="" type="checkbox"/> Recovered (7)</li> <li><input type="checkbox"/> Recovering (3)</li> <li><input type="checkbox"/> Recent or no recovery (1)</li> </ul>	<p>Check all disturbances observed</p> <table style="width:100%; border: none;"> <tr> <td><input type="checkbox"/> ditch</td> <td><input type="checkbox"/> point source (nonstormwater)</td> </tr> <tr> <td><input type="checkbox"/> tile</td> <td><input checked="" type="checkbox"/> filling/grading</td> </tr> <tr> <td><input type="checkbox"/> dike</td> <td><input checked="" type="checkbox"/> road bed/RR track</td> </tr> <tr> <td><input type="checkbox"/> weir</td> <td><input type="checkbox"/> dredging</td> </tr> <tr> <td><input type="checkbox"/> stormwater input</td> <td><input type="checkbox"/> other</td> </tr> </table>	<input type="checkbox"/> ditch	<input type="checkbox"/> point source (nonstormwater)	<input type="checkbox"/> tile	<input checked="" type="checkbox"/> filling/grading	<input type="checkbox"/> dike	<input checked="" type="checkbox"/> road bed/RR track	<input type="checkbox"/> weir	<input type="checkbox"/> dredging	<input type="checkbox"/> stormwater input	<input type="checkbox"/> other
<input type="checkbox"/> ditch	<input type="checkbox"/> point source (nonstormwater)										
<input type="checkbox"/> tile	<input checked="" type="checkbox"/> filling/grading										
<input type="checkbox"/> dike	<input checked="" type="checkbox"/> road bed/RR track										
<input type="checkbox"/> weir	<input type="checkbox"/> dredging										
<input type="checkbox"/> stormwater input	<input type="checkbox"/> other										

14	47.5
max 20 pts.	subtotal

### Metric 4. Habitat Alteration and Development.

4a. Substrate disturbance. Score one or double check and average.

- None or none apparent (4)
- Recovered (3)
- Recovering (2)
- Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- Excellent (7)
- Very good (6)
- Good (5)
- Moderately good (4)
- Fair (3)
- Poor to fair (2)
- Poor (1)

4c. Habitat alteration. Score one or double check and average.

<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> None or none apparent (9)</li> <li><input type="checkbox"/> Recovered (6)</li> <li><input type="checkbox"/> Recovering (3)</li> <li><input type="checkbox"/> Recent or no recovery (1)</li> </ul>	<p>Check all disturbances observed</p> <table style="width:100%; border: none;"> <tr> <td><input type="checkbox"/> mowing</td> <td><input type="checkbox"/> shrub/sapling removal</td> </tr> <tr> <td><input type="checkbox"/> grazing</td> <td><input type="checkbox"/> herbaceous/aquatic bed removal</td> </tr> <tr> <td><input type="checkbox"/> clearcutting</td> <td><input type="checkbox"/> sedimentation</td> </tr> <tr> <td><input type="checkbox"/> selective cutting</td> <td><input type="checkbox"/> dredging</td> </tr> <tr> <td><input type="checkbox"/> woody debris removal</td> <td><input type="checkbox"/> farming</td> </tr> <tr> <td><input type="checkbox"/> toxic pollutants</td> <td><input type="checkbox"/> nutrient enrichment</td> </tr> </table>	<input type="checkbox"/> mowing	<input type="checkbox"/> shrub/sapling removal	<input type="checkbox"/> grazing	<input type="checkbox"/> herbaceous/aquatic bed removal	<input type="checkbox"/> clearcutting	<input type="checkbox"/> sedimentation	<input type="checkbox"/> selective cutting	<input type="checkbox"/> dredging	<input type="checkbox"/> woody debris removal	<input type="checkbox"/> farming	<input type="checkbox"/> toxic pollutants	<input type="checkbox"/> nutrient enrichment
<input type="checkbox"/> mowing	<input type="checkbox"/> shrub/sapling removal												
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<input type="checkbox"/> selective cutting	<input type="checkbox"/> dredging												
<input type="checkbox"/> woody debris removal	<input type="checkbox"/> farming												
<input type="checkbox"/> toxic pollutants	<input type="checkbox"/> nutrient enrichment												

47.5
subtotal this page

Site: <u>Wetland 20-SCI-822 0.00</u>	Rater(s): <u>LM</u>	Date: <u>10-4-12</u>
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47.5

subtotal first page

0	47.5
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max 10 pts. subtotal

### Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- Bog (10)
- Fen (10)
- Old growth forest (10)
- Mature forested wetland (5)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- Lake Erie coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See Question 1 Qualitative Rating (-10)

6	53.5
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max 20 pts. subtotal

### Metric 6. Plant communities, interspersions, microtopography.

#### 6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- Aquatic bed
- Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other \_\_\_\_\_

#### 6b. horizontal (plan view) Interspersion.

Select only one.

- High (5)
- Moderately high(4)
- Moderate (3)
- Moderately low (2)
- Low (1)
- None (0)

#### 6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- Absent (1)

#### 6d. Microtopography.

Score all present using 0 to 3 scale.

- Vegetated hummocks/tussocks
- Coarse woody debris >15cm (6in)
- Standing dead >25cm (10in) dbh
- Amphibian breeding pools

#### Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

#### Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

#### Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

#### Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

53.5

**End of Quantitative Rating. Complete Categorization Worksheets.**

<b>Site:</b> Wetland 21-SCI-R23-0.00	<b>Rater(s):</b> LM	<b>Date:</b> 10-5-12
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0	0
max 6 pts.	subtotal

### Metric 1. Wetland Area (size).

- Select one size class and assign score.
- >50 acres (>20.2ha) (6 pts)
  - 25 to <50 acres (10.1 to <20.2ha) (5 pts)
  - 10 to <25 acres (4 to <10.1ha) (4 pts)
  - 3 to <10 acres (1.2 to <4ha) (3 pts)
  - 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
  - 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
  - <0.1 acres (0.04ha) (0 pts)

12	12
max 14 pts.	subtotal

### Metric 2. Upland buffers and surrounding land use.

- 2a. Calculate average buffer width. Select only one and assign score. Do not double check.
- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
  - MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
  - NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
  - VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)
- 2b. Intensity of surrounding land use. Select one or double check and average.
- VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
  - LOW. Old field (>10 years), shrub land, young second growth forest. (5)
  - MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
  - HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

19	31
max 30 pts.	subtotal

### Metric 3. Hydrology.

- 3a. Sources of Water. Score all that apply.
- High pH groundwater (5)
  - Other groundwater (3)
  - Precipitation (1)
  - Seasonal/Intermittent surface water (3)
  - Perennial surface water (lake or stream) (5)
- 3b. Connectivity. Score all that apply.
- 100 year floodplain (1)
  - Between stream/lake and other human use (1)
  - Part of wetland/upland (e.g. forest), complex (1)
  - Part of riparian or upland corridor (1)
- 3c. Maximum water depth. Select only one and assign score.
- >0.7 (27.6in) (3)
  - 0.4 to 0.7m (15.7 to 27.6in) (2)
  - <0.4m (<15.7in) (1)
- 3d. Duration inundation/saturation. Score one or dbl check.
- Semi- to permanently inundated/saturated (4)
  - Regularly inundated/saturated (3)
  - Seasonally inundated (2)
  - Seasonally saturated in upper 30cm (12in) (1)
- 3e. Modifications to natural hydrologic regime. Score one or double check and average.
- None or none apparent (12)
  - Recovered (7)
  - Recovering (3)
  - Recent or no recovery (1)

Check all disturbances observed	
<input type="checkbox"/> ditch <input type="checkbox"/> tile <input type="checkbox"/> dike <input type="checkbox"/> weir <input type="checkbox"/> stormwater input	<input type="checkbox"/> point source (nonstormwater) <input type="checkbox"/> filling/grading <input type="checkbox"/> road bed/RR track <input type="checkbox"/> dredging <input type="checkbox"/> other

7	38
max 20 pts.	subtotal

### Metric 4. Habitat Alteration and Development.

- 4a. Substrate disturbance. Score one or double check and average.
- None or none apparent (4)
  - Recovered (3)
  - Recovering (2)
  - Recent or no recovery (1)
- 4b. Habitat development. Select only one and assign score.
- Excellent (7)
  - Very good (6)
  - Good (5)
  - Moderately good (4)
  - Fair (3)
  - Poor to fair (2)
  - Poor (1)
- 4c. Habitat alteration. Score one or double check and average.
- None or none apparent (9)
  - Recovered (6)
  - Recovering (3)
  - Recent or no recovery (1)

Check all disturbances observed	
<input type="checkbox"/> mowing <input checked="" type="checkbox"/> grazing <input type="checkbox"/> clearcutting <input type="checkbox"/> selective cutting <input type="checkbox"/> woody debris removal <input type="checkbox"/> toxic pollutants	<input type="checkbox"/> shrub/sapling removal <input type="checkbox"/> herbaceous/aquatic bed removal <input type="checkbox"/> sedimentation <input type="checkbox"/> dredging <input type="checkbox"/> farming <input type="checkbox"/> nutrient enrichment

38
subtotal this page

Site: Wetland 21-SCI-823-0.00 Rater(s): LM Date: 10-5-12

38

subtotal first page

0 38

max 10 pts.

subtotal

**Metric 5. Special Wetlands.**

Check all that apply and score as indicated.

- Bog (10)
- Fen (10)
- Old growth forest (10)
- Mature forested wetland (5)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- Lake Erie coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See Question 1 Qualitative Rating (-10)

5 43

max 20 pts.

subtotal

**Metric 6. Plant communities, interspersions, microtopography.**

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- Aquatic bed
- Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other

6b. horizontal (plan view) Interspersion.

Select only one.

- High (5)
- Moderately high(4)
- Moderate (3)
- Moderately low (2)
- Low (1)
- None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- Vegetated hummocks/tussocks
- Coarse woody debris >15cm (6in)
- Standing dead >25cm (10in) dbh
- Amphibian breeding pools

**Vegetation Community Cover Scale**

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

**Narrative Description of Vegetation Quality**

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

**Mudflat and Open Water Class Quality**

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

**Microtopography Cover Scale**

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

43

End of Quantitative Rating. Complete Categorization Worksheets.

<b>Site:</b> <u>Wetland 22-SC1-023-0,00</u>	<b>Rater(s):</b> <u>LM</u>	<b>Date:</b> <u>10-5-12</u>
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<u>0</u>	<u>0</u>
max 6 pts.	subtotal

**Metric 1. Wetland Area (size).**

- Select one size class and assign score.
- >50 acres (>20.2ha) (6 pts)
  - 25 to <50 acres (10.1 to <20.2ha) (5 pts)
  - 10 to <25 acres (4 to <10.1ha) (4 pts)
  - 3 to <10 acres (1.2 to <4ha) (3 pts)
  - 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
  - 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
  - <0.1 acres (0.04ha) (0 pts)

<u>12</u>	<u>12</u>
max 14 pts.	subtotal

**Metric 2. Upland buffers and surrounding land use.**

- 2a. Calculate average buffer width. Select only one and assign score. Do not double check.
- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
  - MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
  - NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
  - VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)
- 2b. Intensity of surrounding land use. Select one or double check and average.
- VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
  - LOW. Old field (>10 years), shrub land, young second growth forest. (5)
  - MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
  - HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

<u>16.5</u>	<u>28.5</u>
max 30 pts.	subtotal

**Metric 3. Hydrology.**

- 3a. Sources of Water. Score all that apply.
- High pH groundwater (5)
  - Other groundwater (3)
  - Precipitation (1)
  - Seasonal/Intermittent surface water (3)
  - Perennial surface water (lake or stream) (5)
- 3b. Connectivity. Score all that apply.
- 100 year floodplain (1)
  - Between stream/lake and other human use (1)
  - Part of wetland/upland (e.g. forest), complex (1)
  - Part of riparian or upland corridor (1)
- 3c. Maximum water depth. Select only one and assign score.
- >0.7 (27.6in) (3)
  - 0.4 to 0.7m (15.7 to 27.6in) (2)
  - <0.4m (<15.7in) (1)
- 3d. Duration inundation/saturation. Score one or dbl check.
- Semi- to permanently inundated/saturated (4)
  - Regularly inundated/saturated (3)
  - Seasonally inundated (2)
  - Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

<input checked="" type="checkbox"/> None or none apparent (12) <input checked="" type="checkbox"/> Recovered (7) <input type="checkbox"/> Recovering (3) <input type="checkbox"/> Recent or no recovery (1)	Check all disturbances observed <input checked="" type="checkbox"/> ditch <input type="checkbox"/> tile <input type="checkbox"/> dike <input type="checkbox"/> weir <input type="checkbox"/> stormwater input <input type="checkbox"/> point source (nonstormwater) <input type="checkbox"/> filling/grading <input type="checkbox"/> road bed/RR track <input type="checkbox"/> dredging <input type="checkbox"/> other
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<u>8.5</u>	<u>37</u>
max 20 pts.	subtotal

**Metric 4. Habitat Alteration and Development.**

- 4a. Substrate disturbance. Score one or double check and average.
- None or none apparent (4)
  - Recovered (3)
  - Recovering (2)
  - Recent or no recovery (1)
- 4b. Habitat development. Select only one and assign score.
- Excellent (7)
  - Very good (6)
  - Good (5)
  - Moderately good (4)
  - Fair (3)
  - Poor to fair (2)
  - Poor (1)
- 4c. Habitat alteration. Score one or double check and average.

<input checked="" type="checkbox"/> None or none apparent (9) <input checked="" type="checkbox"/> Recovered (6) <input type="checkbox"/> Recovering (3) <input type="checkbox"/> Recent or no recovery (1)	Check all disturbances observed <input type="checkbox"/> mowing <input checked="" type="checkbox"/> grazing <input type="checkbox"/> clearcutting <input type="checkbox"/> selective cutting <input type="checkbox"/> woody debris removal <input type="checkbox"/> toxic pollutants <input type="checkbox"/> shrub/sapling removal <input type="checkbox"/> herbaceous/aquatic bed removal <input type="checkbox"/> sedimentation <input type="checkbox"/> dredging <input type="checkbox"/> farming <input type="checkbox"/> nutrient enrichment
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<u>37</u>
subtotal this page

Site: <u>Wetland 22- SCI-823-0.10</u>	Rater(s): <u>LM</u>	Date: <u>10-5-12</u>
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37

subtotal first page

0	37
max 10 pts.	subtotal

### Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- Bog (10)
- Fen (10)
- Old growth forest (10)
- Mature forested wetland (5)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- Lake Erie coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See Question 1 Qualitative Rating (-10)

6	43
max 20 pts.	subtotal

### Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- Aquatic bed
- Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other \_\_\_\_\_

6b. horizontal (plan view) Interspersion.

Select only one.

- High (5)
- Moderately high (4)
- Moderate (3)
- Moderately low (2)
- Low (1)
- None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- 1 Vegetated hummocks/tussocks
- Coarse woody debris >15cm (6in)
- Standing dead >25cm (10in) dbh
- 2 Amphibian breeding pools

#### Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

#### Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

#### Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

#### Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

43
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**End of Quantitative Rating. Complete Categorization Worksheets.**

Site: <u>Wetland 23, SCI-823-0.00</u>	Rater(s): <u>LM</u>	Date: <u>10-5-12</u>
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0	0
max 6 pts.	subtotal

### Metric 1. Wetland Area (size).

Select one size class and assign score.

- >50 acres (>20.2ha) (6 pts)
- 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- 10 to <25 acres (4 to <10.1ha) (4 pts)
- 3 to <10 acres (1.2 to <4ha) (3 pts)
- 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- <0.1 acres (0.04ha) (0 pts)

12	12
max 14 pts.	subtotal

### Metric 2. Upland buffers and surrounding land use.

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- LOW. Old field (>10 years), shrub land, young second growth forest. (5)
- MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

9	21
max 30 pts.	subtotal

### Metric 3. Hydrology.

3a. Sources of Water. Score all that apply.

- High pH groundwater (5)
- Other groundwater (3)
- Precipitation (1)
- Seasonal/Intermittent surface water (3)
- Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- 100 year floodplain (1)
- Between stream/lake and other human use (1)
- Part of wetland/upland (e.g. forest), complex (1)
- Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

- >0.7 (27.6in) (3)
- 0.4 to 0.7m (15.7 to 27.6in) (2)
- <0.4m (<15.7in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

- Semi- to permanently inundated/saturated (4)
- Regularly inundated/saturated (3)
- Seasonally inundated (2)
- Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

<ul style="list-style-type: none"> <li><input type="checkbox"/> None or none apparent (12)</li> <li><input type="checkbox"/> Recovered (7)</li> <li><input checked="" type="checkbox"/> Recovering (3)</li> <li><input checked="" type="checkbox"/> Recent or no recovery (1)</li> </ul>	<p>Check all disturbances observed</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> ditch</li> <li><input type="checkbox"/> tile</li> <li><input type="checkbox"/> dike</li> <li><input type="checkbox"/> weir</li> <li><input type="checkbox"/> stormwater input</li> </ul>
<ul style="list-style-type: none"> <li><input type="checkbox"/> point source (nonstormwater)</li> <li><input checked="" type="checkbox"/> filling/grading</li> <li><input checked="" type="checkbox"/> road bed/RR track</li> <li><input type="checkbox"/> dredging</li> <li><input type="checkbox"/> other _____</li> </ul>	

4	25
max 20 pts.	subtotal

### Metric 4. Habitat Alteration and Development.

4a. Substrate disturbance. Score one or double check and average.

- None or none apparent (4)
- Recovered (3)
- Recovering (2)
- Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- Excellent (7)
- Very good (6)
- Good (5)
- Moderately good (4)
- Fair (3)
- Poor to fair (2)
- Poor (1)

4c. Habitat alteration. Score one or double check and average.

<ul style="list-style-type: none"> <li><input type="checkbox"/> None or none apparent (9)</li> <li><input type="checkbox"/> Recovered (6)</li> <li><input checked="" type="checkbox"/> Recovering (3)</li> <li><input checked="" type="checkbox"/> Recent or no recovery (1)</li> </ul>	<p>Check all disturbances observed</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> mowing</li> <li><input checked="" type="checkbox"/> grazing</li> <li><input type="checkbox"/> clearcutting</li> <li><input type="checkbox"/> selective cutting</li> <li><input type="checkbox"/> woody debris removal</li> <li><input type="checkbox"/> toxic pollutants</li> <li><input checked="" type="checkbox"/> shrub/sapling removal</li> <li><input type="checkbox"/> herbaceous/aquatic bed removal</li> <li><input type="checkbox"/> sedimentation</li> <li><input type="checkbox"/> dredging</li> <li><input type="checkbox"/> farming</li> <li><input type="checkbox"/> nutrient enrichment</li> </ul>
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25
subtotal this page

Site: Wetland 23-SLI 823-0.00 Rater(s): LM Date: 10-5-12

25

  
subtotal first page

0	25
<small>max 10 pts.</small>	<small>subtotal</small>

### Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- Bog (10)
- Fen (10)
- Old growth forest (10)
- Mature forested wetland (5)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- Lake Erie coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See Question 1 Qualitative Rating (-10)

2	27
<small>max 20 pts.</small>	<small>subtotal</small>

### Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- Aquatic bed
- Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other \_\_\_\_\_

6b. Horizontal (plan view) Interspersion.

Select only one.

- High (5)
- Moderately high(4)
- Moderate (3)
- Moderately low (2)
- Low (1)
- None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- Vegetated hummocks/tussocks
- Coarse woody debris >15cm (6in)
- Standing dead >25cm (10in) dbh
- Amphibian breeding pools

#### Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

#### Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

#### Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

#### Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

27

**End of Quantitative Rating. Complete Categorization Worksheets.**



Site: Wetlands 2724A, 24B - SCE-823-0.40 Rater(s): LM/JME Date: 10-17-12

2	2
max 6 pts.	subtotal

**Metric 1. Wetland Area (size).**

- Select one size class and assign score.
- >50 acres (>20.2ha) (6 pts)
  - 25 to <50 acres (10.1 to <20.2ha) (5 pts)
  - 10 to <25 acres (4 to <10.1ha) (4 pts)
  - 3 to <10 acres (1.2 to <4ha) (3 pts)
  - 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
  - 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
  - <0.1 acres (0.04ha) (0 pts)

11	13
max 14 pts.	subtotal

**Metric 2. Upland buffers and surrounding land use.**

- 2a. Calculate average buffer width. Select only one and assign score. Do not double check.
- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
  - MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
  - NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
  - VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)
- 2b. Intensity of surrounding land use. Select one or double check and average.
- VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
  - LOW. Old field (>10 years), shrub land, young second growth forest. (5)
  - MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
  - HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

25.5	38.5
max 30 pts.	subtotal

**Metric 3. Hydrology.**

- 3a. Sources of Water. Score all that apply.
- High pH groundwater (5)
  - Other groundwater (3)
  - Precipitation (1)
  - Seasonal/Intermittent surface water (3)
  - Perennial surface water (lake or stream) (5)
- 3b. Connectivity. Score all that apply.
- 100 year floodplain (1)
  - Between stream/lake and other human use (1)
  - Part of wetland/upland (e.g. forest), complex (1)
  - Part of riparian or upland corridor (1)
- 3c. Maximum water depth. Select only one and assign score.
- >0.7 (27.6in) (3)
  - 0.4 to 0.7m (15.7 to 27.6in) (2)
  - <0.4m (<15.7in) (1)
- 3d. Duration inundation/saturation. Score one or dbl check.
- Semi- to permanently inundated/saturated (4)
  - Regularly inundated/saturated (3)
  - Seasonally inundated (2)
  - Seasonally saturated in upper 30cm (12in) (1)
- 3e. Modifications to natural hydrologic regime. Score one or double check and average.

Check all disturbances observed	
<input checked="" type="checkbox"/> None or none apparent (12)	<input type="checkbox"/> point source (nonstormwater)
<input type="checkbox"/> Recovered (7)	<input type="checkbox"/> filling/grading
<input type="checkbox"/> Recovering (3)	<input type="checkbox"/> road bed/RR track
<input type="checkbox"/> Recent or no recovery (1)	<input type="checkbox"/> dredging
<input type="checkbox"/> ditch	<input type="checkbox"/> other
<input type="checkbox"/> tile	
<input type="checkbox"/> dike	
<input type="checkbox"/> weir	
<input type="checkbox"/> stormwater input	

11	49.5
max 20 pts.	subtotal

**Metric 4. Habitat Alteration and Development.**

- 4a. Substrate disturbance. Score one or double check and average.
- None or none apparent (4)
  - Recovered (3)
  - Recovering (2)
  - Recent or no recovery (1)
- 4b. Habitat development. Select only one and assign score.
- Excellent (7)
  - Very good (6)
  - Good (5)
  - Moderately good (4)
  - Fair (3)
  - Poor to fair (2)
  - Poor (1)
- 4c. Habitat alteration. Score one or double check and average.

Check all disturbances observed	
<input checked="" type="checkbox"/> None or none apparent (9)	<input type="checkbox"/> shrub/sapling removal
<input type="checkbox"/> Recovered (6)	<input type="checkbox"/> herbaceous/aquatic bed removal
<input checked="" type="checkbox"/> Recovering (3)	<input checked="" type="checkbox"/> sedimentation
<input type="checkbox"/> Recent or no recovery (1)	<input type="checkbox"/> dredging
<input type="checkbox"/> mowing	<input type="checkbox"/> farming
<input type="checkbox"/> grazing	<input type="checkbox"/> nutrient enrichment
<input type="checkbox"/> clearcutting	
<input checked="" type="checkbox"/> selective cutting	
<input type="checkbox"/> woody debris removal	
<input type="checkbox"/> toxic pollutants	

49.5
subtotal this page

Site: Wetlands 24 24A, 24B - SCT 823-0.00 Rater(s): LM/JME Date: 10-17-12

49.5

  
subtotal first page

10	59.5
max 10 pts.	subtotal

### Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- Bog (10)
- Fen (10)
- Old growth forest (10)
- Mature forested wetland (5)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- Lake Erie coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See Question 1 Qualitative Rating (-10)

6	65.5
max 20 pts.	subtotal

### Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- Aquatic bed
- Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other \_\_\_\_\_

6b. horizontal (plan view) Interspersion.

Select only one.

- High (5)
- Moderately high(4)
- Moderate (3)
- Moderately low (2)
- Low (1)
- None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- Vegetated hummocks/tussucks
- Coarse woody debris >15cm (6in)
- Standing dead >25cm (10in) dbh
- Amphibian breeding pools

#### Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

#### Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

#### Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

#### Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

65.5

**End of Quantitative Rating. Complete Categorization Worksheets.**

Site: <u>Wetland 25:25a - SCD 823:0.00</u>	Rater(s): <u>LM</u>	Date: <u>10-23-12</u>
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<u>2</u>	<u>2</u>
max 6 pts.	subtotal

### Metric 1. Wetland Area (size).

Select one size class and assign score.

- >50 acres (>20.2ha) (6 pts)
- 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- 10 to <25 acres (4 to <10.1ha) (4 pts)
- 3 to <10 acres (1.2 to <4ha) (3 pts)
- 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- <0.1 acres (0.04ha) (0 pts)

<u>12</u>	<u>14</u>
max 14 pts.	subtotal

### Metric 2. Upland buffers and surrounding land use.

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- 7  MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- 5  VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- LOW. Old field (>10 years), shrub land, young second growth forest. (5)
- MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

<u>18.5</u>	<u>32.5</u>
max 30 pts.	subtotal

### Metric 3. Hydrology.

3a. Sources of Water. Score all that apply.

- High pH groundwater (5)
- Other groundwater (3)
- 4  Precipitation (1)
- Seasonal/intermittent surface water (3)
- Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score.

- 1  >0.7 (27.6in) (3)
- 0.4 to 0.7m (15.7 to 27.6in) (2)
- <0.4m (<15.7in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- 7.5  None or none apparent (12)
- Recovered (7)
- Recovering (3)
- Recent or no recovery (1)

3b. Connectivity. Score all that apply.

- 3  100 year floodplain (1)
- Between stream/lake and other human use (1)
- Part of wetland/upland (e.g. forest), complex (1)
- Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check.

- Semi- to permanently inundated/saturated (4)
- 3  Regularly inundated/saturated (3)
- Seasonally inundated (2)
- Seasonally saturated in upper 30cm (12in) (1)

Check all disturbances observed	
<input type="checkbox"/> ditch	<input checked="" type="checkbox"/> point source (nonstormwater)
<input type="checkbox"/> file	<input type="checkbox"/> filling/grading
<input type="checkbox"/> dike	<input checked="" type="checkbox"/> road bed/RR track
<input type="checkbox"/> weir	<input type="checkbox"/> dredging
<input type="checkbox"/> stormwater input	<input checked="" type="checkbox"/> other <u>Septic Systems</u>

<u>11.5</u>	<u>44</u>
max 20 pts.	subtotal

### Metric 4. Habitat Alteration and Development.

4a. Substrate disturbance. Score one or double check and average.

- 4  None or none apparent (4)
- Recovered (3)
- Recovering (2)
- Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- Excellent (7)
- Very good (6)
- Good (5)
- Moderately good (4)
- 3  Fair (3)
- Poor to fair (2)
- Poor (1)

4c. Habitat alteration. Score one or double check and average.

- None or none apparent (9)
- 4.5  Recovered (6)
- Recovering (3)
- Recent or no recovery (1)

Check all disturbances observed	
<input type="checkbox"/> mowing	<input type="checkbox"/> shrub/sapling removal
<input type="checkbox"/> grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input type="checkbox"/> clearcutting	<input type="checkbox"/> sedimentation
<input type="checkbox"/> selective cutting	<input type="checkbox"/> dredging
<input type="checkbox"/> woody debris removal	<input type="checkbox"/> farming
<input type="checkbox"/> toxic pollutants	<input checked="" type="checkbox"/> nutrient enrichment

<u>44</u>
subtotal this page

Site: Wetland 25:25a - SCI-823-0.00 Rater(s): LM Date: 10-23-12

44

subtotal first page

0 44

max 10 pts.

subtotal

### Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- Bog (10)
- Fen (10)
- Old growth forest (10)
- Mature forested wetland (5)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- Lake Erie coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See Question 1 Qualitative Rating (-10)

9 53

max 20 pts.

subtotal

### Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- Aquatic bed
- Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other \_\_\_\_\_

6b. horizontal (plan view) Interspersion.

Select only one.

- High (5)
- Moderately high(4)
- Moderate (3)
- Moderately low (2)
- Low (1)
- None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- 1 Vegetated hummocks/tussocks
- 2 Coarse woody debris >15cm (6in)
- Standing dead >25cm (10in) dbh
- Amphibian breeding pools

#### Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

#### Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

#### Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

#### Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

53

End of Quantitative Rating. Complete Categorization Worksheets.

Site: <u>Wetland 26- SCE-823-0.00</u>	Rater(s): <u>LM</u>	Date: <u>10-23-12</u>
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0	0
max 6 pts.	subtotal

### Metric 1. Wetland Area (size).

Select one size class and assign score.

- >50 acres (>20.2ha) (6 pts)
- 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- 10 to <25 acres (4 to <10.1ha) (4 pts)
- 3 to <10 acres (1.2 to <4ha) (3 pts)
- 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- <0.1 acres (0.04ha) (0 pts)

3	3
max 14 pts.	subtotal

### Metric 2. Upland buffers and surrounding land use.

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- LOW. Old field (>10 years), shrub land, young second growth forest. (5)
- MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

14	17
max 30 pts.	subtotal

### Metric 3. Hydrology.

3a. Sources of Water. Score all that apply.

- High pH groundwater (5)
- Other groundwater (3)
- Precipitation (1)
- Seasonal/intermittent surface water (3)
- Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score.

- >0.7 (27.6in) (3)
- 0.4 to 0.7m (15.7 to 27.6in) (2)
- <0.4m (<15.7in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- None or none apparent (12)
- Recovered (7)
- Recovering (3)
- Recent or no recovery (1)

3b. Connectivity. Score all that apply.

- 100 year floodplain (1)
- Between stream/lake and other human use (1)
- Part of wetland/upland (e.g. forest), complex (1)
- Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check.

- Semi- to permanently inundated/saturated (4)
- Regularly inundated/saturated (3)
- Seasonally inundated (2)
- Seasonally saturated in upper 30cm (12in) (1)

Check all disturbances observed	
<input type="checkbox"/> ditch	<input checked="" type="checkbox"/> point source (nonstormwater)
<input type="checkbox"/> tile	<input checked="" type="checkbox"/> filling/grading
<input type="checkbox"/> dike	<input checked="" type="checkbox"/> road bed/RR track
<input type="checkbox"/> weir	<input type="checkbox"/> dredging
<input type="checkbox"/> stormwater input	<input type="checkbox"/> other _____

4.5	22.5
max 20 pts.	subtotal

### Metric 4. Habitat Alteration and Development.

4a. Substrate disturbance. Score one or double check and average.

- None or none apparent (4)
- Recovered (3)
- Recovering (2)
- Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- Excellent (7)
- Very good (6)
- Good (5)
- Moderately good (4)
- Fair (3)
- Poor to fair (2)
- Poor (1)

4c. Habitat alteration. Score one or double check and average.

- None or none apparent (9)
- Recovered (6)
- Recovering (3)
- Recent or no recovery (1)

Check all disturbances observed	
<input type="checkbox"/> mowing	<input type="checkbox"/> shrub/sapling removal
<input type="checkbox"/> grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input type="checkbox"/> clearcutting	<input type="checkbox"/> sedimentation
<input type="checkbox"/> selective cutting	<input type="checkbox"/> dredging
<input type="checkbox"/> woody debris removal	<input type="checkbox"/> farming
<input type="checkbox"/> toxic pollutants	<input checked="" type="checkbox"/> nutrient enrichment

22.5
subtotal this page

<b>Site:</b> <u>Wetland 26 - SCI 823-0.00</u>	<b>Rater(s):</b> <u>CM</u>	<b>Date:</b> <u>10-23-12</u>
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22.5

  
subtotal first page

0	22.5
max 10 pts.	subtotal

### Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- Bog (10)
- Fen (10)
- Old growth forest (10)
- Mature forested wetland (5)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- Lake Erie coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See Question 1 Qualitative Rating (-10)

5	27.5
max 20 pts.	subtotal

### Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- Aquatic bed
- Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other \_\_\_\_\_

6b. horizontal (plan view) Interspersion.

Select only one.

- High (5)
- Moderately high(4)
- Moderate (3)
- Moderately low (2)
- Low (1)
- None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- Vegetated hummocks/tussocks
- Coarse woody debris >15cm (6in)
- Standing dead >25cm (10in) dbh
- Amphibian breeding pools

#### Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
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3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

#### Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

#### Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

#### Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

27.5
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**End of Quantitative Rating. Complete Categorization Worksheets.**

Site: <u>Wetland 27-SCF 823-0.00</u>	Rater(s): <u>LM</u>	Date: <u>10-23-12</u>
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0	0
max 6 pts.	subtotal

### Metric 1. Wetland Area (size).

- Select one size class and assign score.
- >50 acres (>20.2ha) (6 pts)
  - 25 to <50 acres (10.1 to <20.2ha) (5 pts)
  - 10 to <25 acres (4 to <10.1ha) (4 pts)
  - 3 to <10 acres (1.2 to <4ha) (3 pts)
  - 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
  - 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
  - <0.1 acres (0.04ha) (0 pts)

3	3
max 14 pts.	subtotal

### Metric 2. Upland buffers and surrounding land use.

- 2a. Calculate average buffer width. Select only one and assign score. Do not double check.
- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
  - MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
  - NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
  - VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)
- 2b. Intensity of surrounding land use. Select one or double check and average.
- VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
  - LOW. Old field (>10 years), shrub land, young second growth forest. (5)
  - MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
  - HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

13.5	16.5
max 30 pts.	subtotal

### Metric 3. Hydrology.

- 3a. Sources of Water. Score all that apply.
- High pH groundwater (5)
  - Other groundwater (3)
  - Precipitation (1)
  - Seasonal/Intermittent surface water (3)
  - Perennial surface water (lake or stream) (5)
- 3b. Connectivity. Score all that apply.
- 100 year floodplain (1)
  - Between stream/lake and other human use (1)
  - Part of wetland/upland (e.g. forest), complex (1)
  - Part of riparian or upland corridor (1)
- 3c. Maximum water depth. Select only one and assign score.
- >0.7 (27.6in) (3)
  - 0.4 to 0.7m (15.7 to 27.6in) (2)
  - <0.4m (<15.7in) (1)
- 3d. Duration inundation/saturation. Score one or dbl check.
- Semi- to permanently inundated/saturated (4)
  - Regularly inundated/saturated (3)
  - Seasonally inundated (2)
  - Seasonally saturated in upper 30cm (12in) (1)
- 3e. Modifications to natural hydrologic regime. Score one or double check and average.
- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> None or none apparent (12)</li> <li><input checked="" type="checkbox"/> Recovered (7)</li> <li><input type="checkbox"/> Recovering (3)</li> <li><input type="checkbox"/> Recent or no recovery (1)</li> </ul>                               | <p>Check all disturbances observed</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> ditch</li> <li><input type="checkbox"/> tile</li> <li><input type="checkbox"/> dike</li> <li><input type="checkbox"/> weir</li> <li><input type="checkbox"/> stormwater input</li> </ul> |
| <ul style="list-style-type: none"> <li><input type="checkbox"/> point source (nonstormwater)</li> <li><input checked="" type="checkbox"/> filling/grading</li> <li><input checked="" type="checkbox"/> road bed/RR track</li> <li><input type="checkbox"/> dredging</li> <li><input type="checkbox"/> other</li> </ul> |   |

3.5	20
max 20 pts.	subtotal

### Metric 4. Habitat Alteration and Development.

- 4a. Substrate disturbance. Score one or double check and average.
- None or none apparent (4)
  - Recovered (3)
  - Recovering (2)
  - Recent or no recovery (1)
- 4b. Habitat development. Select only one and assign score.
- Excellent (7)
  - Very good (6)
  - Good (5)
  - Moderately good (4)
  - Fair (3)
  - Poor to fair (2)
  - Poor (1)
- 4c. Habitat alteration. Score one or double check and average.
- |  |   |  |   |
|--|---|--|---|
| <ul style="list-style-type: none"> <li><input type="checkbox"/> None or none apparent (9)</li> <li><input type="checkbox"/> Recovered (6)</li> <li><input type="checkbox"/> Recovering (3)</li> <li><input checked="" type="checkbox"/> Recent or no recovery (1)</li> </ul>   | <p>Check all disturbances observed</p> <table style="width:100%;"> <tr> <td style="width:50%; padding: 2px;"> <ul style="list-style-type: none"> <li><input type="checkbox"/> mowing</li> <li><input checked="" type="checkbox"/> grazing</li> <li><input checked="" type="checkbox"/> clearcutting</li> <li><input type="checkbox"/> selective cutting</li> <li><input type="checkbox"/> woody debris removal</li> <li><input type="checkbox"/> toxic pollutants</li> </ul> </td> <td style="width:50%; padding: 2px;"> <ul style="list-style-type: none"> <li><input type="checkbox"/> shrub/sapling removal</li> <li><input type="checkbox"/> herbaceous/aquatic bed removal</li> <li><input type="checkbox"/> sedimentation</li> <li><input type="checkbox"/> dredging</li> <li><input type="checkbox"/> farming</li> <li><input checked="" type="checkbox"/> nutrient enrichment</li> </ul> </td> </tr> </table> | <ul style="list-style-type: none"> <li><input type="checkbox"/> mowing</li> <li><input checked="" type="checkbox"/> grazing</li> <li><input checked="" type="checkbox"/> clearcutting</li> <li><input type="checkbox"/> selective cutting</li> <li><input type="checkbox"/> woody debris removal</li> <li><input type="checkbox"/> toxic pollutants</li> </ul> | <ul style="list-style-type: none"> <li><input type="checkbox"/> shrub/sapling removal</li> <li><input type="checkbox"/> herbaceous/aquatic bed removal</li> <li><input type="checkbox"/> sedimentation</li> <li><input type="checkbox"/> dredging</li> <li><input type="checkbox"/> farming</li> <li><input checked="" type="checkbox"/> nutrient enrichment</li> </ul> |
| <ul style="list-style-type: none"> <li><input type="checkbox"/> mowing</li> <li><input checked="" type="checkbox"/> grazing</li> <li><input checked="" type="checkbox"/> clearcutting</li> <li><input type="checkbox"/> selective cutting</li> <li><input type="checkbox"/> woody debris removal</li> <li><input type="checkbox"/> toxic pollutants</li> </ul> | <ul style="list-style-type: none"> <li><input type="checkbox"/> shrub/sapling removal</li> <li><input type="checkbox"/> herbaceous/aquatic bed removal</li> <li><input type="checkbox"/> sedimentation</li> <li><input type="checkbox"/> dredging</li> <li><input type="checkbox"/> farming</li> <li><input checked="" type="checkbox"/> nutrient enrichment</li> </ul>   |  |   |

20
subtotal this page

Site: <u>Wetland 27-SCI-823-0.00</u>	Rater(s): <u>LM</u>	Date: <u>10-23-12</u>
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20

subtotal first page

0	20
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max 10 pts. subtotal

### Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- Bog (10)
- Fen (10)
- Old growth forest (10)
- Mature forested wetland (5)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- Lake Erie coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See Question 1 Qualitative Rating (-10)

3	23
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max 20 pts. subtotal

### Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- Aquatic bed
- Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other \_\_\_\_\_

6b. horizontal (plan view) Interspersion.

Select only one.

- High (5)
- Moderately high(4)
- Moderate (3)
- Moderately low (2)
- Low (1)
- None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- Vegetated hummocks/tussocks
- Coarse woody debris >15cm (6in)
- Standing dead >25cm (10in) dbh
- Amphibian breeding pools

#### Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

#### Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

#### Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

#### Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

23

**End of Quantitative Rating. Complete Categorization Worksheets.**



**Site:** Wetland 28 Complex - A-D-SC1 823 **Rater(s):** LM **Date:** 10-23-12

0.00

1	1
max 6 pts.	subtotal

**Metric 1. Wetland Area (size).**

Select one size class and assign score.

- >50 acres (>20.2ha) (6 pts)
- 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- 10 to <25 acres (4 to <10.1ha) (4 pts)
- 3 to <10 acres (1.2 to <4ha) (3 pts)
- 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- <0.1 acres (0.04ha) (0 pts)

10	11
max 14 pts.	subtotal

**Metric 2. Upland buffers and surrounding land use.**

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- LOW. Old field (>10 years), shrub land, young second growth forest. (5)
- MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

6	17
max 30 pts.	subtotal

**Metric 3. Hydrology.**

3a. Sources of Water. Score all that apply.

- High pH groundwater (5)
- Other groundwater (3)
- Precipitation (1)
- Seasonal/Intermittent surface water (3)
- Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score.

- >0.7 (27.6in) (3)
- 0.4 to 0.7m (15.7 to 27.6in) (2)
- <0.4m (<15.7in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- None or none apparent (12)
- Recovered (7)
- Recovering (3)
- Recent or no recovery (1)

3b. Connectivity. Score all that apply.

- 100 year floodplain (1)
- Between stream/lake and other human use (1)
- Part of wetland/upland (e.g. forest), complex (1)
- Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check.

- Semi- to permanently inundated/saturated (4)
- Regularly inundated/saturated (3)
- Seasonally inundated (2)
- Seasonally saturated in upper 30cm (12in) (1)

Check all disturbances observed	
<input type="checkbox"/> ditch	<input type="checkbox"/> point source (nonstormwater)
<input type="checkbox"/> tile	<input checked="" type="checkbox"/> filling/grading
<input type="checkbox"/> dike	<input checked="" type="checkbox"/> road bed/RR track
<input type="checkbox"/> weir	<input type="checkbox"/> dredging
<input type="checkbox"/> stormwater input	<input type="checkbox"/> other

4	21
max 20 pts.	subtotal

**Metric 4. Habitat Alteration and Development.**

4a. Substrate disturbance. Score one or double check and average.

- None or none apparent (4)
- Recovered (3)
- Recovering (2)
- Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- Excellent (7)
- Very good (6)
- Good (5)
- Moderately good (4)
- Fair (3)
- Poor to fair (2)
- Poor (1)

4c. Habitat alteration. Score one or double check and average.

- None or none apparent (9)
- Recovered (6)
- Recovering (3)
- Recent or no recovery (1)

Check all disturbances observed	
<input type="checkbox"/> mowing	<input type="checkbox"/> shrub/sapling removal
<input checked="" type="checkbox"/> grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input checked="" type="checkbox"/> clearcutting	<input type="checkbox"/> sedimentation
<input type="checkbox"/> selective cutting	<input type="checkbox"/> dredging
<input type="checkbox"/> woody debris removal	<input type="checkbox"/> farming
<input type="checkbox"/> toxic pollutants	<input type="checkbox"/> nutrient enrichment

21
subtotal this page

Site: Wetland 28 Complex- SC1-823-000 Rater(s): LM Date: 10-23-12

21

subtotal first page

0

21

max 10 pts.

subtotal

### Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- Bog (10)
- Fen (10)
- Old growth forest (10)
- Mature forested wetland (5)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- Lake Erie coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See Question 1 Qualitative Rating (-10)

3

24

max 20 pts.

subtotal

### Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.  
Score all present using 0 to 3 scale.

- Aquatic bed
- Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other \_\_\_\_\_

6b. horizontal (plan view) Interspersion.  
Select only one.

- High (5)
- Moderately high (4)
- Moderate (3)
- Moderately low (2)
- Low (1)
- None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- Vegetated hummocks/tussocks
- Coarse woody debris >15cm (6in)
- Standing dead >25cm (10in) dbh
- Amphibian breeding pools

#### Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

#### Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

#### Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

#### Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

24

End of Quantitative Rating. Complete Categorization Worksheets.

<b>Site:</b> <i>Wetland 29- SCT- 823-0.00</i>	<b>Rater(s):</b> <i>LM</i>	<b>Date:</b> <i>10-23-12</i>
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<b>2</b>	<b>2</b>
max 6 pts.	subtotal

**Metric 1. Wetland Area (size).**

Select one size class and assign score.

- >50 acres (>20.2ha) (6 pts)
- 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- 10 to <25 acres (4 to <10.1ha) (4 pts)
- 3 to <10 acres (1.2 to <4ha) (3 pts)
- 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- <0.1 acres (0.04ha) (0 pts)

<b>8</b>	<b>10</b>
max 14 pts.	subtotal

**Metric 2. Upland buffers and surrounding land use.**

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- LOW. Old field (>10 years), shrub land, young second growth forest. (5)
- MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

<b>19.5</b>	<b>29.5</b>
max 30 pts.	subtotal

**Metric 3. Hydrology.**

3a. Sources of Water. Score all that apply.

- High pH groundwater (5)
- Other groundwater (3)
- Precipitation (1)
- Seasonal/Intermittent surface water (3)
- Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score.

- >0.7 (27.6in) (3)
- 0.4 to 0.7m (15.7 to 27.6in) (2)
- <0.4m (<15.7in) (1)

3b. Connectivity. Score all that apply.

- 100 year floodplain (1)
- Between stream/lake and other human use (1)
- Part of wetland/upland (e.g. forest), complex (1)
- Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check.

- Semi- to permanently inundated/saturated (4)
- Regularly inundated/saturated (3)
- Seasonally inundated (2)
- Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> None or none apparent (12)</li> <li><input type="checkbox"/> Recovered (7)</li> <li><input type="checkbox"/> Recovering (3)</li> <li><input type="checkbox"/> Recent or no recovery (1)</li> </ul> | <p>Check all disturbances observed</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> ditch</li> <li><input type="checkbox"/> tile</li> <li><input type="checkbox"/> dike</li> <li><input type="checkbox"/> weir</li> <li><input type="checkbox"/> stormwater input</li> </ul>        |
|   | <ul style="list-style-type: none"> <li><input type="checkbox"/> point source (nonstormwater)</li> <li><input type="checkbox"/> filling/grading</li> <li><input type="checkbox"/> road bed/RR track</li> <li><input type="checkbox"/> dredging</li> <li><input type="checkbox"/> other _____</li> </ul> |

<b>3</b>	<b>32.5</b>
max 20 pts.	subtotal

**Metric 4. Habitat Alteration and Development.**

4a. Substrate disturbance. Score one or double check and average.

- None or none apparent (4)
- Recovered (3)
- Recovering (2)
- Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- Excellent (7)
- Very good (6)
- Good (5)
- Moderately good (4)
- Fair (3)
- Poor to fair (2)
- Poor (1)

4c. Habitat alteration. Score one or double check and average.

- |  |  |  |  |
|--|--|--|--|
| <ul style="list-style-type: none"> <li><input type="checkbox"/> None or none apparent (9)</li> <li><input type="checkbox"/> Recovered (6)</li> <li><input type="checkbox"/> Recovering (3)</li> <li><input checked="" type="checkbox"/> Recent or no recovery (1)</li> </ul>   | <p>Check all disturbances observed</p> <table style="width:100%;"> <tr> <td style="width:50%; vertical-align: top;"> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> mowing</li> <li><input checked="" type="checkbox"/> grazing</li> <li><input type="checkbox"/> clearcutting</li> <li><input type="checkbox"/> selective cutting</li> <li><input type="checkbox"/> woody debris removal</li> <li><input type="checkbox"/> toxic pollutants</li> </ul> </td> <td style="width:50%; vertical-align: top;"> <ul style="list-style-type: none"> <li><input type="checkbox"/> shrub/sapling removal</li> <li><input type="checkbox"/> herbaceous/aquatic bed removal</li> <li><input type="checkbox"/> sedimentation</li> <li><input type="checkbox"/> dredging</li> <li><input type="checkbox"/> farming</li> <li><input type="checkbox"/> nutrient enrichment</li> </ul> </td> </tr> </table> | <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> mowing</li> <li><input checked="" type="checkbox"/> grazing</li> <li><input type="checkbox"/> clearcutting</li> <li><input type="checkbox"/> selective cutting</li> <li><input type="checkbox"/> woody debris removal</li> <li><input type="checkbox"/> toxic pollutants</li> </ul> | <ul style="list-style-type: none"> <li><input type="checkbox"/> shrub/sapling removal</li> <li><input type="checkbox"/> herbaceous/aquatic bed removal</li> <li><input type="checkbox"/> sedimentation</li> <li><input type="checkbox"/> dredging</li> <li><input type="checkbox"/> farming</li> <li><input type="checkbox"/> nutrient enrichment</li> </ul> |
| <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> mowing</li> <li><input checked="" type="checkbox"/> grazing</li> <li><input type="checkbox"/> clearcutting</li> <li><input type="checkbox"/> selective cutting</li> <li><input type="checkbox"/> woody debris removal</li> <li><input type="checkbox"/> toxic pollutants</li> </ul> | <ul style="list-style-type: none"> <li><input type="checkbox"/> shrub/sapling removal</li> <li><input type="checkbox"/> herbaceous/aquatic bed removal</li> <li><input type="checkbox"/> sedimentation</li> <li><input type="checkbox"/> dredging</li> <li><input type="checkbox"/> farming</li> <li><input type="checkbox"/> nutrient enrichment</li> </ul>   |  |  |

<b>32.5</b>
subtotal this page

Site: <u>Wetland 29-SC1-823-0.00</u>	Rater(s): <u>LM</u>	Date: <u>10-23-12</u>
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32.5

subtotal first page

0	32.5
max 10 pts.	subtotal

### Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- Bog (10)
- Fen (10)
- Old growth forest (10)
- Mature forested wetland (5)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- Lake Erie coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See Question 1 Qualitative Rating (-10)

4	36.5
max 20 pts.	subtotal

### Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.  
Score all present using 0 to 3 scale.

- Aquatic bed
- Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other \_\_\_\_\_

6b. horizontal (plan view) Interspersion.  
Select only one.

- High (5)
- Moderately high (4)
- Moderate (3)
- Moderately low (2)
- Low (1)
- None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- Absent (1)

6d. Microtopography.  
Score all present using 0 to 3 scale.

- 2 Vegetated hummocks/tussocks
- Coarse woody debris >15cm (6in)
- Standing dead >25cm (10in) dbh
- Amphibian breeding pools

#### Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

#### Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

#### Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

#### Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

36.5

**End of Quantitative Rating. Complete Categorization Worksheets.**

Site: <u>Wetland 30 - SCI-R23-0.00</u>	Rater(s): <u>LM</u>	Date: <u>10-24-12</u>
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1	1
max 6 pts.	subtotal

### Metric 1. Wetland Area (size).

- Select one size class and assign score.
- >50 acres (>20.2ha) (6 pts)
  - 25 to <50 acres (10.1 to <20.2ha) (5 pts)
  - 10 to <25 acres (4 to <10.1ha) (4 pts)
  - 3 to <10 acres (1.2 to <4ha) (3 pts)
  - 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
  - 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
  - <0.1 acres (0.04ha) (0 pts)

12	13
max 14 pts.	subtotal

### Metric 2. Upland buffers and surrounding land use.

- 2a. Calculate average buffer width. Select only one and assign score. Do not double check.
- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
  - MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
  - NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
  - VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)
- 2b. Intensity of surrounding land use. Select one or double check and average.
- VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
  - LOW. Old field (>10 years), shrub land, young second growth forest. (5)
  - MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
  - HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

15	28
max 30 pts.	subtotal

### Metric 3. Hydrology.

- 3a. Sources of Water. Score all that apply.
- High pH groundwater (5)
  - Other groundwater (3)
  - Precipitation (1)
  - Seasonal/Intermittent surface water (3)
  - Perennial surface water (lake or stream) (5)
- 3b. Connectivity. Score all that apply.
- 100 year floodplain (1)
  - Between stream/lake and other human use (1)
  - Part of wetland/upland (e.g. forest), complex (1)
  - Part of riparian or upland corridor (1)
- 3c. Maximum water depth. Select only one and assign score.
- >0.7 (27.6in) (3)
  - 0.4 to 0.7m (15.7 to 27.6in) (2)
  - <0.4m (<15.7in) (1)
- 3d. Duration inundation/saturation. Score one or dbl check.
- Semi- to permanently inundated/saturated (4)
  - Regularly inundated/saturated (3)
  - Seasonally inundated (2)
  - Seasonally saturated in upper 30cm (12in) (1)
- 3e. Modifications to natural hydrologic regime. Score one or double check and average.
- |  |  |
|--|--|
| <input type="checkbox"/> None or none apparent (12)<br><input checked="" type="checkbox"/> Recovered (7)<br><input checked="" type="checkbox"/> Recovering (3)<br><input type="checkbox"/> Recent or no recovery (1)                         | Check all disturbances observed<br><input type="checkbox"/> ditch<br><input type="checkbox"/> tile<br><input checked="" type="checkbox"/> dike<br><input type="checkbox"/> weir<br><input type="checkbox"/> stormwater input |
| <input type="checkbox"/> point source (nonstormwater)<br><input checked="" type="checkbox"/> filling/grading<br><input checked="" type="checkbox"/> road bed/RR track<br><input type="checkbox"/> dredging<br><input type="checkbox"/> other |  |

11.5	39.5
max 20 pts.	subtotal

### Metric 4. Habitat Alteration and Development.

- 4a. Substrate disturbance. Score one or double check and average.
- None or none apparent (4)
  - Recovered (3)
  - Recovering (2)
  - Recent or no recovery (1)
- 4b. Habitat development. Select only one and assign score.
- Excellent (7)
  - Very good (6)
  - Good (5)
  - Moderately good (4)
  - Fair (3)
  - Poor to fair (2)
  - Poor (1)
- 4c. Habitat alteration. Score one or double check and average.
- |   |   |
|---|---|
| <input checked="" type="checkbox"/> None or none apparent (9)<br><input checked="" type="checkbox"/> Recovered (6)<br><input checked="" type="checkbox"/> Recovering (3)<br><input type="checkbox"/> Recent or no recovery (1)  | Check all disturbances observed<br><input checked="" type="checkbox"/> mowing<br><input checked="" type="checkbox"/> grazing <u>Deer</u><br><input type="checkbox"/> clearcutting<br><input type="checkbox"/> selective cutting<br><input type="checkbox"/> woody debris removal<br><input type="checkbox"/> toxic pollutants |
| <input type="checkbox"/> shrub/sapling removal<br><input checked="" type="checkbox"/> herbaceous/aquatic bed removal<br><input type="checkbox"/> sedimentation<br><input type="checkbox"/> dredging<br><input type="checkbox"/> farming<br><input type="checkbox"/> nutrient enrichment |   |

39.5
subtotal this page

Site: Wetland 30-SC1-923-0.00 Rater(s): LM Date: 10-24-12

39.5  
subtotal first page

0 39.5  
max 10 pts. subtotal

**Metric 5. Special Wetlands.**

Check all that apply and score as indicated.

- Bog (10)
- Fen (10)
- Old growth forest (10)
- Mature forested wetland (5)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- Lake Erie coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See Question 1 Qualitative Rating (-10)

9 48.5  
max 20 pts. subtotal

**Metric 6. Plant communities, interspersions, microtopography.**

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- Aquatic bed
- 2 Emergent
- Shrub
- 3 Forest
- Mudflats
- 1 Open water
- Other \_\_\_\_\_

6b. horizontal (plan view) Interspersion.

Select only one.

- High (5)
- Moderately high(4)
- Moderate (3)
- Moderately low (2)
- 1 Low (1)
- None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- 1 Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- 2 Vegetated hummocks/tussocks
- Coarse woody debris >15cm (6in)
- Standing dead >25cm (10in) dbh
- 2 Amphibian breeding pools

**Vegetation Community Cover Scale**

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

**Narrative Description of Vegetation Quality**

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

**Mudflat and Open Water Class Quality**

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

**Microtopography Cover Scale**

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

48.5

**End of Quantitative Rating. Complete Categorization Worksheets.**

Site: <u>Wetland 31 - SL-823-0.00</u>	Rater(s): <u>LM</u>	Date: <u>10-24-12</u>
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0	0
max 6 pts.	subtotal

### Metric 1. Wetland Area (size).

- Select one size class and assign score.
- >50 acres (>20.2ha) (6 pts)
  - 25 to <50 acres (10.1 to <20.2ha) (5 pts)
  - 10 to <25 acres (4 to <10.1ha) (4 pts)
  - 3 to <10 acres (1.2 to <4ha) (3 pts)
  - 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
  - 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
  - <0.1 acres (0.04ha) (0 pts)

12	12
max 14 pts.	subtotal

### Metric 2. Upland buffers and surrounding land use.

- 2a. Calculate average buffer width. Select only one and assign score. Do not double check.
- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
  - MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
  - NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
  - VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)
- 2b. Intensity of surrounding land use. Select one or double check and average.
- VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
  - LOW. Old field (>10 years), shrub land, young second growth forest. (5)
  - MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
  - HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

7	19
max 30 pts.	subtotal

### Metric 3. Hydrology.

- 3a. Sources of Water. Score all that apply.
- High pH groundwater (5)
  - Other groundwater (3)
  - Precipitation (1)
  - Seasonal/intermittent surface water (3)
  - Perennial surface water (lake or stream) (5)
- 3b. Connectivity. Score all that apply.
- 100 year floodplain (1)
  - Between stream/lake and other human use (1)
  - Part of wetland/upland (e.g. forest), complex (1)
  - Part of riparian or upland corridor (1)
- 3c. Maximum water depth. Select only one and assign score.
- >0.7 (27.6in) (3)
  - 0.4 to 0.7m (15.7 to 27.6in) (2)
  - <0.4m (<15.7in) (1)
- 3d. Duration inundation/saturation. Score one or dbl check.
- Semi- to permanently inundated/saturated (4)
  - Regularly inundated/saturated (3)
  - Seasonally inundated (2)
  - Seasonally saturated in upper 30cm (12in) (1)
- 3e. Modifications to natural hydrologic regime. Score one or double check and average.

<input type="checkbox"/> None or none apparent (12) <input type="checkbox"/> Recovered (7) <input checked="" type="checkbox"/> Recovering (3) <input checked="" type="checkbox"/> Recent or no recovery (1)	Check all disturbances observed <input type="checkbox"/> ditch <input type="checkbox"/> tile <input type="checkbox"/> dike <input type="checkbox"/> weir <input type="checkbox"/> stormwater input <input type="checkbox"/> point source (nonstormwater) <input checked="" type="checkbox"/> filling/grading <input checked="" type="checkbox"/> road bed/RR track <input checked="" type="checkbox"/> dredging <input type="checkbox"/> other _____
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6.5	25.5
max 20 pts.	subtotal

### Metric 4. Habitat Alteration and Development.

- 4a. Substrate disturbance. Score one or double check and average.
- None or none apparent (4)
  - Recovered (3)
  - Recovering (2)
  - Recent or no recovery (1)
- 4b. Habitat development. Select only one and assign score.
- Excellent (7)
  - Very good (6)
  - Good (5)
  - Moderately good (4)
  - Fair (3)
  - Poor to fair (2)
  - Poor (1)
- 4c. Habitat alteration. Score one or double check and average.
- None or none apparent (9)
  - Recovered (6)
  - Recovering (3)
  - Recent or no recovery (1)

Check all disturbances observed <input checked="" type="checkbox"/> mowing <input type="checkbox"/> grazing <input type="checkbox"/> clearcutting <input type="checkbox"/> selective cutting <input type="checkbox"/> woody debris removal <input type="checkbox"/> toxic pollutants	<input type="checkbox"/> shrub/sapling removal <input type="checkbox"/> herbaceous/aquatic bed removal <input type="checkbox"/> sedimentation <input type="checkbox"/> dredging <input type="checkbox"/> farming <input type="checkbox"/> nutrient enrichment
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25.5
subtotal this page

Site: <u>Wetland 31 - SCI-823-a 00</u>	Rater(s): <u>LM</u>	Date: <u>10-24-12</u>
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25.5

subtotal first page

0	25.5
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max 10 pts. subtotal

### Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- Bog (10)
- Fen (10)
- Old growth forest (10)
- Mature forested wetland (5)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- Lake Erie coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See Question 1 Qualitative Rating (-10)

3	28.5
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max 20 pts. subtotal

### Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- Aquatic bed
- Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other \_\_\_\_\_

6b. horizontal (plan view) Interspersion.

Select only one.

- High (5)
- Moderately high(4)
- Moderate (3)
- Moderately low (2)
- Low (1)
- None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- Vegetated hummocks/tussocks
- Coarse woody debris >15cm (6in)
- Standing dead >25cm (10in) dbh
- Amphibian breeding pools

#### Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

#### Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

#### Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

#### Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

28.5

**End of Quantitative Rating. Complete Categorization Worksheets.**



Site: <i>Wetland 32- SCI-823-0.00</i>	Rater(s): <i>LM</i>	Date: <i>10-24-12</i>
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0	0
max 6 pts.	subtotal

### Metric 1. Wetland Area (size).

Select one size class and assign score.

- >50 acres (>20.2ha) (6 pts)
- 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- 10 to <25 acres (4 to <10.1ha) (4 pts)
- 3 to <10 acres (1.2 to <4ha) (3 pts)
- 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- <0.1 acres (0.04ha) (0 pts)

9	9
max 14 pts.	subtotal

### Metric 2. Upland buffers and surrounding land use.

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- LOW. Old field (>10 years), shrub land, young second growth forest. (5)
- MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

6	15
max 30 pts.	subtotal

### Metric 3. Hydrology.

3a. Sources of Water. Score all that apply.

- High pH groundwater (5)
- Other groundwater (3)
- Precipitation (1)
- Seasonal/Intermittent surface water (3)
- Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score.

- >0.7 (27.6in) (3)
- 0.4 to 0.7m (15.7 to 27.6in) (2)
- <0.4m (<15.7in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- None or none apparent (12)
- Recovered (7)
- Recovering (3)
- Recent or no recovery (1)

3b. Connectivity. Score all that apply.

- 100 year floodplain (1)
- Between stream/lake and other human use (1)
- Part of wetland/upland (e.g. forest), complex (1)
- Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check.

- Semi- to permanently inundated/saturated (4)
- Regularly inundated/saturated (3)
- Seasonally inundated (2)
- Seasonally saturated in upper 30cm (12in) (1)

Check all disturbances observed	
<input type="checkbox"/> ditch	<input type="checkbox"/> point source (nonstormwater)
<input type="checkbox"/> tile	<input checked="" type="checkbox"/> filling/grading
<input type="checkbox"/> dike	<input checked="" type="checkbox"/> road bed/RR track
<input type="checkbox"/> weir	<input type="checkbox"/> dredging
<input type="checkbox"/> stormwater input	<input type="checkbox"/> other _____

6.5	21.5
max 20 pts.	subtotal

### Metric 4. Habitat Alteration and Development.

4a. Substrate disturbance. Score one or double check and average.

- None or none apparent (4)
- Recovered (3)
- Recovering (2)
- Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- Excellent (7)
- Very good (6)
- Good (5)
- Moderately good (4)
- Fair (3)
- Poor to fair (2)
- Poor (1)

4c. Habitat alteration. Score one or double check and average.

- None or none apparent (9)
- Recovered (6)
- Recovering (3)
- Recent or no recovery (1)

Check all disturbances observed	
<input checked="" type="checkbox"/> mowing	<input type="checkbox"/> shrub/sapling removal
<input type="checkbox"/> grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input type="checkbox"/> clearcutting	<input type="checkbox"/> sedimentation
<input type="checkbox"/> selective cutting	<input type="checkbox"/> dredging
<input type="checkbox"/> woody debris removal	<input type="checkbox"/> farming
<input type="checkbox"/> toxic pollutants	<input type="checkbox"/> nutrient enrichment

21.5
subtotal this page

Site: <u>Wetland 32-SC1-823-0.00</u>	Rater(s): <u>LM</u>	Date: <u>10-24-12</u>
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21.5

subtotal first page

0	21.5
max 10 pts.	subtotal

### Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- Bog (10)
- Fen (10)
- Old growth forest (10)
- Mature forested wetland (5)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- Lake Erie coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See Question 1 Qualitative Rating (-10)

2	23.5
max 20 pts.	subtotal

### Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- Aquatic bed
- Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other \_\_\_\_\_

6b. horizontal (plan view) Interspersion.

Select only one.

- High (5)
- Moderately high(4)
- Moderate (3)
- Moderately low (2)
- Low (1)
- None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- Vegetated hummocks/tussocks
- Coarse woody debris >15cm (6in)
- Standing dead >25cm (10in) dbh
- Amphibian breeding pools

#### Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

#### Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

#### Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

#### Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

23.5

**End of Quantitative Rating. Complete Categorization Worksheets.**

Site: <u>Wetland 33</u>	Rater(s): <u>LM</u>	Date: <u>11-7-12</u>
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0	0
max 6 pts.	subtotal

### Metric 1. Wetland Area (size).

- Select one size class and assign score.
- >50 acres (>20.2ha) (6 pts)
  - 25 to <50 acres (10.1 to <20.2ha) (5 pts)
  - 10 to <25 acres (4 to <10.1ha) (4 pts)
  - 3 to <10 acres (1.2 to <4ha) (3 pts)
  - 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
  - 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
  - <0.1 acres (0.04ha) (0 pts)

2	2
max 14 pts.	subtotal

### Metric 2. Upland buffers and surrounding land use.

- 2a. Calculate average buffer width. Select only one and assign score. Do not double check.
- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
  - MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
  - NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
  - VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)
- 2b. Intensity of surrounding land use. Select one or double check and average.
- VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
  - LOW. Old field (>10 years), shrub land, young second growth forest. (5)
  - MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
  - HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

17	19
max 30 pts.	subtotal

### Metric 3. Hydrology.

- 3a. Sources of Water. Score all that apply.
- High pH groundwater (5)
  - Other groundwater (3)
  - Precipitation (1)
  - Seasonal/Intermittent surface water (3)
  - Perennial surface water (lake or stream) (5)
- 3b. Connectivity. Score all that apply.
- 100 year floodplain (1)
  - Between stream/lake and other human use (1)
  - Part of wetland/upland (e.g. forest), complex (1)
  - Part of riparian or upland corridor (1)
- 3c. Maximum water depth. Select only one and assign score.
- >0.7 (27.6in) (3)
  - 0.4 to 0.7m (15.7 to 27.6in) (2)
  - <0.4m (<15.7in) (1)
- 3d. Duration inundation/saturation. Score one or dbl check.
- Semi- to permanently inundated/saturated (4)
  - Regularly inundated/saturated (3)
  - Seasonally inundated (2)
  - Seasonally saturated in upper 30cm (12in) (1)
- 3e. Modifications to natural hydrologic regime. Score one or double check and average.

Check all disturbances observed	
<input type="checkbox"/> ditch	<input type="checkbox"/> point source (nonstormwater)
<input type="checkbox"/> tile	<input type="checkbox"/> filling/grading
<input type="checkbox"/> dike	<input type="checkbox"/> road bed/RR track
<input type="checkbox"/> weir	<input type="checkbox"/> dredging
<input type="checkbox"/> stormwater input	<input type="checkbox"/> other

4.5	23.5
max 20 pts.	subtotal

### Metric 4. Habitat Alteration and Development.

- 4a. Substrate disturbance. Score one or double check and average.
- None or none apparent (4)
  - Recovered (3)
  - Recovering (2)
  - Recent or no recovery (1)
- 4b. Habitat development. Select only one and assign score.
- Excellent (7)
  - Very good (6)
  - Good (5)
  - Moderately good (4)
  - Fair (3)
  - Poor to fair (2)
  - Poor (1)
- 4c. Habitat alteration. Score one or double check and average.

Check all disturbances observed	
<input checked="" type="checkbox"/> mowing	<input type="checkbox"/> shrub/sapling removal
<input type="checkbox"/> grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input type="checkbox"/> clearcutting	<input checked="" type="checkbox"/> sedimentation
<input type="checkbox"/> selective cutting	<input type="checkbox"/> dredging
<input type="checkbox"/> woody debris removal	<input type="checkbox"/> farming
<input type="checkbox"/> toxic pollutants	<input type="checkbox"/> nutrient enrichment

23.5
subtotal this page

Site: Wetland 33- SCT 823-000 Rater(s): LM Date: 11-7-12

23.5

subtotal first page

0	23.5
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max 10 pts.

subtotal

### Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- Bog (10)
- Fen (10)
- Old growth forest (10)
- Mature forested wetland (5)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- Lake Erie coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See Question 1 Qualitative Rating (-10)

3	26.5
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max 20 pts.

subtotal

### Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- Aquatic bed
- Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other \_\_\_\_\_

(1)

6b. horizontal (plan view) Interspersion.

Select only one.

- High (5)
- Moderately high(4)
- Moderate (3)
- Moderately low (2)
- Low (1)
- None (0)

(0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- Absent (1)

(1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- Vegetated hummocks/tussucks
- Coarse woody debris >15cm (6in)
- Standing dead >25cm (10in) dbh
- Amphibian breeding pools

(1)

#### Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

#### Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

#### Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

#### Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

26.5
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End of Quantitative Rating. Complete Categorization Worksheets.

<b>Site:</b> <i>Wetland 34-SC1-823 0.00</i>	<b>Rater(s):</b> <i>LM</i>	<b>Date:</b> <i>11-7-12</i>
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<b>2</b>	<b>2</b>
max 6 pts.	subtotal

**Metric 1. Wetland Area (size).**

Select one size class and assign score.

- >50 acres (>20.2ha) (6 pts)
- 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- 10 to <25 acres (4 to <10.1ha) (4 pts)
- 3 to <10 acres (1.2 to <4ha) (3 pts)
- 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- <0.1 acres (0.04ha) (0 pts)

<b>3</b>	<b>5</b>
max 14 pts.	subtotal

**Metric 2. Upland buffers and surrounding land use.**

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- LOW. Old field (>10 years), shrub land, young second growth forest. (5)
- MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

<b>14</b>	<b>19</b>
max 30 pts.	subtotal

**Metric 3. Hydrology.**

3a. Sources of Water. Score all that apply.

- High pH groundwater (5)
- Other groundwater (3)
- Precipitation (1)
- Seasonal/Intermittent surface water (3)
- Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score.

- >0.7 (27.6in) (3)
- 0.4 to 0.7m (15.7 to 27.6in) (2)
- <0.4m (<15.7in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- None or none apparent (12)
- Recovered (7)
- Recovering (3)
- Recent or no recovery (1)

3b. Connectivity. Score all that apply.

- 100 year floodplain (1)
- Between stream/lake and other human use (1)
- Part of wetland/upland (e.g. forest), complex (1)
- Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check.

- Semi- to permanently inundated/saturated (4)
- Regularly inundated/saturated (3)
- Seasonally inundated (2)
- Seasonally saturated in upper 30cm (12in) (1)

Check all disturbances observed	
<input checked="" type="checkbox"/> ditch	<input checked="" type="checkbox"/> point source (nonstormwater)
<input type="checkbox"/> tile	<input checked="" type="checkbox"/> filling/grading
<input type="checkbox"/> dike	<input checked="" type="checkbox"/> road bed/RR track
<input type="checkbox"/> weir	<input checked="" type="checkbox"/> dredging
<input type="checkbox"/> stormwater input	<input checked="" type="checkbox"/> other <i>septic system</i>

<b>4</b>	<b>23</b>
max 20 pts.	subtotal

**Metric 4. Habitat Alteration and Development.**

4a. Substrate disturbance. Score one or double check and average.

- None or none apparent (4)
- Recovered (3)
- Recovering (2)
- Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- Excellent (7)
- Very good (6)
- Good (5)
- Moderately good (4)
- Fair (3)
- Poor to fair (2)
- Poor (1)

4c. Habitat alteration. Score one or double check and average.

- None or none apparent (9)
- Recovered (6)
- Recovering (3)
- Recent or no recovery (1)

Check all disturbances observed	
<input checked="" type="checkbox"/> mowing	<input type="checkbox"/> shrub/sapling removal
<input type="checkbox"/> grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input type="checkbox"/> clearcutting	<input type="checkbox"/> sedimentation
<input type="checkbox"/> selective cutting	<input checked="" type="checkbox"/> dredging
<input type="checkbox"/> woody debris removal	<input type="checkbox"/> farming
<input type="checkbox"/> toxic pollutants	<input checked="" type="checkbox"/> nutrient enrichment

<b>23</b>
subtotal this page

Site: Wetland 34-SCI 823-000 Rater(s): LM Date: 11-7-12

23

subtotal first page

0	23
max 10 pts.	subtotal

### Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- Bog (10)
- Fen (10)
- Old growth forest (10)
- Mature forested wetland (5)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- Lake Erie coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See Question 1 Qualitative Rating (-10)

3	26
max 20 pts.	subtotal

### Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- Aquatic bed
- Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other \_\_\_\_\_

6b. horizontal (plan view) Interspersion.

Select only one.

- High (5)
- Moderately high(4)
- Moderate (3)
- Moderately low (2)
- Low (1)
- None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- Vegetated hummocks/tussocks
- Coarse woody debris >15cm (6in)
- Standing dead >25cm (10in) dbh
- Amphibian breeding pools

#### Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

#### Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

#### Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

#### Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

26

**End of Quantitative Rating. Complete Categorization Worksheets.**

Site: <u>Wetland 35 - SCT - 823 - 000</u>	Rater(s): <u>LM</u>	Date: <u>11-8-12</u>
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<b>2</b>	<b>2</b>
max 6 pts.	subtotal

### Metric 1. Wetland Area (size).

Select one size class and assign score.

- >50 acres (>20.2ha) (6 pts)
- 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- 10 to <25 acres (4 to <10.1ha) (4 pts)
- 3 to <10 acres (1.2 to <4ha) (3 pts)
- 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- <0.1 acres (0.04ha) (0 pts)

<b>1</b>	<b>3</b>
max 14 pts.	subtotal

### Metric 2. Upland buffers and surrounding land use.

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- LOW. Old field (>10 years), shrub land, young second growth forest. (5)
- MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

<b>12</b>	<b>15</b>
max 30 pts.	subtotal

### Metric 3. Hydrology.

3a. Sources of Water. Score all that apply.

- High pH groundwater (5)
- Other groundwater (3)
- Precipitation (1)
- Seasonal/Intermittent surface water (3)
- Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- 100 year floodplain (1)
- Between stream/lake and other human use (1)
- Part of wetland/upland (e.g. forest), complex (1)
- Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

- >0.7 (27.6in) (3)
- 0.4 to 0.7m (15.7 to 27.6in) (2)
- <0.4m (<15.7in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

- Semi- to permanently inundated/saturated (4)
- Regularly inundated/saturated (3)
- Seasonally inundated (2)
- Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

<ul style="list-style-type: none"> <li><input type="checkbox"/> None or none apparent (12)</li> <li><input type="checkbox"/> Recovered (7)</li> <li><input type="checkbox"/> Recovering (3)</li> <li><input checked="" type="checkbox"/> Recent or no recovery (1)</li> </ul>	<p>Check all disturbances observed</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> ditch</li> <li><input type="checkbox"/> tile</li> <li><input checked="" type="checkbox"/> dike</li> <li><input type="checkbox"/> weir</li> <li><input type="checkbox"/> stormwater input</li> </ul>
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<b>4</b>	<b>19</b>
max 20 pts.	subtotal

### Metric 4. Habitat Alteration and Development.

4a. Substrate disturbance. Score one or double check and average.

- None or none apparent (4)
- Recovered (3)
- Recovering (2)
- Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- Excellent (7)
- Very good (6)
- Good (5)
- Moderately good (4)
- Fair (3)
- Poor to fair (2)
- Poor (1)

4c. Habitat alteration. Score one or double check and average.

<ul style="list-style-type: none"> <li><input type="checkbox"/> None or none apparent (9)</li> <li><input type="checkbox"/> Recovered (6)</li> <li><input type="checkbox"/> Recovering (3)</li> <li><input checked="" type="checkbox"/> Recent or no recovery (1)</li> </ul>	<p>Check all disturbances observed</p> <table style="width:100%;"> <tr> <td style="width:50%; vertical-align: top;"> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> mowing</li> <li><input checked="" type="checkbox"/> grazing</li> <li><input type="checkbox"/> clearcutting</li> <li><input type="checkbox"/> selective cutting</li> <li><input type="checkbox"/> woody debris removal</li> <li><input type="checkbox"/> toxic pollutants</li> </ul> </td> <td style="width:50%; vertical-align: top;"> <ul style="list-style-type: none"> <li><input type="checkbox"/> shrub/sapling removal</li> <li><input type="checkbox"/> herbaceous/aquatic bed removal</li> <li><input type="checkbox"/> sedimentation</li> <li><input type="checkbox"/> dredging</li> <li><input type="checkbox"/> farming</li> <li><input checked="" type="checkbox"/> nutrient enrichment</li> </ul> </td> </tr> </table>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> mowing</li> <li><input checked="" type="checkbox"/> grazing</li> <li><input type="checkbox"/> clearcutting</li> <li><input type="checkbox"/> selective cutting</li> <li><input type="checkbox"/> woody debris removal</li> <li><input type="checkbox"/> toxic pollutants</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> shrub/sapling removal</li> <li><input type="checkbox"/> herbaceous/aquatic bed removal</li> <li><input type="checkbox"/> sedimentation</li> <li><input type="checkbox"/> dredging</li> <li><input type="checkbox"/> farming</li> <li><input checked="" type="checkbox"/> nutrient enrichment</li> </ul>
<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> mowing</li> <li><input checked="" type="checkbox"/> grazing</li> <li><input type="checkbox"/> clearcutting</li> <li><input type="checkbox"/> selective cutting</li> <li><input type="checkbox"/> woody debris removal</li> <li><input type="checkbox"/> toxic pollutants</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> shrub/sapling removal</li> <li><input type="checkbox"/> herbaceous/aquatic bed removal</li> <li><input type="checkbox"/> sedimentation</li> <li><input type="checkbox"/> dredging</li> <li><input type="checkbox"/> farming</li> <li><input checked="" type="checkbox"/> nutrient enrichment</li> </ul>		

<b>19</b>
subtotal this page

Site: Wetland 35- SC1-BL3-0.00 Rater(s): LM Date: 11-8-12

19  
subtotal first page

0 19  
max 10 pts. subtotal

**Metric 5. Special Wetlands.**

Check all that apply and score as indicated.

- Bog (10)
- Fen (10)
- Old growth forest (10)
- Mature forested wetland (5)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- Lake Erie coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See Question 1 Qualitative Rating (-10)

6 25  
max 20 pts. subtotal

**Metric 6. Plant communities, interspersions, microtopography.**

6a. Wetland Vegetation Communities. Score all present using 0 to 3 scale.

- Aquatic bed
- Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other \_\_\_\_\_

6b. horizontal (plan view) Interspersion. Select only one.

- High (5)
- Moderately high(4)
- Moderate (3)
- Moderately low (2)
- Low (1)
- None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- Absent (1)

6d. Microtopography. Score all present using 0 to 3 scale.

- Vegetated hummocks/tussocks
- Coarse woody debris >15cm (6in)
- Standing dead >25cm (10in) dbh
- Amphibian breeding pools

**Vegetation Community Cover Scale**

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

**Narrative Description of Vegetation Quality**

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

**Mudflat and Open Water Class Quality**

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

**Microtopography Cover Scale**

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

25

End of Quantitative Rating. Complete Categorization Worksheets.



Site: <u>Wetland 36-SCI-023-0.00</u>	Rater(s): <u>LM</u>	Date: <u>11-8-12</u>
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0	0
max 6 pts.	subtotal

### Metric 1. Wetland Area (size).

Select one size class and assign score.

- >50 acres (>20.2ha) (6 pts)
- 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- 10 to <25 acres (4 to <10.1ha) (4 pts)
- 3 to <10 acres (1.2 to <4ha) (3 pts)
- 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- <0.1 acres (0.04ha) (0 pts)

1	1
max 14 pts.	subtotal

### Metric 2. Upland buffers and surrounding land use.

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- LOW. Old field (>10 years), shrub land, young second growth forest. (5)
- MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

13.5	14.5
max 14 pts.	subtotal

### Metric 3. Hydrology.

3a. Sources of Water. Score all that apply.

- High pH groundwater (5)
- Other groundwater (3)
- Precipitation (1)
- Seasonal/Intermittent surface water (3)
- Perennial surface water (lake or stream) (5)

3c. Maximum water depth. Select only one and assign score.

- >0.7 (27.6in) (3)
- 0.4 to 0.7m (15.7 to 27.6in) (2)
- <0.4m (<15.7in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- None or none apparent (12)
- Recovered (7)
- Recovering (3)
- Recent or no recovery (1)

3b. Connectivity. Score all that apply.

- 100 year floodplain (1)
- Between stream/lake and other human use (1)
- Part of wetland/upland (e.g. forest), complex (1)
- Part of riparian or upland corridor (1)

3d. Duration inundation/saturation. Score one or dbl check.

- Semi- to permanently inundated/saturated (4)
- Regularly inundated/saturated (3)
- Seasonally inundated (2)
- Seasonally saturated in upper 30cm (12in) (1)

Check all disturbances observed	
<input type="checkbox"/> ditch	<input type="checkbox"/> point source (nonstormwater)
<input type="checkbox"/> tile	<input type="checkbox"/> filling/grading
<input type="checkbox"/> dike	<input type="checkbox"/> road bed/RR track
<input type="checkbox"/> weir	<input type="checkbox"/> dredging
<input type="checkbox"/> stormwater input	<input type="checkbox"/> other _____

3	17.5
max 20 pts.	subtotal

### Metric 4. Habitat Alteration and Development.

4a. Substrate disturbance. Score one or double check and average.

- None or none apparent (4)
- Recovered (3)
- Recovering (2)
- Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- Excellent (7)
- Very good (6)
- Good (5)
- Moderately good (4)
- Fair (3)
- Poor to fair (2)
- Poor (1)

4c. Habitat alteration. Score one or double check and average.

- None or none apparent (9)
- Recovered (6)
- Recovering (3)
- Recent or no recovery (1)

Check all disturbances observed	
<input checked="" type="checkbox"/> mowing	<input type="checkbox"/> shrub/sapling removal
<input checked="" type="checkbox"/> grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input type="checkbox"/> clearcutting	<input type="checkbox"/> sedimentation
<input type="checkbox"/> selective cutting	<input type="checkbox"/> dredging
<input type="checkbox"/> woody debris removal	<input type="checkbox"/> farming
<input type="checkbox"/> toxic pollutants	<input type="checkbox"/> nutrient enrichment

17.5
subtotal this page

Site: Wetland 36 - SCI - 823 - 0.00 Rater(s): LM Date: 11-8-12

17.5  
subtotal first page

0 17.5  
max 10 pts. subtotal

**Metric 5. Special Wetlands.**

Check all that apply and score as indicated.

- Bog (10)
- Fen (10)
- Old growth forest (10)
- Mature forested wetland (5)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- Lake Erie coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See Question 1 Qualitative Rating (-10)

2 19.5  
max 20 pts. subtotal

**Metric 6. Plant communities, interspersions, microtopography.**

6a. Wetland Vegetation Communities.  
Score all present using 0 to 3 scale.

- Aquatic bed
- Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other \_\_\_\_\_

6b. horizontal (plan view) Interspersion.  
Select only one.

- High (5)
- Moderately high(4)
- Moderate (3)
- Moderately low (2)
- Low (1)
- None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- Absent (1)

6d. Microtopography.  
Score all present using 0 to 3 scale.

- Vegetated hummocks/tussucks
- Coarse woody debris >15cm (6in)
- Standing dead >25cm (10in) dbh
- Amphibian breeding pools

**Vegetation Community Cover Scale**

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

**Narrative Description of Vegetation Quality**

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

**Mudflat and Open Water Class Quality**

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

**Microtopography Cover Scale**

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

19.5

**End of Quantitative Rating. Complete Categorization Worksheets.**

**Wetland Delineation Data Sheets**



**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 1

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: 30 ft )				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: (A)  Total Number of Dominant Species Across All Strata: (B)  Percent of Dominant Species That are OBL, FACW, or FAC: (A/B)
1. <i>Acer saccharinum</i>	35	Yes	FACW	
2.				
3.				
4.				
<b>Sapling/Shrub Stratum</b> (Plot size: 15 ft )				<b>Prevalence Index Worksheet:</b> Total % Cover of:                      Multiply by: OBL Species                                      x 1 = FACW Species                                    x 2 = FAC Species                                        x 3 = FACU Species                                    x 4 = UPL Species                                        x 5 =  Column Totals:                                    (A)                                    (B)  Prevalence Index = B/A =
1.				
2.				
3.				
4.				
<b>Herb Stratum</b> (Plot size: 5 ft )				<b>Hydrophytic Vegetation Indicators:</b> <b>X</b> 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <i>Rumex verticillatus</i>	45	Yes	OBL	
2. <i>Bidens frondosa</i>	10	Yes	FACW	
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
<b>Woody Vine Stratum</b> (Plot size: 30 ft )				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
= Total Cover				<b>Hydrophytic Vegetation Present?</b> Yes    X    No
Remarks: (Include photo numbers here or on a separate sheet.)  The dominant species observed have a wetland indicator status of FACW and OBL. This observation satisfies the Rapid Test for Hydrophytic Vegetation.				

**SOIL**

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-18	2.5Y 5/1	90	10YR 4/6	10	C	PL	Loamy/Clayey	
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.								
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2)  Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) ( <b>LRR N</b> ) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) ( <b>LRR N, MLRA 147, 148</b> ) Sandy Gleyed Matrix (S4) Sandy Redox (S5)  Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) ( <b>MLRA 147, 148</b> )  Thin Dark Surface (S9) ( <b>MLRA 147, 148</b> )  Loamy Gleyed Matrix (F2) X Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) ( <b>LRR N, MLRA 136</b> ) Umbric Surface (F13) ( <b>MLRA 136, 122</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 148</b> ) Red Parent Material (F21) ( <b>MLRA 127, 147</b> )		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> 2 cm Muck (A10) ( <b>MLRA 147</b> ) Coast Prairie Redox (A16) ( <b>MLRA 136, 147</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 147, 148</b> ) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)
Restrictive Layer (if observed): N/A  Type:  Depth (inches):						<b>Hydric Soil Present?</b> Yes    X    No		
Remarks:  The soils in this area correspond to the Depleted Matrix (F3) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the soils criterion.								







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 2

	Absolute % Cover	Dominant Species?	Indicator Status	
<p><u>Tree Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Dominance Test Worksheet:</b></p> <p>Number of Dominant Species That are OBL, FACW, or FAC: (A)</p> <p>Total Number of Dominant Species Across All Strata: (B)</p> <p>Percent of Dominant Species That are OBL, FACW, or FAC: (A/B)</p>
<p style="text-align: right;">= Total Cover</p> <p><u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )</p> <p>1. <i>Fraxinus pennsylvanica</i> 10 Yes FACW</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				
<p style="text-align: right;">= Total Cover</p> <p><u>Herb Stratum</u> (Plot size: 5 ft )</p> <p>1. <i>Rumex verticillatus</i> 85 Yes OBL</p> <p>2. <i>Sagittaria latifolia</i> 10 No OBL</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p> <p>11.</p>				<p><b>Prevalence Index Worksheet:</b></p> <p>Total % Cover of: Multiply by:</p> <p>OBL Species x 1 =</p> <p>FACW Species x 2 =</p> <p>FAC Species x 3 =</p> <p>FACU Species x 4 =</p> <p>UPL Species x 5 =</p> <p>Column Totals: (A) (B)</p> <p style="text-align: center;">Prevalence Index = B/A =</p> <p><b>Hydrophytic Vegetation Indicators:</b></p> <p>X 1 - Rapid Test for Hydrophytic Vegetation</p> <p>2 - Dominance Test is &gt; 50%</p> <p>3 - Prevalence Index is ≤3.0<sup>1</sup></p> <p>4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</p> <p>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</p> <p><sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>
<p style="text-align: right;">95 = Total Cover</p> <p><u>Woody Vine Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p>				
<p style="text-align: right;">= Total Cover</p>				<p><b>Definitions of Four Vegetation Strata:</b></p> <p><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height</p> <p><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p><b>Woody vine</b> – All woody vines greater than 3.28 ft in height.</p>
				<p><b>Hydrophytic Vegetation Present?</b>    Yes    X    No</p>
<p>Remarks: (Include photo numbers here or on a separate sheet.)</p> <p>The dominant species observed have a wetland indicator status of FACW and OBL. This observation satisfies the Rapid Test for Hydrophytic Vegetation.</p>				

**SOIL**

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-18	5Y 4/1	90	7.5YR 4/6	10	C	PL	Loamy/Clayey					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b>						
Histosol (A1)			Dark Surface (S7)			2 cm Muck (A10) (MLRA 147)						
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)			Coast Prairie Redox (A16) (MLRA 136, 147)						
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)			Piedmont Floodplain Soils (F19) (MLRA 147, 148)						
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)			Very Shallow Dark Surface (TF12)						
Stratified Layers (A5)			X Depleted Matrix (F3)			Other (Explain in Remarks)						
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed): N/A												
Type:												
Depth (inches):						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>X</b></td> <td><b>No</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>X</b>	<b>No</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>X</b>	<b>No</b>									
Remarks:												
The soils in this area correspond to the Depleted Matrix (F3) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the soils criterion.												





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 3

	Absolute % Cover	Dominant Species?	Indicator Status	
<u>Tree Stratum</u> (Plot size: 30 ft ) 1. 2. 3. 4. 5.				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)  Total Number of Dominant Species Across All Strata: 1 (B)  Percent of Dominant Species That are OBL, FACW, or FAC: 0 (A/B)
<u>Sapling/Shrub Stratum</u> (Plot size: 15 ft ) 1. 2. 3. 4. 5.		= Total Cover		
<u>Herb Stratum</u> (Plot size: 5 ft ) 1. <i>Zea mays</i> 2. <i>Sorghum halepense</i> 3. 4. 5. 6. 7. 8. 9. 10. 11.	90 10	Yes No	UPL FACU	<b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL Species x 1 = FACW Species x 2 = FAC Species x 3 = FACU Species x 4 = UPL Species x 5 =  Column Totals: (A) (B)  Prevalence Index = B/A =
<u>Woody Vine Stratum</u> (Plot size: 30 ft ) 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.	100	= Total Cover		
				<b>Hydrophytic Vegetation Indicators:</b> 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
				<b>Hydrophytic Vegetation Present?</b> <b>Yes</b> <b>No</b> <b>X</b>
Remarks: (Include photo numbers here or on a separate sheet.)  The Dominance Test is less than 50 percent and evidence of wetland hydrology and hydric soils are absent. These observations do not satisfy the vegetation criterion.				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-18	10YR 3/2						Loamy/Clayey					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.												
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2)  Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) ( <b>LRR N</b> ) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) ( <b>LRR N, MLRA 147, 148</b> ) Sandy Gleyed Matrix (S4) Sandy Redox (S5)  Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) ( <b>MLRA 147, 148</b> )  Thin Dark Surface (S9) ( <b>MLRA 147, 148</b> )  Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) ( <b>LRR N, MLRA 136</b> ) Umbric Surface (F13) ( <b>MLRA 136, 122</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 148</b> ) Red Parent Material (F21) ( <b>MLRA 127, 147</b> )			<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> 2 cm Muck (A10) ( <b>MLRA 147</b> ) Coast Prairie Redox (A16) ( <b>MLRA 136, 147</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 147, 148</b> ) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)			
Restrictive Layer (if observed): N/A Type: Depth (inches):						<sup>3</sup> Indicators of Hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic  <table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:  The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												









**SOIL**

Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-18	2.5Y 5/1	90	10YR 4/6	10	C	PL	Loamy/Clayey	
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.			
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>		
Histosol (A1) Dark Surface (S7) Histic Epipedon (A2) Polyvalue Below Surface (S8) <b>(MLRA 147, 148)</b> Black Histic (A3) Thin Dark Surface (S9) <b>(MLRA 147, 148)</b> Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Stratified Layers (A5) <b>X</b> Depleted Matrix (F3) 2 cm Muck (A10) <b>(LRR N)</b> Redox Dark Surface (F6) Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Thick Dark Surface (A12) Redox Depression (F8) Sandy Mucky Mineral (S1) <b>(LRR N, MLRA 147, 148)</b> Iron-Manganese Masses (F12) <b>(LRR N, MLRA 136)</b> Sandy Gleyed Matrix (S4) Umbric Surface (F13) <b>(MLRA 136, 122)</b> Sandy Redox (S5) Piedmont Floodplain Soils (F19) <b>(MLRA 148)</b> Stripped Matrix (S6) Red Parent Material (F21) <b>(MLRA 127, 147)</b>						2 cm Muck (A10) <b>(MLRA 147)</b> Coast Prairie Redox (A16) <b>(MLRA 136, 147)</b> Piedmont Floodplain Soils (F19) <b>(MLRA 147, 148)</b> Very Shallow Dark Surface (TF12) Other (Explain in Remarks)		
Restrictive Layer (if observed): N/A						<b>Hydric Soil Present?</b> Yes    X    No		
Type: Depth (inches):								
Remarks:  The soils in this area correspond to the Depleted Matrix (F3) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the soils criterion.								





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 5

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: 30 ft ) 1. 2. 3. 4. 5.				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)  Total Number of Dominant Species Across All Strata: 1 (B)  Percent of Dominant Species That are OBL, FACW, or FAC: 0 (A/B)
<b>Sapling/Shrub Stratum</b> (Plot size: 15 ft ) 1. 2. 3. 4. 5.		= Total Cover		
<b>Herb Stratum</b> (Plot size: 5 ft ) 1. <i>Zea mays</i> 2. <i>Sorghum halepense</i> 3. 4. 5. 6. 7. 8. 9. 10. 11.	90 10	Yes No	UPL FACU	<b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL Species x 1 = FACW Species x 2 = FAC Species x 3 = FACU Species x 4 = UPL Species x 5 =  Column Totals: (A) (B)  Prevalence Index = B/A =
<b>Woody Vine Stratum</b> (Plot size: 30 ft ) 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.	100	= Total Cover		
		= Total Cover		<b>Hydrophytic Vegetation Indicators:</b> 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Remarks: (Include photo numbers here or on a separate sheet.)				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
The Dominance Test is less than 50 percent and evidence of wetland hydrology and hydric soils are absent. These observations do not satisfy the vegetation criterion.				<b>Hydrophytic Vegetation Present?</b> <b>Yes</b> <b>No</b> <b>X</b>

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-18	10YR 3/2						Loamy/Clayey					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.												
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2)  Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) (LRR N) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5)  Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) (MLRA 147, 148)  Thin Dark Surface (S9) (MLRA 147, 148)  Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148) Red Parent Material (F21) (MLRA 127, 147)			<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> 2 cm Muck (A10) (MLRA 147) Coast Prairie Redox (A16) (MLRA 136, 147) Piedmont Floodplain Soils (F19) (MLRA 147, 148) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)			
Restrictive Layer (if observed): N/A  Type:  Depth (inches):						<sup>3</sup> Indicators of Hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic  <table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:  The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **6**

	Absolute % Cover	Dominant Species?	Indicator Status	
<u>Tree Stratum</u> (Plot size: 30 ft ) 1. 2. 3. 4. 5.				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: (A)  Total Number of Dominant Species Across All Strata: (B)  Percent of Dominant Species That are OBL, FACW, or FAC: (A/B)
<u>Sapling/Shrub Stratum</u> (Plot size: 15 ft ) 1. 2. 3. 4. 5.		= Total Cover		
<u>Herb Stratum</u> (Plot size: 5 ft ) 1. <i>Rumex verticillatus</i> 2. 3. 4. 5. 6. 7. 8. 9. 10. 11.	100	Yes	OBL	
<u>Woody Vine Stratum</u> (Plot size: 30 ft ) 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.	100	= Total Cover		<b>Prevalence Index Worksheet:</b> Total % Cover of:                      Multiply by: OBL Species                                      x 1 = FACW Species                                      x 2 = FAC Species    x 3 = FACU Species                                        x 4 = UPL Species                                         x 5 =  Column Totals:                                      (A)                      (B)  Prevalence Index = B/A =
				<b>Hydrophytic Vegetation Indicators:</b> X 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
				<b>Hydrophytic Vegetation Present?</b> Yes      X      No
Remarks: (Include photo numbers here or on a separate sheet.)  The dominant species observed has a wetland indicator status of OBL. This observation satisfies the Rapid Test for Hydrophytic Vegetation.				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-18	2.5Y 5/1	90	10YR 4/6	10	C	PL	Loamy/Clayey					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.												
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2)  Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) (LRR N) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5)  Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) (MLRA 147, 148)  Thin Dark Surface (S9) (MLRA 147, 148)  Loamy Gleyed Matrix (F2) X Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148) Red Parent Material (F21) (MLRA 127, 147)		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> 2 cm Muck (A10) (MLRA 147) Coast Prairie Redox (A16) (MLRA 136, 147) Piedmont Floodplain Soils (F19) (MLRA 147, 148) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)				
Restrictive Layer (if observed): N/A Type: Depth (inches):						<table border="0"> <tr> <td style="text-align: center;"><b>Hydric Soil Present?</b></td> <td style="text-align: center;">Yes</td> <td style="text-align: center;">X</td> <td style="text-align: center;">No</td> </tr> </table>			<b>Hydric Soil Present?</b>	Yes	X	No
<b>Hydric Soil Present?</b>	Yes	X	No									
Remarks:  The soils in this area correspond to the Depleted Matrix (F3) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the soils criterion.												





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 7

	Absolute % Cover	Dominant Species?	Indicator Status				
<b>Tree Stratum</b> (Plot size: 30 ft )				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)  Total Number of Dominant Species Across All Strata: 4 (B)  Percent of Dominant Species That are OBL, FACW, or FAC: 50 (A/B)  <b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL Species x 1 = FACW Species x 2 = FAC Species x 3 = FACU Species x 4 = UPL Species x 5 =  Column Totals: (A) (B)  Prevalence Index = B/A =			
1. <i>Robinia pseudoacacia</i>	15	Yes	FACU				
2. <i>Gleditsia tricanthos</i>	5	Yes	FAC				
3.							
4.							
5.							
= Total Cover							
<b>Sapling/Shrub Stratum</b> (Plot size: 15 ft )							
1. <i>Rubus allegheniensis</i>	40	Yes	FACU				
2.							
3.							
4.							
5.							
= Total Cover							
<b>Herb Stratum</b> (Plot size: 5 ft )							
1.							
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							
= Total Cover							
<b>Woody Vine Stratum</b> (Plot size: 30 ft )							
1. <i>Toxicodendron radicans</i>	10	Yes	FAC				
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
= Total Cover							
<b>Hydrophytic Vegetation Indicators:</b> 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)							
<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.							
<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.							
<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:60%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width:10%; text-align: center;"><b>Yes</b></td> <td style="width:10%; text-align: center;"><b>No</b></td> <td style="width:20%; text-align: center;"><b>X</b></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydrophytic Vegetation Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>				
Remarks: (Include photo numbers here or on a separate sheet.)  The Dominance Test is 50 percent and evidence of wetland hydrology and hydric soils are absent. These observations do not satisfy the vegetation criterion.							

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-1	10YR 3/2						Loamy/Clayey					
>1	IMPENETRABLE						Fill					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>						
Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) (LRR N) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) (MLRA 147, 148) Thin Dark Surface (S9) (MLRA 147, 148) Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148) Red Parent Material (F21) (MLRA 127, 147)			2 cm Muck (A10) (MLRA 147) Coast Prairie Redox (A16) (MLRA 136, 147) Piedmont Floodplain Soils (F19) (MLRA 147, 148) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)			
Restrictive Layer (if observed):						<sup>3</sup> Indicators of Hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic						
Type: Fill						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Depth (inches): 1												
Remarks:												
The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **8**

	Absolute % Cover	Dominant Species?	Indicator Status	
<u>Tree Stratum</u> (Plot size: 30 ft ) 1. 2. 3. 4. 5.				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: (A)  Total Number of Dominant Species Across All Strata: (B)  Percent of Dominant Species That are OBL, FACW, or FAC: (A/B)
<u>Sapling/Shrub Stratum</u> (Plot size: 15 ft ) 1. 2. 3. 4. 5.		= Total Cover		
<u>Herb Stratum</u> (Plot size: 5 ft ) 1. <i>Sagittaria latifolia</i> 2. 3. 4. 5. 6. 7. 8. 9. 10. 11.	80	No	OBL	
<u>Woody Vine Stratum</u> (Plot size: 30 ft ) 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.	80	= Total Cover		<b>Prevalence Index Worksheet:</b> Total % Cover of:                      Multiply by: OBL Species                                      x 1 = FACW Species                                      x 2 = FAC Species                                        x 3 = FACU Species                                      x 4 = UPL Species                                        x 5 =  Column Totals:                                      (A)                      (B)  Prevalence Index = B/A =
				<b>Hydrophytic Vegetation Indicators:</b> X 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
				<b>Hydrophytic Vegetation Present?</b> Yes      X      No
Remarks: (Include photo numbers here or on a separate sheet.)  The dominant species observed has a wetland indicator status of OBL. This observation satisfies the Rapid Test for Hydrophytic Vegetation.				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-18	2.5/N (GLEY)	100					Loamy/Clayey					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>						
Histosol (A1)			Dark Surface (S7)			2 cm Muck (A10) (MLRA 147)						
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)			Coast Prairie Redox (A16) (MLRA 136, 147)						
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)			Piedmont Floodplain Soils (F19) (MLRA 147, 148)						
Hydrogen Sulfide (A4)			X Loamy Gleyed Matrix (F2)			Very Shallow Dark Surface (TF12)						
Stratified Layers (A5)			Depleted Matrix (F3)			Other (Explain in Remarks)						
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed): N/A												
Type:												
Depth (inches):						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td>Yes</td> <td>X</td> <td>No</td> </tr> </table>			<b>Hydric Soil Present?</b>	Yes	X	No
<b>Hydric Soil Present?</b>	Yes	X	No									
Remarks:												
The soils in this area correspond to the Loamy Gleyed Matrix (F2) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the soils criterion.												





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **9**

	Absolute % Cover	Dominant Species?	Indicator Status	
<u>Tree Stratum</u> (Plot size: 30 ft ) 1. 2. 3. 4. 5.				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)  Total Number of Dominant Species Across All Strata: 1 (B)  Percent of Dominant Species That are OBL, FACW, or FAC: 0 (A/B)
<u>Sapling/Shrub Stratum</u> (Plot size: 15 ft ) 1. 2. 3. 4. 5.		= Total Cover		
<u>Herb Stratum</u> (Plot size: 5 ft ) 1. <i>Zea mays</i> 2. 3. 4. 5. 6. 7. 8. 9. 10. 11.	90	Yes	UPL	
<u>Woody Vine Stratum</u> (Plot size: 30 ft ) 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.	90	= Total Cover		<b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL Species x 1 = FACW Species x 2 = FAC Species x 3 = FACU Species x 4 = UPL Species x 5 =  Column Totals: (A) (B)  Prevalence Index = B/A =
				<b>Hydrophytic Vegetation Indicators:</b> 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
				<b>Hydrophytic Vegetation Present?</b> <b>Yes</b> <b>No</b> <b>X</b>
Remarks: (Include photo numbers here or on a separate sheet.)  The Dominance Test is less than 50 percent and evidence of wetland hydrology and hydric soils are absent. These observations do not satisfy the vegetation criterion.				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-18	10YR 5/3						Loamy/Clayey					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.												
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2)  Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) ( <b>LRR N</b> ) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) ( <b>LRR N, MLRA 147, 148</b> ) Sandy Gleyed Matrix (S4) Sandy Redox (S5)  Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) ( <b>MLRA 147, 148</b> )  Thin Dark Surface (S9) ( <b>MLRA 147, 148</b> )  Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) ( <b>LRR N, MLRA 136</b> ) Umbric Surface (F13) ( <b>MLRA 136, 122</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 148</b> ) Red Parent Material (F21) ( <b>MLRA 127, 147</b> )			<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> 2 cm Muck (A10) ( <b>MLRA 147</b> ) Coast Prairie Redox (A16) ( <b>MLRA 136, 147</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 147, 148</b> ) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)			
Restrictive Layer (if observed): N/A  Type:  Depth (inches):						<sup>3</sup> Indicators of Hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic  <table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:  The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **10**

	Absolute % Cover	Dominant Species?	Indicator Status	
<p><u>Tree Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Dominance Test Worksheet:</b></p> <p>Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)</p> <p>Total Number of Dominant Species Across All Strata: 3 (B)</p> <p>Percent of Dominant Species That are OBL, FACW, or FAC: 100 (A/B)</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Prevalence Index Worksheet:</b></p> <p>Total % Cover of: Multiply by:</p> <p>OBL Species x 1 =</p> <p>FACW Species x 2 =</p> <p>FAC Species x 3 =</p> <p>FACU Species x 4 =</p> <p>UPL Species x 5 =</p> <p>Column Totals: (A) (B)</p> <p style="text-align: center;">Prevalence Index = B/A =</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Herb Stratum</u> (Plot size: 5 ft )</p> <p>1. <i>Carex vulpinoidea</i> 60 Yes OBL</p> <p>2. <i>Juncus tenuis</i> 10 No FAC</p> <p>3. <i>Eutrochium fistulosum</i> 5 No FACW</p> <p>4. <i>Carex normalis</i> 5 No FACU</p> <p>5. <i>Solidago canadensis</i> 5 No FACU</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p> <p>11.</p>				<p><b>Hydrophytic Vegetation Indicators:</b></p> <p>1 - Rapid Test for Hydrophytic Vegetation</p> <p><b>X</b> 2 - Dominance Test is &gt; 50%</p> <p>3 - Prevalence Index is ≤3.0<sup>1</sup></p> <p>4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</p> <p>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</p> <p><sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>
<p style="text-align: right;">85 = Total Cover</p>				
<p><u>Woody Vine Stratum</u> (Plot size: 30 ft )</p> <p>1. <i>Toxicodendron radicans</i> 10 Yes FAC</p> <p>2. <i>Campsis radicans</i> 5 Yes FAC</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p>				<p><b>Definitions of Four Vegetation Strata:</b></p> <p><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height</p> <p><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p><b>Woody vine</b> – All woody vines greater than 3.28 ft in height.</p>
<p style="text-align: right;">15 = Total Cover</p>				
<p><b>Hydrophytic Vegetation Present? Yes X No</b></p>				
<p>Remarks: (Include photo numbers here or on a separate sheet.)</p> <p>The Dominance Test is greater than 50 percent. This observation satisfies the vegetation criterion.</p>				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-16	10YR 4/4	95	10YR 4/6 & 10YR 5/8	5	C	M	Loamy/Clayey					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b>						
Histosol (A1)			Dark Surface (S7)			2 cm Muck (A10) (MLRA 147)						
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)			Coast Prairie Redox (A16) (MLRA 136, 147)						
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)			Piedmont Floodplain Soils (F19) (MLRA 147, 148)						
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)			Very Shallow Dark Surface (TF12)						
Stratified Layers (A5)			Depleted Matrix (F3)			Other (Explain in Remarks)						
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed): N/A												
Type:												
Depth (inches):						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:												
The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 11

	Absolute % Cover	Dominant Species?	Indicator Status	
<u>Tree Stratum</u> (Plot size: 30 ft ) 1. 2. 3. 4. 5.				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: (A)  Total Number of Dominant Species Across All Strata: (B)  Percent of Dominant Species That are OBL, FACW, or FAC: (A/B)
<u>Sapling/Shrub Stratum</u> (Plot size: 15 ft ) 1. 2. 3. 4. 5.	= Total Cover			
<u>Herb Stratum</u> (Plot size: 5 ft ) 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11.	= Total Cover			
<u>Woody Vine Stratum</u> (Plot size: 30 ft ) 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.	= Total Cover			<b>Prevalence Index Worksheet:</b> Total % Cover of:                      Multiply by: OBL Species                                      x 1 = FACW Species                                    x 2 = FAC Species                                        x 3 = FACU Species                                    x 4 = UPL Species                                        x 5 =  Column Totals:                                      (A)                      (B)  Prevalence Index = B/A =
				<b>Hydrophytic Vegetation Indicators:</b> 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) X Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
				<b>Hydrophytic Vegetation Present?</b> Yes      X      No
Remarks: (Include photo numbers here or on a separate sheet.)  The sampling point was taken in a depression area within an agricultural field planted in corn. The area was devoid of vegetation at the time of sampling and evidence of plowing was present. Wetland hydrology and hydric soils indicators were observed at the site. As a result, the problematic hydrophytic vegetation section of the regional supplement was consulted.  It appears that the site meets the conditions that are described in Section 4d (Managed Plant Communities) of the supplement. It is assumed that the site would support a wetland plant community in the absence of human alteration. Adjacent areas with similar soils and topographic conditions were observed supporting wetland vegetation.				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-18	10YR 4/1	95	10YR 5/6	5	C	PL	Loamy/Clayey	
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.								
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2)  Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) <b>(LRR N)</b> Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) <b>(LRR N, MLRA 147, 148)</b> Sandy Gleyed Matrix (S4) Sandy Redox (S5)  Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) <b>(MLRA 147, 148)</b>  Thin Dark Surface (S9) <b>(MLRA 147, 148)</b>  Loamy Gleyed Matrix (F2) X Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) <b>(LRR N, MLRA 136)</b> Umbric Surface (F13) <b>(MLRA 136, 122)</b> Piedmont Floodplain Soils (F19) <b>(MLRA 148)</b> Red Parent Material (F21) <b>(MLRA 127, 147)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> 2 cm Muck (A10) <b>(MLRA 147)</b> Coast Prairie Redox (A16) <b>(MLRA 136, 147)</b> Piedmont Floodplain Soils (F19) <b>(MLRA 147, 148)</b> Very Shallow Dark Surface (TF12) Other (Explain in Remarks)
Restrictive Layer (if observed): N/A Type: Depth (inches):						<b>Hydric Soil Present?</b> Yes    X    No		
Remarks:  The soils in this area correspond to the Depleted Matrix (F3) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the soils criterion.								







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 12

Tree Stratum (Plot size: 30 ft )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)  Total Number of Dominant Species Across All Strata: 1 (B)  Percent of Dominant Species That are OBL, FACW, or FAC: 0 (A/B)
1. 2. 3. 4. 5.				
= Total Cover				
Sapling/Shrub Stratum (Plot size: 15 ft )				<b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL Species x 1 = FACW Species x 2 = FAC Species x 3 = FACU Species x 4 = UPL Species x 5 =  Column Totals: (A) (B)  Prevalence Index = B/A =
1. 2. 3. 4. 5.				
= Total Cover				
Herb Stratum (Plot size: 5 ft )				<b>Hydrophytic Vegetation Indicators:</b> 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1. <i>Festuca arundinacea</i>	90	Yes	FACU	
2. 3. 4. 5. 6. 7. 8. 9. 10. 11.				
= Total Cover				
Woody Vine Stratum (Plot size: 30 ft )	90			<b>Hydrophytic Vegetation Present?</b> <b>Yes</b> <b>No</b> <b>X</b>
1. 2. 3. 4. 5. 6. 7. 8. 9. 10.				
= Total Cover				
<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.				
Remarks: (Include photo numbers here or on a separate sheet.)  The Dominance Test is less than 50 percent and evidence of wetland hydrology and hydric soils are absent. These observations do not satisfy the vegetation criterion.				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-1	IMPENETRABLE						Fill					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.												
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2)  Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) ( <b>LRR N</b> ) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) ( <b>LRR N, MLRA 147, 148</b> ) Sandy Gleyed Matrix (S4) Sandy Redox (S5)  Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) ( <b>MLRA 147, 148</b> )  Thin Dark Surface (S9) ( <b>MLRA 147, 148</b> )  Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) ( <b>LRR N, MLRA 136</b> ) Umbric Surface (F13) ( <b>MLRA 136, 122</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 148</b> ) Red Parent Material (F21) ( <b>MLRA 127, 147</b> )		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> 2 cm Muck (A10) ( <b>MLRA 147</b> ) Coast Prairie Redox (A16) ( <b>MLRA 136, 147</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 147, 148</b> ) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)				
Restrictive Layer (if observed): Type: Fill Depth (inches): 1						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:  The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												







Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-18	3/5GY (GLEY)	100					Loamy/Clayey					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>						
Histosol (A1)			Dark Surface (S7)			2 cm Muck (A10) (MLRA 147)						
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)			Coast Prairie Redox (A16) (MLRA 136, 147)						
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)			Piedmont Floodplain Soils (F19) (MLRA 147, 148)						
Hydrogen Sulfide (A4)			X Loamy Gleyed Matrix (F2)			Very Shallow Dark Surface (TF12)						
Stratified Layers (A5)			Depleted Matrix (F3)			Other (Explain in Remarks)						
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed): N/A												
Type:												
Depth (inches):						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td>Yes</td> <td>X</td> <td>No</td> </tr> </table>			<b>Hydric Soil Present?</b>	Yes	X	No
<b>Hydric Soil Present?</b>	Yes	X	No									
Remarks:												
The soils in this area correspond to the Loamy Gleyed Matrix (F2) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the soils criterion.												







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 14

		Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test Worksheet:</b>		
<u>Tree Stratum</u> (Plot size: 30 ft )					Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)		
1.					Total Number of Dominant Species Across All Strata: 3 (B)		
2.					Percent of Dominant Species That are OBL, FACW, or FAC: 33 (A/B)		
3.							
4.							
5.							
<u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )			= Total Cover		<b>Prevalence Index Worksheet:</b>		
1.					Total % Cover of: Multiply by:		
2.					OBL Species x 1 =		
3.					FACW Species x 2 =		
4.					FAC Species x 3 =		
5.					FACU Species x 4 =		
<u>Herb Stratum</u> (Plot size: 5 ft )			= Total Cover		UPL Species x 5 =		
1.	<i>Solidago canadensis</i>	70	Yes	FACU	Column Totals: (A) (B)		
2.	<i>Sorghum halepense</i>	25	Yes	FACU	Prevalence Index = B/A =		
3.					<b>Hydrophytic Vegetation Indicators:</b>		
4.					1 - Rapid Test for Hydrophytic Vegetation		
5.					2 - Dominance Test is > 50%		
6.					3 - Prevalence Index is ≤3.0 <sup>1</sup>		
7.					4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)		
8.					Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)		
9.					<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.		
10.							
11.							
<u>Woody Vine Stratum</u> (Plot size: 30 ft )		95	= Total Cover		<b>Definitions of Four Vegetation Strata:</b>		
1.	<i>Vitis riparia</i>	5	Yes	FACW	<b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height		
2.					<b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.		
3.					<b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.		
4.					<b>Woody vine</b> – All woody vines greater than 3.28 ft in height.		
5.							
6.							
7.							
8.							
9.							
10.		5	= Total Cover				
					<b>Hydrophytic Vegetation Present?</b> <b>Yes</b> <b>No</b> <b>X</b>		
Remarks: (Include photo numbers here or on a separate sheet.)							
The Dominance Test is less than 50 percent and evidence of wetland hydrology and hydric soils are absent. These observations do not satisfy the vegetation criterion.							

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-1	IMPENETRABLE						Fill					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.												
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2)  Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) (LRR N) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5)  Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) (MLRA 147, 148)  Thin Dark Surface (S9) (MLRA 147, 148)  Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148) Red Parent Material (F21) (MLRA 127, 147)			<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> 2 cm Muck (A10) (MLRA 147) Coast Prairie Redox (A16) (MLRA 136, 147) Piedmont Floodplain Soils (F19) (MLRA 147, 148) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)			
Restrictive Layer (if observed): Type: Fill Depth (inches): 1						<sup>3</sup> Indicators of Hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic  <table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:  The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 15

	Absolute % Cover	Dominant Species?	Indicator Status	
<u>Tree Stratum</u> (Plot size: 30 ft )				<b>Dominance Test Worksheet:</b>
1.				Number of Dominant Species That are OBL, FACW, or FAC: (A)
2.				
3.				Total Number of Dominant Species Across All Strata: (B)
4.				
5.				Percent of Dominant Species That are OBL, FACW, or FAC: (A/B)
<u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )				<b>Prevalence Index Worksheet:</b>
1.				Total % Cover of: Multiply by:
2.				OBL Species x 1 =
3.				FACW Species x 2 =
4.				FAC Species x 3 =
5.				FACU Species x 4 =
				UPL Species x 5 =
<u>Herb Stratum</u> (Plot size: 5 ft )				Column Totals: (A) (B)
1. <i>Scirpus hatterianus</i>	45	Yes	OBL	
2. <i>Juncus effusus</i>	45	Yes	FACW	
3. <i>Euthamia graminifolia</i>	10	No	FAC	
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
<u>Woody Vine Stratum</u> (Plot size: 30 ft )	100			Prevalence Index = B/A =
1.				<b>Hydrophytic Vegetation Indicators:</b>
2.				X 1 - Rapid Test for Hydrophytic Vegetation
3.				2 - Dominance Test is > 50%
4.				3 - Prevalence Index is ≤3.0 <sup>1</sup>
5.				4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
6.				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
7.				
8.				
9.				
10.				
11.				
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
				<b>Definitions of Four Vegetation Strata:</b>
				<b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height
				<b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
				<b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
				<b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
				<b>Hydrophytic Vegetation Present?</b> Yes X No
Remarks: (Include photo numbers here or on a separate sheet.)				
The dominant species observed have a wetland indicator status of FACW and OBL. This observation satisfies the Rapid Test for Hydrophytic Vegetation.				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-16	2.5Y 6/2	95	10YR 5/6	5	C	PL	Loamy/Clayey					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.												
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2)  Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) <b>(LRR N)</b> Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) <b>(LRR N, MLRA 147, 148)</b> Sandy Gleyed Matrix (S4) Sandy Redox (S5)  Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) <b>(MLRA 147, 148)</b>  Thin Dark Surface (S9) <b>(MLRA 147, 148)</b>  Loamy Gleyed Matrix (F2) X Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) <b>(LRR N, MLRA 136)</b> Umbric Surface (F13) <b>(MLRA 136, 122)</b> Piedmont Floodplain Soils (F19) <b>(MLRA 148)</b> Red Parent Material (F21) <b>(MLRA 127, 147)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> 2 cm Muck (A10) <b>(MLRA 147)</b> Coast Prairie Redox (A16) <b>(MLRA 136, 147)</b> Piedmont Floodplain Soils (F19) <b>(MLRA 147, 148)</b> Very Shallow Dark Surface (TF12) Other (Explain in Remarks)				
Restrictive Layer (if observed): N/A Type: Depth (inches):						<table border="0"> <tr> <td style="text-align: center;"><b>Hydric Soil Present?</b></td> <td style="text-align: center;">Yes</td> <td style="text-align: center;">X</td> <td style="text-align: center;">No</td> </tr> </table>			<b>Hydric Soil Present?</b>	Yes	X	No
<b>Hydric Soil Present?</b>	Yes	X	No									
Remarks:  The soils in this area correspond to the Depleted Matrix (F3) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the soils criterion.												







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 16

	Absolute % Cover	Dominant Species?	Indicator Status	
<p><u>Tree Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Dominance Test Worksheet:</b></p> <p>Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)</p> <p>Total Number of Dominant Species Across All Strata: 2 (B)</p> <p>Percent of Dominant Species That are OBL, FACW, or FAC: 0 (A/B)</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Prevalence Index Worksheet:</b></p> <p>Total % Cover of: Multiply by:</p> <p>OBL Species x 1 =</p> <p>FACW Species x 2 =</p> <p>FAC Species x 3 =</p> <p>FACU Species x 4 =</p> <p>UPL Species x 5 =</p> <p>Column Totals: (A) (B)</p> <p style="text-align: center;">Prevalence Index = B/A =</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Herb Stratum</u> (Plot size: 5 ft )</p> <p>1. <i>Festuca arundinacea</i> 40 Yes FACU</p> <p>2. <i>Phleum pratense</i> 30 Yes FACU</p> <p>3. <i>Plantago lanceolata</i> 15 No UPL</p> <p>4. <i>Erigeron strigosus</i> 5 No FACU</p> <p>5. <i>Carex hirsutella</i> 5 No FACU</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p> <p>11.</p>				<p><b>Hydrophytic Vegetation Indicators:</b></p> <p>1 - Rapid Test for Hydrophytic Vegetation</p> <p>2 - Dominance Test is &gt; 50%</p> <p>3 - Prevalence Index is ≤3.0<sup>1</sup></p> <p>4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</p> <p>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</p> <p><sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>
<p style="text-align: right;">95 = Total Cover</p>				
<p><u>Woody Vine Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p>				<p><b>Definitions of Four Vegetation Strata:</b></p> <p><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height</p> <p><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p><b>Woody vine</b> – All woody vines greater than 3.28 ft in height.</p>
<p style="text-align: right;">= Total Cover</p>				
<p><b>Hydrophytic Vegetation Present?</b>      <b>Yes</b>                      <b>No</b>                      <b>X</b></p>				
<p>Remarks: (Include photo numbers here or on a separate sheet.)</p> <p>The Dominance Test is less than 50 percent and evidence of wetland hydrology and hydric soils are absent. These observations do not satisfy the vegetation criterion.</p>				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-5	10YR 6/2	100					Loamy/Clayey					
>5	IMPENETRABLE						Rocks					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>						
Histosol (A1)						Dark Surface (S7)						
Histic Epipedon (A2)						Polyvalue Below Surface (S8) (MLRA 147, 148)						
Black Histic (A3)						Thin Dark Surface (S9) (MLRA 147, 148)						
Hydrogen Sulfide (A4)						Loamy Gleyed Matrix (F2)						
Stratified Layers (A5)						Depleted Matrix (F3)						
2 cm Muck (A10) (LRR N)						Redox Dark Surface (F6)						
Depleted Below Dark Surface (A11)						Depleted Dark Surface (F7)						
Thick Dark Surface (A12)						Redox Depression (F8)						
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)						Iron-Manganese Masses (F12) (LRR N, MLRA 136)						
Sandy Gleyed Matrix (S4)						Umbric Surface (F13) (MLRA 136, 122)						
Sandy Redox (S5)						Piedmont Floodplain Soils (F19) (MLRA 148)						
Stripped Matrix (S6)						Red Parent Material (F21) (MLRA 127, 147)						
						<sup>3</sup> Indicators of Hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic						
Restrictive Layer (if observed):												
Type: Rocky Soil												
Depth (inches): 5												
						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:												
The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 17

	Absolute % Cover	Dominant Species?	Indicator Status		
<b>Tree Stratum</b> (Plot size: 30 ft )				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: (A)  Total Number of Dominant Species Across All Strata: (B)  Percent of Dominant Species That are OBL, FACW, or FAC: (A/B)	
1.					
2.					
3.					
4.					
5.				= Total Cover	
<b>Sapling/Shrub Stratum</b> (Plot size: 15 ft )				<b>Prevalence Index Worksheet:</b> Total % Cover of:                      Multiply by: OBL Species                                      x 1 = FACW Species                                    x 2 = FAC Species                                        x 3 = FACU Species                                    x 4 = UPL Species                                        x 5 =  Column Totals:                                      (A)                      (B)  Prevalence Index = B/A =	
1.					
2.					
3.					
4.					
5.				= Total Cover	
<b>Herb Stratum</b> (Plot size: 5 ft )				<b>Hydrophytic Vegetation Indicators:</b> <b>X</b> 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
1.	<i>Scirpus hattorianus</i>	45	Yes		OBL
2.	<i>Juncus effusus</i>	45	Yes		FACW
3.	<i>Euthamia graminifolia</i>	10	No		FAC
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
<b>Woody Vine Stratum</b> (Plot size: 30 ft )				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.	
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
				= Total Cover	
				100 = Total Cover	
				= Total Cover	
<b>Hydrophytic Vegetation Present?</b> <b>Yes</b> <b>X</b> <b>No</b>					
Remarks: (Include photo numbers here or on a separate sheet.)  The dominant species observed have a wetland indicator status of FACW and OBL. This observation satisfies the Rapid Test for Hydrophytic Vegetation.					

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-16	2.5Y 6/2	95	10YR 5/6	5	C	PL	Loamy/Clayey					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.												
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) <b>(LRR N)</b> Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) <b>(LRR N, MLRA 147, 148)</b> Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) <b>(MLRA 147, 148)</b> Thin Dark Surface (S9) <b>(MLRA 147, 148)</b> Loamy Gleyed Matrix (F2) X Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) <b>(LRR N, MLRA 136)</b> Umbric Surface (F13) <b>(MLRA 136, 122)</b> Piedmont Floodplain Soils (F19) <b>(MLRA 148)</b> Red Parent Material (F21) <b>(MLRA 127, 147)</b>		<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b> 2 cm Muck (A10) <b>(MLRA 147)</b> Coast Prairie Redox (A16) <b>(MLRA 136, 147)</b> Piedmont Floodplain Soils (F19) <b>(MLRA 147, 148)</b> Very Shallow Dark Surface (TF12) Other (Explain in Remarks)				
Restrictive Layer (if observed): N/A												
Type:												
Depth (inches):						<table border="0"> <tr> <td style="text-align: center;"><b>Hydric Soil Present?</b></td> <td style="text-align: center;">Yes</td> <td style="text-align: center;">X</td> <td style="text-align: center;">No</td> </tr> </table>			<b>Hydric Soil Present?</b>	Yes	X	No
<b>Hydric Soil Present?</b>	Yes	X	No									
Remarks: The soils in this area correspond to the Depleted Matrix (F3) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the soils criterion.												







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **18**

	Absolute % Cover	Dominant Species?	Indicator Status	
<p><u>Tree Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Dominance Test Worksheet:</b></p> <p>Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)</p> <p>Total Number of Dominant Species Across All Strata: 2 (B)</p> <p>Percent of Dominant Species That are OBL, FACW, or FAC: 0 (A/B)</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Prevalence Index Worksheet:</b></p> <p>Total % Cover of: Multiply by:</p> <p>OBL Species x 1 =</p> <p>FACW Species x 2 =</p> <p>FAC Species x 3 =</p> <p>FACU Species x 4 =</p> <p>UPL Species x 5 =</p> <p>Column Totals: (A) (B)</p> <p style="text-align: center;">Prevalence Index = B/A =</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Herb Stratum</u> (Plot size: 5 ft )</p> <p>1. <i>Festuca arundinacea</i> 40 Yes FACU</p> <p>2. <i>Phleum pratense</i> 30 Yes FACU</p> <p>3. <i>Plantago lanceolata</i> 15 No UPL</p> <p>4. <i>Erigeron strigosus</i> 5 No FACU</p> <p>5. <i>Carex hirsutella</i> 5 No FACU</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p> <p>11.</p>				<p><b>Hydrophytic Vegetation Indicators:</b></p> <p>1 - Rapid Test for Hydrophytic Vegetation</p> <p>2 - Dominance Test is &gt; 50%</p> <p>3 - Prevalence Index is ≤3.0<sup>1</sup></p> <p>4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</p> <p>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</p> <p><sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>
<p style="text-align: right;">95 = Total Cover</p>				
<p><u>Woody Vine Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p>				<p><b>Definitions of Four Vegetation Strata:</b></p> <p><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height</p> <p><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p><b>Woody vine</b> – All woody vines greater than 3.28 ft in height.</p>
<p style="text-align: right;">= Total Cover</p>				
<p><b>Hydrophytic Vegetation Present?</b>      <b>Yes</b>                      <b>No</b>                      <b>X</b></p>				
<p>Remarks: (Include photo numbers here or on a separate sheet.)</p> <p>The Dominance Test is less than 50 percent and evidence of wetland hydrology and hydric soils are absent. These observations do not satisfy the vegetation criterion.</p>				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-5	10YR 6/2	100					Loamy/Clayey					
>5	IMPENETRABLE						Rocks					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>						
Histosol (A1)			Dark Surface (S7)			2 cm Muck (A10) (MLRA 147)						
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)			Coast Prairie Redox (A16) (MLRA 136, 147)						
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)			Piedmont Floodplain Soils (F19) (MLRA 147, 148)						
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)			Very Shallow Dark Surface (TF12)						
Stratified Layers (A5)			Depleted Matrix (F3)			Other (Explain in Remarks)						
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed):												
Type: Rocky Soil												
Depth (inches): 5												
						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:												
The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												







Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-5	10YR 3/2	90	10YR 2/1	10	C	M	Loamy/Clayey					
5-16	10YR 5/8						Loamy/Clayey					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.												
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2)  Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) <b>(LRR N)</b> Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) <b>(LRR N, MLRA 147, 148)</b> Sandy Gleyed Matrix (S4) Sandy Redox (S5)  Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) <b>(MLRA 147, 148)</b>  Thin Dark Surface (S9) <b>(MLRA 147, 148)</b>  Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) <b>X</b> Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) <b>(LRR N, MLRA 136)</b> Umbric Surface (F13) <b>(MLRA 136, 122)</b> Piedmont Floodplain Soils (F19) <b>(MLRA 148)</b> Red Parent Material (F21) <b>(MLRA 127, 147)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> 2 cm Muck (A10) <b>(MLRA 147)</b> Coast Prairie Redox (A16) <b>(MLRA 136, 147)</b> Piedmont Floodplain Soils (F19) <b>(MLRA 147, 148)</b> Very Shallow Dark Surface (TF12) Other (Explain in Remarks)				
Restrictive Layer (if observed): Type: Clay Layer Depth (inches): 5						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td>Yes</td> <td>X</td> <td>No</td> </tr> </table>			<b>Hydric Soil Present?</b>	Yes	X	No
<b>Hydric Soil Present?</b>	Yes	X	No									
Remarks:  The soils in this area correspond to the Redox Dark Surface (F6) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the soils criterion.												







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 20

				<b>Dominance Test Worksheet:</b>		
<u>Tree Stratum</u> (Plot size: 30 ft )				Absolute % Cover	Dominant Species?	Indicator Status
1.	<i>Acer saccharum</i>	80	Yes	FACU	Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)	
2.					Total Number of Dominant Species Across All Strata: 7 (B)	
3.					Percent of Dominant Species That are OBL, FACW, or FAC: 29% (A/B)	
4.						
5.		80	= Total Cover			
<u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )						
1.	<i>Acer saccharum</i>	30	Yes	FACU	<b>Prevalence Index Worksheet:</b>	
2.	<i>Rosa multiflora</i>	20	Yes	FACU	Total % Cover of:	Multiply by:
3.	<i>Fraxinus americana</i>	10	No	FACU	OBL Species	x 1 =
4.	<i>Lonicera maackii</i>	5	No	FACU	FACW Species	x 2 =
5.					FAC Species	x 3 =
			= Total Cover		FACU Species	x 4 =
					UPL Species	x 5 =
<u>Herb Stratum</u> (Plot size: 5 ft )						Column Totals: (A) (B)
1.	<i>Microstegium vimineum</i>	60	Yes	FAC	Prevalence Index = B/A =	
2.	<i>Podophyllum peltatum</i>	20	Yes	FACU	<b>Hydrophytic Vegetation Indicators:</b>	
3.					1 - Rapid Test for Hydrophytic Vegetation	
4.					2 - Dominance Test is > 50%	
5.					3 - Prevalence Index is ≤3.0 <sup>1</sup>	
6.					4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
7.					Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
8.						
9.						
10.						
11.						
		80	= Total Cover		<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
<u>Woody Vine Stratum</u> (Plot size: 30 ft )						<b>Definitions of Four Vegetation Strata:</b>
1.	<i>Smilax rotundifolia</i>	30	Yes	FAC	<b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height	
2.	<i>Parthenocissus quinquefolia</i>	15	Yes	FACU	<b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.	
3.	<i>Toxicodendron radicans</i>	10	No	FAC	<b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.	
4.					<b>Woody vine</b> – All woody vines greater than 3.28 ft in height.	
5.						
6.						
7.						
8.						
9.						
10.		55	= Total Cover			
						<b>Hydrophytic Vegetation Present?</b> Yes No X
Remarks: (Include photo numbers here or on a separate sheet.)						
The Dominance Test is less than 50 percent and evidence of wetland hydrology and hydric soils are absent. These observations do not satisfy the vegetation criterion.						

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-6	2.5Y 4/2	90	10YR 5/6	10	C	M	Loamy/Clayey					
6-12	10YR 5/8	90	2.5Y 6/2	10	C	M	Loamy/Clayey					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.												
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2)  Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) <b>(LRR N)</b> Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) <b>(LRR N, MLRA 147, 148)</b> Sandy Gleyed Matrix (S4) Sandy Redox (S5)  Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) <b>(MLRA 147, 148)</b>  Thin Dark Surface (S9) <b>(MLRA 147, 148)</b>  Loamy Gleyed Matrix (F2) X Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) <b>(LRR N, MLRA 136)</b> Umbric Surface (F13) <b>(MLRA 136, 122)</b> Piedmont Floodplain Soils (F19) <b>(MLRA 148)</b> Red Parent Material (F21) <b>(MLRA 127, 147)</b>		<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b> 2 cm Muck (A10) <b>(MLRA 147)</b> Coast Prairie Redox (A16) <b>(MLRA 136, 147)</b> Piedmont Floodplain Soils (F19) <b>(MLRA 147, 148)</b> Very Shallow Dark Surface (TF12) Other (Explain in Remarks)				
Restrictive Layer (if observed): Type: Depth (inches):						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:  The soils in this area correspond to the Depleted Matrix (F3) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the soils criterion.												





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 21

		Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test Worksheet:</b>		
<u>Tree Stratum</u> (Plot size: 30 ft )					Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)		
1.					Total Number of Dominant Species Across All Strata: 4 (B)		
2.					Percent of Dominant Species That are OBL, FACW, or FAC: 50% (A/B)		
3.							
4.							
5.							
			= Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )					<b>Prevalence Index Worksheet:</b>		
1.	<i>Salix interior</i>	20	Yes	FACW	Total % Cover of: Multiply by:		
2.	<i>Populus deltoides</i>	20	Yes	FAC	OBL Species	20	x 1 = 20
3.					FACW Species	40	x 2 = 80
4.					FAC Species	20	x 3 = 60
5.					FACU Species	100	x 4 = 400
		40	= Total Cover		UPL Species	20	x 5 = 100
<u>Herb Stratum</u> (Plot size: 5 ft )					Column Totals: 200 (A) 660 (B)		
1.	<i>Trifolium hybridum</i>	30	Yes	FACU	Prevalence Index = B/A = 3.3		
2.	<i>Trifolium repens</i>	30	Yes	FACU	<b>Hydrophytic Vegetation Indicators:</b>		
3.	<i>Cyperus esculentus</i>	10	No	FACW	1 - Rapid Test for Hydrophytic Vegetation		
4.	<i>Carex frankii</i>	10	No	OBL	2 - Dominance Test is > 50%		
5.	<i>Daucus carota</i>	10	No	UPL	3 - Prevalence Index is ≤3.0 <sup>1</sup>		
6.	<i>Melilotus officinalis</i>	10	No	FACU	4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)		
7.	<i>Erigeron annuus</i>	10	No	FACU	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)		
8.							
9.							
10.							
11.							
		110	= Total Cover		<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.		
<u>Woody Vine Stratum</u> (Plot size: 30 ft )					<b>Definitions of Four Vegetation Strata:</b>		
1.					<b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height		
2.					<b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.		
3.					<b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.		
4.					<b>Woody vine</b> – All woody vines greater than 3.28 ft in height.		
5.							
6.							
7.							
8.							
9.							
10.							
			= Total Cover		<b>Hydrophytic Vegetation Present?</b> <b>Yes</b> <b>No</b> <b>X</b>		

Remarks: (Include photo numbers here or on a separate sheet.)

The Dominance Test is less than 50 percent and the Prevalence Index is greater than 3.0. These observations do not satisfy the vegetation criterion.

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-1	IMPENETRABLE						Gravel					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.												
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2)  Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) ( <b>LRR N</b> ) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) ( <b>LRR N, MLRA 147, 148</b> ) Sandy Gleyed Matrix (S4) Sandy Redox (S5)  Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) ( <b>MLRA 147, 148</b> )  Thin Dark Surface (S9) ( <b>MLRA 147, 148</b> )  Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) ( <b>LRR N, MLRA 136</b> ) Umbric Surface (F13) ( <b>MLRA 136, 122</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 148</b> ) Red Parent Material (F21) ( <b>MLRA 127, 147</b> )		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> 2 cm Muck (A10) ( <b>MLRA 147</b> ) Coast Prairie Redox (A16) ( <b>MLRA 136, 147</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 147, 148</b> ) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)				
Restrictive Layer (if observed): Type: Depth (inches):						<table border="0"> <tr> <td style="text-align: center;"><b>Hydric Soil Present?</b></td> <td style="text-align: center;"><b>Yes</b></td> <td style="text-align: center;"><b>No</b></td> <td style="text-align: center;"><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:  The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 22

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: 30 ft )				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)  Total Number of Dominant Species Across All Strata: 2 (B)  Percent of Dominant Species That are OBL, FACW, or FAC: 0% (A/B)
1.				
2.				
3.				
4.				
5.				= Total Cover
<b>Sapling/Shrub Stratum</b> (Plot size: 15 ft )				<b>Prevalence Index Worksheet:</b> Total % Cover of:                      Multiply by: OBL Species                                x 1 = FACW Species                                x 2 = FAC Species                                    x 3 = FACU Species                                 x 4 = UPL Species                                  x 5 =  Column Totals:                              (A)                      (B)  Prevalence Index = B/A =
1.				
2.				
3.				
4.				
5.				= Total Cover
<b>Herb Stratum</b> (Plot size: 5 ft )				<b>Hydrophytic Vegetation Indicators:</b> 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1.	60	Yes	UPL	
2.	20	Yes	FACU	
3.	10	No	FACU	
4.	10	No	FACU	
5.				
6.				
7.				
8.				
9.				
10.				
11.				= Total Cover
<b>Woody Vine Stratum</b> (Plot size: 30 ft )				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				= Total Cover
Remarks: (Include photo numbers here or on a separate sheet.)  The Dominance Test is less than 50 percent. This observation does not satisfy the vegetation criterion.				<b>Hydrophytic Vegetation Present?</b> <b>Yes</b> <b>No</b> <b>X</b>

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-8	10YR 4/3	100					Loamy/Clayey					
>8	IMPENETRABLE						Fill					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>						
Histosol (A1)			Dark Surface (S7)			2 cm Muck (A10) (MLRA 147)						
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)			Coast Prairie Redox (A16) (MLRA 136, 147)						
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)			Piedmont Floodplain Soils (F19) (MLRA 147, 148)						
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)			Very Shallow Dark Surface (TF12)						
Stratified Layers (A5)			Depleted Matrix (F3)			Other (Explain in Remarks)						
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed):												
Type: Fill												
Depth (inches): 8												
						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:												
The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 23

	Absolute % Cover	Dominant Species?	Indicator Status	
<p><u>Tree Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Dominance Test Worksheet:</b></p> <p>Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)</p> <p>Total Number of Dominant Species Across All Strata: 2 (B)</p> <p>Percent of Dominant Species That are OBL, FACW, or FAC: 100 (A/B)</p>
<p style="text-align: right;">= Total Cover</p> <p><u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				
<p style="text-align: right;">= Total Cover</p> <p><u>Herb Stratum</u> (Plot size: 5 ft )</p> <p>1. <i>Scirpus atrovirens</i> 30 Yes OBL</p> <p>2. <i>Agrostis gigantea</i> 30 Yes FACW</p> <p>3. <i>Carex vulpinoidea</i> 15 No OBL</p> <p>4. <i>Carex frankii</i> 15 No OBL</p> <p>5. <i>Apocynum cannabinum</i> 10 No FACU</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p> <p>11.</p>				
<p style="text-align: right;">100 = Total Cover</p> <p><u>Woody Vine Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p>				<p><b>Prevalence Index Worksheet:</b></p> <p>Total % Cover of: Multiply by:</p> <p>OBL Species x 1 =</p> <p>FACW Species x 2 =</p> <p>FAC Species x 3 =</p> <p>FACU Species x 4 =</p> <p>UPL Species x 5 =</p> <p>Column Totals: (A) (B)</p> <p style="text-align: center;">Prevalence Index = B/A =</p> <p><b>Hydrophytic Vegetation Indicators:</b></p> <p>X 1 - Rapid Test for Hydrophytic Vegetation</p> <p>2 - Dominance Test is &gt; 50%</p> <p>3 - Prevalence Index is ≤3.0<sup>1</sup></p> <p>4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</p> <p>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</p> <p><sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>
<p style="text-align: right;">= Total Cover</p>				
				<p><b>Definitions of Four Vegetation Strata:</b></p> <p><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height</p> <p><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p><b>Woody vine</b> – All woody vines greater than 3.28 ft in height.</p>
				<p><b>Hydrophytic Vegetation Present?</b>    Yes    X    No</p>
<p>Remarks: (Include photo numbers here or on a separate sheet.)</p> <p>The dominant species observed have a wetland indicator status of OBL and FACW. This observation satisfies the Rapid Test for Hydrophytic Vegetation.</p>				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-4	10YR 4/2	95	10YR 4/6	5	C	PL	Loamy/Clayey					
4-16	2.5Y 4/1	95	10YR 4/6	5	C	PL	Loamy/Clayey					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b>						
Histosol (A1)			Dark Surface (S7)			2 cm Muck (A10) (MLRA 147)						
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)			Coast Prairie Redox (A16) (MLRA 136, 147)						
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)			Piedmont Floodplain Soils (F19) (MLRA 147, 148)						
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)			Very Shallow Dark Surface (TF12)						
Stratified Layers (A5)			X Depleted Matrix (F3)			Other (Explain in Remarks)						
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed): N/A												
Type:												
Depth (inches):						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>X</b></td> <td><b>No</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>X</b>	<b>No</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>X</b>	<b>No</b>									
Remarks:												
The soils in this area correspond to the Depleted Matrix (F3) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the soils criterion.												







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **25**

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: 30 ft ) 1. 2. 3. 4. 5.				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)  Total Number of Dominant Species Across All Strata: 2 (B)  Percent of Dominant Species That are OBL, FACW, or FAC: 0% (A/B)
<b>Sapling/Shrub Stratum</b> (Plot size: 15 ft ) 1. 2. 3. 4. 5.		= Total Cover		
<b>Herb Stratum</b> (Plot size: 5 ft ) 1. <i>Sorghum halepense</i> 2. <i>Festuca arundinacea</i> 3. <i>Plantago lanceolata</i> 4. 5. 6. 7. 8. 9. 10. 11.	55 40 5	Yes Yes No	FACU FACU UPL	<b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL Species x 1 = FACW Species x 2 = FAC Species x 3 = FACU Species x 4 = UPL Species x 5 =  Column Totals: (A) (B)  Prevalence Index = B/A =
100 = Total Cover				
<b>Woody Vine Stratum</b> (Plot size: 30 ft ) 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.				<b>Hydrophytic Vegetation Indicators:</b> 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
				<b>Hydrophytic Vegetation Present?</b> <b>Yes</b> <b>No</b> <b>X</b>
Remarks: (Include photo numbers here or on a separate sheet.)  The Dominance Test is less than 50 percent. This observation does not satisfy the vegetation criterion.				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-1	IMPENETRABLE	100					Fill					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b>						
Histosol (A1)			Dark Surface (S7)			2 cm Muck (A10) (MLRA 147)						
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)			Coast Prairie Redox (A16) (MLRA 136, 147)						
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)			Piedmont Floodplain Soils (F19) (MLRA 147, 148)						
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)			Very Shallow Dark Surface (TF12)						
Stratified Layers (A5)			Depleted Matrix (F3)			Other (Explain in Remarks)						
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed):												
Type: Fill												
Depth (inches): 1												
						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:												
The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **26**

	Absolute % Cover	Dominant Species?	Indicator Status	
<u>Tree Stratum</u> (Plot size: 30 ft )				<b>Dominance Test Worksheet:</b>
1.				Number of Dominant Species That are OBL, FACW, or FAC: (A)
2.				
3.				Total Number of Dominant Species Across All Strata: (B)
4.				
5.				Percent of Dominant Species That are OBL, FACW, or FAC: (A/B)
<u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )				<b>Prevalence Index Worksheet:</b>
1.				Total % Cover of: Multiply by:
2.				OBL Species x 1 =
3.				FACW Species x 2 =
4.				FAC Species x 3 =
5.				FACU Species x 4 =
				UPL Species x 5 =
<u>Herb Stratum</u> (Plot size: 5 ft )				Column Totals: (A) (B)
1. <i>Phalaris arundinacea</i>	40	Yes	FACW	
2. <i>Acorus calamus</i>	40	Yes	OBL	
3. <i>Typha angustifolia</i>	10	No	OBL	
4. <i>Dipsacus lanuginosum</i>	5	No	FACU	
5. <i>Carex frankii</i>	5	No	OBL	
6.				
7.				
8.				
9.				
10.				
11.				
	100			Prevalence Index = B/A =
<u>Woody Vine Stratum</u> (Plot size: 30 ft )				<b>Hydrophytic Vegetation Indicators:</b>
1.				X 1 - Rapid Test for Hydrophytic Vegetation
2.				2 - Dominance Test is > 50%
3.				3 - Prevalence Index is ≤3.0 <sup>1</sup>
4.				4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
5.				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
6.				
7.				
8.				
9.				
10.				
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
				<b>Definitions of Four Vegetation Strata:</b>
				<b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height
				<b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
				<b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
				<b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
				<b>Hydrophytic Vegetation Present?</b> Yes X No
Remarks: (Include photo numbers here or on a separate sheet.)				
The dominant species observed have a wetland indicator status of OBL and FACW. This observation satisfies the Rapid Test for Hydrophytic Vegetation.				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-7	2.5Y 3/1	100					Loamy/Clayey					
7-16	10YR 4/1	90	10YR 5/6	10	C	PL	Loamy/Clayey					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.												
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) (LRR N) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) (MLRA 147, 148) Thin Dark Surface (S9) (MLRA 147, 148) Loamy Gleyed Matrix (F2) X Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148) Red Parent Material (F21) (MLRA 127, 147)		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> 2 cm Muck (A10) (MLRA 147) Coast Prairie Redox (A16) (MLRA 136, 147) Piedmont Floodplain Soils (F19) (MLRA 147, 148) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)				
Restrictive Layer (if observed): N/A												
Type:												
Depth (inches):						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td>Yes</td> <td>X</td> <td>No</td> </tr> </table>			<b>Hydric Soil Present?</b>	Yes	X	No
<b>Hydric Soil Present?</b>	Yes	X	No									
Remarks: The soils in this area correspond to the Depleted Matrix (F3) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the soils criterion.												







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 27

	Absolute % Cover	Dominant Species?	Indicator Status		
<b>Tree Stratum</b> (Plot size: 30 ft )				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)  Total Number of Dominant Species Across All Strata: 1 (B)  Percent of Dominant Species That are OBL, FACW, or FAC: 0% (A/B)	
1.					
2.					
3.					
4.					
5.				= Total Cover	
<b>Sapling/Shrub Stratum</b> (Plot size: 15 ft )				<b>Prevalence Index Worksheet:</b> Total % Cover of:                      Multiply by: OBL Species                                x 1 = FACW Species                                x 2 = FAC Species                                    x 3 = FACU Species                                 x 4 = UPL Species                                  x 5 =  Column Totals:                                (A)                                (B)  Prevalence Index = B/A =	
1.					
2.					
3.					
4.					
5.				= Total Cover	
<b>Herb Stratum</b> (Plot size: 5 ft )				<b>Hydrophytic Vegetation Indicators:</b> 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
1.	<i>Erigeron annuus</i>	80	Yes		FACU
2.	<i>Solidago canadensis</i>	15	No		FACU
3.	<i>Asclepias syriaca</i>	5	No		FACU
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
<b>Woody Vine Stratum</b> (Plot size: 30 ft )				100 = Total Cover	
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
				= Total Cover	
				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.	
				<b>Hydrophytic Vegetation Present?</b> <b>Yes</b> <b>No</b> <b>X</b>	

Remarks: (Include photo numbers here or on a separate sheet.)

The Dominance Test is less than 50 percent. This observation does not satisfy the vegetation criterion.

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-1	IMPENETRABLE	100					Fill					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b>						
Histosol (A1)			Dark Surface (S7)			2 cm Muck (A10) (MLRA 147)						
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)			Coast Prairie Redox (A16) (MLRA 136, 147)						
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)			Piedmont Floodplain Soils (F19) (MLRA 147, 148)						
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)			Very Shallow Dark Surface (TF12)						
Stratified Layers (A5)			Depleted Matrix (F3)			Other (Explain in Remarks)						
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed):												
Type: Fill												
Depth (inches): 1												
						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:												
The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												







Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-1	IMPENETRABLE	100					Fill					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b>						
Histosol (A1)			Dark Surface (S7)			2 cm Muck (A10) (MLRA 147)						
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)			Coast Prairie Redox (A16) (MLRA 136, 147)						
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)			Piedmont Floodplain Soils (F19) (MLRA 147, 148)						
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)			Very Shallow Dark Surface (TF12)						
Stratified Layers (A5)			Depleted Matrix (F3)			Other (Explain in Remarks)						
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed):												
Type: Fill												
Depth (inches): 1												
						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:												
The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **28**

	Absolute % Cover	Dominant Species?	Indicator Status	
<p><u>Tree Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Dominance Test Worksheet:</b></p> <p>Number of Dominant Species That are OBL, FACW, or FAC: (A)</p> <p>Total Number of Dominant Species Across All Strata: (B)</p> <p>Percent of Dominant Species That are OBL, FACW, or FAC: (A/B)</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )</p> <p>1. <i>Salix nigra</i></p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Prevalence Index Worksheet:</b></p> <p>Total % Cover of: Multiply by:</p> <p>OBL Species x 1 =</p> <p>FACW Species x 2 =</p> <p>FAC Species x 3 =</p> <p>FACU Species x 4 =</p> <p>UPL Species x 5 =</p> <p>Column Totals: (A) (B)</p> <p style="text-align: center;">Prevalence Index = B/A =</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Herb Stratum</u> (Plot size: 5 ft )</p> <p>1. <i>Scirpus atrovirens</i></p> <p>2. <i>Eleocharis obtusa</i></p> <p>3. <i>Persicaria hydropiper</i></p> <p>4. <i>Schenoplectus tabernaemontani</i></p> <p>5. <i>Juncus tenuis</i></p> <p>6. <i>Eupatorium perfoliatum</i></p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p> <p>11.</p>				<p><b>Hydrophytic Vegetation Indicators:</b></p> <p><b>X</b> 1 - Rapid Test for Hydrophytic Vegetation</p> <p>2 - Dominance Test is &gt; 50%</p> <p>3 - Prevalence Index is ≤3.0<sup>1</sup></p> <p>4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</p> <p>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</p> <p><sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Woody Vine Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p>				<p><b>Definitions of Four Vegetation Strata:</b></p> <p><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height</p> <p><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p><b>Woody vine</b> – All woody vines greater than 3.28 ft in height.</p>
<p style="text-align: right;">= Total Cover</p>				
<p><b>Hydrophytic Vegetation Present?    Yes    X    No</b></p>				
<p>Remarks: (Include photo numbers here or on a separate sheet.)</p> <p>The dominant species observed have a wetland indicator status of OBL and FACW. This observation satisfies the Rapid Test for Hydrophytic Vegetation.</p>				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-7	2.5Y 4/1	90	2.5Y 5/6	10	C	PL	Loamy/Clayey					
7-16	10YR 5/6	100					Loamy/Clayey					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.												
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2)  Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) (LRR N) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5)  Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) (MLRA 147, 148)  Thin Dark Surface (S9) (MLRA 147, 148)  Loamy Gleyed Matrix (F2) X Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148) Red Parent Material (F21) (MLRA 127, 147)		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> 2 cm Muck (A10) (MLRA 147) Coast Prairie Redox (A16) (MLRA 136, 147) Piedmont Floodplain Soils (F19) (MLRA 147, 148) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)				
Restrictive Layer (if observed): N/A  Type:  Depth (inches):						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td>Yes</td> <td>X</td> <td>No</td> </tr> </table>			<b>Hydric Soil Present?</b>	Yes	X	No
<b>Hydric Soil Present?</b>	Yes	X	No									
Remarks:  The soils in this area correspond to the Depleted Matrix (F3) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the soils criterion.												





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **29**

	Absolute % Cover	Dominant Species?	Indicator Status					
<b>Tree Stratum</b> (Plot size: 30 ft )				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)  Total Number of Dominant Species Across All Strata: 3 (B)  Percent of Dominant Species That are OBL, FACW, or FAC: 33% (A/B)				
1.								
2.								
3.								
4.								
5.				= Total Cover				
<b>Sapling/Shrub Stratum</b> (Plot size: 15 ft )				<b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL Species x 1 = FACW Species x 2 = FAC Species x 3 = FACU Species x 4 = UPL Species x 5 =  Column Totals: (A) (B)  Prevalence Index = B/A =				
1.	Rosa multiflora 10	Yes						
2.	Berberis thunbergii 5	Yes						
3.								
4.								
5.				= Total Cover				
<b>Herb Stratum</b> (Plot size: 5 ft )				<b>Hydrophytic Vegetation Indicators:</b> 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.				
1.	Festuca arundinacea 40	Yes	FACU					
2.	Vernonia gigantea 10	No	FAC					
3.	Juncus tenuis 10	No	FAC					
4.	Erigeron annuus 5	No	FACU					
5.	Daucus carota 5	No	UPL					
6.								
7.								
8.								
9.								
10.								
11.				= Total Cover				
<b>Woody Vine Stratum</b> (Plot size: 30 ft )				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.				
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.				= Total Cover				
<b>Hydrophytic Vegetation Present?</b>				<table style="width:100%; border: none;"> <tr> <td style="width:60%;"></td> <td style="width:10%; text-align: center;"><b>Yes</b></td> <td style="width:10%; text-align: center;"><b>No</b></td> <td style="width:10%; text-align: center;"><b>X</b></td> </tr> </table>		<b>Yes</b>	<b>No</b>	<b>X</b>
	<b>Yes</b>	<b>No</b>	<b>X</b>					
Remarks: (Include photo numbers here or on a separate sheet.)  The Dominance Test is less than 50 percent. This observation does not satisfy the vegetation criterion.								

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-16	2.5Y 6/4	100					Loamy/Clayey					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>						
Histosol (A1)			Dark Surface (S7)			2 cm Muck (A10) (MLRA 147)						
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)			Coast Prairie Redox (A16) (MLRA 136, 147)						
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)			Piedmont Floodplain Soils (F19) (MLRA 147, 148)						
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)			Very Shallow Dark Surface (TF12)						
Stratified Layers (A5)			Depleted Matrix (F3)			Other (Explain in Remarks)						
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed):												
Type: Fill												
Depth (inches): 1												
						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:												
The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **30**

	Absolute % Cover	Dominant Species?	Indicator Status	
<p><u>Tree Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Dominance Test Worksheet:</b></p> <p>Number of Dominant Species That are OBL, FACW, or FAC: (A)</p> <p>Total Number of Dominant Species Across All Strata: (B)</p> <p>Percent of Dominant Species That are OBL, FACW, or FAC: (A/B)</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )</p> <p>1. <i>Salix interior</i> 5 Yes FACW</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Prevalence Index Worksheet:</b></p> <p>Total % Cover of: Multiply by:</p> <p>OBL Species x 1 =</p> <p>FACW Species x 2 =</p> <p>FAC Species x 3 =</p> <p>FACU Species x 4 =</p> <p>UPL Species x 5 =</p> <p>Column Totals: (A) (B)</p> <p style="text-align: center;">Prevalence Index = B/A =</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Herb Stratum</u> (Plot size: 5 ft )</p> <p>1. <i>Scirpus atrovirens</i> 50 Yes OBL</p> <p>2. <i>Schenoplectus tabernaemontani</i> 25 Yes OBL</p> <p>3. <i>Carex frankii</i> 15 No OBL</p> <p>4. <i>Eutrochium fistulosum</i> 5 No FACW</p> <p>5. <i>Carex vulpinoidea</i> 5 No OBL</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p> <p>11.</p>				<p><b>Hydrophytic Vegetation Indicators:</b></p> <p><b>X</b> 1 - Rapid Test for Hydrophytic Vegetation</p> <p>2 - Dominance Test is &gt; 50%</p> <p>3 - Prevalence Index is ≤3.0<sup>1</sup></p> <p>4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</p> <p>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</p> <p><sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>
<p style="text-align: right;">100 = Total Cover</p>				
<p><u>Woody Vine Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p>				<p><b>Definitions of Four Vegetation Strata:</b></p> <p><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height</p> <p><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p><b>Woody vine</b> – All woody vines greater than 3.28 ft in height.</p>
<p style="text-align: right;">= Total Cover</p>				
<p><b>Hydrophytic Vegetation Present?    Yes    X    No</b></p>				
<p>Remarks: (Include photo numbers here or on a separate sheet.)</p> <p>The dominant species observed have a wetland indicator status of FACW and OBL. This observation satisfies the Rapid Test for Hydrophytic Vegetation.</p>				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-14	2.5Y 5/2	85	2.5Y 5/6	10	C	PL	Loamy/Clayey	
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.								
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2)  Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) ( <b>LRR N</b> ) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) ( <b>LRR N, MLRA 147, 148</b> ) Sandy Gleyed Matrix (S4) Sandy Redox (S5)  Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) ( <b>MLRA 147, 148</b> )  Thin Dark Surface (S9) ( <b>MLRA 147, 148</b> )  Loamy Gleyed Matrix (F2) X Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) ( <b>LRR N, MLRA 136</b> ) Umbric Surface (F13) ( <b>MLRA 136, 122</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 148</b> ) Red Parent Material (F21) ( <b>MLRA 127, 147</b> )		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> 2 cm Muck (A10) ( <b>MLRA 147</b> ) Coast Prairie Redox (A16) ( <b>MLRA 136, 147</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 147, 148</b> ) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)
Restrictive Layer (if observed): N/A  Type:  Depth (inches):						<b>Hydric Soil Present?</b> Yes    X    No		
Remarks:  The soils in this area correspond to the Depleted Matrix (F3) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the soils criterion.								





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 31

	Absolute % Cover	Dominant Species?	Indicator Status	
<u>Tree Stratum</u> (Plot size: 30 ft ) 1. 2. 3. 4. 5.				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)  Total Number of Dominant Species Across All Strata: 2 (B)  Percent of Dominant Species That are OBL, FACW, or FAC: 50% (A/B)
<u>Sapling/Shrub Stratum</u> (Plot size: 15 ft ) 1. 2. 3. 4. 5.		= Total Cover		
<u>Herb Stratum</u> (Plot size: 5 ft ) 1. <i>Plantago lanceolata</i> 2. <i>Digitaria ciliaris</i> 3. 4. 5. 6. 7. 8. 9. 10. 11.	50 50		UPL FAC	<b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL Species x 1 = FACW Species x 2 = FAC Species x 3 = FACU Species x 4 = UPL Species x 5 =  Column Totals: (A) (B)  Prevalence Index = B/A =
<u>Woody Vine Stratum</u> (Plot size: 30 ft ) 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.	100	= Total Cover		
				<b>Hydrophytic Vegetation Indicators:</b> 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
				<b>Hydrophytic Vegetation Present?</b> <b>Yes</b> <b>No</b> <b>X</b>
Remarks: (Include photo numbers here or on a separate sheet.)  The Dominance Test is 50 percent. This observation does not satisfy the vegetation criterion.				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-1	IMPENETRABLE						Fill					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.												
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2)  Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) ( <b>LRR N</b> ) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) ( <b>LRR N, MLRA 147, 148</b> ) Sandy Gleyed Matrix (S4) Sandy Redox (S5)  Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) ( <b>MLRA 147, 148</b> )  Thin Dark Surface (S9) ( <b>MLRA 147, 148</b> )  Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) ( <b>LRR N, MLRA 136</b> ) Umbric Surface (F13) ( <b>MLRA 136, 122</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 148</b> ) Red Parent Material (F21) ( <b>MLRA 127, 147</b> )			<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> 2 cm Muck (A10) ( <b>MLRA 147</b> ) Coast Prairie Redox (A16) ( <b>MLRA 136, 147</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 147, 148</b> ) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)			
Restrictive Layer (if observed): Type: Fill Depth (inches): 1						<sup>3</sup> Indicators of Hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic  <table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:  The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 32

	Absolute % Cover	Dominant Species?	Indicator Status	
<u>Tree Stratum</u> (Plot size: 30 ft ) 1. 2. 3. 4. 5.				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: (A)  Total Number of Dominant Species Across All Strata: (B)  Percent of Dominant Species That are OBL, FACW, or FAC: (A/B)
<u>Sapling/Shrub Stratum</u> (Plot size: 15 ft ) 1. 2. 3. 4. 5.		= Total Cover		
<u>Herb Stratum</u> (Plot size: 5 ft ) 1. <i>Scirpus atrovirens</i> 2. 3. 4. 5. 6. 7. 8. 9. 10. 11.	100	Yes	OBL	
<u>Woody Vine Stratum</u> (Plot size: 30 ft ) 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.	100	= Total Cover		<b>Prevalence Index Worksheet:</b> Total % Cover of:                      Multiply by: OBL Species                                      x 1 = FACW Species                                      x 2 = FAC Species                                        x 3 = FACU Species                                      x 4 = UPL Species                                        x 5 =  Column Totals:                                      (A)                      (B)  Prevalence Index = B/A =
				<b>Hydrophytic Vegetation Indicators:</b> X 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
				<b>Hydrophytic Vegetation Present?</b> Yes      X      No
Remarks: (Include photo numbers here or on a separate sheet.)  The dominant species observed has a wetland indicator status of OBL. This observation satisfies the Rapid Test for Hydrophytic Vegetation.				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-3	5Y 6/2	95	2.5Y 5/6	5	C	PL	Loamy/Clayey	
3-12	10YR 3/2	100					Loamy/Clayey	
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.								
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2)  Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) (LRR N) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5)  Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) (MLRA 147, 148)  Thin Dark Surface (S9) (MLRA 147, 148)  Loamy Gleyed Matrix (F2) X Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148) Red Parent Material (F21) (MLRA 127, 147)		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> 2 cm Muck (A10) (MLRA 147) Coast Prairie Redox (A16) (MLRA 136, 147) Piedmont Floodplain Soils (F19) (MLRA 147, 148) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)
Restrictive Layer (if observed): N/A Type: Depth (inches):						<b>Hydric Soil Present?</b> Yes    X    No		
<b>Remarks:</b>  The soils in this area correspond to the Depleted Matrix (F3) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the soils criterion.								





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 33

	Absolute % Cover	Dominant Species?	Indicator Status	
<p><u>Tree Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Dominance Test Worksheet:</b></p> <p>Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)</p> <p>Total Number of Dominant Species Across All Strata: 4 (B)</p> <p>Percent of Dominant Species That are OBL, FACW, or FAC: 50% (A/B)</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )</p> <p>1. <i>Liriodendron tulipifera</i></p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Prevalence Index Worksheet:</b></p> <p>Total % Cover of: Multiply by:</p> <p>OBL Species x 1 =</p> <p>FACW Species x 2 =</p> <p>FAC Species x 3 =</p> <p>FACU Species x 4 =</p> <p>UPL Species x 5 =</p> <p>Column Totals: (A) (B)</p> <p style="text-align: center;">Prevalence Index = B/A =</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Herb Stratum</u> (Plot size: 5 ft )</p> <p>1. <i>Dichanthelium clandestinum</i></p> <p>2. <i>Solidago canadensis</i></p> <p>3. <i>Vernonia gigantea</i></p> <p>4. <i>Bromus inermis</i></p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p> <p>11.</p>				<p><b>Hydrophytic Vegetation Indicators:</b></p> <p>1 - Rapid Test for Hydrophytic Vegetation</p> <p>2 - Dominance Test is &gt; 50%</p> <p>3 - Prevalence Index is ≤3.0<sup>1</sup></p> <p>4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</p> <p>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</p> <p><sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Woody Vine Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p>				<p><b>Definitions of Four Vegetation Strata:</b></p> <p><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height</p> <p><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p><b>Woody vine</b> – All woody vines greater than 3.28 ft in height.</p>
<p style="text-align: right;">= Total Cover</p>				
<p><b>Hydrophytic Vegetation Present?</b></p> <p style="text-align: right;">Yes                      No                      X</p>				
<p>Remarks: (Include photo numbers here or on a separate sheet.)</p> <p>The Dominance Test is 50 percent. This observation does not satisfy the vegetation criterion.</p>				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-3	2.5Y 5/3	100					Loamy/Clayey					
>3	IMPENETRABLE											
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>						
Histosol (A1)			Dark Surface (S7)			2 cm Muck (A10) (MLRA 147)						
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)			Coast Prairie Redox (A16) (MLRA 136, 147)						
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)			Piedmont Floodplain Soils (F19) (MLRA 147, 148)						
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)			Very Shallow Dark Surface (TF12)						
Stratified Layers (A5)			Depleted Matrix (F3)			Other (Explain in Remarks)						
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed):												
Type: Rocky Soil												
Depth (inches): 3												
						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:												
The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												









Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-5	10YR 4/3	100					Loamy/Clayey					
5-18	10YR 6/4	100					Loamy/Clayey					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>							<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b>					
Histosol (A1)			Dark Surface (S7)				2 cm Muck (A10) (MLRA 147)					
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)				Coast Prairie Redox (A16) (MLRA 136, 147)					
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)				Piedmont Floodplain Soils (F19) (MLRA 147, 148)					
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)				Very Shallow Dark Surface (TF12)					
Stratified Layers (A5)			Depleted Matrix (F3)				Other (Explain in Remarks)					
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed): N/A												
Type:												
Depth (inches):							<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>		<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:												
The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												







Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-5	10YR 4/2	95	10YR 5/8	5	C	PL	Loamy/Clayey					
5-14	10YR 5/1	100	10YR 2/1 & 3/6	10	C	M	Loamy/Clayey					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.												
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2)  Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) <b>(LRR N)</b> Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) <b>(LRR N, MLRA 147, 148)</b> Sandy Gleyed Matrix (S4) Sandy Redox (S5)  Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) <b>(MLRA 147, 148)</b>  Thin Dark Surface (S9) <b>(MLRA 147, 148)</b>  Loamy Gleyed Matrix (F2) X Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) <b>(LRR N, MLRA 136)</b> Umbric Surface (F13) <b>(MLRA 136, 122)</b> Piedmont Floodplain Soils (F19) <b>(MLRA 148)</b> Red Parent Material (F21) <b>(MLRA 127, 147)</b>		<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b> 2 cm Muck (A10) <b>(MLRA 147)</b> Coast Prairie Redox (A16) <b>(MLRA 136, 147)</b> Piedmont Floodplain Soils (F19) <b>(MLRA 147, 148)</b> Very Shallow Dark Surface (TF12) Other (Explain in Remarks)				
Restrictive Layer (if observed): N/A Type: Depth (inches):						<table border="0"> <tr> <td style="text-align: center;"><b>Hydric Soil Present?</b></td> <td style="text-align: center;">Yes</td> <td style="text-align: center;">X</td> <td style="text-align: center;">No</td> </tr> </table>			<b>Hydric Soil Present?</b>	Yes	X	No
<b>Hydric Soil Present?</b>	Yes	X	No									
Remarks:  The soils in this area correspond to the Depleted Matrix (F3) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the soils criterion.												







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 36

				<b>Dominance Test Worksheet:</b>			
<u>Tree Stratum</u> (Plot size: 30 ft )				Absolute % Cover	Dominant Species?	Indicator Status	
1.	<i>Juglans nigra</i>	45	Yes	FACU	Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)		
2.					Total Number of Dominant Species Across All Strata: 7 (B)		
3.					Percent of Dominant Species That are OBL, FACW, or FAC: 14% (A/B)		
4.							
5.		45	= Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )							
1.	<i>Juglans nigra</i>	15	Yes	FACU	<b>Prevalence Index Worksheet:</b>		
2.	<i>Rosa multiflora</i>	15	Yes	FACU	Total % Cover of:	Multiply by:	
3.	<i>Rubus occidentalis</i>	10	Yes	UPL	OBL Species	x 1 =	
4.					FACW Species	x 2 =	
5.					FAC Species	x 3 =	
		40	= Total Cover		FACU Species	x 4 =	
<u>Herb Stratum</u> (Plot size: 5 ft )						UPL Species	x 5 =
1.	<i>Daucus carota</i>	10	Yes	UPL	Column Totals:	(A) (B)	
2.	<i>Dianthus armeria</i>	5	Yes	UPL	Prevalence Index = B/A =		
3.					<b>Hydrophytic Vegetation Indicators:</b>		
4.					1 - Rapid Test for Hydrophytic Vegetation		
5.					2 - Dominance Test is > 50%		
6.					3 - Prevalence Index is ≤3.0 <sup>1</sup>		
7.					4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)		
8.					Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)		
9.					<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.		
10.		15	= Total Cover		<b>Definitions of Four Vegetation Strata:</b>		
11.					<b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height		
<u>Woody Vine Stratum</u> (Plot size: 30 ft )						<b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.	
1.	<i>Vitis vulpina</i>	5	Yes	FAC	<b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.		
2.					<b>Woody vine</b> – All woody vines greater than 3.28 ft in height.		
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.		5	= Total Cover				
						<b>Hydrophytic Vegetation Present?</b> <b>Yes</b> <b>No</b> <b>X</b>	

Remarks: (Include photo numbers here or on a separate sheet.)

The Dominance Test is less than 50 percent. This observation does not satisfy the vegetation criterion.

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-1	IMPENETRABLE											
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b>						
Histosol (A1)			Dark Surface (S7)			2 cm Muck (A10) (MLRA 147)						
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)			Coast Prairie Redox (A16) (MLRA 136, 147)						
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)			Piedmont Floodplain Soils (F19) (MLRA 147, 148)						
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)			Very Shallow Dark Surface (TF12)						
Stratified Layers (A5)			Depleted Matrix (F3)			Other (Explain in Remarks)						
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed):												
Type: Rocky Soil												
Depth (inches): 3												
						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:												
The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 37

	Absolute % Cover	Dominant Species?	Indicator Status	
<p><u>Tree Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Dominance Test Worksheet:</b></p> <p>Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)</p> <p>Total Number of Dominant Species Across All Strata: 2 (B)</p> <p>Percent of Dominant Species That are OBL, FACW, or FAC: 100 (A/B)</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Prevalence Index Worksheet:</b></p> <p>Total % Cover of: Multiply by:</p> <p>OBL Species x 1 =</p> <p>FACW Species x 2 =</p> <p>FAC Species x 3 =</p> <p>FACU Species x 4 =</p> <p>UPL Species x 5 =</p> <p>Column Totals: (A) (B)</p> <p style="text-align: center;">Prevalence Index = B/A =</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Herb Stratum</u> (Plot size: 5 ft )</p> <p>1. <i>Leersia virginica</i> 50 Yes FACW</p> <p>2. <i>Dichanthelium clandestinum</i> 30 Yes FAC</p> <p>3. <i>Carex frankii</i> 15 No OBL</p> <p>4. <i>Typha latifolia</i> 5 No OBL</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p> <p>11.</p>				<p><b>Hydrophytic Vegetation Indicators:</b></p> <p>1 - Rapid Test for Hydrophytic Vegetation</p> <p><b>X</b> 2 - Dominance Test is &gt; 50%</p> <p>3 - Prevalence Index is ≤3.0<sup>1</sup></p> <p>4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</p> <p>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</p> <p><sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>
<p style="text-align: right;">100 = Total Cover</p>				
<p><u>Woody Vine Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p>				<p><b>Definitions of Four Vegetation Strata:</b></p> <p><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height</p> <p><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p><b>Woody vine</b> – All woody vines greater than 3.28 ft in height.</p>
<p style="text-align: right;">= Total Cover</p>				
<p><b>Hydrophytic Vegetation Present? Yes X No</b></p>				
<p>Remarks: (Include photo numbers here or on a separate sheet.)</p> <p>The Dominance Test is greater than 50 percent. This observation satisfies the vegetation criterion.</p>				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-5	2.5Y 5/2	90	2.5Y 5/6	10	C	PL	Loamy/Clayey					
5-16	2.5Y 4/1	95	2.5Y 5/6	5	C	PL	Loamy/Clayey					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.												
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2)  Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) <b>(LRR N)</b> Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) <b>(LRR N, MLRA 147, 148)</b> Sandy Gleyed Matrix (S4) Sandy Redox (S5)  Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) <b>(MLRA 147, 148)</b>  Thin Dark Surface (S9) <b>(MLRA 147, 148)</b>  Loamy Gleyed Matrix (F2) <b>X</b> Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) <b>(LRR N, MLRA 136)</b> Umbric Surface (F13) <b>(MLRA 136, 122)</b> Piedmont Floodplain Soils (F19) <b>(MLRA 148)</b> Red Parent Material (F21) <b>(MLRA 127, 147)</b>		<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b> 2 cm Muck (A10) <b>(MLRA 147)</b> Coast Prairie Redox (A16) <b>(MLRA 136, 147)</b> Piedmont Floodplain Soils (F19) <b>(MLRA 147, 148)</b> Very Shallow Dark Surface (TF12) Other (Explain in Remarks)				
Restrictive Layer (if observed): N/A												
Type:												
Depth (inches):						<table border="0"> <tr> <td style="text-align: center;"><b>Hydric Soil Present?</b></td> <td style="text-align: center;">Yes</td> <td style="text-align: center;">X</td> <td style="text-align: center;">No</td> </tr> </table>			<b>Hydric Soil Present?</b>	Yes	X	No
<b>Hydric Soil Present?</b>	Yes	X	No									
Remarks:  The soils in this area correspond to the Depleted Matrix (F3) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the soils criterion.												







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **38**

		Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test Worksheet:</b>		
<u>Tree Stratum</u> (Plot size: 30 ft )					Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)		
1.					Total Number of Dominant Species Across All Strata: 3 (B)		
2.					Percent of Dominant Species That are OBL, FACW, or FAC: 33% (A/B)		
3.							
4.							
5.							
			= Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )					<b>Prevalence Index Worksheet:</b>		
size:					Total % Cover of: Multiply by:		
1.	<i>Rosa multiflora</i>	60	Yes	FACU	OBL Species	x 1 =	
2.	<i>Cercis canadensis</i>	25	Yes	FACU	FACW Species	x 2 =	
3.	<i>Rubus occidentalis</i>	5	No	UPL	FAC Species	x 3 =	
4.					FACU Species	x 4 =	
5.					UPL Species	x 5 =	
		90	= Total Cover		Column Totals: (A) (B)		
<u>Herb Stratum</u> (Plot size: 5 ft )					Prevalence Index = B/A =		
1.	<i>Dichanthelium clandestinum</i>	15	Yes	FAC	<b>Hydrophytic Vegetation Indicators:</b>		
2.					1 - Rapid Test for Hydrophytic Vegetation		
3.					2 - Dominance Test is > 50%		
4.					3 - Prevalence Index is ≤3.0 <sup>1</sup>		
5.					4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)		
6.					Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)		
7.							
8.							
9.							
10.							
11.							
		15	= Total Cover		<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.		
<u>Woody Vine Stratum</u> (Plot size: 30 ft )					<b>Definitions of Four Vegetation Strata:</b>		
1.					<b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height		
2.					<b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.		
3.					<b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.		
4.					<b>Woody vine</b> – All woody vines greater than 3.28 ft in height.		
5.							
6.							
7.							
8.							
9.							
10.							
			= Total Cover		<b>Hydrophytic Vegetation Present?</b> Yes No X		

Remarks: (Include photo numbers here or on a separate sheet.)

The Dominance Test is less than 50 percent. This observation does not satisfy the vegetation criterion.

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-16	2.5Y 5/3	100					Loamy/Clayey					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>						
Histosol (A1)			Dark Surface (S7)			2 cm Muck (A10) (MLRA 147)						
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)			Coast Prairie Redox (A16) (MLRA 136, 147)						
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)			Piedmont Floodplain Soils (F19) (MLRA 147, 148)						
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)			Very Shallow Dark Surface (TF12)						
Stratified Layers (A5)			Depleted Matrix (F3)			Other (Explain in Remarks)						
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed): N/A												
Type:												
Depth (inches):						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:												
The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **39**

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: 30 ft )				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)  Total Number of Dominant Species Across All Strata: 4 (B)  Percent of Dominant Species That are OBL, FACW, or FAC: 100 (A/B)
1.				
2.				
3.				
4.				
5.				= Total Cover
<b>Sapling/Shrub Stratum</b> (Plot size: 15 ft )				<b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL Species x 1 = FACW Species x 2 = FAC Species x 3 = FACU Species x 4 = UPL Species x 5 =  Column Totals: (A) (B)  Prevalence Index = B/A =
1.	25	Yes	FACW	
2.				
3.				
4.				
5.	25			= Total Cover
<b>Herb Stratum</b> (Plot size: 5 ft )				<b>Hydrophytic Vegetation Indicators:</b> 1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1.	25	Yes	FAC	
2.	25	Yes	FACW	
3.	25	Yes	OBL	
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				= Total Cover
<b>Woody Vine Stratum</b> (Plot size: 30 ft )				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				= Total Cover
Remarks: (Include photo numbers here or on a separate sheet.)  The Dominance Test is greater than 50 percent. This observation satisfies the vegetation criterion.				<b>Hydrophytic Vegetation Present?</b> Yes    X    No

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR 5/2	95	7.5YR 4/4	5	C	PL	Loamy/Clayey	
>6	IMPENETRABLE						Rocky Soil	
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.								
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2)  Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) (LRR N) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5)  Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) (MLRA 147, 148)  Thin Dark Surface (S9) (MLRA 147, 148)  Loamy Gleyed Matrix (F2) X Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148) Red Parent Material (F21) (MLRA 127, 147)		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> 2 cm Muck (A10) (MLRA 147) Coast Prairie Redox (A16) (MLRA 136, 147) Piedmont Floodplain Soils (F19) (MLRA 147, 148) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)
Restrictive Layer (if observed): N/A Type: Rocky Soil Depth (inches): 6						<b>Hydric Soil Present?</b> Yes    X    No		
<b>Remarks:</b>  The soils in this area correspond to the Depleted Matrix (F3) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the soils criterion.								







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **40**

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: 30 ft )				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)  Total Number of Dominant Species Across All Strata: 3 (B)  Percent of Dominant Species That are OBL, FACW, or FAC: 0% (A/B)
1.				
2.				
3.				
4.				
5.				= Total Cover
<b>Sapling/Shrub Stratum</b> (Plot size: 15 ft )				<b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL Species x 1 = FACW Species x 2 = FAC Species x 3 = FACU Species x 4 = UPL Species x 5 =  Column Totals: (A) (B)  Prevalence Index = B/A =
1.				
2.				
3.				
4.				
5.				= Total Cover
<b>Herb Stratum</b> (Plot size: 5 ft )				<b>Hydrophytic Vegetation Indicators:</b> 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1.	40	Yes	FACU	
2.	20	Yes	FACU	
3.	20	Yes	FACU	
4.	10	No	FAC	
5.	10	No	FACU	
6.				
7.				
8.				
9.				
10.				
11.				
<b>Woody Vine Stratum</b> (Plot size: 30 ft )				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				= Total Cover
Remarks: (Include photo numbers here or on a separate sheet.)  The Dominance Test is less than 50 percent. This observation does not satisfy the vegetation criterion.				<b>Hydrophytic Vegetation Present?</b> <b>Yes</b> <b>No</b> <b>X</b>

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-2	10YR 6/4	100					Loamy/Clayey					
>2	IMPENETRABLE						Rocky Soil					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>							<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>					
Histosol (A1)			Dark Surface (S7)				2 cm Muck (A10) (MLRA 147)					
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)				Coast Prairie Redox (A16) (MLRA 136, 147)					
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)				Piedmont Floodplain Soils (F19) (MLRA 147, 148)					
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)				Very Shallow Dark Surface (TF12)					
Stratified Layers (A5)			Depleted Matrix (F3)				Other (Explain in Remarks)					
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed):												
Type: Rocky Soil												
Depth (inches): 2							<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>		<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:												
The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 41

	Absolute % Cover	Dominant Species?	Indicator Status	
<p><u>Tree Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Dominance Test Worksheet:</b></p> <p>Number of Dominant Species That are OBL, FACW, or FAC: (A)</p> <p>Total Number of Dominant Species Across All Strata: (B)</p> <p>Percent of Dominant Species That are OBL, FACW, or FAC: (A/B)</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Prevalence Index Worksheet:</b></p> <p>Total % Cover of:                      Multiply by:</p> <p>OBL Species                                      x 1 =</p> <p>FACW Species                                    x 2 =</p> <p>FAC Species                                      x 3 =</p> <p>FACU Species                                    x 4 =</p> <p>UPL Species                                      x 5 =</p> <p>Column Totals:                                      (A)                      (B)</p> <p style="text-align: center;">Prevalence Index = B/A =</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Herb Stratum</u> (Plot size: 5 ft )</p> <p>1. <i>Carex frankii</i>                                      40                      Yes                      OBL</p> <p>2. <i>Carex vulpinoidea</i>                                30                      Yes                      OBL</p> <p>3. <i>Juncus antheratus</i>                                15                      No                      FAC</p> <p>4. <i>Juncus effusus</i>                                    15                      No                      FACW</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p> <p>11.</p>				<p><b>Hydrophytic Vegetation Indicators:</b></p> <p><b>X</b> 1 - Rapid Test for Hydrophytic Vegetation</p> <p>2 - Dominance Test is &gt; 50%</p> <p>3 - Prevalence Index is ≤3.0<sup>1</sup></p> <p>4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</p> <p>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</p> <p><sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>
<p style="text-align: right;">100                      = Total Cover</p>				
<p><u>Woody Vine Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p>				<p><b>Definitions of Four Vegetation Strata:</b></p> <p><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height</p> <p><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p><b>Woody vine</b> – All woody vines greater than 3.28 ft in height.</p>
<p style="text-align: right;">= Total Cover</p>				
<p><b>Hydrophytic Vegetation Present?      Yes      X      No</b></p>				
<p>Remarks: (Include photo numbers here or on a separate sheet.)</p> <p>The dominant species observed have a wetland indicator status of OBL. This observation satisfies the Rapid Test for Hydrophytic Vegetation.</p>				

**SOIL**

Sampling Point: 41

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR 5/2	95	7.5YR 4/4	5	C	PL	Loamy/Clayey	
>6	IMPENETRABLE						Rocky Soil	
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.								
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2)  Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) ( <b>LRR N</b> ) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) ( <b>LRR N, MLRA 147, 148</b> ) Sandy Gleyed Matrix (S4) Sandy Redox (S5)  Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) ( <b>MLRA 147, 148</b> )  Thin Dark Surface (S9) ( <b>MLRA 147, 148</b> )  Loamy Gleyed Matrix (F2) <b>X</b> Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) ( <b>LRR N, MLRA 136</b> ) Umbric Surface (F13) ( <b>MLRA 136, 122</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 148</b> ) Red Parent Material (F21) ( <b>MLRA 127, 147</b> )		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> 2 cm Muck (A10) ( <b>MLRA 147</b> ) Coast Prairie Redox (A16) ( <b>MLRA 136, 147</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 147, 148</b> ) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)
Restrictive Layer (if observed): N/A Type: Rocky Soil Depth (inches): 6						<b>Hydric Soil Present?</b> Yes <b>X</b> No		
<b>Remarks:</b>  The soils in this area correspond to the Depleted Matrix (F3) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the soils criterion.								









Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-2	10YR 6/4	100					Loamy/Clayey					
>2	IMPENETRABLE						Rocky Soil					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>							<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>					
Histosol (A1)			Dark Surface (S7)				2 cm Muck (A10) (MLRA 147)					
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)				Coast Prairie Redox (A16) (MLRA 136, 147)					
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)				Piedmont Floodplain Soils (F19) (MLRA 147, 148)					
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)				Very Shallow Dark Surface (TF12)					
Stratified Layers (A5)			Depleted Matrix (F3)				Other (Explain in Remarks)					
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed):												
Type: Rocky Soil												
Depth (inches): 2							<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>		<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:												
The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **43**

	Absolute % Cover	Dominant Species?	Indicator Status	
<p><u>Tree Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Dominance Test Worksheet:</b></p> <p>Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)</p> <p>Total Number of Dominant Species Across All Strata: 5 (B)</p> <p>Percent of Dominant Species That are OBL, FACW, or FAC: 80% (A/B)</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )</p> <p>1. <i>Liriodendron tulipifera</i></p> <p>2. <i>Lindera benzoin</i></p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Prevalence Index Worksheet:</b></p> <p>Total % Cover of: Multiply by:</p> <p>OBL Species x 1 =</p> <p>FACW Species x 2 =</p> <p>FAC Species x 3 =</p> <p>FACU Species x 4 =</p> <p>UPL Species x 5 =</p> <p>Column Totals: (A) (B)</p> <p style="text-align: center;">Prevalence Index = B/A =</p>
<p style="text-align: right;">30 = Total Cover</p>				
<p><u>Herb Stratum</u> (Plot size: 5 ft )</p> <p>1. <i>Impatiens capensis</i></p> <p>2. <i>Verbesina alternifolia</i></p> <p>3. <i>Ageratina altissima</i></p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p> <p>11.</p>				<p><b>Hydrophytic Vegetation Indicators:</b></p> <p>1 - Rapid Test for Hydrophytic Vegetation</p> <p>2 - Dominance Test is &gt; 50%</p> <p>3 - Prevalence Index is ≤3.0<sup>1</sup></p> <p>4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</p> <p>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</p> <p><sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>
<p style="text-align: right;">65 = Total Cover</p>				
<p><u>Woody Vine Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p>				<p><b>Definitions of Four Vegetation Strata:</b></p> <p><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height</p> <p><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p><b>Woody vine</b> – All woody vines greater than 3.28 ft in height.</p>
<p style="text-align: right;">= Total Cover</p>				
<p><b>Hydrophytic Vegetation Present?    Yes    X    No</b></p>				
<p>Remarks: (Include photo numbers here or on a separate sheet.)</p> <p>The Dominance Test is greater than 50 percent. This observation satisfies the vegetation criterion.</p>				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-4	10YR 4/3	100					Loamy/Clayey					
>4	IMPENETRABLE						Rocky Soil					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>							<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b>					
Histosol (A1)			Dark Surface (S7)				2 cm Muck (A10) (MLRA 147)					
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)				Coast Prairie Redox (A16) (MLRA 136, 147)					
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)				Piedmont Floodplain Soils (F19) (MLRA 147, 148)					
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)				Very Shallow Dark Surface (TF12)					
Stratified Layers (A5)			Depleted Matrix (F3)				Other (Explain in Remarks)					
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed):												
Type: Rocky Soil												
Depth (inches): 4							<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>		<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:												
The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **43**

	Absolute % Cover	Dominant Species?	Indicator Status	
<p><u>Tree Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Dominance Test Worksheet:</b></p> <p>Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)</p> <p>Total Number of Dominant Species Across All Strata: 1 (B)</p> <p>Percent of Dominant Species That are OBL, FACW, or FAC: 100% (A/B)</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Prevalence Index Worksheet:</b></p> <p>Total % Cover of: Multiply by:</p> <p>OBL Species x 1 =</p> <p>FACW Species x 2 =</p> <p>FAC Species x 3 =</p> <p>FACU Species x 4 =</p> <p>UPL Species x 5 =</p> <p>Column Totals: (A) (B)</p> <p style="text-align: center;">Prevalence Index = B/A =</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Herb Stratum</u> (Plot size: 5 ft )</p> <p>1. <i>Dichanthelium clandestinum</i> 80 Yes FAC</p> <p>2. <i>Festuca arundinacea</i> 15 No FACU</p> <p>3. <i>Cirsium discolor</i> 5 No UPL</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p> <p>11.</p>				<p><b>Hydrophytic Vegetation Indicators:</b></p> <p>1 - Rapid Test for Hydrophytic Vegetation</p> <p>2 - Dominance Test is &gt; 50%</p> <p>3 - Prevalence Index is ≤3.0<sup>1</sup></p> <p>4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</p> <p>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</p> <p><sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>
<p style="text-align: right;">100 = Total Cover</p>				
<p><u>Woody Vine Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p>				<p><b>Definitions of Four Vegetation Strata:</b></p> <p><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height</p> <p><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p><b>Woody vine</b> – All woody vines greater than 3.28 ft in height.</p>
<p style="text-align: right;">= Total Cover</p>				
<p><b>Hydrophytic Vegetation Present?    Yes    X    No</b></p>				
<p>Remarks: (Include photo numbers here or on a separate sheet.)</p> <p>The Dominance Test is greater than 50 percent. This observation satisfies the vegetation criterion.</p>				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-2	10YR 5/4	100					Loamy/Clayey					
>2	IMPENETRABLE						Rocky Soil					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b>						
Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) ( <b>LRR N</b> ) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) ( <b>LRR N, MLRA 147, 148</b> ) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) ( <b>MLRA 147, 148</b> ) Thin Dark Surface (S9) ( <b>MLRA 147, 148</b> ) Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) ( <b>LRR N, MLRA 136</b> ) Umbric Surface (F13) ( <b>MLRA 136, 122</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 148</b> ) Red Parent Material (F21) ( <b>MLRA 127, 147</b> )			2 cm Muck (A10) ( <b>MLRA 147</b> ) Coast Prairie Redox (A16) ( <b>MLRA 136, 147</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 147, 148</b> ) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)			
Restrictive Layer (if observed):						<sup>3</sup> Indicators of Hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic						
Type: Rocky Soil												
Depth (inches): 2						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks: The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). The Problematic Hydric Soils section of the regional supplement was consulted since evidence of hydrophytic vegetation and wetland hydrology were present. The area does not appear to match any of the problematic soil situations as presented in the regional supplement. The rocky soil layer observed at 2 inches below the soil surface is assumed to provide rapid drainage for the area. It appears that the area does not stay wet long enough to develop hydric soils. These observations do not satisfy the soils criterion.												





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 45

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: 30 ft ) 1. 2. 3. 4. 5.				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: (A)  Total Number of Dominant Species Across All Strata: (B)  Percent of Dominant Species That are OBL, FACW, or FAC: (A/B)
<b>Sapling/Shrub Stratum</b> (Plot size: 15 ft ) 1. 2. 3. 4. 5.		= Total Cover		
<b>Herb Stratum</b> (Plot size: 5 ft ) 1. <i>Boehmeria cylindrica</i> 2. <i>Verbesina alternifolia</i> 3. 4. 5. 6. 7. 8. 9. 10. 11.	90 10	Yes No	FACW FAC	
<b>Woody Vine Stratum</b> (Plot size: 30 ft ) 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.	100	= Total Cover		<b>Prevalence Index Worksheet:</b> Total % Cover of:                      Multiply by: OBL Species                                      x 1 = FACW Species                                    x 2 = FAC Species                                        x 3 = FACU Species                                    x 4 = UPL Species                                        x 5 =  Column Totals:                                      (A)                      (B)  Prevalence Index = B/A =
				<b>Hydrophytic Vegetation Indicators:</b> X 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
				<b>Hydrophytic Vegetation Present?</b> Yes      X      No
Remarks: (Include photo numbers here or on a separate sheet.)  The dominant species observed has a wetland indicator status of FACW. This observation satisfies the Rapid Test for Hydrophytic Vegetation.				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-9	10YR 5/2	95	7.5YR 4/4	5	C	PL	Loamy/Clayey					
>9	IMPENETRABLE						Gravel					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.												
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2)  Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) <b>(LRR N)</b> Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) <b>(LRR N, MLRA 147, 148)</b> Sandy Gleyed Matrix (S4) Sandy Redox (S5)  Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) <b>(MLRA 147, 148)</b>  Thin Dark Surface (S9) <b>(MLRA 147, 148)</b>  Loamy Gleyed Matrix (F2) X Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) <b>(LRR N, MLRA 136)</b> Umbric Surface (F13) <b>(MLRA 136, 122)</b> Piedmont Floodplain Soils (F19) <b>(MLRA 148)</b> Red Parent Material (F21) <b>(MLRA 127, 147)</b>		<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b> 2 cm Muck (A10) <b>(MLRA 147)</b> Coast Prairie Redox (A16) <b>(MLRA 136, 147)</b> Piedmont Floodplain Soils (F19) <b>(MLRA 147, 148)</b> Very Shallow Dark Surface (TF12) Other (Explain in Remarks)				
Restrictive Layer (if observed): Type: Gravel Depth (inches): 9						<table border="0"> <tr> <td style="text-align: center;"><b>Hydric Soil Present?</b></td> <td style="text-align: center;">Yes</td> <td style="text-align: center;">X</td> <td style="text-align: center;">No</td> </tr> </table>			<b>Hydric Soil Present?</b>	Yes	X	No
<b>Hydric Soil Present?</b>	Yes	X	No									
Remarks:  The soils in this area correspond to the Depleted Matrix (F3) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the soils criterion.												







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **46**

	Absolute % Cover	Dominant Species?	Indicator Status	
<u>Tree Stratum</u> (Plot size: 30 ft ) 1. 2. 3. 4. 5.				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)  Total Number of Dominant Species Across All Strata: 1 (B)  Percent of Dominant Species That are OBL, FACW, or FAC: 0% (A/B)
<u>Sapling/Shrub Stratum</u> (Plot size: 15 ft ) 1. 2. 3. 4. 5.		= Total Cover		
<u>Herb Stratum</u> (Plot size: 5 ft ) 1. <i>Festuca arundinacea</i> 2. <i>Verbesina alternifolia</i> 3. 4. 5. 6. 7. 8. 9. 10. 11.	90 10	Yes No	FACU FAC	<b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL Species x 1 = FACW Species x 2 = FAC Species x 3 = FACU Species x 4 = UPL Species x 5 =  Column Totals: (A) (B)  Prevalence Index = B/A =
<u>Woody Vine Stratum</u> (Plot size: 30 ft ) 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.	100	= Total Cover		
				<b>Hydrophytic Vegetation Indicators:</b> 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
				<b>Hydrophytic Vegetation Present?</b> <b>Yes</b> <b>No</b> <b>X</b>
Remarks: (Include photo numbers here or on a separate sheet.)  The Dominance Test is less than 50 percent. This observation does not satisfy the vegetation criterion.				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-3	10YR 5/2	100					Loamy/Clayey					
>3	IMPENETRABLE						Rocky Soil					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>							<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>					
Histosol (A1)			Dark Surface (S7)				2 cm Muck (A10) (MLRA 147)					
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)				Coast Prairie Redox (A16) (MLRA 136, 147)					
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)				Piedmont Floodplain Soils (F19) (MLRA 147, 148)					
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)				Very Shallow Dark Surface (TF12)					
Stratified Layers (A5)			Depleted Matrix (F3)				Other (Explain in Remarks)					
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed):												
Type: Rocky Soil												
Depth (inches): 3							<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>		<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:												
The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **47**

	Absolute % Cover	Dominant Species?	Indicator Status	
<p><u>Tree Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Dominance Test Worksheet:</b></p> <p>Number of Dominant Species That are OBL, FACW, or FAC:      0      (A)</p> <p>Total Number of Dominant Species Across All Strata:      1      (B)</p> <p>Percent of Dominant Species That are OBL, FACW, or FAC:      0%      (A/B)</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Prevalence Index Worksheet:</b></p> <p>Total % Cover of:      Multiply by:</p> <p>OBL Species      x 1 =</p> <p>FACW Species      x 2 =</p> <p>FAC Species      x 3 =</p> <p>FACU Species      x 4 =</p> <p>UPL Species      x 5 =</p> <p>Column Totals:      (A)      (B)</p> <p style="text-align: center;">Prevalence Index = B/A =</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Herb Stratum</u> (Plot size: 5 ft )</p> <p>1. <i>Festuca arundinacea</i>      70      Yes      FACU</p> <p>2. <i>Onoclea sensibilis</i>      10      No      FACW</p> <p>3. <i>Symphotrichum pilosum</i>      10      No      FAC</p> <p>4. <i>Dichanthelium clandestinum</i>      10      No      FAC</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p> <p>11.</p>				<p><b>Hydrophytic Vegetation Indicators:</b></p> <p>1 - Rapid Test for Hydrophytic Vegetation</p> <p>2 - Dominance Test is &gt; 50%</p> <p>3 - Prevalence Index is ≤3.0<sup>1</sup></p> <p>4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</p> <p>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</p> <p><sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>
<p style="text-align: right;">100      = Total Cover</p>				
<p><u>Woody Vine Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p>				<p><b>Definitions of Four Vegetation Strata:</b></p> <p><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height</p> <p><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p><b>Woody vine</b> – All woody vines greater than 3.28 ft in height.</p>
<p style="text-align: right;">= Total Cover</p>				
<p><b>Hydrophytic Vegetation Present?</b>      <b>Yes</b>      <b>No</b>      <b>X</b></p>				
<p>Remarks: (Include photo numbers here or on a separate sheet.)</p> <p>A portion of this area was mowed. The Dominance Test is less than 50 percent. This observation does not satisfy the vegetation criterion.</p>				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-6	10YR 5/2	95	7.5YR 4/4	5	C	PL	Loamy/Clayey					
>6	IMPENETRABLE						Rocky Soil					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.												
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2)  Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) <b>(LRR N)</b> Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) <b>(LRR N, MLRA 147, 148)</b> Sandy Gleyed Matrix (S4) Sandy Redox (S5)  Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) <b>(MLRA 147, 148)</b>  Thin Dark Surface (S9) <b>(MLRA 147, 148)</b>  Loamy Gleyed Matrix (F2) X Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) <b>(LRR N, MLRA 136)</b> Umbric Surface (F13) <b>(MLRA 136, 122)</b> Piedmont Floodplain Soils (F19) <b>(MLRA 148)</b> Red Parent Material (F21) <b>(MLRA 127, 147)</b>		<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b> 2 cm Muck (A10) <b>(MLRA 147)</b> Coast Prairie Redox (A16) <b>(MLRA 136, 147)</b> Piedmont Floodplain Soils (F19) <b>(MLRA 147, 148)</b> Very Shallow Dark Surface (TF12) Other (Explain in Remarks)				
Restrictive Layer (if observed): Type: Rocky Soil Depth (inches): 6						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td>Yes</td> <td>X</td> <td>No</td> </tr> </table>			<b>Hydric Soil Present?</b>	Yes	X	No
<b>Hydric Soil Present?</b>	Yes	X	No									
Remarks:  The soils in this area correspond to the Depleted Matrix (F3) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the soils criterion.												







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **48**

	Absolute % Cover	Dominant Species?	Indicator Status	
<p><u>Tree Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Dominance Test Worksheet:</b></p> <p>Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)</p> <p>Total Number of Dominant Species Across All Strata: 2 (B)</p> <p>Percent of Dominant Species That are OBL, FACW, or FAC: 100 (A/B)</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Prevalence Index Worksheet:</b></p> <p>Total % Cover of: Multiply by:</p> <p>OBL Species x 1 =</p> <p>FACW Species x 2 =</p> <p>FAC Species x 3 =</p> <p>FACU Species x 4 =</p> <p>UPL Species x 5 =</p> <p>Column Totals: (A) (B)</p> <p style="text-align: center;">Prevalence Index = B/A =</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Herb Stratum</u> (Plot size: 5 ft )</p> <p>1. <i>Leersia virginica</i> 35 Yes FACW</p> <p>2. <i>Packeria aurea</i> 15 No FACW</p> <p>3. <i>Glyceria striata</i> 15 No OBL</p> <p>4. <i>Carex vulpinoidea</i> 15 No OBL</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p> <p>11.</p>				<p><b>Hydrophytic Vegetation Indicators:</b></p> <p>1 - Rapid Test for Hydrophytic Vegetation</p> <p><b>X</b> 2 - Dominance Test is &gt; 50%</p> <p>3 - Prevalence Index is ≤3.0<sup>1</sup></p> <p>4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</p> <p>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</p> <p><sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>
<p style="text-align: right;">80 = Total Cover</p>				
<p><u>Woody Vine Stratum</u> (Plot size: 30 ft )</p> <p>1. <i>Toxicodendron radicans</i> 10 Yes FAC</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p>				<p><b>Definitions of Four Vegetation Strata:</b></p> <p><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height</p> <p><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p><b>Woody vine</b> – All woody vines greater than 3.28 ft in height.</p>
<p style="text-align: right;">10 = Total Cover</p>				
<p><b>Hydrophytic Vegetation Present? Yes X No</b></p>				
<p>Remarks: (Include photo numbers here or on a separate sheet.)</p> <p>The Dominance Test is greater than 50 percent. This observation satisfies the vegetation criterion.</p>				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-12	10YR 5/2	95	10YR 5/6	5	C	PL	Loamy/Clayey					
>12	IMPENETRABLE											
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b>						
Histosol (A1)			Dark Surface (S7)			2 cm Muck (A10) (MLRA 147)						
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)			Coast Prairie Redox (A16) (MLRA 136, 147)						
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)			Piedmont Floodplain Soils (F19) (MLRA 147, 148)						
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)			Very Shallow Dark Surface (TF12)						
Stratified Layers (A5)			X Depleted Matrix (F3)			Other (Explain in Remarks)						
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed):												
Type: Possibly Roots or Rock												
Depth (inches): 12												
						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td>Yes</td> <td>X</td> <td>No</td> </tr> </table>			<b>Hydric Soil Present?</b>	Yes	X	No
<b>Hydric Soil Present?</b>	Yes	X	No									
Remarks:												
The soils in this area correspond to the Depleted Matrix (F3) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the soils criterion.												



**WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont**

Project/Site: Portsmouth Bypass, SCI-823-0.00, Phase 2      City/County: Portsmouth/Scioto Co.      Sampling Date: 3.13.13  
 Applicant/Owner: Ohio Department of Transportation      State: OH      Sampling Point: 48A  
 Investigator(s): Len Mikles and Richard Paul

Landform (hillslope, terrace, etc.): Foot Slope      Local relief (concave, convex, none): Concave      Slope (%): 2  
 Subregion (LRR or MLRA): LRR N      Lat: 38.8674      Long: -82.9076      Datum: NAD 27  
 Soil Map Unit Name: SfE – Shelocta-Wharton-Latham association, steep      NWI Classification: N/A  
 Are climatic/hydrologic conditions on the site typical for this time of year?    Yes    **X**    No      (If no, explain in Remarks.)  
 Are vegetation, Soil, or Hydrology significantly disturbed?    Are "Normal Circumstances" present?    Yes    **X**    No  
 Are vegetation, Soil, or Hydrology naturally problematic?      (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present?	Yes	<b>X</b>	No	<b>Is the Sampled Area</b> <b>Within a Wetland?</b> Yes <b>X</b> No <b>Wetland 18</b>
Hydric Soils Present?	Yes	<b>X</b>	No	
Wetland Hydrology Present?	Yes	<b>X</b>	No	
Remarks: This area satisfies the three criteria necessary for a positive wetland determination. This area is a wetland.				

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>					
Primary Indicators (minimum of one is required; check all that apply)				Secondary Indicators (minimum of two required)	
<b>X</b> Surface Water(A1)				True Aquatic Plants (B14)	Surface Soil Cracks (B6)
High Water Table (A2)				Hydrogen Sulfide Odor (C1)	Sparsely Vegetated Concave Surface (B8)
<b>X</b> Saturation (A3)		<b>X</b>		Oxidized Rhizospheres on Living Roots (C3)	<b>X</b> Drainage Patterns (B10)
Water Marks (B1)				Presence of Reduced Iron (C4)	Moss Trim Lines (B16)
Sediment Deposits (B2)				Recent Iron Reduction in Tilled Soils (C6)	Dry-Season Water Table (C2)
Drift Deposits (B3)				Thin Muck Surface (C7)	Crayfish Burrows (C8)
Algal Mat or Crust (B4)				Other (Explain in Remarks)	Saturation Visible on Aerial Imagery (C9)
Iron Deposits (B5)					Stunted or Stressed Plants (D1)
Inundation Visible on Aerial Imagery (B7)					<b>X</b> Geomorphic Position (D2)
Water Stained Leaves (B9)					Shallow Aquitard (D3)
Aquatic Fauna (B13)					Microtopographic Relief (D4)
					<b>X</b> FAC-Neutral Test (D5)
<b>Field Observations:</b>					
Surface Water Present?	Yes	<b>X</b>	No	Depth (inches):	1
Water Table Present?	Yes		No	<b>X</b>	Depth (inches):
Saturation Present?	Yes	<b>X</b>	No	Depth (inches):	0.5
(includes capillary fringe)				<b>Wetland Hydrology Present?</b> Yes <b>X</b> No	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A					
Remarks: Wetland hydrology Indicators were observed. This observation satisfies the hydrology criterion.					

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **48A**

	Absolute % Cover	Dominant Species?	Indicator Status	
<p><u>Tree Stratum</u> (Plot size: 30 ft )</p>				<p><b>Dominance Test Worksheet:</b></p> <p>Number of Dominant Species That are OBL, FACW, or FAC: (A)</p> <p>Total Number of Dominant Species Across All Strata: (B)</p> <p>Percent of Dominant Species That are OBL, FACW, or FAC: (A/B)</p>
1.				
2.				
3.				
4.				
5.				= Total Cover
<p><u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )</p>				<p><b>Prevalence Index Worksheet:</b></p> <p>Total % Cover of:                      Multiply by:</p> <p>OBL Species                                      x 1 =</p> <p>FACW Species                                    x 2 =</p> <p>FAC Species                                        x 3 =</p> <p>FACU Species                                      x 4 =</p> <p>UPL Species                                        x 5 =</p> <p>Column Totals:                                      (A)                      (B)</p> <p>Prevalence Index = B/A =</p>
1.	10	Yes	OBL	
2.				
3.				
4.				
5.	10			= Total Cover
<p><u>Herb Stratum</u> (Plot size: 5 ft )</p>				<p><b>Hydrophytic Vegetation Indicators:</b></p> <p><b>X</b> 1 - Rapid Test for Hydrophytic Vegetation</p> <p>2 - Dominance Test is &gt; 50%</p> <p>3 - Prevalence Index is ≤3.0<sup>1</sup></p> <p>4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</p> <p>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</p> <p><sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>
1.	30	Yes	OBL	
2.	30	Yes	FACW	
3.	30	Yes	OBL	
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				= Total Cover
<p><u>Woody Vine Stratum</u> (Plot size: 30 ft )</p>				<p><b>Definitions of Four Vegetation Strata:</b></p> <p><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height</p> <p><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p><b>Woody vine</b> – All woody vines greater than 3.28 ft in height.</p>
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				= Total Cover
				<p><b>Hydrophytic</b></p> <p>Vegetation Present?    Yes    x    No</p>
<p>Remarks: (Include photo numbers here or on a separate sheet.)</p> <p>The dominant species observed have a wetland indicator status of FACW and OBL. This observation satisfies the Rapid Test for Hydrophytic Vegetation.</p>				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)											
Depth (inches)	Matrix		Redox Features				Texture	Remarks			
	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>					
0-16	10YR 5/2	95	7.5YR 4/4	5	C	PL	Loamy/Clayey				
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.						<sup>2</sup> Location: PL=Pore Lining, M=Matrix.					
<p><b>Hydric Soil Indicators:</b></p> <p>Histosol (A1) Dark Surface (S7)</p> <p>Histic Epipedon (A2) Polyvalue Below Surface (S8) <b>(MLRA 147, 148)</b></p> <p>Black Histic (A3) Thin Dark Surface (S9) <b>(MLRA 147, 148)</b></p> <p>Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2)</p> <p>Stratified Layers (A5) <b>X</b> Depleted Matrix (F3)</p> <p>2 cm Muck (A10) <b>(LRR N)</b> Redox Dark Surface (F6)</p> <p>Depleted Below Dark Surface (A11) Depleted Dark Surface (F7)</p> <p>Thick Dark Surface (A12) Redox Depression (F8)</p> <p>Sandy Mucky Mineral (S1) <b>(LRR N, MLRA 147, 148)</b> Iron-Manganese Masses (F12) <b>(LRR N, MLRA 136)</b></p> <p>Sandy Gleyed Matrix (S4) Umbric Surface (F13) <b>(MLRA 136, 122)</b></p> <p>Sandy Redox (S5) Piedmont Floodplain Soils (F19) <b>(MLRA 148)</b></p> <p>Stripped Matrix (S6) Red Parent Material (F21) <b>(MLRA 127, 147)</b></p>						<p><b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b></p> <p>2 cm Muck (A10) <b>(MLRA 147)</b></p> <p>Coast Prairie Redox (A16) <b>(MLRA 136, 147)</b></p> <p>Piedmont Floodplain Soils (F19) <b>(MLRA 147, 148)</b></p> <p>Very Shallow Dark Surface (TF12)</p> <p>Other (Explain in Remarks)</p>					
Restrictive Layer (if observed): N/A						<sup>3</sup> Indicators of Hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic					
Type:								<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>X</b>	<b>No</b>
Depth (inches):											
<p>Remarks:</p> <p>The soils in this area correspond to the Depleted Matrix (F3) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the soils criterion.</p>											









Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-14	10YR 5/2	100					Loamy/Clayey					
>14	IMPENETRABLE						Rocky Soil					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>							<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b>					
Histosol (A1)			Dark Surface (S7)				2 cm Muck (A10) (MLRA 147)					
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)				Coast Prairie Redox (A16) (MLRA 136, 147)					
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)				Piedmont Floodplain Soils (F19) (MLRA 147, 148)					
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)				Very Shallow Dark Surface (TF12)					
Stratified Layers (A5)			Depleted Matrix (F3)				Other (Explain in Remarks)					
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed):												
Type: Possibly Roots or Rocky Soil												
Depth (inches): 14							<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>		<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:												
The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												



**WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont**

Project/Site: Portsmouth Bypass, SCI-823-0.00, Phase 2      City/County: Portsmouth/Scioto Co.      Sampling Date: 3.13.13  
 Applicant/Owner: Ohio Department of Transportation      State: OH      Sampling Point: 49A  
 Investigator(s): Len Mikles and Richard Paul  
 Landform (hillslope, terrace, etc.): Road Embankment      Local relief (concave, convex, none): Convex      Slope (%): 10  
 Subregion (LRR or MLRA): LRR N      Lat: 38.8673      Long: -82.9076      Datum: NAD 27  
 Soil Map Unit Name: SfE – Shelocta-Wharton-Latham association, steep      NWI Classification: N/A  
 Are climatic/hydrologic conditions on the site typical for this time of year?    Yes    **X**    No      (If no, explain in Remarks.)  
 Are vegetation, Soil, or Hydrology significantly disturbed?    Are "Normal Circumstances" present?    Yes    **X**    No  
 Are vegetation, Soil, or Hydrology naturally problematic?      (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present?	Yes	No	<b>X</b>	<b>Is the Sampled Area</b>	
Hydric Soils Present?	Yes	No	<b>X</b>		<b>Within a Wetland?</b> Yes      No <b>X</b>
Wetland Hydrology Present?	Yes	No	<b>X</b>		<b>Out Point for Wetland 18</b>
Remarks: This area satisfies none of the three criteria necessary for a positive wetland determination. This area is not a wetland.					

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>				
Primary Indicators (minimum of one is required; check all that apply)			Secondary Indicators (minimum of two required)	
Surface Water(A1)	True Aquatic Plants (B14)	Surface Soil Cracks (B6)		
High Water Table (A2)	Hydrogen Sulfide Odor (C1)	Sparsely Vegetated Concave Surface (B8)		
Saturation (A3)	Oxidized Rhizospheres on Living Roots (C3)	Drainage Patterns (B10)		
Water Marks (B1)	Presence of Reduced Iron (C4)	Moss Trim Lines (B16)		
Sediment Deposits (B2)	Recent Iron Reduction in Tilled Soils (C6)	Dry-Season Water Table (C2)		
Drift Deposits (B3)	Thin Muck Surface (C7)	Crayfish Burrows (C8)		
Algal Mat or Crust (B4)	Other (Explain in Remarks)	Saturation Visible on Aerial Imagery (C9)		
Iron Deposits (B5)		Stunted or Stressed Plants (D1)		
Inundation Visible on Aerial Imagery (B7)		Geomorphic Position (D2)		
Water Stained Leaves (B9)		Shallow Aquitard (D3)		
Aquatic Fauna (B13)		Microtopographic Relief (D4)		
		FAC-Neutral Test (D5)		
<b>Field Observations:</b>				
Surface Water Present?	Yes	No	<b>X</b>	Depth (inches):
Water Table Present?	Yes	No	<b>X</b>	Depth (inches):
Saturation Present?	Yes	No	<b>X</b>	Depth (inches):
(includes capillary fringe)			<b>Wetland Hydrology Present?</b> Yes      No <b>X</b>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A				
Remarks: Wetland hydrology Indicators were not observed at this sampling point. This observation does not satisfy the hydrology criterion.				

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **49A**

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: 30 ft )				
1.				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)  Total Number of Dominant Species Across All Strata: 1 (B)  Percent of Dominant Species That are OBL, FACW, or FAC: 0 (A/B)
2.				
3.				
4.				
5.				
= Total Cover				
<b>Sapling/Shrub Stratum</b> (Plot size: 15 ft )				
1.				<b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL Species x 1 = FACW Species x 2 = FAC Species x 3 = FACU Species x 4 = UPL Species x 5 =  Column Totals: (A) (B)  Prevalence Index = B/A =
2.				
3.				
4.				
5.				
= Total Cover				
<b>Herb Stratum</b> (Plot size: 5 ft )				
1.				<b>Hydrophytic Vegetation Indicators:</b> 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2.	100	Yes	FACU	
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
= Total Cover				
<b>Woody Vine Stratum</b> (Plot size: 30 ft )				
1.				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
= Total Cover				
<b>Hydrophytic Vegetation Present?</b> <b>Yes</b> <b>No</b> <b>X</b>				
Remarks: (Include photo numbers here or on a separate sheet.)  The Dominance Test is less than 50 percent. This observation does not satisfy the vegetation criterion.				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-1	IMPENETRABLE						Fill	
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.				<sup>2</sup> Location: PL=Pore Lining, M=Matrix.				
<p><b>Hydric Soil Indicators:</b></p> <p>Histosol (A1) Dark Surface (S7)</p> <p>Histic Epipedon (A2) Polyvalue Below Surface (S8) (MLRA 147, 148)</p> <p>Black Histic (A3) Thin Dark Surface (S9) (MLRA 147, 148)</p> <p>Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2)</p> <p>Stratified Layers (A5) Depleted Matrix (F3)</p> <p>2 cm Muck (A10) (LRR N) Redox Dark Surface (F6)</p> <p>Depleted Below Dark Surface (A11) Depleted Dark Surface (F7)</p> <p>Thick Dark Surface (A12) Redox Depression (F8)</p> <p>Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Iron-Manganese Masses (F12) (LRR N, MLRA 136)</p> <p>Sandy Gleyed Matrix (S4) Umbric Surface (F13) (MLRA 136, 122)</p> <p>Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 148)</p> <p>Stripped Matrix (S6) Red Parent Material (F21) (MLRA 127, 147)</p>				<p><b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b></p> <p>2 cm Muck (A10) (MLRA 147)</p> <p>Coast Prairie Redox (A16) (MLRA 136, 147)</p> <p>Piedmont Floodplain Soils (F19) (MLRA 147, 148)</p> <p>Very Shallow Dark Surface (TF12)</p> <p>Other (Explain in Remarks)</p>				
<p><sup>3</sup>Indicators of Hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic</p>								
Restrictive Layer (if observed):								
Type:	Fill							
Depth (inches):	1							
				<p><b>Hydric Soil Present?</b>      Yes      No      X</p>				
<p>Remarks:</p> <p>The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.</p>								







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 50

	Absolute % Cover	Dominant Species?	Indicator Status	
<p><u>Tree Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Dominance Test Worksheet:</b></p> <p>Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)</p> <p>Total Number of Dominant Species Across All Strata: 3 (B)</p> <p>Percent of Dominant Species That are OBL, FACW, or FAC: 100 (A/B)</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Prevalence Index Worksheet:</b></p> <p>Total % Cover of: Multiply by:</p> <p>OBL Species x 1 =</p> <p>FACW Species x 2 =</p> <p>FAC Species x 3 =</p> <p>FACU Species x 4 =</p> <p>UPL Species x 5 =</p> <p>Column Totals: (A) (B)</p> <p style="text-align: center;">Prevalence Index = B/A =</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Herb Stratum</u> (Plot size: 5 ft )</p> <p>1. <i>Agrostis gigantea</i> 40 Yes FACW</p> <p>2. <i>Eutrochium fistulosum</i> 30 Yes FACW</p> <p>3. <i>Dichanthelium clandestinum</i> 30 Yes FAC</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p> <p>11.</p>				<p><b>Hydrophytic Vegetation Indicators:</b></p> <p>1 - Rapid Test for Hydrophytic Vegetation</p> <p><b>X</b> 2 - Dominance Test is &gt; 50%</p> <p>3 - Prevalence Index is ≤3.0<sup>1</sup></p> <p>4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</p> <p>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</p> <p><sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>
<p style="text-align: right;">100 = Total Cover</p>				
<p><u>Woody Vine Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p>				<p><b>Definitions of Four Vegetation Strata:</b></p> <p><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height</p> <p><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p><b>Woody vine</b> – All woody vines greater than 3.28 ft in height.</p>
<p style="text-align: right;">= Total Cover</p>				
<p><b>Hydrophytic Vegetation Present? Yes X No</b></p>				
<p>Remarks: (Include photo numbers here or on a separate sheet.)</p> <p>The Dominance Test is greater than 50 percent. This observation satisfies the vegetation criterion.</p>				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR 5/2	95	10YR 5/6	5	C	PL	Loamy/Clayey	
>6	IMPENETRABLE							
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.			
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b>		
Histosol (A1) Dark Surface (S7) Histic Epipedon (A2) Polyvalue Below Surface (S8) <b>(MLRA 147, 148)</b> Black Histic (A3) Thin Dark Surface (S9) <b>(MLRA 147, 148)</b> Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Stratified Layers (A5) <b>X</b> Depleted Matrix (F3) 2 cm Muck (A10) <b>(LRR N)</b> Redox Dark Surface (F6) Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Thick Dark Surface (A12) Redox Depression (F8) Sandy Mucky Mineral (S1) <b>(LRR N, MLRA 147, 148)</b> Iron-Manganese Masses (F12) <b>(LRR N, MLRA 136)</b> Sandy Gleyed Matrix (S4) Umbric Surface (F13) <b>(MLRA 136, 122)</b> Sandy Redox (S5) Piedmont Floodplain Soils (F19) <b>(MLRA 148)</b> Stripped Matrix (S6) Red Parent Material (F21) <b>(MLRA 127, 147)</b>						2 cm Muck (A10) <b>(MLRA 147)</b> Coast Prairie Redox (A16) <b>(MLRA 136, 147)</b> Piedmont Floodplain Soils (F19) <b>(MLRA 147, 148)</b> Very Shallow Dark Surface (TF12) Other (Explain in Remarks)		
Restrictive Layer (if observed):						<sup>3</sup> Indicators of Hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic		
Type: Possibly Rock						<b>Hydric Soil Present?</b> Yes    X    No		
Depth (inches): 6								
Remarks:								
The soils in this area correspond to the Depleted Matrix (F3) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the soils criterion.								



**WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont**

Project/Site: Portsmouth Bypass, SCI-823-0.00, Phase 2 City/County: Portsmouth/Scioto Co. Sampling Date: 6.2.11 to 7.21.11  
 Applicant/Owner: Ohio Department of Transportation State: OH Sampling Point: 51  
 Investigator(s): Len Mikles, Jason Earley, and Richard Paul  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Convex Slope (%): 10  
 Subregion (LRR or MLRA: LRR N Lat: 38.8679 Long: -82.9064 Datum: NAD 27  
 Soil Map Unit Name: SfE – Shelocta-Wharton-Latham association, steep NWI Classification: N/A  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes No **X** (If no, explain in Remarks.)  
 Are vegetation, Soil, or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes **X** No  
 Are vegetation, Soil, or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present?	Yes	No	<b>X</b>	<b>Is the Sampled Area</b>	
Hydric Soils Present?	Yes	No	<b>X</b>		<b>Within a Wetland?</b> Yes No <b>X</b>
Wetland Hydrology Present?	Yes	No	<b>X</b>		<b>Out Point for Wetland 19</b>
Remarks: NOAA Long Term Palmer Drought Severity Index indicates that the area was experiencing severe to moderate drought conditions at the time of sampling. This area satisfies none of the three criteria necessary for a positive wetland determination. This area is not a wetland.					

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
Surface Water(A1)	True Aquatic Plants (B14)	Surface Soil Cracks (B6)	
High Water Table (A2)	Hydrogen Sulfide Odor (C1)	Sparsely Vegetated Concave Surface (B8)	
Saturation (A3)	Oxidized Rhizospheres on Living Roots (C3)	Drainage Patterns (B10)	
Water Marks (B1)	Presence of Reduced Iron (C4)	Moss Trim Lines (B16)	
Sediment Deposits (B2)	Recent Iron Reduction in Tilled Soils (C6)	Dry-Season Water Table (C2)	
Drift Deposits (B3)	Thin Muck Surface (C7)	Crayfish Burrows (C8)	
Algal Mat or Crust (B4)	Other (Explain in Remarks)	Saturation Visible on Aerial Imagery (C9)	
Iron Deposits (B5)		Stunted or Stressed Plants (D1)	
Inundation Visible on Aerial Imagery (B7)		Geomorphic Position (D2)	
Water Stained Leaves (B9)		Shallow Aquitard (D3)	
Aquatic Fauna (B13)		Microtopographic Relief (D4)	
		FAC-Neutral Test (D5)	
<b>Field Observations:</b>			
Surface Water Present?	Yes No <b>X</b>	Depth (inches):	
Water Table Present?	Yes No <b>X</b>	Depth (inches):	
Saturation Present?	Yes No <b>X</b>	Depth (inches):	
(includes capillary fringe)		<b>Wetland Hydrology Present?</b>	Yes No <b>X</b>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A			
Remarks:  Wetland hydrology Indicators were not observed at this sampling point. This observation does not satisfy the hydrology criterion.			

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 51

	Absolute % Cover	Dominant Species?	Indicator Status	
<p><u>Tree Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Dominance Test Worksheet:</b></p> <p>Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)</p> <p>Total Number of Dominant Species Across All Strata: 5 (B)</p> <p>Percent of Dominant Species That are OBL, FACW, or FAC: 40% (A/B)</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Prevalence Index Worksheet:</b></p> <p>Total % Cover of: Multiply by:</p> <p>OBL Species x 1 =</p> <p>FACW Species x 2 =</p> <p>FAC Species x 3 =</p> <p>FACU Species x 4 =</p> <p>UPL Species x 5 =</p> <p>Column Totals: (A) (B)</p> <p style="text-align: center;">Prevalence Index = B/A =</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Herb Stratum</u> (Plot size: 5 ft )</p> <p>1. <i>Agrostis gigantea</i> 30 Yes FACW</p> <p>2. <i>Solidago canadensis</i> 20 Yes FACU</p> <p>3. <i>Tridens flavus</i> 20 Yes FACU</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p> <p>11.</p>				<p><b>Hydrophytic Vegetation Indicators:</b></p> <p>1 - Rapid Test for Hydrophytic Vegetation</p> <p>2 - Dominance Test is &gt; 50%</p> <p>3 - Prevalence Index is ≤3.0<sup>1</sup></p> <p>4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</p> <p>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</p> <p><sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>
<p style="text-align: right;">70 = Total Cover</p>				
<p><u>Woody Vine Stratum</u> (Plot size: 30 ft )</p> <p>1. <i>Lonicera japonica</i> 20 Yes FAC</p> <p>2. <i>Smilax glauca</i> 10 Yes FACU</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p>				<p><b>Definitions of Four Vegetation Strata:</b></p> <p><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height</p> <p><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p><b>Woody vine</b> – All woody vines greater than 3.28 ft in height.</p>
<p style="text-align: right;">30 = Total Cover</p>				
<p><b>Hydrophytic Vegetation Present?</b>      <b>Yes</b>                      <b>No</b>                      <b>X</b></p>				
<p>Remarks: (Include photo numbers here or on a separate sheet.)</p> <p>The Dominance Test is 50 percent. This observation does not satisfy the vegetation criterion.</p>				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-3	10YR 5/2	100					Loamy/Clayey					
>3	IMPENETRABLE						Rocky Soil					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>						
Histosol (A1)						Dark Surface (S7)						
Histic Epipedon (A2)						Polyvalue Below Surface (S8) (MLRA 147, 148)						
Black Histic (A3)						Thin Dark Surface (S9) (MLRA 147, 148)						
Hydrogen Sulfide (A4)						Loamy Gleyed Matrix (F2)						
Stratified Layers (A5)						Depleted Matrix (F3)						
2 cm Muck (A10) (LRR N)						Redox Dark Surface (F6)						
Depleted Below Dark Surface (A11)						Depleted Dark Surface (F7)						
Thick Dark Surface (A12)						Redox Depression (F8)						
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)						Iron-Manganese Masses (F12) (LRR N, MLRA 136)						
Sandy Gleyed Matrix (S4)						Umbric Surface (F13) (MLRA 136, 122)						
Sandy Redox (S5)						Piedmont Floodplain Soils (F19) (MLRA 148)						
Stripped Matrix (S6)						Red Parent Material (F21) (MLRA 127, 147)						
						<sup>3</sup> Indicators of Hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic						
Restrictive Layer (if observed):												
Type: Rocky Soil												
Depth (inches): 3						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:												
The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **52**

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: 30 ft ) 1. 2. 3. 4. 5.				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: (A)  Total Number of Dominant Species Across All Strata: (B)  Percent of Dominant Species That are OBL, FACW, or FAC: (A/B)
<b>Sapling/Shrub Stratum</b> (Plot size: 15 ft ) 1. 2. 3. 4. 5.		= Total Cover		
<b>Herb Stratum</b> (Plot size: 5 ft ) 1. <i>Impatiens capensis</i> 2. <i>Microstegium vimineum</i> 3. <i>Persicaria sagittata</i> 4. 5. 6. 7. 8. 9. 10. 11.	80 15 5	Yes No No	FACW FAC OBL	<b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL Species x 1 = FACW Species x 2 = FAC Species x 3 = FACU Species x 4 = UPL Species x 5 =  Column Totals: (A) (B)  Prevalence Index = B/A =
<b>Woody Vine Stratum</b> (Plot size: 30 ft ) 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.	100	= Total Cover		
				<b>Hydrophytic Vegetation Indicators:</b> X 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
				<b>Hydrophytic Vegetation Present?</b> Yes    X    No
Remarks: (Include photo numbers here or on a separate sheet.)  The dominant species observed has a wetland indicator status of FACW. This observation satisfies the Rapid Test for Hydrophytic Vegetation.				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-1	IMPENETRABLE						Rocky Soil					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.												
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>						
Histosol (A1) Histic Epipedon (A2)  Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) ( <b>LRR N</b> ) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) ( <b>LRR N, MLRA 147, 148</b> ) Sandy Gleyed Matrix (S4) Sandy Redox (S5)  Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) ( <b>MLRA 147, 148</b> )  Thin Dark Surface (S9) ( <b>MLRA 147, 148</b> ) Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) ( <b>LRR N, MLRA 136</b> ) Umbric Surface (F13) ( <b>MLRA 136, 122</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 148</b> ) Red Parent Material (F21) ( <b>MLRA 127, 147</b> )			2 cm Muck (A10) ( <b>MLRA 147</b> ) Coast Prairie Redox (A16) ( <b>MLRA 136, 147</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 147, 148</b> ) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)			
Restrictive Layer (if observed):												
Type: Rocky Soil												
Depth (inches): 1						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:  The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.  This sample point was taken on a gravel bar that is below the OHWM. The vegetation is dominated primarily by annuals that may have germinated as a result of low water levels from drought conditions. This area appears to be functioning as a stream habitat and is not considered a wetland.												





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 53

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: 30 ft ) 1. 2. 3. 4. 5.				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)  Total Number of Dominant Species Across All Strata: 1 (B)  Percent of Dominant Species That are OBL, FACW, or FAC: 100% (A/B)
<b>Sapling/Shrub Stratum</b> (Plot size: 15 ft ) 1. 2. 3. 4. 5.		= Total Cover		
<b>Herb Stratum</b> (Plot size: 5 ft ) 1. <i>Microstegium vimineum</i> 2. <i>Impatiens capensis</i> 3. 4. 5. 6. 7. 8. 9. 10. 11.	70 5	Yes No	FAC FACW	<b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL Species x 1 = FACW Species x 2 = FAC Species x 3 = FACU Species x 4 = UPL Species x 5 =  Column Totals: (A) (B)  Prevalence Index = B/A =
<b>Woody Vine Stratum</b> (Plot size: 30 ft ) 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.	75	= Total Cover		
		= Total Cover		<b>Hydrophytic Vegetation Indicators:</b> 1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
				<b>Hydrophytic Vegetation Present?</b> Yes    X    No
Remarks: (Include photo numbers here or on a separate sheet.)  The Dominance Test is greater than 50 percent. This observation satisfies the vegetation criterion.				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-1	IMPENETRABLE						Rocky Soil					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>						
Histosol (A1)			Dark Surface (S7)			2 cm Muck (A10) (MLRA 147)						
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)			Coast Prairie Redox (A16) (MLRA 136, 147)						
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)			Piedmont Floodplain Soils (F19) (MLRA 147, 148)						
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)			Very Shallow Dark Surface (TF12)						
Stratified Layers (A5)			Depleted Matrix (F3)			Other (Explain in Remarks)						
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed):												
Type: Rocky Soil												
Depth (inches): 1						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:												
The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												
This sample point was taken on a gravel bar that is below the OHWM. The vegetation is dominated primarily by annuals that may have germinated as a result of low water levels from drought conditions. This area appears to be functioning as a stream habitat and is not considered a wetland.												



**WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont**

Project/Site: Portsmouth Bypass, SCI-823-0.00, Phase 3 City/County: Portsmouth/Scioto Co. Sampling Date: 6.25.12 to 11.8.12  
 Applicant/Owner: Ohio Department of Transportation State: OH Sampling Point: 54  
 Investigator(s): Len Mikles, Jason Earley, and Richard Paul  
 Landform (hillslope, terrace, etc.): Gravel Bar Local relief (concave, convex, none): Convex Slope (%): 2  
 Subregion (LRR or MLRA: LRR N Lat: 38.8283 Long: -82.8548 Datum: NAD 27  
 Soil Map Unit Name: ScF – Shelocta-Brownsville association, very steep NWI Classification: N/A  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes No **X** (If no, explain in Remarks.)  
 Are vegetation, Soil, or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes **X** No  
 Are vegetation, Soil, or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present?	Yes	<b>X</b>	No	<b>Is the Sampled Area</b>	
Hydric Soils Present?	Yes	No	<b>X</b>		<b>Within a Wetland?</b> Yes No <b>X</b>
Wetland Hydrology Present?	Yes	<b>X</b>	No		<b>General Out Point</b>
Remarks: NOAA Long Term Palmer Drought Severity Index indicates that the area was experiencing severe to moderate drought conditions at the time of sampling. This area satisfies two of the three criteria necessary for a positive wetland determination. This area is not a wetland.					
This sample point was taken on a gravel bar that is below the OHWM of a stream. The vegetation is dominated primarily by annuals that may have germinated as a result of low water levels from drought conditions. This area appears to be functioning as a stream habitat and is not considered a wetland.					

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
Surface Water(A1)	True Aquatic Plants (B14)	Surface Soil Cracks (B6)	
High Water Table (A2)	Hydrogen Sulfide Odor (C1)	Sparsely Vegetated Concave Surface (B8)	
Saturation (A3)	Oxidized Rhizospheres on Living Roots (C3)	<b>X</b> Drainage Patterns (B10)	
Water Marks (B1)	Presence of Reduced Iron (C4)	Moss Trim Lines (B16)	
Sediment Deposits (B2)	Recent Iron Reduction in Tilled Soils (C6)	Dry-Season Water Table (C2)	
Drift Deposits (B3)	Thin Muck Surface (C7)	Crayfish Burrows (C8)	
Algal Mat or Crust (B4)	Other (Explain in Remarks)	Saturation Visible on Aerial Imagery (C9)	
Iron Deposits (B5)		Stunted or Stressed Plants (D1)	
Inundation Visible on Aerial Imagery (B7)		<b>X</b> Geomorphic Position (D2)	
Water Stained Leaves (B9)		Shallow Aquitard (D3)	
Aquatic Fauna (B13)		Microtopographic Relief (D4)	
		<b>X</b> FAC-Neutral Test (D5)	
<b>Field Observations:</b>		<b>Wetland Hydrology Present? Yes X No</b>	
Surface Water Present?	Yes No <b>X</b> Depth (inches):		
Water Table Present?	Yes No <b>X</b> Depth (inches):		
Saturation Present?	Yes No <b>X</b> Depth (inches):		
(includes capillary fringe)			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A			
Remarks:			
Wetland hydrology Indicators were observed at this sampling point. This observation satisfies the hydrology criterion.			



**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **54**

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: 30 ft ) 1. 2. 3. 4. 5.				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)  Total Number of Dominant Species Across All Strata: 2 (B)  Percent of Dominant Species That are OBL, FACW, or FAC: 100% (A/B)
<b>Sapling/Shrub Stratum</b> (Plot size: 15 ft ) 1. 2. 3. 4. 5.		= Total Cover		
<b>Herb Stratum</b> (Plot size: 5 ft ) 1. <i>Microstegium vimineum</i> 2. <i>Pilea pumila</i> 3. 4. 5. 6. 7. 8. 9. 10. 11.	40 10	Yes Yes	FAC FACW	
		= Total Cover		
	50	= Total Cover		
<b>Woody Vine Stratum</b> (Plot size: 30 ft ) 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.				<b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL Species x 1 = FACW Species x 2 = FAC Species x 3 = FACU Species x 4 = UPL Species x 5 =  Column Totals: (A) (B)  Prevalence Index = B/A =
				<b>Hydrophytic Vegetation Indicators:</b> 1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
				<b>Hydrophytic Vegetation Present?</b> Yes    X    No
Remarks: (Include photo numbers here or on a separate sheet.)  The Dominance Test is greater than 50 percent. This observation satisfies the vegetation criterion.				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-1	IMPENETRABLE						Rocky Soil					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>						
Histosol (A1)			Dark Surface (S7)			2 cm Muck (A10) (MLRA 147)						
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)			Coast Prairie Redox (A16) (MLRA 136, 147)						
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)			Piedmont Floodplain Soils (F19) (MLRA 147, 148)						
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)			Very Shallow Dark Surface (TF12)						
Stratified Layers (A5)			Depleted Matrix (F3)			Other (Explain in Remarks)						
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed):												
Type: Rocky Soil												
Depth (inches): 1						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:												
The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												
This sample point was taken on a gravel bar that is below the OHWM. The vegetation is dominated primarily by annuals that may have germinated as a result of low water levels from drought conditions. This area appears to be functioning as a stream habitat and is not considered a wetland.												





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 55

	Absolute % Cover	Dominant Species?	Indicator Status	
<u>Tree Stratum</u> (Plot size: 30 ft )				<b>Dominance Test Worksheet:</b>
1.				Number of Dominant Species That are OBL, FACW, or FAC: (A)
2.				
3.				Total Number of Dominant Species Across All Strata: (B)
4.				
5.				Percent of Dominant Species That are OBL, FACW, or FAC: (A/B)
<u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )		= Total Cover		
1. <i>Salix nigra</i>	5	Yes	OBL	<b>Prevalence Index Worksheet:</b>
2.				Total % Cover of: Multiply by:
3.				OBL Species x 1 =
4.				FACW Species x 2 =
5.				FAC Species x 3 =
	5	= Total Cover		FACU Species x 4 =
<u>Herb Stratum</u> (Plot size: 5 ft )				UPL Species x 5 =
1. <i>Boehmeria cylindrica</i>	15	Yes	OBL	Column Totals: (A) (B)
2. <i>Leersia virginica</i>	5	No	FACW	
3. <i>Polygonum cespitosum</i>	5	No	FACU	Prevalence Index = B/A =
4. <i>Pilea pumila</i>	5	No	FACW	
5.				<b>Hydrophytic Vegetation Indicators:</b>
6.				X 1 - Rapid Test for Hydrophytic Vegetation
7.				2 - Dominance Test is > 50%
8.				3 - Prevalence Index is ≤3.0 <sup>1</sup>
9.				4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
10.				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
11.				
	30	= Total Cover		<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
<u>Woody Vine Stratum</u> (Plot size: 30 ft )				<b>Definitions of Four Vegetation Strata:</b>
1.				<b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height
2.				
3.				<b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
4.				
5.				<b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
6.				
7.				<b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
8.				
9.				
10.				
		= Total Cover		<b>Hydrophytic Vegetation Present?</b> Yes X No
Remarks: (Include photo numbers here or on a separate sheet.)				
The dominant species have a wetland indicator status of OBL. This observation satisfies the Rapid Test for Hydrophytic Vegetation.				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-10	3/N (GLEY)	100					Loamy/Clayey					
>10	IMPENETRABLE						Rocky Soil					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>						
Histosol (A1)			Dark Surface (S7)			2 cm Muck (A10) (MLRA 147)						
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)			Coast Prairie Redox (A16) (MLRA 136, 147)						
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)			Piedmont Floodplain Soils (F19) (MLRA 147, 148)						
Hydrogen Sulfide (A4)			X Loamy Gleyed Matrix (F2)			Very Shallow Dark Surface (TF12)						
Stratified Layers (A5)			Depleted Matrix (F3)			Other (Explain in Remarks)						
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed):												
Type: Rock												
Depth (inches): 10												
						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td>Yes</td> <td>X</td> <td>No</td> </tr> </table>			<b>Hydric Soil Present?</b>	Yes	X	No
<b>Hydric Soil Present?</b>	Yes	X	No									
Remarks:												
The soils in this area correspond to the Loamy Gleyed Matrix (F2) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the soils criterion.												







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 56

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: 30 ft )				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)  Total Number of Dominant Species Across All Strata: 4 (B)  Percent of Dominant Species That are OBL, FACW, or FAC: 75% (A/B)  <b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL Species x 1 = FACW Species x 2 = FAC Species x 3 = FACU Species x 4 = UPL Species x 5 =  Column Totals: (A) (B)  Prevalence Index = B/A =  <b>Hydrophytic Vegetation Indicators:</b> 1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.  <b>Hydrophytic Vegetation Present?</b> Yes    X    No
1. <i>Celtis occidentalis</i>	10	Yes	FACU	
2. <i>Platanus occidentalis</i>	10	Yes	FACW	
3. <i>Ulmus americana</i>	10	Yes	FACW	
4.				
5.				
30		= Total Cover		
<b>Sapling/Shrub Stratum</b> (Plot size: 15 ft )				
1.				
2.				
3.				
4.				
5.				
		= Total Cover		
<b>Herb Stratum</b> (Plot size: 5 ft )				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
		= Total Cover		
<b>Woody Vine Stratum</b> (Plot size: 30 ft )				
1. <i>Toxicodendron radicans</i>	5	Yes	FAC	
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
5		= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet.)

The Dominance Test is greater than 50 percent. This observation satisfies the vegetation criterion.

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-7	10YR 4/3	100					Loamy/Clayey					
>7	IMPENETRABLE						Rocky Soil					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>							<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>					
Histosol (A1)			Dark Surface (S7)				2 cm Muck (A10) (MLRA 147)					
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)				Coast Prairie Redox (A16) (MLRA 136, 147)					
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)				Piedmont Floodplain Soils (F19) (MLRA 147, 148)					
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)				Very Shallow Dark Surface (TF12)					
Stratified Layers (A5)			Depleted Matrix (F3)				Other (Explain in Remarks)					
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed):												
Type: Rocky Soil												
Depth (inches): 7							<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>		<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:												
The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 57

				<b>Dominance Test Worksheet:</b>			
<u>Tree Stratum</u> (Plot size: 30 ft )				Absolute % Cover	Dominant Species?	Indicator Status	
1.	<i>Liriodendron tulipifera</i>	40	Yes	FACU	Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)		
2.	<i>Platanus occidentalis</i>	25	Yes	FACW	Total Number of Dominant Species Across All Strata: 5 (B)		
3.	<i>Fraxinus pennsylvanica</i>	5	No	FACW	Percent of Dominant Species That are OBL, FACW, or FAC: 40% (A/B)		
4.							
5.							
				70	= Total Cover		
<u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )							
size:							
1.	<i>Acer saccharum</i>	5	Yes	FACU	<b>Prevalence Index Worksheet:</b>		
2.	<i>Rubus occidentalis</i>	5	Yes	FACU	Total % Cover of:	Multiply by:	
3.					OBL Species	x 1 =	
4.					FACW Species	x 2 =	
5.					FAC Species	x 3 =	
				10	= Total Cover	FACU Species	x 4 =
<u>Herb Stratum</u> (Plot size: 5 ft )						UPL Species	x 5 =
1.	<i>Pilea pumila</i>	60	Yes	FACW	Column Totals:	(A) (B)	
2.	<i>Diplazium pycnocarpon</i>	10	No	FAC	Prevalence Index = B/A =		
3.	<i>Polystichum acrostichoides</i>	10	No	FACU	<b>Hydrophytic Vegetation Indicators:</b>		
4.	<i>Verbesina alternifolia</i>	10	No	FAC	1 - Rapid Test for Hydrophytic Vegetation		
5.	<i>Boehmeria cylindrica</i>	10	No	OBL	2 - Dominance Test is > 50%		
6.					3 - Prevalence Index is ≤3.0 <sup>1</sup>		
7.					4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)		
8.					Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)		
9.							
10.							
11.							
				100	= Total Cover	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
<u>Woody Vine Stratum</u> (Plot size: 30 ft )						<b>Definitions of Four Vegetation Strata:</b>	
1.					<b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height		
2.					<b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.		
3.					<b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.		
4.					<b>Woody vine</b> – All woody vines greater than 3.28 ft in height.		
5.							
6.							
7.							
8.							
9.							
10.							
					= Total Cover	<b>Hydrophytic Vegetation Present?</b> <b>Yes</b> <b>No</b> <b>X</b>	
Remarks: (Include photo numbers here or on a separate sheet.)							
The Dominance Test is less than 50 percent. This observation does not satisfy the vegetation criterion.							

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-7	10YR 4/3	95	10YR 5/6	5	C	PL	Loamy/Clayey					
>7	IMPENETRABLE						Rocky Soil					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b>						
Histosol (A1)			Dark Surface (S7)			2 cm Muck (A10) (MLRA 147)						
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)			Coast Prairie Redox (A16) (MLRA 136, 147)						
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)			Piedmont Floodplain Soils (F19) (MLRA 147, 148)						
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)			Very Shallow Dark Surface (TF12)						
Stratified Layers (A5)			Depleted Matrix (F3)			Other (Explain in Remarks)						
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed):												
Type: Rocky Soil												
Depth (inches): 7						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:												
The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **58**

	Absolute % Cover	Dominant Species?	Indicator Status	
<p><u>Tree Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Dominance Test Worksheet:</b></p> <p>Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)</p> <p>Total Number of Dominant Species Across All Strata: 1 (B)</p> <p>Percent of Dominant Species That are OBL, FACW, or FAC: 100% (A/B)</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Prevalence Index Worksheet:</b></p> <p>Total % Cover of: Multiply by:</p> <p>OBL Species x 1 =</p> <p>FACW Species x 2 =</p> <p>FAC Species x 3 =</p> <p>FACU Species x 4 =</p> <p>UPL Species x 5 =</p> <p>Column Totals: (A) (B)</p> <p style="text-align: center;">Prevalence Index = B/A =</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Herb Stratum</u> (Plot size: 5 ft )</p> <p>1. <i>Dichanthelium clandestinum</i> 70 Yes FAC</p> <p>2. <i>Symphotrichum lateriflorum</i> 15 No FACW</p> <p>3. <i>Solidago canadensis</i> 15 No FACU</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p> <p>11.</p>				<p><b>Hydrophytic Vegetation Indicators:</b></p> <p>1 - Rapid Test for Hydrophytic Vegetation</p> <p><b>X</b> 2 - Dominance Test is &gt; 50%</p> <p>3 - Prevalence Index is ≤3.0<sup>1</sup></p> <p>4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</p> <p>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</p> <p><sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>
<p style="text-align: right;">100 = Total Cover</p>				
<p><u>Woody Vine Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p>				<p><b>Definitions of Four Vegetation Strata:</b></p> <p><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height</p> <p><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p><b>Woody vine</b> – All woody vines greater than 3.28 ft in height.</p>
<p style="text-align: right;">= Total Cover</p>				
<p><b>Hydrophytic Vegetation Present? Yes X No</b></p>				
<p>Remarks: (Include photo numbers here or on a separate sheet.)</p> <p>The Dominance Test is greater than 50 percent. This observation satisfies the vegetation criterion.</p>				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-4	10YR 5/4	100					Loamy/Clayey					
>4	IMPENETRABLE						Rocky Soil					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>						
Histosol (A1)			Dark Surface (S7)			2 cm Muck (A10) (MLRA 147)						
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)			Coast Prairie Redox (A16) (MLRA 136, 147)						
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)			Piedmont Floodplain Soils (F19) (MLRA 147, 148)						
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)			Very Shallow Dark Surface (TF12)						
Stratified Layers (A5)			Depleted Matrix (F3)			Other (Explain in Remarks)						
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed):												
Type: Rocky Soil												
Depth (inches): 4												
						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:												
The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 59

	Absolute % Cover	Dominant Species?	Indicator Status	
<p><u>Tree Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Dominance Test Worksheet:</b></p> <p>Number of Dominant Species That are OBL, FACW, or FAC: (A)</p> <p>Total Number of Dominant Species Across All Strata: (B)</p> <p>Percent of Dominant Species That are OBL, FACW, or FAC: (A/B)</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Prevalence Index Worksheet:</b></p> <p>Total % Cover of:                      Multiply by:</p> <p>OBL Species                                      x 1 =</p> <p>FACW Species                                      x 2 =</p> <p>FAC Species                                        x 3 =</p> <p>FACU Species                                      x 4 =</p> <p>UPL Species                                        x 5 =</p> <p>Column Totals:                                      (A)                      (B)</p> <p style="text-align: center;">Prevalence Index = B/A =</p>
<p style="text-align: right;">5                      = Total Cover</p>				
<p><u>Herb Stratum</u> (Plot size: 5 ft )</p> <p>1. <i>Brasenia schreberi</i>                      25                      Yes                      OBL</p> <p>2. <i>Carex lurida</i>                                      10                      Yes                      OBL</p> <p>3. <i>Boehmeria cylindrica</i>                      5                      No                      OBL</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p> <p>11.</p>				<p><b>Hydrophytic Vegetation Indicators:</b></p> <p><b>X</b> 1 - Rapid Test for Hydrophytic Vegetation</p> <p>2 - Dominance Test is &gt; 50%</p> <p>3 - Prevalence Index is ≤3.0<sup>1</sup></p> <p>4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</p> <p>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</p> <p><sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>
<p style="text-align: right;">40                      = Total Cover</p>				
<p><u>Woody Vine Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p>				<p><b>Definitions of Four Vegetation Strata:</b></p> <p><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height</p> <p><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p><b>Woody vine</b> – All woody vines greater than 3.28 ft in height.</p>
<p style="text-align: right;">= Total Cover</p>				
<p><b>Hydrophytic Vegetation Present?      Yes      X      No</b></p>				
<p>Remarks: (Include photo numbers here or on a separate sheet.)</p> <p>The dominant species have a wetland indicator status of OBL. This observation satisfies the Rapid Test for Hydrophytic Vegetation.</p>				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-12	5/N (GLEY)	100					Loamy/Clayey					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>						
Histosol (A1)			Dark Surface (S7)			2 cm Muck (A10) (MLRA 147)						
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)			Coast Prairie Redox (A16) (MLRA 136, 147)						
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)			Piedmont Floodplain Soils (F19) (MLRA 147, 148)						
Hydrogen Sulfide (A4)			X Loamy Gleyed Matrix (F2)			Very Shallow Dark Surface (TF12)						
Stratified Layers (A5)			Depleted Matrix (F3)			Other (Explain in Remarks)						
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed): N/A												
Type:												
Depth (inches):						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td>Yes</td> <td>X</td> <td>No</td> </tr> </table>			<b>Hydric Soil Present?</b>	Yes	X	No
<b>Hydric Soil Present?</b>	Yes	X	No									
Remarks:												
The soils in this area correspond to the Loamy Gleyed Matrix (F2) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the soils criterion.												







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **60**

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: 30 ft )				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)  Total Number of Dominant Species Across All Strata: 5 (B)  Percent of Dominant Species That are OBL, FACW, or FAC: 20% (A/B)
1. <i>Robinia pseudoacacia</i>	10	Yes	FACU	
2.				
3.				
4.				
5.	10	= Total Cover		
<b>Sapling/Shrub Stratum</b> (Plot size: 15 ft )				<b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL Species x 1 = FACW Species x 2 = FAC Species x 3 = FACU Species x 4 = UPL Species x 5 =  Column Totals: (A) (B)  Prevalence Index = B/A =
1. <i>Rubus allegheniensis</i>	30	Yes	FACU	
2. <i>Rosa multiflora</i>	20	Yes	FACU	
3. <i>Corylus americana</i>	20	Yes	FACU	
4.				
5.	70	= Total Cover		
<b>Herb Stratum</b> (Plot size: 5 ft )				<b>Hydrophytic Vegetation Indicators:</b> 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
<b>Woody Vine Stratum</b> (Plot size: 30 ft )				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
1. <i>Lonicera japonica</i>	5	Yes	FAC	
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.	5	= Total Cover		
Remarks: (Include photo numbers here or on a separate sheet.)  The Dominance Test is less than 50 percent. This observation does not satisfy the vegetation criterion.				<b>Hydrophytic Vegetation Present?</b> <b>Yes</b> <b>No</b> <b>X</b>

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-7	10YR 5/6	100					Loamy/Clayey					
>7	IMPENETRABLE						Rocky Soil					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>							<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>					
Histosol (A1)			Dark Surface (S7)				2 cm Muck (A10) (MLRA 147)					
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)				Coast Prairie Redox (A16) (MLRA 136, 147)					
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)				Piedmont Floodplain Soils (F19) (MLRA 147, 148)					
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)				Very Shallow Dark Surface (TF12)					
Stratified Layers (A5)			Depleted Matrix (F3)				Other (Explain in Remarks)					
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed):												
Type: Rocky Soil												
Depth (inches): 7							<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>		<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:												
The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 61

	Absolute % Cover	Dominant Species?	Indicator Status	
<p><u>Tree Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Dominance Test Worksheet:</b></p> <p>Number of Dominant Species That are OBL, FACW, or FAC: (A)</p> <p>Total Number of Dominant Species Across All Strata: (B)</p> <p>Percent of Dominant Species That are OBL, FACW, or FAC: (A/B)</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Prevalence Index Worksheet:</b></p> <p>Total % Cover of:                      Multiply by:</p> <p>OBL Species                                      x 1 =</p> <p>FACW Species                                    x 2 =</p> <p>FAC Species                                        x 3 =</p> <p>FACU Species                                      x 4 =</p> <p>UPL Species                                        x 5 =</p> <p>Column Totals:                                      (A)                      (B)</p> <p style="text-align: center;">Prevalence Index = B/A =</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Herb Stratum</u> (Plot size: 5 ft )</p> <p>1. <i>Scirpus atrovirens</i>                                      40                      Yes                      OBL</p> <p>2. <i>Echinochloa muricata</i>                                      30                      Yes                      FACW</p> <p>3. <i>Eleocharis erythropoda</i>                                      30                      Yes                      OBL</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p> <p>11.</p>				<p><b>Hydrophytic Vegetation Indicators:</b></p> <p><b>X</b> 1 - Rapid Test for Hydrophytic Vegetation</p> <p>2 - Dominance Test is &gt; 50%</p> <p>3 - Prevalence Index is ≤3.0<sup>1</sup></p> <p>4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</p> <p>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</p> <p><sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>
<p style="text-align: right;">70                      = Total Cover</p>				
<p><u>Woody Vine Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p>				<p><b>Definitions of Four Vegetation Strata:</b></p> <p><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height</p> <p><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p><b>Woody vine</b> – All woody vines greater than 3.28 ft in height.</p>
<p style="text-align: right;">= Total Cover</p>				
<p><b>Hydrophytic Vegetation Present?      Yes      X      No</b></p>				
<p>Remarks: (Include photo numbers here or on a separate sheet.)</p> <p>The dominant species have a wetland indicator status of OBL and FACW. This observation satisfies the Rapid Test for Hydrophytic Vegetation.</p>				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	10YR 5/2	95	10YR 5/6	5	C	PL	Loamy/Clayey	
>8	IMPENETRABLE							
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.			
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b>		
Histosol (A1) Dark Surface (S7) Histic Epipedon (A2) Polyvalue Below Surface (S8) <b>(MLRA 147, 148)</b> Black Histic (A3) Thin Dark Surface (S9) <b>(MLRA 147, 148)</b> Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Stratified Layers (A5) <b>X</b> Depleted Matrix (F3) 2 cm Muck (A10) <b>(LRR N)</b> Redox Dark Surface (F6) Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Thick Dark Surface (A12) Redox Depression (F8) Sandy Mucky Mineral (S1) <b>(LRR N, MLRA 147, 148)</b> Iron-Manganese Masses (F12) <b>(LRR N, MLRA 136)</b> Sandy Gleyed Matrix (S4) Umbric Surface (F13) <b>(MLRA 136, 122)</b> Sandy Redox (S5) Piedmont Floodplain Soils (F19) <b>(MLRA 148)</b> Stripped Matrix (S6) Red Parent Material (F21) <b>(MLRA 127, 147)</b>						2 cm Muck (A10) <b>(MLRA 147)</b> Coast Prairie Redox (A16) <b>(MLRA 136, 147)</b> Piedmont Floodplain Soils (F19) <b>(MLRA 147, 148)</b> Very Shallow Dark Surface (TF12) Other (Explain in Remarks)		
Restrictive Layer (if observed):						<sup>3</sup> Indicators of Hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic		
Type: Rocky Soil						<b>Hydric Soil Present?</b> Yes    X    No		
Depth (inches): 8								
Remarks:								
The soils in this area correspond to the Depleted Matrix (F3) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the soils criterion.								







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 62

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: 30 ft )				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)  Total Number of Dominant Species Across All Strata: 1 (B)  Percent of Dominant Species That are OBL, FACW, or FAC: 0 (A/B)
1.				
2.				
3.				
4.				
= Total Cover				<b>Prevalence Index Worksheet:</b> Total % Cover of:                      Multiply by: OBL Species                                x 1 = FACW Species                              x 2 = FAC Species                                x 3 = FACU Species                              x 4 = UPL Species                                x 5 =  Column Totals:                            (A)                            (B)  Prevalence Index = B/A =
<b>Sapling/Shrub Stratum</b> (Plot size: 15 ft )				
1.				
2.				
3.				
= Total Cover				
<b>Herb Stratum</b> (Plot size: 5 ft )				<b>Hydrophytic Vegetation Indicators:</b> 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1.	60	Yes	FACU	
2.	10	No	FAC	
3.	5	No	UPL	
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
75 = Total Cover				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
<b>Woody Vine Stratum</b> (Plot size: 30 ft )				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
= Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)  The Dominance Test is less than 50 percent. This observation does not satisfy the vegetation criterion.				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-2	10YR 6/4	100					Loamy/Clayey					
>2	IMPENETRABLE						Rocky Soil					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b>						
Histosol (A1)			Dark Surface (S7)			2 cm Muck (A10) (MLRA 147)						
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)			Coast Prairie Redox (A16) (MLRA 136, 147)						
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)			Piedmont Floodplain Soils (F19) (MLRA 147, 148)						
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)			Very Shallow Dark Surface (TF12)						
Stratified Layers (A5)			Depleted Matrix (F3)			Other (Explain in Remarks)						
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed):												
Type: Rocky Soil												
Depth (inches): 2												
						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:												
The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **63**

	Absolute % Cover	Dominant Species?	Indicator Status	
<p><u>Tree Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Dominance Test Worksheet:</b></p> <p>Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)</p> <p>Total Number of Dominant Species Across All Strata: 3 (B)</p> <p>Percent of Dominant Species That are OBL, FACW, or FAC: 100% (A/B)</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Prevalence Index Worksheet:</b></p> <p>Total % Cover of: Multiply by:</p> <p>OBL Species x 1 =</p> <p>FACW Species x 2 =</p> <p>FAC Species x 3 =</p> <p>FACU Species x 4 =</p> <p>UPL Species x 5 =</p> <p>Column Totals: (A) (B)</p> <p style="text-align: center;">Prevalence Index = B/A =</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Herb Stratum</u> (Plot size: 5 ft )</p> <p>1. <i>Juncus effusus</i> 40 Yes FACW</p> <p>2. <i>Solidago gigantea</i> 20 Yes FACW</p> <p>3. <i>Carex lurida</i> 10 No OBL</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p> <p>11.</p>				<p><b>Hydrophytic Vegetation Indicators:</b></p> <p>1 - Rapid Test for Hydrophytic Vegetation</p> <p><b>X</b> 2 - Dominance Test is &gt; 50%</p> <p>3 - Prevalence Index is ≤3.0<sup>1</sup></p> <p>4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</p> <p>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</p> <p><sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>
<p style="text-align: right;">70 = Total Cover</p>				
<p><u>Woody Vine Stratum</u> (Plot size: 30 ft )</p> <p>1. <i>Lonicera japonica</i> 10 Yes FAC</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p>				<p><b>Definitions of Four Vegetation Strata:</b></p> <p><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height</p> <p><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p><b>Woody vine</b> – All woody vines greater than 3.28 ft in height.</p>
<p style="text-align: right;">10 = Total Cover</p>				
<p><b>Hydrophytic Vegetation Present? Yes X No</b></p>				
<p>Remarks: (Include photo numbers here or on a separate sheet.)</p> <p>The Dominance Test is greater than 50 percent. This observation satisfies the vegetation criterion.</p>				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-8	10YR 5/2	95	10YR 5/6	5	C	PL	Loamy/Clayey					
>8	IMPENETRABLE											
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b>						
Histosol (A1)			Dark Surface (S7)			2 cm Muck (A10) (MLRA 147)						
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)			Coast Prairie Redox (A16) (MLRA 136, 147)						
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)			Piedmont Floodplain Soils (F19) (MLRA 147, 148)						
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)			Very Shallow Dark Surface (TF12)						
Stratified Layers (A5)			X Depleted Matrix (F3)			Other (Explain in Remarks)						
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed):												
Type: Rocky Soil												
Depth (inches): 8						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td>Yes</td> <td>X</td> <td>No</td> </tr> </table>			<b>Hydric Soil Present?</b>	Yes	X	No
<b>Hydric Soil Present?</b>	Yes	X	No									
Remarks:												
The soils in this area correspond to the Depleted Matrix (F3) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the soils criterion.												







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 64

	Absolute % Cover	Dominant Species?	Indicator Status	
<p><u>Tree Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Dominance Test Worksheet:</b></p> <p>Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)</p> <p>Total Number of Dominant Species Across All Strata: 1 (B)</p> <p>Percent of Dominant Species That are OBL, FACW, or FAC: 0 (A/B)</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Prevalence Index Worksheet:</b></p> <p>Total % Cover of: Multiply by:</p> <p>OBL Species x 1 =</p> <p>FACW Species x 2 =</p> <p>FAC Species x 3 =</p> <p>FACU Species x 4 =</p> <p>UPL Species x 5 =</p> <p>Column Totals: (A) (B)</p> <p style="text-align: center;">Prevalence Index = B/A =</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Herb Stratum</u> (Plot size: 5 ft )</p> <p>1. <i>Andropogon virginicus</i> 30 Yes FACU</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p> <p>11.</p>				<p><b>Hydrophytic Vegetation Indicators:</b></p> <p>1 - Rapid Test for Hydrophytic Vegetation</p> <p>2 - Dominance Test is &gt; 50%</p> <p>3 - Prevalence Index is ≤3.0<sup>1</sup></p> <p>4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</p> <p>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</p> <p><sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>
<p style="text-align: right;">30 = Total Cover</p>				
<p><u>Woody Vine Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p>				<p><b>Definitions of Four Vegetation Strata:</b></p> <p><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height</p> <p><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p><b>Woody vine</b> – All woody vines greater than 3.28 ft in height.</p>
<p style="text-align: right;">= Total Cover</p>				
<p><b>Hydrophytic Vegetation Present?</b>      <b>Yes</b>                      <b>No</b>                      <b>X</b></p>				
<p>Remarks: (Include photo numbers here or on a separate sheet.)</p> <p>The Dominance Test is less than 50 percent. This observation does not satisfy the vegetation criterion.</p>				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-2	10YR 6/4	100					Loamy/Clayey					
>2	IMPENETRABLE						Rocky Soil					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>							<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b>					
Histosol (A1)			Dark Surface (S7)				2 cm Muck (A10) (MLRA 147)					
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)				Coast Prairie Redox (A16) (MLRA 136, 147)					
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)				Piedmont Floodplain Soils (F19) (MLRA 147, 148)					
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)				Very Shallow Dark Surface (TF12)					
Stratified Layers (A5)			Depleted Matrix (F3)				Other (Explain in Remarks)					
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed):												
Type: Rocky Soil												
Depth (inches): 2							<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>		<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:												
The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 65

	Absolute % Cover	Dominant Species?	Indicator Status				
<b>Tree Stratum</b> (Plot size: 30 ft )				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)  Total Number of Dominant Species Across All Strata: 6 (B)  Percent of Dominant Species That are OBL, FACW, or FAC: 33% (A/B)			
1. <i>Acer saccharum</i>	30	Yes	FACU				
2. <i>Liriodendron tulipifera</i>	10	Yes	FACU				
3.							
4.							
5.							
40 = Total Cover							
<b>Sapling/Shrub Stratum</b> (Plot size: 15 ft )							
1. <i>Lindera benzoin</i>	15	Yes	FAC				
2. <i>Spiraea japonica</i>	10	Yes	FACU				
3. <i>Rubus allegheniensis</i>	10	Yes	FACU				
4.							
5.							
35 = Total Cover							
<b>Herb Stratum</b> (Plot size: 5 ft )							
1. <i>Dichanthelium clandestinum</i>	60	Yes	FAC				
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							
60 = Total Cover							
<b>Woody Vine Stratum</b> (Plot size: 30 ft )							
1.							
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
= Total Cover							
<b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL Species x 1 = FACW Species x 2 = FAC Species x 3 = FACU Species x 4 = UPL Species x 5 =  Column Totals: (A) (B)  Prevalence Index = B/A =							
<b>Hydrophytic Vegetation Indicators:</b> 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)							
<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.							
<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.							
<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:60%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width:10%;"><b>Yes</b></td> <td style="width:10%;"><b>No</b></td> <td style="width:20%;"><b>X</b></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydrophytic Vegetation Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>				
Remarks: (Include photo numbers here or on a separate sheet.)  The Dominance Test is less than 50 percent. This observation does not satisfy the vegetation criterion.							

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-7	10YR 5/4	100					Loamy/Clayey					
>7	IMPENETRABLE						Rocky Soil					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>							<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b>					
Histosol (A1)			Dark Surface (S7)				2 cm Muck (A10) (MLRA 147)					
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)				Coast Prairie Redox (A16) (MLRA 136, 147)					
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)				Piedmont Floodplain Soils (F19) (MLRA 147, 148)					
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)				Very Shallow Dark Surface (TF12)					
Stratified Layers (A5)			Depleted Matrix (F3)				Other (Explain in Remarks)					
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed):												
Type: Rocky Soil												
Depth (inches): 7												
							<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>		<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:												
The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 66

				<b>Dominance Test Worksheet:</b>			
<u>Tree Stratum</u> (Plot size: 30 ft )				Absolute % Cover	Dominant Species?	Indicator Status	
1.	<i>Liriodendron tulipifera</i>	25	Yes	FACU	Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)		
2.	<i>Acer saccharum</i>	25	Yes	FACU	Total Number of Dominant Species Across All Strata: 9 (B)		
3.	<i>Ailanthus altissima</i>	25	Yes	FACU	Percent of Dominant Species That are OBL, FACW, or FAC: 44% (A/B)		
4.							
5.							
				75	= Total Cover		
<u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )							
1.	<i>Lindera benzoin</i>	20	Yes	FAC	<b>Prevalence Index Worksheet:</b>		
2.					Total % Cover of:	Multiply by:	
3.					OBL Species	x 1 =	
4.					FACW Species	x 2 =	
5.					FAC Species	x 3 =	
				20	= Total Cover	FACU Species	x 4 =
<u>Herb Stratum</u> (Plot size: 5 ft )						UPL Species	x 5 =
1.	<i>Microstegium vimineum</i>	20	Yes	FAC	Column Totals:	(A) (B)	
2.	<i>Dryopteris intermedia</i>	20	Yes	FACU	Prevalence Index = B/A =		
3.	<i>Polystichum acrostichoides</i>	20	Yes	FACU	<b>Hydrophytic Vegetation Indicators:</b>		
4.	<i>Verbesina alternifolia</i>	20	Yes	FAC	1 - Rapid Test for Hydrophytic Vegetation		
5.					2 - Dominance Test is > 50%		
6.					3 - Prevalence Index is ≤3.0 <sup>1</sup>		
7.					4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)		
8.					Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)		
9.							
10.							
11.							
				80	= Total Cover	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
<u>Woody Vine Stratum</u> (Plot size: 30 ft )						<b>Definitions of Four Vegetation Strata:</b>	
1.	<i>Lonicera japonica</i>	20	Yes	FAC	<b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height		
2.					<b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.		
3.					<b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.		
4.					<b>Woody vine</b> – All woody vines greater than 3.28 ft in height.		
5.							
6.							
7.							
8.							
9.							
10.							
				20	= Total Cover	<b>Hydrophytic Vegetation Present?</b> <b>Yes</b> <b>No</b> <b>X</b>	

Remarks: (Include photo numbers here or on a separate sheet.)

The Dominance Test is less than 50 percent. This observation does not satisfy the vegetation criterion.

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)										
Depth	Matrix		Redox Features				Texture	Remarks		
(inches)	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>				
0-8	10YR 5/4	95	10YR 5/8	5	C	PL	Loamy/Clayey			
>8	IMPENETRABLE						Rocky Soil			
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.										
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) (LRR N) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) (MLRA 147, 148) Thin Dark Surface (S9) (MLRA 147, 148) Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148) Red Parent Material (F21) (MLRA 127, 147)			<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> 2 cm Muck (A10) (MLRA 147) Coast Prairie Redox (A16) (MLRA 136, 147) Piedmont Floodplain Soils (F19) (MLRA 147, 148) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)	
Restrictive Layer (if observed): Type: Rocky Soil Depth (inches): 8						<b>Hydric Soil Present?</b> Yes      No      X				
<b>Remarks:</b> The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.										







Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-8	10YR 4/3	100					Loamy/Clayey					
>8	IMPENETRABLE						Rocky Soil					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>							<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>					
Histosol (A1)			Dark Surface (S7)				2 cm Muck (A10) (MLRA 147)					
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)				Coast Prairie Redox (A16) (MLRA 136, 147)					
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)				Piedmont Floodplain Soils (F19) (MLRA 147, 148)					
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)				Very Shallow Dark Surface (TF12)					
Stratified Layers (A5)			Depleted Matrix (F3)				Other (Explain in Remarks)					
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed):												
Type: Rocky Soil												
Depth (inches): 8							<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>		<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:												
The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												









Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-8	10YR 4/3	95	10YR 5/6	5	C	PL	Loamy/Clayey					
>8	IMPENETRABLE						Rocky Soil					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b>						
Histosol (A1)			Dark Surface (S7)			2 cm Muck (A10) (MLRA 147)						
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)			Coast Prairie Redox (A16) (MLRA 136, 147)						
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)			Piedmont Floodplain Soils (F19) (MLRA 147, 148)						
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)			Very Shallow Dark Surface (TF12)						
Stratified Layers (A5)			Depleted Matrix (F3)			Other (Explain in Remarks)						
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed):												
Type: Rocky Soil												
Depth (inches): 8						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:												
The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												







Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-8	10YR 4/3	100					Loamy/Clayey					
>8	IMPENETRABLE						Rocky Soil					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>						
Histosol (A1)			Dark Surface (S7)			2 cm Muck (A10) (MLRA 147)						
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)			Coast Prairie Redox (A16) (MLRA 136, 147)						
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)			Piedmont Floodplain Soils (F19) (MLRA 147, 148)						
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)			Very Shallow Dark Surface (TF12)						
Stratified Layers (A5)			Depleted Matrix (F3)			Other (Explain in Remarks)						
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed):												
Type: Rocky Soil												
Depth (inches): 8												
						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:												
The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **70**

	Absolute % Cover	Dominant Species?	Indicator Status	
<p><u>Tree Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Dominance Test Worksheet:</b></p> <p>Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)</p> <p>Total Number of Dominant Species Across All Strata: 2 (B)</p> <p>Percent of Dominant Species That are OBL, FACW, or FAC: 100% (A/B)</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Prevalence Index Worksheet:</b></p> <p>Total % Cover of: Multiply by:</p> <p>OBL Species x 1 =</p> <p>FACW Species x 2 =</p> <p>FAC Species x 3 =</p> <p>FACU Species x 4 =</p> <p>UPL Species x 5 =</p> <p>Column Totals: (A) (B)</p> <p style="text-align: center;">Prevalence Index = B/A =</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Herb Stratum</u> (Plot size: 5 ft )</p> <p>1. <i>Panicum dichotomiflorum</i> 40 Yes FACW</p> <p>2. <i>Xanthium strumarium</i> 30 Yes FAC</p> <p>3. <i>Bidens frondosa</i> 10 No FACW</p> <p>4. <i>Persicaria hydropiper</i> 10 No OBL</p> <p>5. <i>Boehmeria cylindrica</i> 10 No OBL</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p> <p>11.</p>				<p><b>Hydrophytic Vegetation Indicators:</b></p> <p>1 - Rapid Test for Hydrophytic Vegetation</p> <p><b>X</b> 2 - Dominance Test is &gt; 50%</p> <p>3 - Prevalence Index is ≤3.0<sup>1</sup></p> <p>4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</p> <p>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</p> <p><sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>
<p style="text-align: right;">100 = Total Cover</p>				
<p><u>Woody Vine Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p>				<p><b>Definitions of Four Vegetation Strata:</b></p> <p><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height</p> <p><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p><b>Woody vine</b> – All woody vines greater than 3.28 ft in height.</p>
<p style="text-align: right;">= Total Cover</p>				
<p>Remarks: (Include photo numbers here or on a separate sheet.)</p> <p>The Dominance Test is greater than 50 percent. This observation satisfies the vegetation criterion.</p>				<p><b>Hydrophytic Vegetation Present?</b>    <b>Yes</b>    <b>X</b>    <b>No</b></p>

**SOIL**

Sampling Point: **70**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12	10YR 6/1	95	10YR 5/6	5	C	PL	Loamy/Clayey	
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.			
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b>		
Histosol (A1) Dark Surface (S7) Histic Epipedon (A2) Polyvalue Below Surface (S8) <b>(MLRA 147, 148)</b> Black Histic (A3) Thin Dark Surface (S9) <b>(MLRA 147, 148)</b> Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Stratified Layers (A5) <b>X</b> Depleted Matrix (F3) 2 cm Muck (A10) <b>(LRR N)</b> Redox Dark Surface (F6) Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Thick Dark Surface (A12) Redox Depression (F8) Sandy Mucky Mineral (S1) <b>(LRR N, MLRA 147, 148)</b> Iron-Manganese Masses (F12) <b>(LRR N, MLRA 136)</b> Sandy Gleyed Matrix (S4) Umbric Surface (F13) <b>(MLRA 136, 122)</b> Sandy Redox (S5) Piedmont Floodplain Soils (F19) <b>(MLRA 148)</b> Stripped Matrix (S6) Red Parent Material (F21) <b>(MLRA 127, 147)</b>						2 cm Muck (A10) <b>(MLRA 147)</b> Coast Prairie Redox (A16) <b>(MLRA 136, 147)</b> Piedmont Floodplain Soils (F19) <b>(MLRA 147, 148)</b> Very Shallow Dark Surface (TF12) Other (Explain in Remarks)		
Restrictive Layer (if observed): N/A						<b>Hydric Soil Present?</b> <b>Yes</b> <b>X</b> <b>No</b>		
Type: Depth (inches):								
Remarks:  The soils in this area correspond to the Depleted Matrix (F3) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the soils criterion.								



**WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont**

Project/Site: Portsmouth Bypass, SCI-823-0.00, Phase 3 City/County: Portsmouth/Scioto Co. Sampling Date: 2.18.13  
 Applicant/Owner: Ohio Department of Transportation State: OH Sampling Point: 70A  
 Investigator(s): Len Mikles and Jason Earley  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 2  
 Subregion (LRR or MLRA): LRR N Lat: 38.7745 Long: -82.8721 Datum: NAD 27  
 Soil Map Unit Name: ScF-Shelocta-Brownsville association, very steep NWI Classification: N/A  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes **X** No (If no, explain in Remarks.)  
 Are vegetation, Soil, or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes **X** No  
 Are vegetation, Soil **X**, or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present?	Yes	<b>X</b>	No	<b>Is the Sampled Area</b> <b>Within a Wetland?</b> Yes <b>X</b> No <b>Wetland 24</b>
Hydric Soils Present?	Yes	<b>X</b>	No	
Wetland Hydrology Present?	Yes	<b>X</b>	No	
Remarks: This area satisfies the three criteria necessary for a positive wetland determination. This area is a wetland.				

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>				
Primary Indicators (minimum of one is required; check all that apply)				Secondary Indicators (minimum of two required)
Surface Water(A1)				Surface Soil Cracks (B6)
High Water Table (A2)				Sparsely Vegetated Concave Surface (B8)
Saturation (A3)	<b>X</b>			Drainage Patterns (B10)
<b>X</b> Water Marks (B1)				Moss Trim Lines (B16)
<b>X</b> Sediment Deposits (B2)				Dry-Season Water Table (C2)
<b>X</b> Drift Deposits (B3)				Crayfish Burrows (C8)
Algal Mat or Crust (B4)				Saturation Visible on Aerial Imagery (C9)
Iron Deposits (B5)				Stunted or Stressed Plants (D1)
Inundation Visible on Aerial Imagery (B7)				<b>X</b> Geomorphic Position (D2)
Water Stained Leaves (B9)				Shallow Aquitard (D3)
Aquatic Fauna (B13)				Microtopographic Relief (D4)
				<b>X</b> FAC-Neutral Test (D5)
<b>Field Observations:</b>				
Surface Water Present?	Yes	No	<b>X</b> Depth (inches):	<b>Wetland Hydrology Present?</b> Yes <b>X</b> No
Water Table Present?	Yes	No	<b>X</b> Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	No	<b>X</b> Depth (inches):	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A				
Remarks: Wetland hydrology Indicators were observed. This observation satisfies the hydrology criterion.				

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **70A**

	Absolute % Cover	Dominant Species?	Indicator Status		
<b>Tree Stratum</b> (Plot size: 30 ft )				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: 5 (A)  Total Number of Dominant Species Across All Strata: 5 (B)  Percent of Dominant Species That are OBL, FACW, or FAC: 100% (A/B)	
1. <i>Acer saccharinum</i>	30	Yes	FACW		
2. <i>Platanus occidentalis</i>	30	Yes	FACW		
3.					
4.					
<b>Sapling/Shrub Stratum</b> (Plot size: 15 ft )				<b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL Species x 1 = FACW Species x 2 = FAC Species x 3 = FACU Species x 4 = UPL Species x 5 =  Column Totals: (A) (B)  Prevalence Index = B/A =	
1.					
2.					
3.					
4.					
<b>Herb Stratum</b> (Plot size: 5 ft )				<b>Hydrophytic Vegetation Indicators:</b> 1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
1. <i>Onoclea sensibilis</i>	10	Yes	FACW		
2. <i>Boehmeria cylindrica</i>	10	Yes	FACW		
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
<b>Woody Vine Stratum</b> (Plot size: 30 ft )				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.	
1. <i>Toxicodendron radicans</i>	15	Yes	FAC		
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
= Total Cover				<b>Hydrophytic Vegetation Present?</b> Yes    x    No	
= Total Cover					
Remarks: (Include photo numbers here or on a separate sheet.)  The Dominance Test is greater than 50 percent. This observation satisfies the vegetation criterion.					

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)										
Depth (inches)	Matrix		Redox Features				Texture	Remarks		
	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>				
0-18	10YR 4/3	95	7.5YR 4/4	5	C	PL	Loamy/Clayey			
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.						<sup>2</sup> Location: PL=Pore Lining, M=Matrix.				
<p style="text-align: center;"><b>Hydric Soil Indicators:</b></p> Histosol (A1) Dark Surface (S7) Histic Epipedon (A2) Polyvalue Below Surface (S8) <b>(MLRA 147, 148)</b> Black Histic (A3) Thin Dark Surface (S9) <b>(MLRA 147, 148)</b> Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Stratified Layers (A5) Depleted Matrix (F3) 2 cm Muck (A10) <b>(LRR N)</b> Redox Dark Surface (F6) Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Thick Dark Surface (A12) Redox Depression (F8) Sandy Mucky Mineral (S1) <b>(LRR N, MLRA 147, 148)</b> Iron-Manganese Masses (F12) <b>(LRR N, MLRA 136)</b> Sandy Gleyed Matrix (S4) Umbric Surface (F13) <b>(MLRA 136, 122)</b> Sandy Redox (S5) Piedmont Floodplain Soils (F19) <b>(MLRA 148)</b> Stripped Matrix (S6) Red Parent Material (F21) <b>(MLRA 127, 147)</b>						<p style="text-align: center;"><b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b></p> 2 cm Muck (A10) <b>(MLRA 147)</b> Coast Prairie Redox (A16) <b>(MLRA 136, 147)</b> Piedmont Floodplain Soils (F19) <b>(MLRA 147, 148)</b> Very Shallow Dark Surface (TF12) Other (Explain in Remarks): <b>Fluvial Sediments within a Floodplain</b>				
Restrictive Layer (if observed): N/A						<sup>3</sup> Indicators of Hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic				
Type:								<b>Hydric Soil Present?</b>		
Depth (inches):								Yes	X	No
Remarks:  The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). The soils observed were compared to all the indicators applicable to the Eastern Mountains and Piedmont region. None of the hydric indicators contain layers with a chroma of 3.  In addition, the problematic hydric soils section of the regional supplement was followed since hydrophytic vegetation and hydrology appear to be present at the site. The soils were evaluated to see if an indicator for problematic hydric soil is present. The soils did not appear to correspond to any of the problematic hydric soils.  However, the regional supplement indicates that if the site has fluvial sediments within a floodplain it is considered a problematic soil situation and the soils should be considered hydric. The soils observed in this area meet this criterion. Deposited sediments were observed in the area. The tree trunks observed in the area are buried with over 1 foot of fluvial sediments. This observation satisfies the soil criterion needed for a positive wetland determination.										







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 71

	Absolute % Cover	Dominant Species?	Indicator Status	
<u>Tree Stratum</u> (Plot size: 30 ft ) 1. 2. 3. 4. 5.				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)  Total Number of Dominant Species Across All Strata: 1 (B)  Percent of Dominant Species That are OBL, FACW, or FAC: 0 (A/B)
<u>Sapling/Shrub Stratum</u> (Plot size: 15 ft ) 1. 2. 3. 4. 5.		= Total Cover		
<u>Herb Stratum</u> (Plot size: 5 ft ) 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11.		= Total Cover		
<u>Woody Vine Stratum</u> (Plot size: 30 ft ) 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.		= Total Cover		<b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL Species x 1 = FACW Species x 2 = FAC Species x 3 = FACU Species x 4 = UPL Species x 5 =  Column Totals: (A) (B)  Prevalence Index = B/A =
				<b>Hydrophytic Vegetation Indicators:</b> 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
				<b>Hydrophytic Vegetation Present?</b> <b>Yes</b> <b>No</b> <b>X</b>
Remarks: (Include photo numbers here or on a separate sheet.)  The sampling point was taken on an eroded slope with no vegetation. The Dominance Test is less than 50 percent. This observation does not satisfy the vegetation criterion.				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-6	10YR 6/3	100					Loamy/Clayey					
>6	IMPENETRABLE						Rocky Soil					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>							<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b>					
Histosol (A1)			Dark Surface (S7)				2 cm Muck (A10) (MLRA 147)					
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)				Coast Prairie Redox (A16) (MLRA 136, 147)					
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)				Piedmont Floodplain Soils (F19) (MLRA 147, 148)					
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)				Very Shallow Dark Surface (TF12)					
Stratified Layers (A5)			Depleted Matrix (F3)				Other (Explain in Remarks)					
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed):												
Type: Rocky Soil												
Depth (inches): 6							<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>		<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:												
The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												



**WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont**

Project/Site: Portsmouth Bypass, SCI-823-0.00, Phase 3 City/County: Portsmouth/Scioto Co. Sampling Date: 2.18.13  
 Applicant/Owner: Ohio Department of Transportation State: OH Sampling Point: 71A  
 Investigator(s): Len Mikles and Jason Earley  
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 10  
 Subregion (LRR or MLRA): LRR N Lat: 38.7747 Long: -82.8722 Datum: NAD 27  
 Soil Map Unit Name: ScF-Shelocta-Brownsville association, very steep NWI Classification: N/A  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes **X** No (If no, explain in Remarks.)  
 Are vegetation, Soil, or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes **X** No  
 Are vegetation, Soil, or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present?	Yes	<b>X</b>	No	<b>Is the Sampled Area</b> <b>Within a Wetland?</b> Yes      No <b>X</b> <b>Out Point for Wetland 24</b>
Hydric Soils Present?	Yes	No	<b>X</b>	
Wetland Hydrology Present?	Yes	No	<b>X</b>	
Remarks: This area satisfies only one of the three criteria necessary for a positive wetland determination. This area is not a wetland.				

**HYDROLOGY**

Wetland Hydrology Indicators:				
Primary Indicators (minimum of one is required; check all that apply)			Secondary Indicators (minimum of two required)	
Surface Water(A1)	True Aquatic Plants (B14)	Surface Soil Cracks (B6)		
High Water Table (A2)	Hydrogen Sulfide Odor (C1)	Sparsely Vegetated Concave Surface (B8)		
Saturation (A3)	Oxidized Rhizospheres on Living Roots (C3)	Drainage Patterns (B10)		
Water Marks (B1)	Presence of Reduced Iron (C4)	Moss Trim Lines (B16)		
Sediment Deposits (B2)	Recent Iron Reduction in Tilled Soils (C6)	Dry-Season Water Table (C2)		
Drift Deposits (B3)	Thin Muck Surface (C7)	Crayfish Burrows (C8)		
Algal Mat or Crust (B4)	Other (Explain in Remarks)	Saturation Visible on Aerial Imagery (C9)		
Iron Deposits (B5)		Stunted or Stressed Plants (D1)		
Inundation Visible on Aerial Imagery (B7)		Geomorphic Position (D2)		
Water Stained Leaves (B9)		Shallow Aquitard (D3)		
Aquatic Fauna (B13)		Microtopographic Relief (D4)		
		FAC-Neutral Test (D5)		
<b>Field Observations:</b>				
Surface Water Present?	Yes	No	<b>X</b>	Depth (inches):
Water Table Present?	Yes	No	<b>X</b>	Depth (inches):
Saturation Present?	Yes	No	<b>X</b>	Depth (inches):
(includes capillary fringe)			<b>Wetland Hydrology Present?</b> Yes      No <b>X</b>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A				
Remarks: Wetland hydrology Indicators were not observed at this sampling point. This observation does not satisfy the hydrology criterion.				

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **71A**

<p><u>Tree Stratum</u> (Plot size: 30 ft )</p>					<p><b>Dominance Test Worksheet:</b></p> <p>Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)</p> <p>Total Number of Dominant Species Across All Strata: 3 (B)</p> <p>Percent of Dominant Species That are OBL, FACW, or FAC: 0 (A/B)</p>
1. <i>Acer saccharinum</i>	10	Yes	FACW		
2.					
3.					
4.					
= Total Cover					
<p><u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )</p>					<p><b>Prevalence Index Worksheet:</b></p> <p>Total % Cover of: Multiply by:</p> <p>OBL Species x 1 =</p> <p>FACW Species x 2 =</p> <p>FAC Species x 3 =</p> <p>FACU Species x 4 =</p> <p>UPL Species x 5 =</p> <p>Column Totals: (A) (B)</p> <p>Prevalence Index = B/A =</p>
1. <i>Rosa multiflora</i>	30	Yes	FACU		
2.					
3.					
4.					
= Total Cover					
<p><u>Herb Stratum</u> (Plot size: 5 ft )</p>					<p><b>Hydrophytic Vegetation Indicators:</b></p> <p>1 - Rapid Test for Hydrophytic Vegetation</p> <p><input checked="" type="checkbox"/> 2 - Dominance Test is &gt; 50%</p> <p>3 - Prevalence Index is ≤3.0<sup>1</sup></p> <p>4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</p> <p>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</p> <p><sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
= Total Cover					
<p><u>Woody Vine Stratum</u> (Plot size: 30 ft )</p>					<p><b>Definitions of Four Vegetation Strata:</b></p> <p><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height</p> <p><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p><b>Woody vine</b> – All woody vines greater than 3.28 ft in height.</p>
1. <i>Lonicera japonica</i>	50	Yes	FAC		
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
= Total Cover					
<p><b>Hydrophytic Vegetation Present? Yes X No</b></p>					
<p>Remarks: (Include photo numbers here or on a separate sheet.)</p> <p>The Dominance Test is greater than 50 percent. This observation satisfies the vegetation criterion.</p>					

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-1	IMPENETRABLE						Rocky Soil	
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.						<sup>2</sup> Location: PL=Pore Lining, M=Matrix.		
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) <b>(LRR N)</b> Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) <b>(LRR N, MLRA 147, 148)</b> Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6)			Dark Surface (S7) Polyvalue Below Surface (S8) <b>(MLRA 147, 148)</b> Thin Dark Surface (S9) <b>(MLRA 147, 148)</b> Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) <b>(LRR N, MLRA 136)</b> Umbric Surface (F13) <b>(MLRA 136, 122)</b> Piedmont Floodplain Soils (F19) <b>(MLRA 148)</b> Red Parent Material (F21) <b>(MLRA 127, 147)</b>			<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b> 2 cm Muck (A10) <b>(MLRA 147)</b> Coast Prairie Redox (A16) <b>(MLRA 136, 147)</b> Piedmont Floodplain Soils (F19) <b>(MLRA 147, 148)</b> Very Shallow Dark Surface (TF12) Other (Explain in Remarks)		
Restrictive Layer (if observed): Type: Rocky Soil Depth (inches): 1								
			<b>Hydric Soil Present?</b>		Yes	No	X	
Remarks: The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.								







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 72

	Absolute % Cover	Dominant Species?	Indicator Status	
<p><b>Tree Stratum</b> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Dominance Test Worksheet:</b></p> <p>Number of Dominant Species That are OBL, FACW, or FAC: (A)</p> <p>Total Number of Dominant Species Across All Strata: (B)</p> <p>Percent of Dominant Species That are OBL, FACW, or FAC: (A/B)</p>
<p style="text-align: right;">= Total Cover</p>				
<p><b>Sapling/Shrub Stratum</b> (Plot size: 15 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Prevalence Index Worksheet:</b></p> <p>Total % Cover of:                      Multiply by:</p> <p>OBL Species                                      x 1 =</p> <p>FACW Species                                    x 2 =</p> <p>FAC Species                                      x 3 =</p> <p>FACU Species                                    x 4 =</p> <p>UPL Species                                      x 5 =</p> <p>Column Totals:                                      (A)                      (B)</p> <p style="text-align: center;">Prevalence Index = B/A =</p>
<p style="text-align: right;">= Total Cover</p>				
<p><b>Herb Stratum</b> (Plot size: 5 ft )</p> <p>1. <i>Paspalum repens</i>                                      30                      Yes                      OBL</p> <p>2. <i>Persicaria pensylvanica</i>                                      20                      Yes                      FACW</p> <p>3. <i>Bidens frondosa</i>                                      20                      Yes                      FACW</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p> <p>11.</p>				<p><b>Hydrophytic Vegetation Indicators:</b></p> <p><b>X</b> 1 - Rapid Test for Hydrophytic Vegetation</p> <p>2 - Dominance Test is &gt; 50%</p> <p>3 - Prevalence Index is ≤3.0<sup>1</sup></p> <p>4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</p> <p>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</p> <p><sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>
<p style="text-align: right;">70                      = Total Cover</p>				
<p><b>Woody Vine Stratum</b> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p>				<p><b>Definitions of Four Vegetation Strata:</b></p> <p><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height</p> <p><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p><b>Woody vine</b> – All woody vines greater than 3.28 ft in height.</p>
<p style="text-align: right;">= Total Cover</p>				
<p><b>Hydrophytic Vegetation Present?</b>                      Yes                      X                      No</p>				
<p>Remarks: (Include photo numbers here or on a separate sheet.)</p> <p>The dominant species have a wetland indicator status of OBL and FACW. This observation satisfies the vegetation criterion.</p>				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-12	10YR 6/1	95	10YR 5/6	5	C	PL	Loamy/Clayey					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.												
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2)  Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) <b>(LRR N)</b> Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) <b>(LRR N, MLRA 147, 148)</b> Sandy Gleyed Matrix (S4) Sandy Redox (S5)  Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) <b>(MLRA 147, 148)</b>  Thin Dark Surface (S9) <b>(MLRA 147, 148)</b>  Loamy Gleyed Matrix (F2) X Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) <b>(LRR N, MLRA 136)</b> Umbric Surface (F13) <b>(MLRA 136, 122)</b> Piedmont Floodplain Soils (F19) <b>(MLRA 148)</b> Red Parent Material (F21) <b>(MLRA 127, 147)</b>		<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b> 2 cm Muck (A10) <b>(MLRA 147)</b> Coast Prairie Redox (A16) <b>(MLRA 136, 147)</b> Piedmont Floodplain Soils (F19) <b>(MLRA 147, 148)</b> Very Shallow Dark Surface (TF12) Other (Explain in Remarks)				
Restrictive Layer (if observed): N/A Type: Depth (inches):						<sup>3</sup> Indicators of Hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic  <table border="0"> <tr> <td style="text-align: center;"><b>Hydric Soil Present?</b></td> <td style="text-align: center;">Yes</td> <td style="text-align: center;">X</td> <td style="text-align: center;">No</td> </tr> </table>			<b>Hydric Soil Present?</b>	Yes	X	No
<b>Hydric Soil Present?</b>	Yes	X	No									
Remarks:  The soils in this area correspond to the Depleted Matrix (F3) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the soils criterion.												





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 73

	Absolute % Cover	Dominant Species?	Indicator Status	
<u>Tree Stratum</u> (Plot size: 30 ft ) 1. 2. 3. 4. 5.				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)  Total Number of Dominant Species Across All Strata: 1 (B)  Percent of Dominant Species That are OBL, FACW, or FAC: 0 (A/B)
<u>Sapling/Shrub Stratum</u> (Plot size: 15 ft ) 1. 2. 3. 4. 5.		= Total Cover		
<u>Herb Stratum</u> (Plot size: 5 ft ) 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11.		= Total Cover		
<u>Woody Vine Stratum</u> (Plot size: 30 ft ) 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.		= Total Cover		<b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL Species x 1 = FACW Species x 2 = FAC Species x 3 = FACU Species x 4 = UPL Species x 5 =  Column Totals: (A) (B)  Prevalence Index = B/A =
				<b>Hydrophytic Vegetation Indicators:</b> 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
				<b>Hydrophytic Vegetation Present?</b> <b>Yes</b> <b>No</b> <b>X</b>
Remarks: (Include photo numbers here or on a separate sheet.)  The sampling point was taken on an eroded slope with no vegetation. The Dominance Test is less than 50 percent. This observation does not satisfy the vegetation criterion.				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-6	10YR 6/3	100					Sandy					
>6	IMPENETRABLE						Rocky Soil					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>						
Histosol (A1)			Dark Surface (S7)			2 cm Muck (A10) (MLRA 147)						
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)			Coast Prairie Redox (A16) (MLRA 136, 147)						
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)			Piedmont Floodplain Soils (F19) (MLRA 147, 148)						
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)			Very Shallow Dark Surface (TF12)						
Stratified Layers (A5)			Depleted Matrix (F3)			Other (Explain in Remarks)						
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed):												
Type: Rocky Soil												
Depth (inches): 6												
						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:												
The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 74

	Absolute % Cover	Dominant Species?	Indicator Status	
<p><u>Tree Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Dominance Test Worksheet:</b></p> <p>Number of Dominant Species That are OBL, FACW, or FAC: (A)</p> <p>Total Number of Dominant Species Across All Strata: (B)</p> <p>Percent of Dominant Species That are OBL, FACW, or FAC: (A/B)</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Prevalence Index Worksheet:</b></p> <p>Total % Cover of:                      Multiply by:</p> <p>OBL Species                                      x 1 =</p> <p>FACW Species                                    x 2 =</p> <p>FAC Species                                      x 3 =</p> <p>FACU Species                                    x 4 =</p> <p>UPL Species                                      x 5 =</p> <p>Column Totals:                                      (A)                      (B)</p> <p style="text-align: center;">Prevalence Index = B/A =</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Herb Stratum</u> (Plot size: 5 ft )</p> <p>1. <i>Echinochloa muricata</i>                      50                      Yes                      FACW</p> <p>2. <i>Ludwigia palustris</i>                      20                      Yes                      OBL</p> <p>3. <i>Xanthium strumarium</i>                      10                      No                      FAC</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p> <p>11.</p>				<p><b>Hydrophytic Vegetation Indicators:</b></p> <p><b>X</b> 1 - Rapid Test for Hydrophytic Vegetation</p> <p>2 - Dominance Test is &gt; 50%</p> <p>3 - Prevalence Index is ≤3.0<sup>1</sup></p> <p>4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</p> <p>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</p> <p><sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>
<p style="text-align: right;">80                      = Total Cover</p>				
<p><u>Woody Vine Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p>				<p><b>Definitions of Four Vegetation Strata:</b></p> <p><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height</p> <p><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p><b>Woody vine</b> – All woody vines greater than 3.28 ft in height.</p>
<p style="text-align: right;">= Total Cover</p>				
<p><b>Hydrophytic Vegetation Present?      Yes      X      No</b></p>				
<p>Remarks: (Include photo numbers here or on a separate sheet.)</p> <p>The dominant species have a wetland indicator status of OBL and FACW. This observation satisfies the vegetation criterion.</p>				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-7	10YR 5/1	95	10YR 5/6	5	C	PL	Loamy/Clayey	
>7	IMPENETRABLE							
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.			
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b>		
Histosol (A1) Dark Surface (S7) Histic Epipedon (A2) Polyvalue Below Surface (S8) <b>(MLRA 147, 148)</b> Black Histic (A3) Thin Dark Surface (S9) <b>(MLRA 147, 148)</b> Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Stratified Layers (A5) <b>X</b> Depleted Matrix (F3) 2 cm Muck (A10) <b>(LRR N)</b> Redox Dark Surface (F6) Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Thick Dark Surface (A12) Redox Depression (F8) Sandy Mucky Mineral (S1) <b>(LRR N, MLRA 147, 148)</b> Iron-Manganese Masses (F12) <b>(LRR N, MLRA 136)</b> Sandy Gleyed Matrix (S4) Umbric Surface (F13) <b>(MLRA 136, 122)</b> Sandy Redox (S5) Piedmont Floodplain Soils (F19) <b>(MLRA 148)</b> Stripped Matrix (S6) Red Parent Material (F21) <b>(MLRA 127, 147)</b>						2 cm Muck (A10) <b>(MLRA 147)</b> Coast Prairie Redox (A16) <b>(MLRA 136, 147)</b> Piedmont Floodplain Soils (F19) <b>(MLRA 147, 148)</b> Very Shallow Dark Surface (TF12) Other (Explain in Remarks)		
Restrictive Layer (if observed):						<sup>3</sup> Indicators of Hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic		
Type: Rocky Soil						<b>Hydric Soil Present?</b> Yes    X    No		
Depth (inches): 7								
Remarks:								
The soils in this area correspond to the Depleted Matrix (F3) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the soils criterion.								





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 75

	Absolute % Cover	Dominant Species?	Indicator Status																						
<b>Tree Stratum</b> (Plot size: 30 ft )				<p><b>Dominance Test Worksheet:</b></p> <p>Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)</p> <p>Total Number of Dominant Species Across All Strata: 2 (B)</p> <p>Percent of Dominant Species That are OBL, FACW, or FAC: 50% (A/B)</p> <hr/> <p><b>Prevalence Index Worksheet:</b></p> <table style="width: 100%;"> <tr> <td>Total % Cover of:</td> <td>Multiply by:</td> <td></td> </tr> <tr> <td>OBL Species</td> <td>x 1 =</td> <td></td> </tr> <tr> <td>FACW Species 85</td> <td>x 2 =</td> <td>170</td> </tr> <tr> <td>FAC Species 10</td> <td>x 3 =</td> <td>30</td> </tr> <tr> <td>FACU Species 5</td> <td>x 4 =</td> <td>20</td> </tr> <tr> <td>UPL Species</td> <td>x 5 =</td> <td></td> </tr> <tr> <td>Column Totals:</td> <td>100 (A)</td> <td>220 (B)</td> </tr> </table> <p style="text-align: center;">Prevalence Index = B/A = 2.2</p> <p><b>Hydrophytic Vegetation Indicators:</b></p> <p>1 - Rapid Test for Hydrophytic Vegetation</p> <p>2 - Dominance Test is &gt; 50%</p> <p><b>X</b> 3 - Prevalence Index is ≤3.0<sup>1</sup></p> <p>4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</p> <p>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</p> <p><sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p> <hr/> <p><b>Definitions of Four Vegetation Strata:</b></p> <p><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height</p> <p><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p><b>Woody vine</b> – All woody vines greater than 3.28 ft in height.</p> <hr/> <p><b>Hydrophytic Vegetation Present?</b>    <b>Yes</b>    <b>X</b>    <b>No</b></p>	Total % Cover of:	Multiply by:		OBL Species	x 1 =		FACW Species 85	x 2 =	170	FAC Species 10	x 3 =	30	FACU Species 5	x 4 =	20	UPL Species	x 5 =		Column Totals:	100 (A)	220 (B)
Total % Cover of:	Multiply by:																								
OBL Species	x 1 =																								
FACW Species 85	x 2 =	170																							
FAC Species 10	x 3 =	30																							
FACU Species 5	x 4 =	20																							
UPL Species	x 5 =																								
Column Totals:	100 (A)	220 (B)																							
1.																									
2.																									
3.																									
4.																									
5.																									
		= Total Cover																							
<b>Sapling/Shrub Stratum</b> (Plot size: 15 ft )																									
1. <i>Rubus allegheniensis</i>	5	Yes	FACU																						
2.																									
3.																									
4.																									
5.																									
	5	= Total Cover																							
<b>Herb Stratum</b> (Plot size: 5 ft )																									
1. <i>Symphotrichum lateriflorum</i>	85	Yes	FACW																						
2. <i>Vernonia gigantea</i>	10	No	FAC																						
3.																									
4.																									
5.																									
6.																									
7.																									
8.																									
9.																									
10.																									
11.																									
	95	= Total Cover																							
<b>Woody Vine Stratum</b> (Plot size: 30 ft )																									
1.																									
2.																									
3.																									
4.																									
5.																									
6.																									
7.																									
8.																									
9.																									
10.																									
		= Total Cover																							
Remarks: (Include photo numbers here or on a separate sheet.)																									
The Prevalence Index is less than 3.0. This observation satisfies the vegetation criterion.																									

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-5	10YR 5/4	95	10YR 5/8	5	C	PL	Loamy/Clayey	
5-18	10YR 5/4	100					Loamy/Clayey	
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.								
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) (LRR N) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) (MLRA 147, 148) Thin Dark Surface (S9) (MLRA 147, 148) Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148) Red Parent Material (F21) (MLRA 127, 147)		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> 2 cm Muck (A10) (MLRA 147) Coast Prairie Redox (A16) (MLRA 136, 147) Piedmont Floodplain Soils (F19) (MLRA 147, 148) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) : <b>Seasonally Pondered Soils</b> X
Restrictive Layer (if observed):N/A Type: Depth (inches):						<b>Hydric Soil Present?</b> Yes      X      No		
<b>Remarks:</b> <p>The soils observed do not correspond to none of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). There is evidence of wetland hydrology and hydrophytic vegetation at this sampling point. As a result, the problematic hydric soils section of the regional supplement was consulted.</p> <p>It appears that the sampling point meets the criteria for the Seasonally Pondered Soils problematic soil situation. These soils are located in ponded depressions in floodplains where receding floodwaters, precipitation, and local runoff are held above a slowly permeable soil layer. Some of these wetlands lack hydric soil indicators due to the limited saturation depth. These conditions appear to be present at the site. The site is a concave depression in a floodplain that appears to hold flood waters. The ponding and flooding conditions were inferred from watermarks on trees in the area. The soil were only evaluated to a depth 18 inches below the soil surface. No restrictive layer was encountered. A restrictive layer is assumed to be below 18 inches. These observations satisfy the Seasonally Pondered Soils problematic soil situation.</p>								







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **76**

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: 30 ft )				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC:                      3                      (A)  Total Number of Dominant Species Across All Strata:                      3                      (B)  Percent of Dominant Species That are OBL, FACW, or FAC:                      100%                      (A/B)
1.				
2.				
3.				
4.				
		= Total Cover		<b>Prevalence Index Worksheet:</b> Total % Cover of:                      Multiply by: OBL Species                      × 1 = FACW Species                      × 2 = FAC Species                      × 3 = FACU Species                      × 4 = UPL Species                      × 5 =  Column Totals:                      (A)                      (B)  Prevalence Index = B/A =
<b>Sapling/Shrub Stratum</b> (Plot size: 15 ft )				
1. <i>Acer saccharinum</i>	5	Yes	FACW	
2. <i>Gleditsia tricanthos</i>	5	Yes	FAC	
3.				
	10	= Total Cover		
<b>Herb Stratum</b> (Plot size: 5 ft )				<b>Hydrophytic Vegetation Indicators:</b> 1 - Rapid Test for Hydrophytic Vegetation <b>X</b> 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <i>Symphotrichum lateriflorum</i>	85	Yes	FACW	
2. <i>Vernonia gigantea</i>	10	No	FAC	
3. <i>Xanthium strumarium</i>	5	No	FAC	
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
	100	= Total Cover		
<b>Woody Vine Stratum</b> (Plot size: 30 ft )				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
		= Total Cover		
				<b>Hydrophytic Vegetation Present?</b> <b>Yes</b> <b>X</b> <b>No</b>
Remarks: (Include photo numbers here or on a separate sheet.)  The Dominance Test is greater than 50 percent. This observation satisfies the vegetation criterion.				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-5	10YR 5/4	95	10YR 5/8	5	C	PL	Loamy/Clayey					
5-18	10YR 5/4	100					Loamy/Clayey					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.												
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) (LRR N) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) (MLRA 147, 148) Thin Dark Surface (S9) (MLRA 147, 148) Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148) Red Parent Material (F21) (MLRA 127, 147)		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> 2 cm Muck (A10) (MLRA 147) Coast Prairie Redox (A16) (MLRA 136, 147) Piedmont Floodplain Soils (F19) (MLRA 147, 148) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) : <b>Seasonally Ponded Soils</b> X				
Restrictive Layer (if observed):N/A Type: Depth (inches):						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>X</b></td> <td><b>No</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>X</b>	<b>No</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>X</b>	<b>No</b>									
<b>Remarks:</b> The soils observed do not correspond to none of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). There is evidence of wetland hydrology and hydrophytic vegetation at this sampling point. As a result, the problematic hydric soils section of the regional supplement was consulted. It appears that the sampling point meets the criteria for the Seasonally Ponded Soils problematic soil situation. These soils are located in ponded depressions in floodplains where receding floodwaters, precipitation, and local runoff are held above a slowly permeable soil layer. Some of these wetlands lack hydric soil indicators due to the limited saturation depth. These conditions appear to be present at the site. The site is a concave depression in a floodplain that appears to hold flood waters. The ponding and flooding conditions were inferred from watermarks on trees in the area. The soil were only evaluated to a depth 18 inches below the soil surface. No restrictive layer was encountered. A restrictive layer is assumed to be below 18 inches. These observations satisfy the Seasonally Ponded Soils problematic soil situation.												





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **77**

	Absolute % Cover	Dominant Species?	Indicator Status	
<u>Tree Stratum</u> (Plot size: 30 ft ) 1. 2. 3. 4. 5.				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)  Total Number of Dominant Species Across All Strata: 1 (B)  Percent of Dominant Species That are OBL, FACW, or FAC: 0 (A/B)
<u>Sapling/Shrub Stratum</u> (Plot size: 15 ft ) 1. 2. 3. 4. 5.		= Total Cover		
<u>Herb Stratum</u> (Plot size: 5 ft ) 1. <i>Festuca arundinacea</i> 2. 3. 4. 5. 6. 7. 8. 9. 10. 11.	100	Yes	FACU	
<u>Woody Vine Stratum</u> (Plot size: 30 ft ) 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.	100	= Total Cover		<b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL Species x 1 = FACW Species x 2 = FAC Species x 3 = FACU Species x 4 = UPL Species x 5 =  Column Totals: (A) (B)  Prevalence Index = B/A =
				<b>Hydrophytic Vegetation Indicators:</b> 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
				<b>Hydrophytic Vegetation Present?</b> <b>Yes</b> <b>No</b> <b>X</b>
Remarks: (Include photo numbers here or on a separate sheet.)  The Dominance Test is less than 50 percent. This observation does not satisfy the vegetation criterion.				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-8	10YR 5/4	100					Loamy Clayey					
>8	IMPENETRABLE						Rocky Soil					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>							<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>					
Histosol (A1)			Dark Surface (S7)				2 cm Muck (A10) (MLRA 147)					
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)				Coast Prairie Redox (A16) (MLRA 136, 147)					
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)				Piedmont Floodplain Soils (F19) (MLRA 147, 148)					
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)				Very Shallow Dark Surface (TF12)					
Stratified Layers (A5)			Depleted Matrix (F3)				Other (Explain in Remarks)					
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed):												
Type: Rocky Soil												
Depth (inches): 8							<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>		<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:												
The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **78**

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: 30 ft )				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: (A)  Total Number of Dominant Species Across All Strata: (B)  Percent of Dominant Species That are OBL, FACW, or FAC: (A/B)
1. <i>Salix nigra</i>	40	Yes	OBL	
2. <i>Acer saccharinum</i>	10	Yes	FACW	
3.				
4.				
5.				
50 = Total Cover				
<b>Sapling/Shrub Stratum</b> (Plot size: 15 ft )				
1.				
2.				
3.				
4.				
5.				
= Total Cover				
<b>Herb Stratum</b> (Plot size: 5 ft )				
1. <i>Symphotrichum lateriflorum</i>	40	Yes	FACW	
2. <i>Pilea pumila</i>	40	Yes	FACW	
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
80 = Total Cover				
<b>Woody Vine Stratum</b> (Plot size: 30 ft )				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
= Total Cover				
<b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL Species x 1 = FACW Species x 2 = FAC Species x 3 = FACU Species x 4 = UPL Species x 5 =  Column Totals: (A) (B)  Prevalence Index = B/A =				
<b>Hydrophytic Vegetation Indicators:</b> X 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)				
<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.				
<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.				
<b>Hydrophytic Vegetation Present?</b> Yes    X    No				
Remarks: (Include photo numbers here or on a separate sheet.)  The dominant species observed have a wetland indicator status of FACW and OBL. This observation satisfies the Rapid Test for Hydrophytic Vegetation.				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-18	10YR 4/1	95	10YR 4/4	5	C	PL	Loamy/Clayey	
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.								
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2)  Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) (LRR N) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5)  Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) (MLRA 147, 148)  Thin Dark Surface (S9) (MLRA 147, 148)  Loamy Gleyed Matrix (F2) X Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148) Red Parent Material (F21) (MLRA 127, 147)		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> 2 cm Muck (A10) (MLRA 147) Coast Prairie Redox (A16) (MLRA 136, 147) Piedmont Floodplain Soils (F19) (MLRA 147, 148) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) :
Restrictive Layer (if observed):N/A Type: Depth (inches):						<b>Hydric Soil Present?</b> Yes    X    No		
<b>Remarks:</b>  The soils observed correspond to the Depleted Matrix (F3) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the vegetation criterion.								





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 79

	Absolute % Cover	Dominant Species?	Indicator Status				
<b>Tree Stratum</b> (Plot size: 30 ft )				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)  Total Number of Dominant Species Across All Strata: 5 (B)  Percent of Dominant Species That are OBL, FACW, or FAC: 20 (A/B)  <b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL Species x 1 = FACW Species x 2 = FAC Species x 3 = FACU Species x 4 = UPL Species x 5 =  Column Totals: (A) (B)  Prevalence Index = B/A =			
1. <i>Liriodendron tulipifera</i>	40	Yes	FACU				
2. <i>Robinia pseudoacacia</i>	15	Yes	FACU				
3.							
4.							
5.							
55 = Total Cover							
<b>Sapling/Shrub Stratum</b> (Plot size: 15 ft )							
1. <i>Asimina triloba</i>	15	Yes	FAC				
2.							
3.							
4.							
5.							
= Total Cover							
<b>Herb Stratum</b> (Plot size: 5 ft )							
1. <i>Asarum canadense</i>	35	Yes	FACU				
2. <i>Sanicula odorata</i>	35	Yes	FACU				
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							
70 = Total Cover							
<b>Woody Vine Stratum</b> (Plot size: 30 ft )							
1.							
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
= Total Cover							
<b>Hydrophytic Vegetation Indicators:</b> 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)							
<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.							
<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.							
<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:60%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width:10%; text-align: center;"><b>Yes</b></td> <td style="width:10%; text-align: center;"><b>No</b></td> <td style="width:10%; text-align: center;"><b>X</b></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydrophytic Vegetation Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>				
Remarks: (Include photo numbers here or on a separate sheet.)  The Dominance Test is less than 50 percent. This observation does not satisfy the vegetation criterion.							

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-4	10YR 4/3	100					Loamy Clayey					
4-12	10YR 6/6	100					Loamy Clayey					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>							<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>					
Histosol (A1)			Dark Surface (S7)				2 cm Muck (A10) (MLRA 147)					
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)				Coast Prairie Redox (A16) (MLRA 136, 147)					
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)				Piedmont Floodplain Soils (F19) (MLRA 147, 148)					
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)				Very Shallow Dark Surface (TF12)					
Stratified Layers (A5)			Depleted Matrix (F3)				Other (Explain in Remarks)					
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed): N/A												
Type:												
Depth (inches):							<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>		<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:												
The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												









Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-18	10YR 4/1	95	10YR 4/4	5	C	PL	Loamy/Clayey					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b>						
Histosol (A1)			Dark Surface (S7)			2 cm Muck (A10) (MLRA 147)						
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)			Coast Prairie Redox (A16) (MLRA 136, 147)						
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)			Piedmont Floodplain Soils (F19) (MLRA 147, 148)						
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)			Very Shallow Dark Surface (TF12)						
Stratified Layers (A5)			X Depleted Matrix (F3)			Other (Explain in Remarks) :						
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed):N/A												
Type:												
Depth (inches):						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td>Yes</td> <td>X</td> <td>No</td> </tr> </table>			<b>Hydric Soil Present?</b>	Yes	X	No
<b>Hydric Soil Present?</b>	Yes	X	No									
Remarks:												
The soils observed correspond to the Depleted Matrix (F3) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the vegetation criterion.												





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **81**

	Absolute % Cover	Dominant Species?	Indicator Status				
<b>Tree Stratum</b> (Plot size: 30 ft )				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)  Total Number of Dominant Species Across All Strata: 3 (B)  Percent of Dominant Species That are OBL, FACW, or FAC: 0 (A/B)  <b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL Species x 1 = FACW Species x 2 = FAC Species x 3 = FACU Species x 4 = UPL Species x 5 =  Column Totals: (A) (B)  Prevalence Index = B/A =			
1. <i>Robinia pseudoacacia</i>	15	Yes	FACU				
2. <i>Prunus serotina</i>	10	Yes	FACU				
3. <i>Acer saccharum</i>	5	No	FACU				
4.							
5.							
30 = Total Cover							
<b>Sapling/Shrub Stratum</b> (Plot size: 15 ft )							
1.							
2.							
3.							
4.							
5.							
= Total Cover							
<b>Herb Stratum</b> (Plot size: 5 ft )							
1. <i>Asarum canadense</i>	35	Yes	FACU				
2. <i>Polystichum acrostichoides</i>	5	No	FACU				
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							
40 = Total Cover							
<b>Woody Vine Stratum</b> (Plot size: 30 ft )							
1.							
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
= Total Cover							
<b>Hydrophytic Vegetation Indicators:</b> 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)							
<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.							
<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.							
<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:60%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width:10%; text-align: center;"><b>Yes</b></td> <td style="width:10%; text-align: center;"><b>No</b></td> <td style="width:20%; text-align: center;"><b>X</b></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydrophytic Vegetation Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>				
Remarks: (Include photo numbers here or on a separate sheet.)  The Dominance Test is less than 50 percent. This observation does not satisfy the vegetation criterion.							

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-4	10YR 4/3	100					Loamy Clayey					
4-12	10YR 6/6	100					Loamy Clayey					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>							<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b>					
Histosol (A1)			Dark Surface (S7)				2 cm Muck (A10) (MLRA 147)					
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)				Coast Prairie Redox (A16) (MLRA 136, 147)					
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)				Piedmont Floodplain Soils (F19) (MLRA 147, 148)					
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)				Very Shallow Dark Surface (TF12)					
Stratified Layers (A5)			Depleted Matrix (F3)				Other (Explain in Remarks)					
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed): N/A												
Type:												
Depth (inches):							<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>		<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:												
The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **82**

	Absolute % Cover	Dominant Species?	Indicator Status	
<u>Tree Stratum</u> (Plot size: 30 ft ) 1. 2. 3. 4. 5.				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: (A)  Total Number of Dominant Species Across All Strata: (B)  Percent of Dominant Species That are OBL, FACW, or FAC: (A/B)
<u>Sapling/Shrub Stratum</u> (Plot size: 15 ft ) 1. 2. 3. 4. 5.		= Total Cover		
<u>Herb Stratum</u> (Plot size: 5 ft ) 1. <i>Elodea canadensis</i> 2. 3. 4. 5. 6. 7. 8. 9. 10. 11	100	Yes	OBL	
<u>Woody Vine Stratum</u> (Plot size: 30 ft ) 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.	100	= Total Cover		<b>Prevalence Index Worksheet:</b> Total % Cover of:                      Multiply by: OBL Species                                      x 1 = FACW Species                                      x 2 = FAC Species                                        x 3 = FACU Species                                      x 4 = UPL Species                                        x 5 =  Column Totals:                                      (A)                      (B)  Prevalence Index = B/A =
				<b>Hydrophytic Vegetation Indicators:</b> X 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
				<b>Hydrophytic Vegetation Present?</b> Yes      X      No
Remarks: (Include photo numbers here or on a separate sheet.)  The dominant species observed have a wetland indicator status of OBL. This observation satisfies the Rapid Test for Hydrophytic Vegetation.				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-18	10YR 4/1	95	10YR 4/6	5	C	PL	Loamy/Clayey					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.												
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2)  Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) (LRR N) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5)  Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) (MLRA 147, 148)  Thin Dark Surface (S9) (MLRA 147, 148)  Loamy Gleyed Matrix (F2) X Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148) Red Parent Material (F21) (MLRA 127, 147)		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> 2 cm Muck (A10) (MLRA 147) Coast Prairie Redox (A16) (MLRA 136, 147) Piedmont Floodplain Soils (F19) (MLRA 147, 148) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) :				
Restrictive Layer (if observed):N/A Type: Depth (inches):						<table border="0"> <tr> <td style="text-align: center;"><b>Hydric Soil Present?</b></td> <td style="text-align: center;">Yes</td> <td style="text-align: center;">X</td> <td style="text-align: center;">No</td> </tr> </table>			<b>Hydric Soil Present?</b>	Yes	X	No
<b>Hydric Soil Present?</b>	Yes	X	No									
Remarks:  The soils observed correspond to the Depleted Matrix (F3) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the vegetation criterion.												





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **83**

	Absolute % Cover	Dominant Species?	Indicator Status					
<b>Tree Stratum</b> (Plot size: 30 ft )				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)  Total Number of Dominant Species Across All Strata: 2 (B)  Percent of Dominant Species That are OBL, FACW, or FAC: 0 (A/B)  <b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL Species x 1 = FACW Species x 2 = FAC Species x 3 = FACU Species x 4 = UPL Species x 5 =  Column Totals: (A) (B)  Prevalence Index = B/A =				
1.								
2.								
3.								
4.								
5.								
= Total Cover								
<b>Sapling/Shrub Stratum</b> (Plot size: 15 ft )								
1.								
2.								
3.								
4.								
5.								
= Total Cover								
<b>Herb Stratum</b> (Plot size: 5 ft )								
1.	<i>Poa pratensis</i>	80	Yes	FACU				
2.	<i>Trifolium repens</i>	20	Yes	FACU				
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
11.								
100 = Total Cover								
<b>Woody Vine Stratum</b> (Plot size: 30 ft )								
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
= Total Cover								
				<b>Hydrophytic Vegetation Indicators:</b> 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)				
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.				
				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.				
				<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:60%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width:10%; text-align: center;"><b>Yes</b></td> <td style="width:10%; text-align: center;"><b>No</b></td> <td style="width:10%; text-align: center;"><b>X</b></td> </tr> </table>	<b>Hydrophytic Vegetation Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydrophytic Vegetation Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>					
Remarks: (Include photo numbers here or on a separate sheet.)  The Dominance Test is less than 50 percent. This observation does not satisfy the vegetation criterion.								

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)											
Depth	Matrix		Redox Features				Texture	Remarks			
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>					
0-1	IMPENETRABLE						Fill				
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.											
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b>					
Histosol (A1) Histic Epipedon (A2)  Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) ( <b>LRR N</b> ) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) ( <b>LRR N, MLRA 147, 148</b> ) Sandy Gleyed Matrix (S4) Sandy Redox (S5)  Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) ( <b>MLRA 147, 148</b> )  Thin Dark Surface (S9) ( <b>MLRA 147, 148</b> )  Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) ( <b>LRR N, MLRA 136</b> ) Umbric Surface (F13) ( <b>MLRA 136, 122</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 148</b> ) Red Parent Material (F21) ( <b>MLRA 127, 147</b> )			2 cm Muck (A10) ( <b>MLRA 147</b> ) Coast Prairie Redox (A16) ( <b>MLRA 136, 147</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 147, 148</b> ) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)		
Restrictive Layer (if observed):						<b>Hydric Soil Present?</b> Yes      No      X					
Type:    Fill  Depth (inches):    1											
<b>Remarks:</b>  The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.											







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 84

	Absolute % Cover	Dominant Species?	Indicator Status	
<p><u>Tree Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Dominance Test Worksheet:</b></p> <p>Number of Dominant Species That are OBL, FACW, or FAC: (A)</p> <p>Total Number of Dominant Species Across All Strata: (B)</p> <p>Percent of Dominant Species That are OBL, FACW, or FAC: (A/B)</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Prevalence Index Worksheet:</b></p> <p>Total % Cover of:                      Multiply by:</p> <p>OBL Species                                      x 1 =</p> <p>FACW Species                                    x 2 =</p> <p>FAC Species                                      x 3 =</p> <p>FACU Species                                    x 4 =</p> <p>UPL Species                                      x 5 =</p> <p>Column Totals:                                      (A)                      (B)</p> <p style="text-align: center;">Prevalence Index = B/A =</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Herb Stratum</u> (Plot size: 5 ft )</p> <p>1. <i>Juncus effusus</i>                                      80                      Yes                      FACW</p> <p>2. <i>Carex frankii</i>                                      20                      Yes                      OBL</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p> <p>11.</p>				<p><b>Hydrophytic Vegetation Indicators:</b></p> <p>X 1 - Rapid Test for Hydrophytic Vegetation</p> <p>2 - Dominance Test is &gt; 50%</p> <p>3 - Prevalence Index is ≤3.0<sup>1</sup></p> <p>4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</p> <p>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</p> <p><sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>
<p style="text-align: right;">100                      = Total Cover</p>				
<p><u>Woody Vine Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p>				<p><b>Definitions of Four Vegetation Strata:</b></p> <p><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height</p> <p><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p><b>Woody vine</b> – All woody vines greater than 3.28 ft in height.</p>
<p style="text-align: right;">= Total Cover</p>				
<p><b>Hydrophytic Vegetation Present?      Yes      X      No</b></p>				
<p>Remarks: (Include photo numbers here or on a separate sheet.)</p> <p>The dominant species observed have a wetland indicator status of OBL and FACW. This observation satisfies the Rapid Test for Hydrophytic Vegetation.</p>				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	10YR 6/2	95	10YR 5/6	5	C	PL	Loamy/Clayey	
>8	IMPENETRABLE							
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.			
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b>		
Histosol (A1) Dark Surface (S7) Histic Epipedon (A2) Polyvalue Below Surface (S8) <b>(MLRA 147, 148)</b> Black Histic (A3) Thin Dark Surface (S9) <b>(MLRA 147, 148)</b> Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Stratified Layers (A5) <b>X</b> Depleted Matrix (F3) 2 cm Muck (A10) <b>(LRR N)</b> Redox Dark Surface (F6) Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Thick Dark Surface (A12) Redox Depression (F8) Sandy Mucky Mineral (S1) <b>(LRR N, MLRA 147, 148)</b> Iron-Manganese Masses (F12) <b>(LRR N, MLRA 136)</b> Sandy Gleyed Matrix (S4) Umbric Surface (F13) <b>(MLRA 136, 122)</b> Sandy Redox (S5) Piedmont Floodplain Soils (F19) <b>(MLRA 148)</b> Stripped Matrix (S6) Red Parent Material (F21) <b>(MLRA 127, 147)</b>						2 cm Muck (A10) <b>(MLRA 147)</b> Coast Prairie Redox (A16) <b>(MLRA 136, 147)</b> Piedmont Floodplain Soils (F19) <b>(MLRA 147, 148)</b> Very Shallow Dark Surface (TF12) Other (Explain in Remarks) :		
Restrictive Layer (if observed):N/A						<b>Hydric Soil Present?</b> Yes    X    No		
Type: Rocky Soil Depth (inches): 8								
Remarks:  The soils observed correspond to the Depleted Matrix (F3) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the vegetation criterion.								





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 85

	Absolute % Cover	Dominant Species?	Indicator Status	
<u>Tree Stratum</u> (Plot size: 30 ft ) 1. 2. 3. 4. 5.				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)  Total Number of Dominant Species Across All Strata: 2 (B)  Percent of Dominant Species That are OBL, FACW, or FAC: 0 (A/B)
<u>Sapling/Shrub Stratum</u> (Plot size: 15 ft ) 1. <i>Rubus allegheniensis</i> 2. 3. 4. 5.	5	Yes	FACU	
<u>Herb Stratum</u> (Plot size: 5 ft ) 1. <i>Aristida dichotoma</i> 2. 3. 4. 5. 6. 7. 8. 9. 10. 11.	40	Yes	UPL	
<u>Woody Vine Stratum</u> (Plot size: 30 ft ) 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.	40			<b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL Species x 1 = FACW Species x 2 = FAC Species x 3 = FACU Species x 4 = UPL Species x 5 =  Column Totals: (A) (B)  Prevalence Index = B/A =
				<b>Hydrophytic Vegetation Indicators:</b> 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
				<b>Hydrophytic Vegetation Present?</b> <b>Yes</b> <b>No</b> <b>X</b>
Remarks: (Include photo numbers here or on a separate sheet.)  The Dominance Test is less than 50 percent. This observation does not satisfy the vegetation criterion.				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-4	10YR 6/3	100					Loamy/Clayey					
>4	IMPENETRABLE											
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b>						
Histosol (A1)			Dark Surface (S7)			2 cm Muck (A10) (MLRA 147)						
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)			Coast Prairie Redox (A16) (MLRA 136, 147)						
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)			Piedmont Floodplain Soils (F19) (MLRA 147, 148)						
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)			Very Shallow Dark Surface (TF12)						
Stratified Layers (A5)			Depleted Matrix (F3)			Other (Explain in Remarks)						
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed):												
Type: Rocky Soil												
Depth (inches): 4												
						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:												
The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **86**

	Absolute % Cover	Dominant Species?	Indicator Status	
<p><u>Tree Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Dominance Test Worksheet:</b></p> <p>Number of Dominant Species That are OBL, FACW, or FAC: (A)</p> <p>Total Number of Dominant Species Across All Strata: (B)</p> <p>Percent of Dominant Species That are OBL, FACW, or FAC: (A/B)</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Prevalence Index Worksheet:</b></p> <p>Total % Cover of:                      Multiply by:</p> <p>OBL Species                                      x 1 =</p> <p>FACW Species                                      x 2 =</p> <p>FAC Species                                        x 3 =</p> <p>FACU Species                                      x 4 =</p> <p>UPL Species                                        x 5 =</p> <p>Column Totals:                                      (A)                      (B)</p> <p style="text-align: center;">Prevalence Index = B/A =</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Herb Stratum</u> (Plot size: 5 ft )</p> <p>1. <i>Juncus effusus</i>                                      80                      Yes                      FACW</p> <p>2. <i>Carex frankii</i>                                        20                      Yes                      OBL</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p> <p>11.</p>				<p><b>Hydrophytic Vegetation Indicators:</b></p> <p><b>X</b> 1 - Rapid Test for Hydrophytic Vegetation</p> <p>2 - Dominance Test is &gt; 50%</p> <p>3 - Prevalence Index is ≤3.0<sup>1</sup></p> <p>4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</p> <p>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</p> <p><sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>
<p style="text-align: right;">100                      = Total Cover</p>				
<p><u>Woody Vine Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p>				<p><b>Definitions of Four Vegetation Strata:</b></p> <p><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height</p> <p><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p><b>Woody vine</b> – All woody vines greater than 3.28 ft in height.</p>
<p style="text-align: right;">= Total Cover</p>				
<p><b>Hydrophytic Vegetation Present?      Yes      X      No</b></p>				
<p>Remarks: (Include photo numbers here or on a separate sheet.)</p> <p>The dominant species observed have a wetland indicator status of OBL and FACW. This observation satisfies the Rapid Test for Hydrophytic Vegetation.</p>				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-10	10YR 5/1	95	10YR 5/6	5	C	PL	Loamy/Clayey	
>10	IMPENETRABLE							
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.			
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b>		
Histosol (A1) Dark Surface (S7) Histic Epipedon (A2) Polyvalue Below Surface (S8) <b>(MLRA 147, 148)</b> Black Histic (A3) Thin Dark Surface (S9) <b>(MLRA 147, 148)</b> Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Stratified Layers (A5) <b>X</b> Depleted Matrix (F3) 2 cm Muck (A10) <b>(LRR N)</b> Redox Dark Surface (F6) Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Thick Dark Surface (A12) Redox Depression (F8) Sandy Mucky Mineral (S1) <b>(LRR N, MLRA 147, 148)</b> Iron-Manganese Masses (F12) <b>(LRR N, MLRA 136)</b> Sandy Gleyed Matrix (S4) Umbric Surface (F13) <b>(MLRA 136, 122)</b> Sandy Redox (S5) Piedmont Floodplain Soils (F19) <b>(MLRA 148)</b> Stripped Matrix (S6) Red Parent Material (F21) <b>(MLRA 127, 147)</b>						2 cm Muck (A10) <b>(MLRA 147)</b> Coast Prairie Redox (A16) <b>(MLRA 136, 147)</b> Piedmont Floodplain Soils (F19) <b>(MLRA 147, 148)</b> Very Shallow Dark Surface (TF12) Other (Explain in Remarks) :		
Restrictive Layer (if observed):N/A						<b>Hydric Soil Present?</b> Yes <b>X</b> No		
Type: Rocky Soil Depth (inches): 10								
Remarks:  The soils observed correspond to the Depleted Matrix (F3) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the vegetation criterion.								





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **87**

	Absolute % Cover	Dominant Species?	Indicator Status	
<u>Tree Stratum</u> (Plot size: 30 ft ) 1. 2. 3. 4. 5.				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)  Total Number of Dominant Species Across All Strata: 2 (B)  Percent of Dominant Species That are OBL, FACW, or FAC: 0 (A/B)
<u>Sapling/Shrub Stratum</u> (Plot size: 15 ft ) 1. <i>Rubus allegheniensis</i> 2. 3. 4. 5.	5	Yes	FACU	
= Total Cover				
<u>Herb Stratum</u> (Plot size: 5 ft ) 1. <i>Aristida dichotoma</i> 2. 3. 4. 5. 6. 7. 8. 9. 10. 11.	40	Yes	UPL	<b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL Species x 1 = FACW Species x 2 = FAC Species x 3 = FACU Species x 4 = UPL Species x 5 =  Column Totals: (A) (B)  Prevalence Index = B/A =
= Total Cover				
40 = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: 30 ft ) 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.				<b>Hydrophytic Vegetation Indicators:</b> 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
= Total Cover				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
				<b>Hydrophytic Vegetation Present?</b> <b>Yes</b> <b>No</b> <b>X</b>
Remarks: (Include photo numbers here or on a separate sheet.)  The Dominance Test is less than 50 percent. This observation does not satisfy the vegetation criterion.				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-4	10YR 6/4	100					Loamy/Clayey					
>4	IMPENETRABLE											
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>						
Histosol (A1)			Dark Surface (S7)			2 cm Muck (A10) (MLRA 147)						
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)			Coast Prairie Redox (A16) (MLRA 136, 147)						
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)			Piedmont Floodplain Soils (F19) (MLRA 147, 148)						
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)			Very Shallow Dark Surface (TF12)						
Stratified Layers (A5)			Depleted Matrix (F3)			Other (Explain in Remarks)						
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed):												
Type: Rocky Soil												
Depth (inches): 4												
						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:												
The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **86A**

	Absolute % Cover	Dominant Species?	Indicator Status	
<p><u>Tree Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Dominance Test Worksheet:</b></p> <p>Number of Dominant Species That are OBL, FACW, or FAC: (A)</p> <p>Total Number of Dominant Species Across All Strata: (B)</p> <p>Percent of Dominant Species That are OBL, FACW, or FAC: (A/B)</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Prevalence Index Worksheet:</b></p> <p>Total % Cover of:                      Multiply by:</p> <p>OBL Species                                      x 1 =</p> <p>FACW Species                                    x 2 =</p> <p>FAC Species                                        x 3 =</p> <p>FACU Species                                    x 4 =</p> <p>UPL Species                                        x 5 =</p> <p>Column Totals:                                      (A)                      (B)</p> <p style="text-align: center;">Prevalence Index = B/A =</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Herb Stratum</u> (Plot size: 5 ft )</p> <p>1. <i>Juncus effusus</i>                                      80                      Yes                      FACW</p> <p>2. <i>Carex frankii</i>                                        20                      Yes                      OBL</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p> <p>11.</p>				<p><b>Hydrophytic Vegetation Indicators:</b></p> <p><b>X</b> 1 - Rapid Test for Hydrophytic Vegetation</p> <p>2 - Dominance Test is &gt; 50%</p> <p>3 - Prevalence Index is ≤3.0<sup>1</sup></p> <p>4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</p> <p>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</p> <p><sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>
<p style="text-align: right;">100                      = Total Cover</p>				
<p><u>Woody Vine Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p>				<p><b>Definitions of Four Vegetation Strata:</b></p> <p><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height</p> <p><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p><b>Woody vine</b> – All woody vines greater than 3.28 ft in height.</p>
<p style="text-align: right;">= Total Cover</p>				
<p><b>Hydrophytic Vegetation Present?      Yes      X      No</b></p>				
<p>Remarks: (Include photo numbers here or on a separate sheet.)</p> <p>The dominant species observed have a wetland indicator status of OBL and FACW. This observation satisfies the Rapid Test for Hydrophytic Vegetation.</p>				

**SOIL**

Sampling Point: **86A**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-10	10YR 5/1	95	10YR 5/6	5	C	PL	Loamy/Clayey					
>10	IMPENETRABLE											
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b>						
Histosol (A1)			Dark Surface (S7)			2 cm Muck (A10) (MLRA 147)						
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)			Coast Prairie Redox (A16) (MLRA 136, 147)						
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)			Piedmont Floodplain Soils (F19) (MLRA 147, 148)						
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)			Very Shallow Dark Surface (TF12)						
Stratified Layers (A5)			X Depleted Matrix (F3)			Other (Explain in Remarks) :						
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed):N/A												
Type: Rocky Soil												
Depth (inches): 10						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td>Yes</td> <td>X</td> <td>No</td> </tr> </table>			<b>Hydric Soil Present?</b>	Yes	X	No
<b>Hydric Soil Present?</b>	Yes	X	No									
Remarks:  The soils observed correspond to the Depleted Matrix (F3) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the vegetation criterion.												





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **87B**

		Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test Worksheet:</b>		
<u>Tree Stratum</u> (Plot size: 30 ft )					Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)		
1.					Total Number of Dominant Species Across All Strata: 2 (B)		
2.					Percent of Dominant Species That are OBL, FACW, or FAC: 0 (A/B)		
3.							
4.							
5.							
			= Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )					<b>Prevalence Index Worksheet:</b>		
1.	<i>Rubus allegheniensis</i>	5	Yes	FACU	Total % Cover of: Multiply by:		
2.					OBL Species x 1 =		
3.					FACW Species x 2 =		
4.					FAC Species x 3 =		
5.					FACU Species x 4 =		
		5	= Total Cover		UPL Species x 5 =		
<u>Herb Stratum</u> (Plot size: 5 ft )					Column Totals: (A) (B)		
1.	<i>Aristida dichotoma</i>	40	Yes	UPL	Prevalence Index = B/A =		
2.					<b>Hydrophytic Vegetation Indicators:</b>		
3.					1 - Rapid Test for Hydrophytic Vegetation		
4.					2 - Dominance Test is > 50%		
5.					3 - Prevalence Index is ≤3.0 <sup>1</sup>		
6.					4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)		
7.					Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)		
8.							
9.							
10.							
11.							
		40	= Total Cover		<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.		
<u>Woody Vine Stratum</u> (Plot size: 30 ft )					<b>Definitions of Four Vegetation Strata:</b>		
1.					<b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height		
2.					<b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.		
3.					<b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.		
4.					<b>Woody vine</b> – All woody vines greater than 3.28 ft in height.		
5.							
6.							
7.							
8.							
9.							
10.							
			= Total Cover				
					<b>Hydrophytic Vegetation Present?</b> <b>Yes</b> <b>No</b> <b>X</b>		

Remarks: (Include photo numbers here or on a separate sheet.)

The Dominance Test is less than 50 percent. This observation does not satisfy the vegetation criterion.

**SOIL**

Sampling Point: **87B**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-4	10YR 6/4	100					Loamy/Clayey					
>4	IMPENETRABLE											
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b>						
Histosol (A1)			Dark Surface (S7)			2 cm Muck (A10) (MLRA 147)						
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)			Coast Prairie Redox (A16) (MLRA 136, 147)						
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)			Piedmont Floodplain Soils (F19) (MLRA 147, 148)						
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)			Very Shallow Dark Surface (TF12)						
Stratified Layers (A5)			Depleted Matrix (F3)			Other (Explain in Remarks)						
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed):												
Type: Rocky Soil												
Depth (inches): 4												
						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:												
The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **86C**

	Absolute % Cover	Dominant Species?	Indicator Status	
<u>Tree Stratum</u> (Plot size: 30 ft ) 1. 2. 3. 4. 5.				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: (A)  Total Number of Dominant Species Across All Strata: (B)  Percent of Dominant Species That are OBL, FACW, or FAC: (A/B)
<u>Sapling/Shrub Stratum</u> (Plot size: 15 ft ) 1. 2. 3. 4. 5.		= Total Cover		
<u>Herb Stratum</u> (Plot size: 5 ft ) 1. <i>Juncus effusus</i> 2. <i>Carex frankii</i> 3. 4. 5. 6. 7. 8. 9. 10. 11.	80 20	Yes Yes	FACW OBL	
<u>Woody Vine Stratum</u> (Plot size: 30 ft ) 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.	100	= Total Cover		<b>Prevalence Index Worksheet:</b> Total % Cover of:                      Multiply by: OBL Species                                      x 1 = FACW Species                                    x 2 = FAC Species                                        x 3 = FACU Species                                    x 4 = UPL Species                                        x 5 =  Column Totals:                                      (A)                      (B)  Prevalence Index = B/A =
				<b>Hydrophytic Vegetation Indicators:</b> X 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
				<b>Hydrophytic Vegetation Present?</b> Yes      X      No
Remarks: (Include photo numbers here or on a separate sheet.)  The dominant species observed have a wetland indicator status of OBL and FACW. This observation satisfies the Rapid Test for Hydrophytic Vegetation.				

**SOIL**

Sampling Point: **86C**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-10	10YR 5/1	95	10YR 5/6	5	C	PL	Loamy/Clayey					
>10	IMPENETRABLE											
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b>						
Histosol (A1)			Dark Surface (S7)			2 cm Muck (A10) (MLRA 147)						
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)			Coast Prairie Redox (A16) (MLRA 136, 147)						
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)			Piedmont Floodplain Soils (F19) (MLRA 147, 148)						
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)			Very Shallow Dark Surface (TF12)						
Stratified Layers (A5)			X Depleted Matrix (F3)			Other (Explain in Remarks) :						
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed):N/A												
Type: Rocky Soil												
Depth (inches): 10						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td>Yes</td> <td>X</td> <td>No</td> </tr> </table>			<b>Hydric Soil Present?</b>	Yes	X	No
<b>Hydric Soil Present?</b>	Yes	X	No									
Remarks:												
The soils observed correspond to the Depleted Matrix (F3) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the vegetation criterion.												





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **87D**

		Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test Worksheet:</b>		
<u>Tree Stratum</u> (Plot size: 30 ft )					Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)		
1.					Total Number of Dominant Species Across All Strata: 2 (B)		
2.					Percent of Dominant Species That are OBL, FACW, or FAC: 0 (A/B)		
3.							
4.							
5.							
			= Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )					<b>Prevalence Index Worksheet:</b>		
1.	<i>Rubus allegheniensis</i>	5	Yes	FACU	Total % Cover of: Multiply by:		
2.					OBL Species x 1 =		
3.					FACW Species x 2 =		
4.					FAC Species x 3 =		
5.					FACU Species x 4 =		
		5	= Total Cover		UPL Species x 5 =		
<u>Herb Stratum</u> (Plot size: 5 ft )					Column Totals: (A) (B)		
1.	<i>Aristida dichotoma</i>	40	Yes	UPL	Prevalence Index = B/A =		
2.					<b>Hydrophytic Vegetation Indicators:</b>		
3.					1 - Rapid Test for Hydrophytic Vegetation		
4.					2 - Dominance Test is > 50%		
5.					3 - Prevalence Index is ≤3.0 <sup>1</sup>		
6.					4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)		
7.					Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)		
8.							
9.							
10.							
11.							
		40	= Total Cover		<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.		
<u>Woody Vine Stratum</u> (Plot size: 30 ft )					<b>Definitions of Four Vegetation Strata:</b>		
1.					<b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height		
2.					<b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.		
3.					<b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.		
4.					<b>Woody vine</b> – All woody vines greater than 3.28 ft in height.		
5.							
6.							
7.							
8.							
9.							
10.							
			= Total Cover		<b>Hydrophytic Vegetation Present?</b> Yes No X		

Remarks: (Include photo numbers here or on a separate sheet.)

The Dominance Test is less than 50 percent. This observation does not satisfy the vegetation criterion.

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-4	10YR 6/4	100					Loamy/Clayey					
>4	IMPENETRABLE											
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>						
Histosol (A1)			Dark Surface (S7)			2 cm Muck (A10) (MLRA 147)						
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)			Coast Prairie Redox (A16) (MLRA 136, 147)						
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)			Piedmont Floodplain Soils (F19) (MLRA 147, 148)						
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)			Very Shallow Dark Surface (TF12)						
Stratified Layers (A5)			Depleted Matrix (F3)			Other (Explain in Remarks)						
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed):												
Type: Rocky Soil												
Depth (inches): 4												
						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:												
The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **86E**

	Absolute % Cover	Dominant Species?	Indicator Status	
<p><u>Tree Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Dominance Test Worksheet:</b></p> <p>Number of Dominant Species That are OBL, FACW, or FAC: (A)</p> <p>Total Number of Dominant Species Across All Strata: (B)</p> <p>Percent of Dominant Species That are OBL, FACW, or FAC: (A/B)</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Prevalence Index Worksheet:</b></p> <p>Total % Cover of:                      Multiply by:</p> <p>OBL Species                                      x 1 =</p> <p>FACW Species                                    x 2 =</p> <p>FAC Species                                      x 3 =</p> <p>FACU Species                                    x 4 =</p> <p>UPL Species                                      x 5 =</p> <p>Column Totals:                                      (A)                      (B)</p> <p style="text-align: center;">Prevalence Index = B/A =</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Herb Stratum</u> (Plot size: 5 ft )</p> <p>1. <i>Juncus effusus</i>                                      80                      Yes                      FACW</p> <p>2. <i>Carex frankii</i>                                      20                      Yes                      OBL</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p> <p>11.</p>				<p><b>Hydrophytic Vegetation Indicators:</b></p> <p><b>X</b> 1 - Rapid Test for Hydrophytic Vegetation</p> <p>2 - Dominance Test is &gt; 50%</p> <p>3 - Prevalence Index is ≤3.0<sup>1</sup></p> <p>4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</p> <p>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</p> <p><sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>
<p style="text-align: right;">100                      = Total Cover</p>				
<p><u>Woody Vine Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p>				<p><b>Definitions of Four Vegetation Strata:</b></p> <p><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height</p> <p><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p><b>Woody vine</b> – All woody vines greater than 3.28 ft in height.</p>
<p style="text-align: right;">= Total Cover</p>				
<p><b>Hydrophytic Vegetation Present?      Yes      X      No</b></p>				
<p>Remarks: (Include photo numbers here or on a separate sheet.)</p> <p>The dominant species observed have a wetland indicator status of OBL and FACW. This observation satisfies the Rapid Test for Hydrophytic Vegetation.</p>				

**SOIL**

Sampling Point: **86E**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-10	10YR 5/1	95	10YR 5/6	5	C	PL	Loamy/Clayey	
>10	IMPENETRABLE							
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.								
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2)  Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) ( <b>LRR N</b> ) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) ( <b>LRR N, MLRA 147, 148</b> ) Sandy Gleyed Matrix (S4) Sandy Redox (S5)  Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) ( <b>MLRA 147, 148</b> )  Thin Dark Surface (S9) ( <b>MLRA 147, 148</b> )  Loamy Gleyed Matrix (F2) X Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) ( <b>LRR N, MLRA 136</b> ) Umbric Surface (F13) ( <b>MLRA 136, 122</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 148</b> ) Red Parent Material (F21) ( <b>MLRA 127, 147</b> )		<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b> 2 cm Muck (A10) ( <b>MLRA 147</b> ) Coast Prairie Redox (A16) ( <b>MLRA 136, 147</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 147, 148</b> ) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) :
Restrictive Layer (if observed):N/A Type: Rocky Soil Depth (inches): 10						<b>Hydric Soil Present?</b> Yes    X    No		
<b>Remarks:</b>  The soils observed correspond to the Depleted Matrix (F3) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the vegetation criterion.								





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **87F**

	Absolute % Cover	Dominant Species?	Indicator Status	
<p><u>Tree Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Dominance Test Worksheet:</b></p> <p>Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)</p> <p>Total Number of Dominant Species Across All Strata: 2 (B)</p> <p>Percent of Dominant Species That are OBL, FACW, or FAC: 0 (A/B)</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )</p> <p>1. <i>Rubus allegheniensis</i></p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Prevalence Index Worksheet:</b></p> <p>Total % Cover of: Multiply by:</p> <p>OBL Species x 1 =</p> <p>FACW Species x 2 =</p> <p>FAC Species x 3 =</p> <p>FACU Species x 4 =</p> <p>UPL Species x 5 =</p> <p>Column Totals: (A) (B)</p> <p style="text-align: center;">Prevalence Index = B/A =</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Herb Stratum</u> (Plot size: 5 ft )</p> <p>1. <i>Aristida dichotoma</i></p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p> <p>11.</p>				<p><b>Hydrophytic Vegetation Indicators:</b></p> <p>1 - Rapid Test for Hydrophytic Vegetation</p> <p>2 - Dominance Test is &gt; 50%</p> <p>3 - Prevalence Index is ≤3.0<sup>1</sup></p> <p>4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</p> <p>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</p> <p><sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Woody Vine Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p>				<p><b>Definitions of Four Vegetation Strata:</b></p> <p><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height</p> <p><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p><b>Woody vine</b> – All woody vines greater than 3.28 ft in height.</p>
<p style="text-align: right;">= Total Cover</p>				
<p><b>Hydrophytic Vegetation Present?</b>      <b>Yes</b>                      <b>No</b>                      <b>X</b></p>				
<p>Remarks: (Include photo numbers here or on a separate sheet.)</p> <p>The Dominance Test is less than 50 percent. This observation does not satisfy the vegetation criterion.</p>				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-4	10YR 6/4	100					Loamy/Clayey					
>4	IMPENETRABLE											
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>						
Histosol (A1)			Dark Surface (S7)			2 cm Muck (A10) (MLRA 147)						
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)			Coast Prairie Redox (A16) (MLRA 136, 147)						
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)			Piedmont Floodplain Soils (F19) (MLRA 147, 148)						
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)			Very Shallow Dark Surface (TF12)						
Stratified Layers (A5)			Depleted Matrix (F3)			Other (Explain in Remarks)						
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed):												
Type: Rocky Soil												
Depth (inches): 4												
						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:												
The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **88**

	Absolute % Cover	Dominant Species?	Indicator Status	
<u>Tree Stratum</u> (Plot size: 30 ft ) 1. 2. 3. 4. 5.				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: (A)  Total Number of Dominant Species Across All Strata: (B)  Percent of Dominant Species That are OBL, FACW, or FAC: (A/B)
<u>Sapling/Shrub Stratum</u> (Plot size: 15 ft ) 1. 2. 3. 4. 5.		= Total Cover		
<u>Herb Stratum</u> (Plot size: 5 ft ) 1. <i>Juncus effusus</i> 2. 3. 4. 5. 6. 7. 8. 9. 10. 11.	80	Yes	FACW	
<u>Woody Vine Stratum</u> (Plot size: 30 ft ) 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.	80	= Total Cover		<b>Prevalence Index Worksheet:</b> Total % Cover of:                      Multiply by: OBL Species                                      x 1 = FACW Species                                    x 2 = FAC Species                                        x 3 = FACU Species                                    x 4 = UPL Species                                        x 5 =  Column Totals:                                      (A)                      (B)  Prevalence Index = B/A =
				<b>Hydrophytic Vegetation Indicators:</b> X 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
				<b>Hydrophytic Vegetation Present?</b> Yes      X      No
Remarks: (Include photo numbers here or on a separate sheet.)  The dominant species observed has a wetland indicator status of FACW. This observation satisfies the Rapid Test for Hydrophytic Vegetation.				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	10YR 4/2	95	10YR 5/6	5	C	PL	Loamy/Clayey	
8-12	10YR 5/1	95	7.5YR 4/6	5	C	PL	Loamy/Clayey	
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.								
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2)  Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) (LRR N) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5)  Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) (MLRA 147, 148)  Thin Dark Surface (S9) (MLRA 147, 148)  Loamy Gleyed Matrix (F2) X Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148) Red Parent Material (F21) (MLRA 127, 147)		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> 2 cm Muck (A10) (MLRA 147) Coast Prairie Redox (A16) (MLRA 136, 147) Piedmont Floodplain Soils (F19) (MLRA 147, 148) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) :
Restrictive Layer (if observed):N/A Type: Depth (inches):						<b>Hydric Soil Present?</b> Yes    X    No		
<b>Remarks:</b>  The soils observed correspond to the Depleted Matrix (F3) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the vegetation criterion.								





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **89**

	Absolute % Cover	Dominant Species?	Indicator Status	
<p><u>Tree Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Dominance Test Worksheet:</b></p> <p>Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)</p> <p>Total Number of Dominant Species Across All Strata: 3 (B)</p> <p>Percent of Dominant Species That are OBL, FACW, or FAC: 0 (A/B)</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Prevalence Index Worksheet:</b></p> <p>Total % Cover of: Multiply by:</p> <p>OBL Species x 1 =</p> <p>FACW Species x 2 =</p> <p>FAC Species x 3 =</p> <p>FACU Species x 4 =</p> <p>UPL Species x 5 =</p> <p>Column Totals: (A) (B)</p> <p style="text-align: center;">Prevalence Index = B/A =</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Herb Stratum</u> (Plot size: 5 ft )</p> <p>1. <i>Taraxacum officinale</i> 30 Yes FACU</p> <p>2. <i>Kummerowia stipulacea</i> 30 Yes FACU</p> <p>3. <i>Plantago major</i> 20 Yes FACU</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p> <p>11.</p>				<p><b>Hydrophytic Vegetation Indicators:</b></p> <p>1 - Rapid Test for Hydrophytic Vegetation</p> <p>2 - Dominance Test is &gt; 50%</p> <p>3 - Prevalence Index is ≤3.0<sup>1</sup></p> <p>4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</p> <p>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</p> <p><sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>
<p style="text-align: right;">80 = Total Cover</p>				
<p><u>Woody Vine Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p>				<p><b>Definitions of Four Vegetation Strata:</b></p> <p><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height</p> <p><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p><b>Woody vine</b> – All woody vines greater than 3.28 ft in height.</p>
<p style="text-align: right;">= Total Cover</p>				
<p><b>Hydrophytic Vegetation Present?</b>      <b>Yes</b>                      <b>No</b>                      <b>X</b></p>				
<p>Remarks: (Include photo numbers here or on a separate sheet.)</p> <p>The Dominance Test is less than 50 percent. This observation does not satisfy the vegetation criterion.</p>				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-4	10YR 6/3	100					Loamy/Clayey					
>4	IMPENETRABLE											
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>						
Histosol (A1)			Dark Surface (S7)			2 cm Muck (A10) (MLRA 147)						
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)			Coast Prairie Redox (A16) (MLRA 136, 147)						
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)			Piedmont Floodplain Soils (F19) (MLRA 147, 148)						
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)			Very Shallow Dark Surface (TF12)						
Stratified Layers (A5)			Depleted Matrix (F3)			Other (Explain in Remarks)						
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed):												
Type: Rocky Soil												
Depth (inches): 4												
						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:												
The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **90**

	Absolute % Cover	Dominant Species?	Indicator Status	
<p><u>Tree Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Dominance Test Worksheet:</b></p> <p>Number of Dominant Species That are OBL, FACW, or FAC: (A)</p> <p>Total Number of Dominant Species Across All Strata: (B)</p> <p>Percent of Dominant Species That are OBL, FACW, or FAC: (A/B)</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Prevalence Index Worksheet:</b></p> <p>Total % Cover of:                      Multiply by:</p> <p>OBL Species                                      x 1 =</p> <p>FACW Species                                    x 2 =</p> <p>FAC Species                                      x 3 =</p> <p>FACU Species                                    x 4 =</p> <p>UPL Species                                      x 5 =</p> <p>Column Totals:                                      (A)                      (B)</p> <p style="text-align: center;">Prevalence Index = B/A =</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Herb Stratum</u> (Plot size: 5 ft )</p> <p>1. <i>Carex lurida</i>                                      80                      Yes                      OBL</p> <p>2. <i>Juncus effusus</i>                                    20                      Yes                      FACW</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p> <p>11.</p>				<p><b>Hydrophytic Vegetation Indicators:</b></p> <p><b>X</b> 1 - Rapid Test for Hydrophytic Vegetation</p> <p>2 - Dominance Test is &gt; 50%</p> <p>3 - Prevalence Index is ≤3.0<sup>1</sup></p> <p>4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</p> <p>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</p> <p><sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>
<p style="text-align: right;">100                      = Total Cover</p>				
<p><u>Woody Vine Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p>				<p><b>Definitions of Four Vegetation Strata:</b></p> <p><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height</p> <p><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p><b>Woody vine</b> – All woody vines greater than 3.28 ft in height.</p>
<p style="text-align: right;">= Total Cover</p>				
<p><b>Hydrophytic Vegetation Present?      Yes      X      No</b></p>				
<p>Remarks: (Include photo numbers here or on a separate sheet.)</p> <p>The dominant species observed have a wetland indicator status of FACW and OBL. This observation satisfies the Rapid Test for Hydrophytic Vegetation.</p>				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-18	10YR 4/1	95	7.5YR 4/6	5	C	PL	Loamy/Clayey	
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.								
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2)  Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) (LRR N) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5)  Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) (MLRA 147, 148)  Thin Dark Surface (S9) (MLRA 147, 148)  Loamy Gleyed Matrix (F2) X Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148) Red Parent Material (F21) (MLRA 127, 147)		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> 2 cm Muck (A10) (MLRA 147) Coast Prairie Redox (A16) (MLRA 136, 147) Piedmont Floodplain Soils (F19) (MLRA 147, 148) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) :
Restrictive Layer (if observed):N/A								
Type:								
Depth (inches):						<b>Hydric Soil Present?</b> Yes    X    No		
Remarks:  The soils observed correspond to the Depleted Matrix (F3) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the vegetation criterion.								





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **91**

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: 30 ft )				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)  Total Number of Dominant Species Across All Strata: 5 (B)  Percent of Dominant Species That are OBL, FACW, or FAC: 40% (A/B)
1. <i>Liquidambar styraciflua</i>	30	Yes	FAC	
2. <i>Liriodendron tulipifera</i>	10	Yes	FACU	
3.				
4.				
5.				
40 = Total Cover				
<b>Sapling/Shrub Stratum</b> (Plot size: 15 ft )				
1. <i>Rosa multiflora</i>	25	Yes	FACU	
2. <i>Rubus allegheniensis</i>	15	Yes	FACU	
3.				
4.				
5.				
40 = Total Cover				
<b>Herb Stratum</b> (Plot size: 5 ft )				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
= Total Cover				
<b>Woody Vine Stratum</b> (Plot size: 30 ft )				
1. <i>Lonicera japonica</i>	20	Yes	FAC	
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
20 = Total Cover				
<b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL Species x 1 = FACW Species x 2 = FAC Species x 3 = FACU Species x 4 = UPL Species x 5 =  Column Totals: (A) (B)  Prevalence Index = B/A =				
<b>Hydrophytic Vegetation Indicators:</b> 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)				
<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.				
<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.				
<b>Hydrophytic Vegetation Present?</b> <b>Yes</b> <b>No</b> <b>X</b>				
Remarks: (Include photo numbers here or on a separate sheet.)  The Dominance Test is less than 50 percent. This observation does not satisfy the vegetation criterion.				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-5	10YR 6/3	100					Loamy/Clayey					
>5	IMPENETRABLE											
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>						
Histosol (A1)			Dark Surface (S7)			2 cm Muck (A10) (MLRA 147)						
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)			Coast Prairie Redox (A16) (MLRA 136, 147)						
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)			Piedmont Floodplain Soils (F19) (MLRA 147, 148)						
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)			Very Shallow Dark Surface (TF12)						
Stratified Layers (A5)			Depleted Matrix (F3)			Other (Explain in Remarks)						
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed):												
Type: Rocky Soil												
Depth (inches): 5												
						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:												
The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **92**

	Absolute % Cover	Dominant Species?	Indicator Status	
<p><u>Tree Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Dominance Test Worksheet:</b></p> <p>Number of Dominant Species That are OBL, FACW, or FAC: (A)</p> <p>Total Number of Dominant Species Across All Strata: (B)</p> <p>Percent of Dominant Species That are OBL, FACW, or FAC: (A/B)</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Prevalence Index Worksheet:</b></p> <p>Total % Cover of:                      Multiply by:</p> <p>OBL Species                                      x 1 =</p> <p>FACW Species                                    x 2 =</p> <p>FAC Species                                      x 3 =</p> <p>FACU Species                                    x 4 =</p> <p>UPL Species                                      x 5 =</p> <p>Column Totals:                                      (A)                      (B)</p> <p style="text-align: center;">Prevalence Index = B/A =</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Herb Stratum</u> (Plot size: 5 ft )</p> <p>1. <i>Carex lurida</i>                                      25                      Yes                      OBL</p> <p>2. <i>Juncus effusus</i>                                    25                      Yes                      FACW</p> <p>3. <i>Typha angustifolia</i>                              25                      Yes                      OBL</p> <p>4. <i>Symphotrichum racemosum</i>                    25                      Yes                      FACW</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p> <p>11.</p>				<p><b>Hydrophytic Vegetation Indicators:</b></p> <p><b>X</b> 1 - Rapid Test for Hydrophytic Vegetation</p> <p>2 - Dominance Test is &gt; 50%</p> <p>3 - Prevalence Index is ≤3.0<sup>1</sup></p> <p>4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</p> <p>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</p> <p><sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>
<p style="text-align: right;">100                      = Total Cover</p>				
<p><u>Woody Vine Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p>				<p><b>Definitions of Four Vegetation Strata:</b></p> <p><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height</p> <p><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p><b>Woody vine</b> – All woody vines greater than 3.28 ft in height.</p>
<p style="text-align: right;">= Total Cover</p>				
<p><b>Hydrophytic Vegetation Present?      Yes      X      No</b></p>				
<p>Remarks: (Include photo numbers here or on a separate sheet.)</p> <p>The dominant species observed have a wetland indicator status of FACW and OBL. This observation satisfies the Rapid Test for Hydrophytic Vegetation.</p>				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR 4/2	95	7.5YR 4/6	5	C	PL	Loamy/Clayey	
>6	IMPENETRABLE							
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.								
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2)  Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) (LRR N) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5)  Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) (MLRA 147, 148)  Thin Dark Surface (S9) (MLRA 147, 148)  Loamy Gleyed Matrix (F2) X Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148) Red Parent Material (F21) (MLRA 127, 147)		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> 2 cm Muck (A10) (MLRA 147) Coast Prairie Redox (A16) (MLRA 136, 147) Piedmont Floodplain Soils (F19) (MLRA 147, 148) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) :
Restrictive Layer (if observed):N/A Type: Rocky Soil Depth (inches): 6						<b>Hydric Soil Present?</b> Yes    X    No		
<b>Remarks:</b>  The soils observed correspond to the Depleted Matrix (F3) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the vegetation criterion.								





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **93**

	Absolute % Cover	Dominant Species?	Indicator Status	
<p><u>Tree Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Dominance Test Worksheet:</b></p> <p>Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)</p> <p>Total Number of Dominant Species Across All Strata: 1 (B)</p> <p>Percent of Dominant Species That are OBL, FACW, or FAC: 0 (A/B)</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Prevalence Index Worksheet:</b></p> <p>Total % Cover of: Multiply by:</p> <p>OBL Species x 1 =</p> <p>FACW Species x 2 =</p> <p>FAC Species x 3 =</p> <p>FACU Species x 4 =</p> <p>UPL Species x 5 =</p> <p>Column Totals: (A) (B)</p> <p style="text-align: center;">Prevalence Index = B/A =</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Herb Stratum</u> (Plot size: 5 ft )</p> <p>1. <i>Festuca arundinacea</i> 70 Yes FACU</p> <p>2. <i>Andropogon virginicus</i> 10 No FACU</p> <p>3. <i>Solidago canadensis</i> 10 No FACU</p> <p>4. <i>Setaria pumila</i> 10 No FAC</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p> <p>11.</p>				<p><b>Hydrophytic Vegetation Indicators:</b></p> <p>1 - Rapid Test for Hydrophytic Vegetation</p> <p>2 - Dominance Test is &gt; 50%</p> <p>3 - Prevalence Index is ≤3.0<sup>1</sup></p> <p>4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</p> <p>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</p> <p><sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>
<p style="text-align: right;">100 = Total Cover</p>				
<p><u>Woody Vine Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p>				<p><b>Definitions of Four Vegetation Strata:</b></p> <p><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height</p> <p><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p><b>Woody vine</b> – All woody vines greater than 3.28 ft in height.</p>
<p style="text-align: right;">= Total Cover</p>				
<p><b>Hydrophytic Vegetation Present?</b>      <b>Yes</b>                      <b>No</b>                      <b>X</b></p>				
<p>Remarks: (Include photo numbers here or on a separate sheet.)</p> <p>The Dominance Test is less than 50 percent. This observation does not satisfy the vegetation criterion.</p>				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-1	IMPENETRABLE						Fill					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.												
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) ( <b>LRR N</b> ) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) ( <b>LRR N, MLRA 147, 148</b> ) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) ( <b>MLRA 147, 148</b> ) Thin Dark Surface (S9) ( <b>MLRA 147, 148</b> ) Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) ( <b>LRR N, MLRA 136</b> ) Umbric Surface (F13) ( <b>MLRA 136, 122</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 148</b> ) Red Parent Material (F21) ( <b>MLRA 127, 147</b> )			<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> 2 cm Muck (A10) ( <b>MLRA 147</b> ) Coast Prairie Redox (A16) ( <b>MLRA 136, 147</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 147, 148</b> ) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)			
Restrictive Layer (if observed): Type: Fill Depth (inches): 1						<sup>3</sup> Indicators of Hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic  <table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks: The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **94**

	Absolute % Cover	Dominant Species?	Indicator Status	
<u>Tree Stratum</u> (Plot size: 30 ft ) 1. 2. 3. 4. 5.				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: (A)  Total Number of Dominant Species Across All Strata: (B)  Percent of Dominant Species That are OBL, FACW, or FAC: (A/B)
<u>Sapling/Shrub Stratum</u> (Plot size: 15 ft ) 1. 2. 3. 4. 5.		= Total Cover		
<u>Herb Stratum</u> (Plot size: 5 ft ) 1. <i>Typha angustifolia</i> 2. 3. 4. 5. 6. 7. 8. 9. 10. 11	100	Yes	OBL	
<u>Woody Vine Stratum</u> (Plot size: 30 ft ) 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.	100	= Total Cover		<b>Prevalence Index Worksheet:</b> Total % Cover of:                      Multiply by: OBL Species                                      x 1 = FACW Species                                    x 2 = FAC Species                                        x 3 = FACU Species                                    x 4 = UPL Species                                        x 5 =  Column Totals:                                      (A)                      (B)  Prevalence Index = B/A =
				<b>Hydrophytic Vegetation Indicators:</b> X 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
				<b>Hydrophytic Vegetation Present?</b> Yes      X      No
Remarks: (Include photo numbers here or on a separate sheet.)  The dominant species observed has a wetland indicator status of OBL. This observation satisfies the Rapid Test for Hydrophytic Vegetation.				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-8	10YR 6/2	95	10YR 5/6	5	C	PL	Loamy/Clayey					
>8	IMPENETRABLE											
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b>						
Histosol (A1)						Dark Surface (S7)						
Histic Epipedon (A2)						Polyvalue Below Surface (S8) <b>(MLRA 147, 148)</b>						
Black Histic (A3)						Thin Dark Surface (S9) <b>(MLRA 147, 148)</b>						
Hydrogen Sulfide (A4)						Loamy Gleyed Matrix (F2)						
Stratified Layers (A5)						X Depleted Matrix (F3)						
2 cm Muck (A10) <b>(LRR N)</b>						Redox Dark Surface (F6)						
Depleted Below Dark Surface (A11)						Depleted Dark Surface (F7)						
Thick Dark Surface (A12)						Redox Depression (F8)						
Sandy Mucky Mineral (S1) <b>(LRR N, MLRA 147, 148)</b>						Iron-Manganese Masses (F12) <b>(LRR N, MLRA 136)</b>						
Sandy Gleyed Matrix (S4)						Umbric Surface (F13) <b>(MLRA 136, 122)</b>						
Sandy Redox (S5)						Piedmont Floodplain Soils (F19) <b>(MLRA 148)</b>						
Stripped Matrix (S6)						Red Parent Material (F21) <b>(MLRA 127, 147)</b>						
Restrictive Layer (if observed):N/A												
Type: Rocky Soil												
Depth (inches): 8						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td>Yes</td> <td>X</td> <td>No</td> </tr> </table>			<b>Hydric Soil Present?</b>	Yes	X	No
<b>Hydric Soil Present?</b>	Yes	X	No									
<b>Remarks:</b> The soils observed correspond to the Depleted Matrix (F3) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the vegetation criterion.												

<sup>3</sup>Indicators of Hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **95**

	Absolute % Cover	Dominant Species?	Indicator Status	
<p><u>Tree Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Dominance Test Worksheet:</b></p> <p>Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)</p> <p>Total Number of Dominant Species Across All Strata: 2 (B)</p> <p>Percent of Dominant Species That are OBL, FACW, or FAC: 0 (A/B)</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Prevalence Index Worksheet:</b></p> <p>Total % Cover of: Multiply by:</p> <p>OBL Species x 1 =</p> <p>FACW Species x 2 =</p> <p>FAC Species x 3 =</p> <p>FACU Species x 4 =</p> <p>UPL Species x 5 =</p> <p>Column Totals: (A) (B)</p> <p style="text-align: center;">Prevalence Index = B/A =</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Herb Stratum</u> (Plot size: 5 ft )</p> <p>1. <i>Festuca arundinacea</i> 60 Yes FACU</p> <p>2. <i>Andropogon virginicus</i> 30 Yes FACU</p> <p>3. <i>Eupatorium serotinum</i> 5 No FAC</p> <p>4. <i>Juncus antheratus</i> 5 No FAC</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p> <p>11.</p>				<p><b>Hydrophytic Vegetation Indicators:</b></p> <p>1 - Rapid Test for Hydrophytic Vegetation</p> <p>2 - Dominance Test is &gt; 50%</p> <p>3 - Prevalence Index is ≤3.0<sup>1</sup></p> <p>4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</p> <p>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</p> <p><sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>
<p style="text-align: right;">100 = Total Cover</p>				
<p><u>Woody Vine Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p>				<p><b>Definitions of Four Vegetation Strata:</b></p> <p><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height</p> <p><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p><b>Woody vine</b> – All woody vines greater than 3.28 ft in height.</p>
<p style="text-align: right;">= Total Cover</p>				
<p><b>Hydrophytic Vegetation Present?</b>      <b>Yes</b>                      <b>No</b>                      <b>X</b></p>				
<p>Remarks: (Include photo numbers here or on a separate sheet.)</p> <p>The Dominance Test is less than 50 percent. This observation does not satisfy the vegetation criterion.</p>				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-1	IMPENETRABLE						Fill					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.												
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b>						
Histosol (A1) Histic Epipedon (A2)  Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) ( <b>LRR N</b> ) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) ( <b>LRR N, MLRA 147, 148</b> ) Sandy Gleyed Matrix (S4) Sandy Redox (S5)  Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) ( <b>MLRA 147, 148</b> )  Thin Dark Surface (S9) ( <b>MLRA 147, 148</b> ) Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) ( <b>LRR N, MLRA 136</b> ) Umbric Surface (F13) ( <b>MLRA 136, 122</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 148</b> ) Red Parent Material (F21) ( <b>MLRA 127, 147</b> )			2 cm Muck (A10) ( <b>MLRA 147</b> ) Coast Prairie Redox (A16) ( <b>MLRA 136, 147</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 147, 148</b> ) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)			
Restrictive Layer (if observed):						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Type: Fill Depth (inches): 1												
Remarks:  The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **96**

	Absolute % Cover	Dominant Species?	Indicator Status				
<b>Tree Stratum</b> (Plot size: 30 ft )				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: 6 (A)  Total Number of Dominant Species Across All Strata: 8 (B)  Percent of Dominant Species That are OBL, FACW, or FAC: 75% (A/B)			
1. <i>Acer saccharinum</i>	35	Yes	FACW				
2. <i>Platanus occidentalis</i>	25	Yes	FACW				
3. <i>Ulmus americana</i>	25	Yes	FACW				
4. <i>Acer negundo</i>	15	No	FAC				
5.							
100 = Total Cover							
<b>Sapling/Shrub Stratum</b> (Plot size: 15 ft )							
1. <i>Rosa multiflora</i>	10	Yes	FACU				
2.							
3.							
4.							
5.							
10 = Total Cover							
<b>Herb Stratum</b> (Plot size: 5 ft )							
1. <i>Carex grayi</i>	20	Yes	FACW				
2. <i>Symphotrichum lateriflorum</i>	20	Yes	FACW				
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							
40 = Total Cover							
<b>Woody Vine Stratum</b> (Plot size: 30 ft )							
1. <i>Lonicera japonica</i>	15	Yes	FAC				
2. <i>Euonymus fortunei</i>	10	Yes	UPL				
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
35 = Total Cover							
<b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL Species x 1 = FACW Species x 2 = FAC Species x 3 = FACU Species x 4 = UPL Species x 5 =  Column Totals: (A) (B)  Prevalence Index = B/A =							
<b>Hydrophytic Vegetation Indicators:</b> 1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)							
<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.							
<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.							
<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:60%;"><b>Hydrophytic Vegetation Present?</b></td> <td style="width:10%; text-align: center;"><b>Yes</b></td> <td style="width:10%; text-align: center;"><b>No</b></td> <td style="width:20%; text-align: center;"><b>X</b></td> </tr> </table>				<b>Hydrophytic Vegetation Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydrophytic Vegetation Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>				
Remarks: (Include photo numbers here or on a separate sheet.)  The Dominance Test is greater than 50 percent. This observation satisfies the vegetation criterion.							

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-18	10YR 4/3	100					Loamy/Clayey					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>							<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>					
Histosol (A1)			Dark Surface (S7)				2 cm Muck (A10) (MLRA 147)					
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)				Coast Prairie Redox (A16) (MLRA 136, 147)					
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)				Piedmont Floodplain Soils (F19) (MLRA 147, 148)					
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)				Very Shallow Dark Surface (TF12)					
Stratified Layers (A5)			Depleted Matrix (F3)				Other (Explain in Remarks)					
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed): N/A												
Type:												
Depth (inches):												
							<table border="0"> <tr> <td style="text-align: center;"><b>Hydric Soil Present?</b></td> <td style="text-align: center;"><b>Yes</b></td> <td style="text-align: center;"><b>No</b></td> <td style="text-align: center;"><b>X</b></td> </tr> </table>		<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:  The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). The problematic hydric soil section of the regional supplement was consulted since indicators of wetland hydrology and hydrophytic vegetation are present. The soils observed do not correspond to any of the problematic hydric soils or problematic hydric soil situations presented in the supplement. These observations do not satisfy the soils criterion.												





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **97**

	Absolute % Cover	Dominant Species?	Indicator Status	
<p><u>Tree Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Dominance Test Worksheet:</b></p> <p>Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)</p> <p>Total Number of Dominant Species Across All Strata: 1 (B)</p> <p>Percent of Dominant Species That are OBL, FACW, or FAC: 100% (A/B)</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Prevalence Index Worksheet:</b></p> <p>Total % Cover of: Multiply by:</p> <p>OBL Species x 1 =</p> <p>FACW Species x 2 =</p> <p>FAC Species x 3 =</p> <p>FACU Species x 4 =</p> <p>UPL Species x 5 =</p> <p>Column Totals: (A) (B)</p> <p style="text-align: center;">Prevalence Index = B/A =</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Herb Stratum</u> (Plot size: 5 ft )</p> <p>1. <i>Arthraxon hispidus</i> 60 Yes FAC</p> <p>2. <i>Typha angustifolia</i> 10 No OBL</p> <p>3. <i>Setaria viridis</i> 10 No UPL</p> <p>4. <i>Juncus effusus</i> 10 No FACW</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p> <p>11</p>				<p><b>Hydrophytic Vegetation Indicators:</b></p> <p>1 - Rapid Test for Hydrophytic Vegetation</p> <p><b>X</b> 2 - Dominance Test is &gt; 50%</p> <p>3 - Prevalence Index is ≤3.0<sup>1</sup></p> <p>4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</p> <p>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</p> <p><sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>
<p style="text-align: right;">90 = Total Cover</p>				
<p><u>Woody Vine Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p>				<p><b>Definitions of Four Vegetation Strata:</b></p> <p><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height</p> <p><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p><b>Woody vine</b> – All woody vines greater than 3.28 ft in height.</p>
<p style="text-align: right;">= Total Cover</p>				
<p><b>Hydrophytic Vegetation Present?    Yes    X    No</b></p>				
<p>Remarks: (Include photo numbers here or on a separate sheet.)</p> <p>The Dominance Test is greater than 50 percent. This observation satisfies the vegetation criterion.</p>				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-12	5/10Y (GLEY)	100					Loamy/Clayey					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b>						
Histosol (A1)			Dark Surface (S7)			2 cm Muck (A10) (MLRA 147)						
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)			Coast Prairie Redox (A16) (MLRA 136, 147)						
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)			Piedmont Floodplain Soils (F19) (MLRA 147, 148)						
Hydrogen Sulfide (A4)			X Loamy Gleyed Matrix (F2)			Very Shallow Dark Surface (TF12)						
Stratified Layers (A5)			Depleted Matrix (F3)			Other (Explain in Remarks) :						
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed):N/A												
Type:												
Depth (inches):						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>X</b></td> <td><b>No</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>X</b>	<b>No</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>X</b>	<b>No</b>									
Remarks:												
The soils observed correspond to the Loamy Gleyed Matrix (F2) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the vegetation criterion.												







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **98**

		Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test Worksheet:</b>		
<u>Tree Stratum</u> (Plot size: 30 ft )					Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)		
1.					Total Number of Dominant Species Across All Strata: 3 (B)		
2.					Percent of Dominant Species That are OBL, FACW, or FAC: 33 (A/B)		
3.							
4.							
5.							
<u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )					<b>Prevalence Index Worksheet:</b>		
1.					Total % Cover of:	Multiply by:	
2.					OBL Species	x 1 =	
3.					FACW Species	x 2 =	
4.					FAC Species	x 3 =	
5.					FACU Species	x 4 =	
					UPL Species	x 5 =	
<u>Herb Stratum</u> (Plot size: 5 ft )					Column Totals:	(A)	(B)
1.	<i>Cirsium arvense</i>	30	Yes	FACU	Prevalence Index = B/A =		
2.	<i>Asclepias syriaca</i>	10	Yes	FACU			
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							
<u>Woody Vine Stratum</u> (Plot size: 30 ft )		40			<b>Hydrophytic Vegetation Indicators:</b>		
1.	<i>Lonicera japonica</i>	40	Yes	FAC	1 - Rapid Test for Hydrophytic Vegetation		
2.					2 - Dominance Test is > 50%		
3.					3 - Prevalence Index is ≤3.0 <sup>1</sup>		
4.					4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)		
5.					Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)		
6.							
7.							
8.							
9.							
10.							
		40			<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.		
					<b>Definitions of Four Vegetation Strata:</b>		
					<b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height		
					<b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.		
					<b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.		
					<b>Woody vine</b> – All woody vines greater than 3.28 ft in height.		
		40			<b>Hydrophytic Vegetation Present?</b> <b>Yes</b> <b>No</b> <b>X</b>		

Remarks: (Include photo numbers here or on a separate sheet.)

The Dominance Test is less than 50 percent. This observation does not satisfy the vegetation criterion.

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-1	IMPENETRABLE						Fill					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.												
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2)  Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) (LRR N) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5)  Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) (MLRA 147, 148)  Thin Dark Surface (S9) (MLRA 147, 148)  Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148) Red Parent Material (F21) (MLRA 127, 147)		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> 2 cm Muck (A10) (MLRA 147) Coast Prairie Redox (A16) (MLRA 136, 147) Piedmont Floodplain Soils (F19) (MLRA 147, 148) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)				
Restrictive Layer (if observed): Type: Fill Depth (inches): 1						<sup>3</sup> Indicators of Hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic						
						<table border="0"> <tr> <td style="text-align: center;"><b>Hydric Soil Present?</b></td> <td style="text-align: center;"><b>Yes</b></td> <td style="text-align: center;"><b>No</b></td> <td style="text-align: center;"><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:  The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **99**

	Absolute % Cover	Dominant Species?	Indicator Status	
<p><u>Tree Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Dominance Test Worksheet:</b></p> <p>Number of Dominant Species That are OBL, FACW, or FAC: (A)</p> <p>Total Number of Dominant Species Across All Strata: (B)</p> <p>Percent of Dominant Species That are OBL, FACW, or FAC: (A/B)</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Prevalence Index Worksheet:</b></p> <p>Total % Cover of:                      Multiply by:</p> <p>OBL Species                                      x 1 =</p> <p>FACW Species                                    x 2 =</p> <p>FAC Species                                      x 3 =</p> <p>FACU Species                                    x 4 =</p> <p>UPL Species                                      x 5 =</p> <p>Column Totals:                                      (A)                      (B)</p> <p style="text-align: center;">Prevalence Index = B/A =</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Herb Stratum</u> (Plot size: 5 ft )</p> <p>1. <i>Carex lurida</i>                                      30                      Yes                      OBL</p> <p>2. <i>Leersia oryzoides</i>                                30                      Yes                      OBL</p> <p>3. <i>Juncus effusus</i>                                    30                      Yes                      FACW</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p> <p>11.</p>				<p><b>Hydrophytic Vegetation Indicators:</b></p> <p><b>X</b> 1 - Rapid Test for Hydrophytic Vegetation</p> <p>2 - Dominance Test is &gt; 50%</p> <p>3 - Prevalence Index is ≤3.0<sup>1</sup></p> <p>4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</p> <p>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</p> <p><sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>
<p style="text-align: right;">90                      = Total Cover</p>				
<p><u>Woody Vine Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p>				<p><b>Definitions of Four Vegetation Strata:</b></p> <p><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height</p> <p><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p><b>Woody vine</b> – All woody vines greater than 3.28 ft in height.</p>
<p style="text-align: right;">= Total Cover</p>				
<p><b>Hydrophytic Vegetation Present?      Yes      X      No</b></p>				
<p>Remarks: (Include photo numbers here or on a separate sheet.)</p> <p>The dominant species observed have a wetland indicator status of FACW and OBL. This observation satisfies the Rapid Test for Hydrophytic Vegetation.</p>				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-7	4/5GY (GLEY)	100					Loamy/Clayey					
7-18	4/5GY (GLEY)	100					Sandy					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.												
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) (LRR N) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) (MLRA 147, 148) Thin Dark Surface (S9) (MLRA 147, 148) X Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148) Red Parent Material (F21) (MLRA 127, 147)		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> 2 cm Muck (A10) (MLRA 147) Coast Prairie Redox (A16) (MLRA 136, 147) Piedmont Floodplain Soils (F19) (MLRA 147, 148) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) :				
Restrictive Layer (if observed):N/A												
Type:												
Depth (inches):						<table border="0"> <tr> <td style="text-align: center;"><b>Hydric Soil Present?</b></td> <td style="text-align: center;">Yes</td> <td style="text-align: center;">X</td> <td style="text-align: center;">No</td> </tr> </table>			<b>Hydric Soil Present?</b>	Yes	X	No
<b>Hydric Soil Present?</b>	Yes	X	No									
Remarks: The soils observed correspond to the Loamy Gleyed Matrix (F2) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the vegetation criterion.												







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **100**

	Absolute % Cover	Dominant Species?	Indicator Status	
<u>Tree Stratum</u> (Plot size: 30 ft ) 1. 2. 3. 4. 5.				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)  Total Number of Dominant Species Across All Strata: 1 (B)  Percent of Dominant Species That are OBL, FACW, or FAC: 0 (A/B)
<u>Sapling/Shrub Stratum</u> (Plot size: 15 ft ) 1. 2. 3. 4. 5.		= Total Cover		
<u>Herb Stratum</u> (Plot size: 5 ft ) 1. <i>Festuca arundinacea</i> 2. 3. 4. 5. 6. 7. 8. 9. 10. 11.	100	Yes	FACU	
<u>Woody Vine Stratum</u> (Plot size: 30 ft ) 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.	100	= Total Cover		<b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL Species x 1 = FACW Species x 2 = FAC Species x 3 = FACU Species x 4 = UPL Species x 5 =  Column Totals: (A) (B)  Prevalence Index = B/A =
				<b>Hydrophytic Vegetation Indicators:</b> 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
				<b>Hydrophytic Vegetation Present?</b> <b>Yes</b> <b>No</b> <b>X</b>
Remarks: (Include photo numbers here or on a separate sheet.)  The Dominance Test is less than 50 percent. This observation does not satisfy the vegetation criterion.				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-1	IMPENETRABLE						Fill					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.												
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2)  Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) (LRR N) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5)  Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) (MLRA 147, 148)  Thin Dark Surface (S9) (MLRA 147, 148)  Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148) Red Parent Material (F21) (MLRA 127, 147)		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> 2 cm Muck (A10) (MLRA 147) Coast Prairie Redox (A16) (MLRA 136, 147) Piedmont Floodplain Soils (F19) (MLRA 147, 148) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)				
Restrictive Layer (if observed): Type: Fill Depth (inches): 1						<sup>3</sup> Indicators of Hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic						
						<table border="0"> <tr> <td style="text-align: center;"><b>Hydric Soil Present?</b></td> <td style="text-align: center;"><b>Yes</b></td> <td style="text-align: center;"><b>No</b></td> <td style="text-align: center;"><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:  The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 101

	Absolute % Cover	Dominant Species?	Indicator Status	
<u>Tree Stratum</u> (Plot size: 30 ft ) 1. 2. 3. 4. 5.				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: (A)  Total Number of Dominant Species Across All Strata: (B)  Percent of Dominant Species That are OBL, FACW, or FAC: (A/B)
<u>Sapling/Shrub Stratum</u> (Plot size: 15 ft ) 1. 2. 3. 4. 5.		= Total Cover		
<u>Herb Stratum</u> (Plot size: 5 ft ) 1. <i>Juncus effusus</i> 2. <i>Scirpus cyperinus</i> 3. 4. 5. 6. 7. 8. 9. 10. 11.	90 5	Yes No	FACW FACW	
<u>Woody Vine Stratum</u> (Plot size: 30 ft ) 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.	95	= Total Cover		Prevalence Index = B/A =  <b>Hydrophytic Vegetation Indicators:</b> X 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
				<b>Hydrophytic Vegetation Present?</b> Yes    X    No
Remarks: (Include photo numbers here or on a separate sheet.)  The dominant species observed has a wetland indicator status of FACW. This observation satisfies the Rapid Test for Hydrophytic Vegetation.				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-7	4/5GY (GLEY)	100					Loamy/Clayey					
7-18	4/5GY (GLEY)	100					Sandy					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.												
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2)  Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) (LRR N) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5)  Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) (MLRA 147, 148)  Thin Dark Surface (S9) (MLRA 147, 148)  <b>X</b> Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148) Red Parent Material (F21) (MLRA 127, 147)			<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> 2 cm Muck (A10) (MLRA 147) Coast Prairie Redox (A16) (MLRA 136, 147) Piedmont Floodplain Soils (F19) (MLRA 147, 148) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) :			
Restrictive Layer (if observed):N/A Type: Depth (inches):						<table border="0"> <tr> <td style="text-align: center;"><b>Hydric Soil Present?</b></td> <td style="text-align: center;">Yes</td> <td style="text-align: center;">X</td> <td style="text-align: center;">No</td> </tr> </table>			<b>Hydric Soil Present?</b>	Yes	X	No
<b>Hydric Soil Present?</b>	Yes	X	No									
Remarks:  The soils observed correspond to the Loamy Gleyed Matrix (F2) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the vegetation criterion.												







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **102**

	Absolute % Cover	Dominant Species?	Indicator Status	
<u>Tree Stratum</u> (Plot size: 30 ft ) 1. 2. 3. 4. 5.				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)  Total Number of Dominant Species Across All Strata: 1 (B)  Percent of Dominant Species That are OBL, FACW, or FAC: 0 (A/B)
<u>Sapling/Shrub Stratum</u> (Plot size: 15 ft ) 1. 2. 3. 4. 5.		= Total Cover		
<u>Herb Stratum</u> (Plot size: 5 ft ) 1. <i>Festuca arundinacea</i> 2. 3. 4. 5. 6. 7. 8. 9. 10. 11.	100	Yes	FACU	
<u>Woody Vine Stratum</u> (Plot size: 30 ft ) 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.	100	= Total Cover		<b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL Species x 1 = FACW Species x 2 = FAC Species x 3 = FACU Species x 4 = UPL Species x 5 =  Column Totals: (A) (B)  Prevalence Index = B/A =
				<b>Hydrophytic Vegetation Indicators:</b> 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
				<b>Hydrophytic Vegetation Present?</b> <b>Yes</b> <b>No</b> <b>X</b>
Remarks: (Include photo numbers here or on a separate sheet.)  The Dominance Test is less than 50 percent. This observation does not satisfy the vegetation criterion.				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-1	IMPENETRABLE						Fill					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.												
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2)  Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) (LRR N) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5)  Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) (MLRA 147, 148)  Thin Dark Surface (S9) (MLRA 147, 148)  Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148) Red Parent Material (F21) (MLRA 127, 147)			<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> 2 cm Muck (A10) (MLRA 147) Coast Prairie Redox (A16) (MLRA 136, 147) Piedmont Floodplain Soils (F19) (MLRA 147, 148) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)			
Restrictive Layer (if observed): Type: Fill Depth (inches): 1						<sup>3</sup> Indicators of Hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic  <table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:  The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												







Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-18	10YR 4/3						Loamy/Clayey					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.												
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2)  Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) (LRR N) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5)  Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) (MLRA 147, 148)  Thin Dark Surface (S9) (MLRA 147, 148)  Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148) Red Parent Material (F21) (MLRA 127, 147)			<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> 2 cm Muck (A10) (MLRA 147) Coast Prairie Redox (A16) (MLRA 136, 147) Piedmont Floodplain Soils (F19) (MLRA 147, 148) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)			
Restrictive Layer (if observed): N/A  Type:  Depth (inches):						<sup>3</sup> Indicators of Hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic  <table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:  The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 104

	Absolute % Cover	Dominant Species?	Indicator Status	
<p><u>Tree Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Dominance Test Worksheet:</b></p> <p>Number of Dominant Species That are OBL, FACW, or FAC: (A)</p> <p>Total Number of Dominant Species Across All Strata: (B)</p> <p>Percent of Dominant Species That are OBL, FACW, or FAC: (A/B)</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p>				<p><b>Prevalence Index Worksheet:</b></p> <p>Total % Cover of:                      Multiply by:</p> <p>OBL Species                                x 1 =</p> <p>FACW Species                                x 2 =</p> <p>FAC Species                                  x 3 =</p> <p>FACU Species                                x 4 =</p> <p>UPL Species                                  x 5 =</p> <p>Column Totals:                              (A)                      (B)</p> <p style="text-align: center;">Prevalence Index = B/A =</p>
<p style="text-align: right;">= Total Cover</p>				
<p><u>Herb Stratum</u> (Plot size: 5 ft )</p> <p>1. <i>Leersia oryzoides</i>                      40                      Yes                      OBL</p> <p>2. <i>Scirpus cyperinus</i>                      30                      Yes                      FACW</p> <p>3. <i>Juncus effusus</i>                          10                      No                        FACW</p> <p>4. <i>Lemna minor</i>                            10                      No                        OBL</p> <p>5. <i>Wolffia columbiana</i>                    10                      No                        OBL</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p> <p>11</p>				<p><b>Hydrophytic Vegetation Indicators:</b></p> <p><b>X</b> 1 - Rapid Test for Hydrophytic Vegetation</p> <p>2 - Dominance Test is &gt; 50%</p> <p>3 - Prevalence Index is ≤3.0<sup>1</sup></p> <p>4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</p> <p>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</p> <p><sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>
<p style="text-align: right;">100                      = Total Cover</p>				
<p><u>Woody Vine Stratum</u> (Plot size: 30 ft )</p> <p>1.</p> <p>2.</p> <p>3.</p> <p>4.</p> <p>5.</p> <p>6.</p> <p>7.</p> <p>8.</p> <p>9.</p> <p>10.</p>				<p><b>Definitions of Four Vegetation Strata:</b></p> <p><b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height</p> <p><b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p><b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p><b>Woody vine</b> – All woody vines greater than 3.28 ft in height.</p>
<p style="text-align: right;">= Total Cover</p>				
<p><b>Hydrophytic Vegetation Present?    Yes    X    No</b></p>				
<p>Remarks: (Include photo numbers here or on a separate sheet.)</p> <p>The dominant species observed has a wetland indicator status of FACW. This observation satisfies the Rapid Test for Hydrophytic Vegetation.</p>				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-4	10YR 2/1	100					Sandy/Gravel					
4-9	5/10Y (GLEY)	100					Loamy/Clayey					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>							<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>					
Histosol (A1)			Dark Surface (S7)				2 cm Muck (A10) (MLRA 147)					
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)				Coast Prairie Redox (A16) (MLRA 136, 147)					
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)				Piedmont Floodplain Soils (F19) (MLRA 147, 148)					
Hydrogen Sulfide (A4)			X Loamy Gleyed Matrix (F2)				Very Shallow Dark Surface (TF12)					
Stratified Layers (A5)			Depleted Matrix (F3)				Other (Explain in Remarks) :					
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed):N/A												
Type:												
Depth (inches):							<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td>Yes</td> <td>X</td> <td>No</td> </tr> </table>		<b>Hydric Soil Present?</b>	Yes	X	No
<b>Hydric Soil Present?</b>	Yes	X	No									
Remarks:  The soils observed correspond to the Loamy Gleyed Matrix (F2) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the vegetation criterion.												





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 105

		Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test Worksheet:</b>		
<u>Tree Stratum</u> (Plot size: 30 ft )					Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)		
1.					Total Number of Dominant Species Across All Strata: 4 (B)		
2.					Percent of Dominant Species That are OBL, FACW, or FAC: 25% (A/B)		
3.							
4.							
5.							
			= Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )					<b>Prevalence Index Worksheet:</b>		
1.	<i>Rubus allegheniensis</i>	60	Yes	FACU	Total % Cover of: Multiply by:		
2.					OBL Species x 1 =		
3.					FACW Species x 2 =		
4.					FAC Species x 3 =		
5.					FACU Species x 4 =		
		60	= Total Cover		UPL Species x 5 =		
<u>Herb Stratum</u> (Plot size: 5 ft )					Column Totals: (A) (B)		
1.	<i>Cirsium vulgare</i>	10	Yes	FACU	Prevalence Index = B/A =		
2.	<i>Verbesina officinalis</i>	10	Yes	FACU			
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							
		20	= Total Cover		<b>Hydrophytic Vegetation Indicators:</b>		
<u>Woody Vine Stratum</u> (Plot size: 30 ft )					1 - Rapid Test for Hydrophytic Vegetation		
1.	<i>Lonicera japonica</i>	20	Yes	FAC	2 - Dominance Test is > 50%		
2.					3 - Prevalence Index is ≤3.0 <sup>1</sup>		
3.					4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)		
4.					Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)		
5.							
6.							
7.							
8.							
9.							
10.							
		20	= Total Cover		<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.		
					<b>Definitions of Four Vegetation Strata:</b>		
					<b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height		
					<b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.		
					<b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.		
					<b>Woody vine</b> – All woody vines greater than 3.28 ft in height.		
					<b>Hydrophytic Vegetation Present?</b> Yes No X		

Remarks: (Include photo numbers here or on a separate sheet.)

The Dominance Test is less than 50 percent. This observation does not satisfy the vegetation criterion.

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-1	IMPENETRABLE						Rocky Soil	
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.								
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2)  Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) ( <b>LRR N</b> ) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) ( <b>LRR N, MLRA 147, 148</b> ) Sandy Gleyed Matrix (S4) Sandy Redox (S5)  Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) ( <b>MLRA 147, 148</b> )  Thin Dark Surface (S9) ( <b>MLRA 147, 148</b> )  Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) ( <b>LRR N, MLRA 136</b> ) Umbric Surface (F13) ( <b>MLRA 136, 122</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 148</b> ) Red Parent Material (F21) ( <b>MLRA 127, 147</b> )		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> 2 cm Muck (A10) ( <b>MLRA 147</b> ) Coast Prairie Redox (A16) ( <b>MLRA 136, 147</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 147, 148</b> ) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)
Restrictive Layer (if observed): Type: Rocky Soil Depth (inches): 1						<b>Hydric Soil Present?</b> Yes      No      X		
<b>Remarks:</b>  The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.								







**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: 106

	Absolute % Cover	Dominant Species?	Indicator Status	
<u>Tree Stratum</u> (Plot size: 30 ft ) 1. 2. 3. 4. 5.				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: (A)  Total Number of Dominant Species Across All Strata: (B)  Percent of Dominant Species That are OBL, FACW, or FAC: (A/B)
<u>Sapling/Shrub Stratum</u> (Plot size: 15 ft ) 1. 2. 3. 4. 5.		= Total Cover		
<u>Herb Stratum</u> (Plot size: 5 ft ) 1. <i>Juncus effusus</i> 2. <i>Eleocharis erythropoda</i> 3. 4. 5. 6. 7. 8. 9. 10. 11.	30 20	Yes Yes	FACW OBL	
<u>Woody Vine Stratum</u> (Plot size: 30 ft ) 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.	50	= Total Cover		Column Totals: (A) (B)  Prevalence Index = B/A =
				<b>Hydrophytic Vegetation Indicators:</b> X 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
				<b>Hydrophytic Vegetation Present?</b> Yes    X    No
Remarks: (Include photo numbers here or on a separate sheet.)  The dominant species observed has a wetland indicator status of FACW and OBL. This observation satisfies the Rapid Test for Hydrophytic Vegetation.				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)									
Depth	Matrix		Redox Features				Texture	Remarks	
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>			
0-12	10YR 4/2	95	10YR 5/6	5	C	PL	Loamy/Clayey		
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.									
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2)  Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) (LRR N) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5)  Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) (MLRA 147, 148)  Thin Dark Surface (S9) (MLRA 147, 148)  Loamy Gleyed Matrix (F2) X Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148) Red Parent Material (F21) (MLRA 127, 147)		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> 2 cm Muck (A10) (MLRA 147) Coast Prairie Redox (A16) (MLRA 136, 147) Piedmont Floodplain Soils (F19) (MLRA 147, 148) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) :	
Restrictive Layer (if observed):N/A Type: Depth (inches):						<b>Hydric Soil Present?</b> Yes    X    No			
<b>Remarks:</b>  The soils observed correspond to the Depleted Matrix (F3) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the vegetation criterion.									





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **107**

				<b>Dominance Test Worksheet:</b>			
<u>Tree Stratum</u> (Plot size: 30 ft )				Absolute % Cover	Dominant Species?	Indicator Status	
1.						Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)	
2.						Total Number of Dominant Species Across All Strata: 4 (B)	
3.					Percent of Dominant Species That are OBL, FACW, or FAC: 25% (A/B)		
4.							
5.							
			= Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )							
1.	<i>Rosa multiflora</i>	10	Yes	FACU	<b>Prevalence Index Worksheet:</b>		
2.					Total % Cover of:	Multiply by:	
3.					OBL Species	x 1 =	
4.					FACW Species	x 2 =	
5.					FAC Species	x 3 =	
		10	= Total Cover		FACU Species	x 4 =	
<u>Herb Stratum</u> (Plot size: 5 ft )						UPL Species	x 5 =
1.	<i>Perilla frutescens</i>	40	Yes	FACU	Column Totals:	(A) (B)	
2.	<i>Trifolium repens</i>	20	Yes	FACU	Prevalence Index = B/A =		
3.	<i>Eupatorium serotinum</i>	5	No	FAC	<b>Hydrophytic Vegetation Indicators:</b>		
4.					1 - Rapid Test for Hydrophytic Vegetation		
5.					2 - Dominance Test is > 50%		
6.					3 - Prevalence Index is ≤3.0 <sup>1</sup>		
7.					4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)		
8.					Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)		
9.					<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.		
10.		65	= Total Cover		<b>Definitions of Four Vegetation Strata:</b>		
11.					<b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height		
<u>Woody Vine Stratum</u> (Plot size: 30 ft )						<b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.	
1.	<i>Lonicera japonica</i>	10	Yes	FAC	<b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.		
2.					<b>Woody vine</b> – All woody vines greater than 3.28 ft in height.		
3.					<b>Hydrophytic Vegetation Present?</b> <b>Yes</b> <b>No</b> <b>X</b>		
4.							
5.							
6.							
7.							
8.							
9.							
10.		10	= Total Cover				

Remarks: (Include photo numbers here or on a separate sheet.)

The Dominance Test is less than 50 percent. This observation does not satisfy the vegetation criterion.

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-1	IMPENETRABLE						Rocky Soil					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.												
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b>						
Histosol (A1) Histic Epipedon (A2)  Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) ( <b>LRR N</b> ) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) ( <b>LRR N, MLRA 147, 148</b> ) Sandy Gleyed Matrix (S4) Sandy Redox (S5)  Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) ( <b>MLRA 147, 148</b> )  Thin Dark Surface (S9) ( <b>MLRA 147, 148</b> )  Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) ( <b>LRR N, MLRA 136</b> ) Umbric Surface (F13) ( <b>MLRA 136, 122</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 148</b> ) Red Parent Material (F21) ( <b>MLRA 127, 147</b> )			2 cm Muck (A10) ( <b>MLRA 147</b> ) Coast Prairie Redox (A16) ( <b>MLRA 136, 147</b> ) Piedmont Floodplain Soils (F19) ( <b>MLRA 147, 148</b> ) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)			
Restrictive Layer (if observed):						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Type: Rocky Soil												
Depth (inches): 1												
Remarks:  The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												









Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color ( moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12	10YR 5/2	95	10YR 5/6	5	C	PL	Loamy/Clayey	
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.								
<b>Hydric Soil Indicators:</b> Histosol (A1) Histic Epipedon (A2)  Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) (LRR N) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) Sandy Gleyed Matrix (S4) Sandy Redox (S5)  Stripped Matrix (S6)						Dark Surface (S7) Polyvalue Below Surface (S8) (MLRA 147, 148)  Thin Dark Surface (S9) (MLRA 147, 148)  Loamy Gleyed Matrix (F2) X Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depression (F8) Iron-Manganese Masses (F12) (LRR N, MLRA 136) Umbric Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148) Red Parent Material (F21) (MLRA 127, 147)		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> 2 cm Muck (A10) (MLRA 147) Coast Prairie Redox (A16) (MLRA 136, 147) Piedmont Floodplain Soils (F19) (MLRA 147, 148) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) :
Restrictive Layer (if observed):N/A Type: Depth (inches):						<b>Hydric Soil Present?</b> Yes    X    No		
<b>Remarks:</b>  The soils observed correspond to the Depleted Matrix (F3) hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation satisfies the vegetation criterion.								





**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: **109**

	Absolute % Cover	Dominant Species?	Indicator Status	
<u>Tree Stratum</u> (Plot size: 30 ft )				<b>Dominance Test Worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)  Total Number of Dominant Species Across All Strata: 2 (B)  Percent of Dominant Species That are OBL, FACW, or FAC: 50% (A/B)
1.				
2.				
3.				
4.				
5.				<b>Prevalence Index Worksheet:</b> Total % Cover of: Multiply by: OBL Species x 1 = FACW Species x 2 = FAC Species x 3 = FACU Species x 4 = UPL Species x 5 =  Column Totals: (A) (B)  Prevalence Index = B/A =
= Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: 15 ft )				
1.				
2.				
3.				
4.				<b>Hydrophytic Vegetation Indicators:</b> 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is > 50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
5.				
= Total Cover				
<u>Herb Stratum</u> (Plot size: 5 ft )				
1. <i>Poa pratensis</i>	50	Yes	FACU	
2. <i>Vernonia gigantea</i>	20	Yes	FAC	
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
70 = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: 30 ft )				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
= Total Cover				
<b>Hydrophytic Vegetation Present?</b> <b>Yes</b> <b>No</b> <b>X</b>				
Remarks: (Include photo numbers here or on a separate sheet.)  The Dominance Test is 50 percent. This observation does not satisfy the vegetation criterion.				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth	Matrix		Redox Features				Texture	Remarks				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>						
0-9	10YR 5/4	100					Loamy/Clayey					
>9	IMPENETRABLE						Rocky Soil					
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS= Masked Sand Grains.					<sup>2</sup> Location: PL=Pore Lining, M=Matrix.							
<b>Hydric Soil Indicators:</b>						<b>Indicators for Problematic Hydric Soils <sup>3</sup>:</b>						
Histosol (A1)			Dark Surface (S7)			2 cm Muck (A10) (MLRA 147)						
Histic Epipedon (A2)			Polyvalue Below Surface (S8) (MLRA 147, 148)			Coast Prairie Redox (A16) (MLRA 136, 147)						
Black Histic (A3)			Thin Dark Surface (S9) (MLRA 147, 148)			Piedmont Floodplain Soils (F19) (MLRA 147, 148)						
Hydrogen Sulfide (A4)			Loamy Gleyed Matrix (F2)			Very Shallow Dark Surface (TF12)						
Stratified Layers (A5)			Depleted Matrix (F3)			Other (Explain in Remarks)						
2 cm Muck (A10) (LRR N)			Redox Dark Surface (F6)									
Depleted Below Dark Surface (A11)			Depleted Dark Surface (F7)									
Thick Dark Surface (A12)			Redox Depression (F8)									
Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)			Iron-Manganese Masses (F12) (LRR N, MLRA 136)									
Sandy Gleyed Matrix (S4)			Umbric Surface (F13) (MLRA 136, 122)									
Sandy Redox (S5)			Piedmont Floodplain Soils (F19) (MLRA 148)									
Stripped Matrix (S6)			Red Parent Material (F21) (MLRA 127, 147)									
Restrictive Layer (if observed):												
Type: Rocky Soil												
Depth (inches): 9						<table border="0"> <tr> <td><b>Hydric Soil Present?</b></td> <td><b>Yes</b></td> <td><b>No</b></td> <td><b>X</b></td> </tr> </table>			<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>
<b>Hydric Soil Present?</b>	<b>Yes</b>	<b>No</b>	<b>X</b>									
Remarks:												
The soils in this area do not correspond to any of the hydric soil indicator presented in the Field Indicators of Hydric Soils in the United States, Version 7.0 (2010). This observation does not satisfy the soils criterion.												



**Appendix 4**  
**Agency Data Requests**



**POTENTIAL INDIANA BAT HABITAT CHARACTERIZATION WORKSHEET FOR LV1 (MOA) LEVEL ECOLOGICAL SURVEYS OR MINOR LV2 ESR**

Which Indiana bat Management Unit (see map) does the project primarily occur within?	W		C		NE	
	S	X			E	
Are there any known or suspected <b>hibernacula</b> within 10 miles of the project (DNAP - Natural Heritage Database records)?	Y		N	X		
• If yes, list the total number and the distance to the closest record.	#:					mi.
Are there any known Indiana bat capture records within 5 miles of the project (DNAP - Natural Heritage Database records)?	Y		N	X		
• If yes, list the total number and the distance to the closest record.	#:					mi.
Total number of potential Indiana bat habitat <b>roost trees</b> impacted by the project.	#:		<b>Unknown</b>			
• Number of these trees that are considered <b>isolated</b> .	#:		<b>Unknown</b>			
Total number of potential Indiana bat habitat <b>maternity roost trees</b> impacted by the project.	#:		<b>Unknown</b>			
• Number of these trees that are considered <b>isolated</b> .	#:		<b>Unknown</b>			
Total amount of impact to forested areas as a result of the project			<b>Phase II = 356.64</b>			
			<b>Phase III = 331.36</b>		ac.	
			<b>Total = 688.00</b>			



Stop if the project is located within the **NE**, **E**, or **S** Management Units.



Continue with form if the project is located within the **W** or **C** Management Units.

Are the impacted potential <b>roost trees</b> located within a forested area?	Y		N	
• If yes, what is the approximate size of the forested area in acres (include areas not impacted)?				ac.
Are the impacted potential <b>roost trees</b> connected to a forest area via a tree line (row of 2 or more wide)?	Y		N	
• If yes, what is the size of the connected forested area?				ac.
Is there a perennial water sources within 0.5 mile of the impacted potential <b>roost trees</b> ?	Y		N	
Will the project remove all or a portion of a potential Indiana bat <b>travel corridor</b> ?	Y		N	
Will the project remove more than 10% of the forest area it is within (or connected to)?	Y		N	

Definitions for **bold** words located in the ODOT Ecological Manual section 203.2.3.



# Ohio Department of Natural Resources

JOHN R. KASICH, GOVERNOR

JAMES ZEHRINGER, DIRECTOR

**Ohio Division of Wildlife**  
*Scott Zody, Chief*  
2045 Morse Rd., Bldg. G  
Columbus, OH 43229-6693  
Phone: (614) 265-6300

November 6, 2012

Jason Early  
ASC Group  
800 Freeway Drive North, Suite 101  
Columbus, OH 43229

Dear Mr. Early

Per your request, I have e-mailed you a set of ArcView shape files for the Portsmouth Bypass - Phases 2 and 3 - SCI 823 project area, including a one mile radius, in Scioto County, Ohio. This data may not be published or distributed beyond the scope of the project description on the data request form without prior written permission of the Natural Heritage Program.

I am attaching a shape file for the rare and endangered plants and animals, geologic features, high quality plant communities and animal assemblages. Fields included are scientific and common names, state and federal statuses, as well as date of the most recent observation. State and federal statuses are defined as: E = endangered, T = threatened, P = potentially threatened, SC = species of concern, SI = special interest, FE = federal endangered, FT = federal threatened, FPE = federal potentially endangered, FC = federal candidate and FSC = federal species of concern.

We have no records for Indiana Bat (*Myotis sodalis*) capture locations within a five mile radius or hibernacula within a ten mile radius of the project sites.

Our inventory program has not completely surveyed Ohio and relies on information supplied by many individuals and organizations. Therefore, a lack of records for any particular area is not a statement that rare species or unique features are absent from that area. Please note that although we inventory all types of plant communities, we only maintain records on the highest quality areas.

This letter only represents a review of rare species and natural features data within the Ohio Natural Heritage Database. It does not fulfill coordination under the National Environmental Policy Act (NEPA) or the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S. C. 661 et seq.) and does not supersede or replace the regulatory authority of any local, state or federal agency nor relieve the applicant of the obligation to comply with any local, state or federal laws or regulations.

Please contact me at 614-265-6452 if I can be of further assistance.

Sincerely,

A handwritten signature in blue ink that reads "Greg Schneider".

Greg Schneider, Administrator  
Ohio Natural Heritage Program

SNAME	SCOMNAME	NAME_CATEG	LAST_OBSER	STATE_STAT	FEDERAL_ST
Phacelia bipinnatifida	Fern-leaved Scorpion-weed	Vascular Plant	1990-05-09	P	
Simpsonaias ambigua	Salamander Mussel	Invertebrate Animal	1987-07	SC	FSC
Truncilla truncata	Deertoe	Invertebrate Animal	1987-07	SC	
Viola pedata	Birdfoot Violet	Vascular Plant	2000-04-06	T	
Viola pedata	Birdfoot Violet	Vascular Plant	2000-04-06	T	
Moxostoma carinatum	River Redhorse	Vertebrate Animal	1970-05-10	SC	
Cycleptus elongatus	Blue Sucker	Vertebrate Animal	2005-09-09	T	FSC
Stenanthium gramineum	Feather-bells	Vascular Plant	1976-06-25	P	
Ellipsaria lineolata	Butterfly	Invertebrate Animal	2002-07-24	E	
Elliptio crassidens	Elephant-ear	Invertebrate Animal	2002-07-24	E	
Fusconaia ebeus	Ebonysell	Invertebrate Animal	2002-07-24	E	
Ligumia recta	Black Sandshell	Invertebrate Animal	2002-07-24	T	
Megaloniais nervosa	Washboard	Invertebrate Animal	2002-07-24	E	
Obliquaria reflexa	Threehorn Wartyback	Invertebrate Animal	2002-07-24	T	
Plethobasus cyphus	Sheepnose	Invertebrate Animal	2002-07-24	E	FE
Pleurobema cordatum	Ohio Pigtoe	Invertebrate Animal	2002-07-24	E	
Quadrula metanevra	Monkeyface	Invertebrate Animal	2002-07-24	E	
Quercus falcata	Spanish Oak	Vascular Plant	2005-10-10	T	
Magnolia tripetala	Umbrella Magnolia	Vascular Plant	2011-05-18	P	
Viola primulifolia	Primrose-leaved Violet	Vascular Plant	2011-06-03	E	
Viola primulifolia	Primrose-leaved Violet	Vascular Plant	2011-06-03	E	
Viola primulifolia	Primrose-leaved Violet	Vascular Plant	2011-08-11	E	
Viola primulifolia	Primrose-leaved Violet	Vascular Plant	2011-08-11	E	

**From:** [obdrequest](mailto:obdrequest)  
**To:** [jeasley@ascgroup.net](mailto:jeasley@ascgroup.net)  
**Subject:** Re: Database Request  
**Date:** Tuesday, November 06, 2012 1:59:37 PM  
**Attachments:** [phase 2 and phase 3.dbf](#)  
[phase 2 and phase 3.prj](#)  
[phase 2 and phase 3.sbn](#)  
[phase 2 and phase 3.sbx](#)  
[phase 2 and phase 3.shp](#)  
[phase 2 and phase 3.shx](#)  
[Portsmouth Bypass - Phases 2 and 3 - SCI 823.pdf](#)

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Mr. Early,

I am attaching the response letter to your Natural Heritage search request.

Please let me know if you have any questions.

Please note that we have changed the name of our program to: Ohio Natural Heritage Program

Future requests should be sent by mail or by email to this address.

[obdrequest@dnr.state.oh.us](mailto:obdrequest@dnr.state.oh.us)

Thanks!

*Greg Schneider, Program Administrator  
Ohio Natural Heritage Program  
Division of Wildlife  
Ohio Department of Natural Resources  
2045 Morse Rd., Bldg. G-3  
Columbus, Ohio 43229-6693  
Phone: (614) 265-6452  
Fax: (614) 267-3096  
<<mailto:greg.schneider@dnr.state.oh.us>>*

---

**From:** Woischke, Debbie  
**Sent:** Thursday, November 01, 2012 7:00 AM  
**To:** obdrequest  
**Subject:** FW: Database Request

---

**From:** Jason Earley [<mailto:jeasley@ascgroup.net>]  
**Sent:** Wednesday, October 31, 2012 3:36 PM  
**To:** Woischke, Debbie  
**Subject:** Database Request

Good afternoon Debbie:

Please find the attached database request letter and form. This request is for Phases 2 and 3 of the Portsmouth Bypass for an Ecological Survey we are currently working on for ODOT.

Please let me know if there is anything else I can provide to assist you with this request.

Thanks in advance.

Jason

Jason M. Earley  
Senior Environmental Specialist  
ASC Group, Inc.  
800 Freeway Drive North, Suite 101  
Columbus, Ohio 43229  
Work: (614) 643-3205  
Mobile: (614) 787-3454  
[jeasley@ascgroup.net](mailto:jeasley@ascgroup.net)

**Ohio Division of Wildlife  
Natural Heritage Database  
State-listed Species for Scioto Co.  
As of 11/8/2012**

<u>Last Recorded</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>State Status</u>	<u>Federal Status</u>
<b>PLANTS</b>				
2011	<i>Aconitum uncinatum</i>	Southern Monkshood	E	
2009	<i>Ageratina aromatica</i>	Small White Snakeroot	E	
2006	<i>Anomobryum filiforme</i>	Common Silver Moss	E	
2007	<i>Asclepias amplexicaulis</i>	Blunt-leaved Milkweed	P	
2009	<i>Asclepias variegata</i>	White Milkweed	P	
2008	<i>Astragalus canadensis</i>	Canada Milk-vetch	T	
1978	<i>Botrychium biternatum</i>	Sparse-lobed Grape Fern	E	
2005	<i>Carex crinita var. brevicrinis</i>	Short-fringed Sedge	T	
2011	<i>Carex purpurifera</i>	Purple Wood Sedge	T	FSC
2011	<i>Carex reznicekii</i>	Reznicek's Sedge	E	
2006	<i>Chionanthus virginicus</i>	Fringe-tree	P	
2007	<i>Cirsium carolinianum</i>	Carolina Thistle	T	
2006	<i>Clitoria mariana</i>	Butterfly-pea	P	
2008	<i>Collinsonia verticillata</i>	Early Stoneroot	E	
1978	<i>Corallorhiza maculata</i>	Spotted Coral-root	P	
2003	<i>Corallorhiza wisteriana</i>	Spring Coral-root	P	
2010	<i>Crataegus uniflora</i>	Dwarf Hawthorn	P	
2010	<i>Croton glandulosus</i>	Northern Croton	T	
1991	<i>Descurainia pinnata</i>	Tansy Mustard	P	
2011	<i>Dichanthelium villosissimum</i>	Villous Panic Grass	T	
2011	<i>Dichanthelium yadkinense</i>	Spotted Panic Grass	P	
2006	<i>Eryngium yuccifolium</i>	Rattlesnake-master	P	
2008	<i>Erythronium rostratum</i>	Golden-star	E	
2011	<i>Eupatorium album</i>	White Thoroughwort	T	
2009	<i>Eurybia surculosa</i>	Creeping Aster	E	
2006	<i>Gentiana villosa</i>	Sampson's Snakeroot	E	
1982	<i>Gratiola virginiana</i>	Round-fruited Hedge-hyssop	T	
2011	<i>Gratiola viscidula</i>	Short's Hedge-hyssop	T	
2004	<i>Heuchera longiflora</i>	Long-flowered Alum-root	T	
2009	<i>Heuchera parviflora</i>	Small-flowered Alum-root	T	
1984	<i>Hottonia inflata</i>	Featherfoil	X	
2011	<i>Iris verna</i>	Dwarf Iris	T	
2007	<i>Isoetes engelmannii</i>	Appalachian Quillwort	E	
1985	<i>Isotria medeoloides</i>	Small Whorled Pogonia	E	FT

P=Potentially Threatened, T=Threatened, E=Endangered, SC=Species of Concern  
SI=Special Interest, FT=Federally Threatened, FE=Federally Endangered,  
F=Federal Only

<u>Last Recorded</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>State Status</u>	<u>Federal Status</u>
1979	<i>Juncus diffusissimus</i>	Diffuse Rush	T	
1951	<i>Juncus platyphyllus</i>	Flat-leaved Rush	E	
2011	<i>Juncus secundus</i>	One-sided Rush	P	
2011	<i>Lactuca hirsuta</i>	Hairy Tall Lettuce	T	
2011	<i>Lechea tenuifolia</i>	Narrow-leaved Pinweed	P	
1985	<i>Lilium philadelphicum</i>	Wood Lily	E	
1975	<i>Luzula bulbosa</i>	Southern Woodrush	T	
2011	<i>Magnolia tripetala</i>	Umbrella Magnolia	P	
2007	<i>Malaxis unifolia</i>	Green Adder's-mouth	P	
2011	<i>Orbexilum pedunculatum</i>	False Scurf-pea	P	
1995	<i>Paspalum repens</i>	Riverbank Paspalum	T	
1990	<i>Phacelia bipinnatifida</i>	Fern-leaved Scorpion-weed	P	
2006	<i>Phacelia dubia</i>	Small-flowered Scorpion-weed	E	
2011	<i>Phaseolus polystachios</i>	Wild Kidney Bean	P	
2003	<i>Phyllanthus caroliniensis</i>	Carolina Leaf-flower	T	
2009	<i>Platanthera ciliaris</i>	Yellow Fringed Orchid	T	
2011	<i>Polygala incarnata</i>	Pink Milkwort	E	
1980	<i>Potamogeton pulcher</i>	Spotted Pondweed	T	
1993	<i>Potamogeton tennesseensis</i>	Tennessee Pondweed	P	
2009	<i>Prenanthes trifoliolata</i>	Gall-of-the-earth	E	
2012	<i>Prosartes maculata</i>	Nodding Mandarin	T	
2011	<i>Quercus falcata</i>	Spanish Oak	T	
2011	<i>Quercus marilandica</i>	Blackjack Oak	P	
1981	<i>Ranunculus ambigens</i>	Water-plantain Spearwort	X	
1994	<i>Ranunculus pusillus</i>	Low Spearwort	T	
2011	<i>Rhexia virginica</i>	Virginia Meadow-beauty	P	
2003	<i>Rhododendron maximum</i>	Great Rhododendron	T	
2011	<i>Rhododendron periclymenoides</i>	Pinxter-flower	T	
2009	<i>Rosa blanda</i>	Smooth Rose	P	
2010	<i>Saccharum alopecuroides</i>	Silver Plume Grass	E	
2005	<i>Sagina decumbens</i>	Southern Pearlwort	E	
2006	<i>Salix caroliniana</i>	Carolina Willow	P	
2009	<i>Scleria oligantha</i>	Tubercled Nut-rush	P	
2011	<i>Scleria pauciflora</i>	Few-flowered Nut-rush	P	
1985	<i>Scutellaria saxatilis</i>	Rock Skullcap	T	
2011	<i>Sericocarpus linifolius</i>	Narrow-leaved Aster	T	
1992	<i>Sida hermaphrodita</i>	Virginia-mallow	P	
2005	<i>Silene caroliniana ssp. wherryi</i>	Wherry's Catchfly	T	

<u>Last Recorded</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>State Status</u>	<u>Federal Status</u>
2011	<i>Solidago odora</i>	Sweet Goldenrod	T	
2009	<i>Solidago squarrosa</i>	Leafy Goldenrod	T	
1992	<i>Spermacoce glabra</i>	Smooth Buttonweed	P	
2006	<i>Spiraea virginiana</i>	Appalachian Spiraea	E	FT
1974	<i>Spiranthes lucida</i>	Shining Ladies'-tresses	P	
2009	<i>Stenanthium gramineum</i>	Feather-bells	P	
1991	<i>Triadenum tubulosum</i>	Large Marsh St. John's-wort	T	
2008	<i>Viburnum rufidulum</i>	Southern Black-haw	P	
1982	<i>Viola lanceolata</i>	Lance-leaved Violet	P	
2007	<i>Viola pedata</i>	Birdfoot Violet	T	
2011	<i>Viola primulifolia</i>	Primrose-leaved Violet	E	
2002	<i>Viola tripartita var. glaberrima</i>	Wedge-leaved Violet	T	
2003	<i>Xyris torta</i>	Twisted Yellow-eyed-grass	T	

#### **ANIMALS**

1983	<i>Ammocrypta pellucida</i>	Eastern Sand Darter	SC	FSC
2006	<i>Ammodramus henslowii</i>	Henslow's Sparrow	SC	FSC
1985	<i>Caprimulgus carolinensis</i>	Chuck-will's-widow	SI	
1989	<i>Crotalus horridus</i>	Timber Rattlesnake	E	FSC
2009	<i>Cryptobranchus alleganiensis</i>	Eastern Hellbender	E	FSC
2005	<i>Cycleptus elongatus</i>	Blue Sucker	T	FSC
2003	<i>Cyclonaias tuberculata</i>	Purple Wartback	SC	
2003	<i>Ellipsaria lineolata</i>	Butterfly	E	
2003	<i>Elliptio crassidens</i>	Elephant-ear	E	
1987	<i>Epioblasma triquetra</i>	Snuffbox	E	FE
1985	<i>Erythroecia hebardii</i>	Hebard's Noctuid Moth	E	FSC
1975	<i>Esox masquinongy</i>	Muskellunge	SC	
2003	<i>Fusconaia eburnus</i>	Ebonysnail	E	
2011	<i>Haliaeetus leucocephalus</i>	Bald Eagle	F	FSC
1974	<i>Hemidactylium scutatum</i>	Four-toed Salamander	SC	
1989	<i>Hiodon alosoides</i>	Goldeye	E	
2006	<i>Ladona deplanata</i>	Blue corporal	E	
1979	<i>Lampropeltis getula nigra</i>	Black Kingsnake	SC	
1999	<i>Lampsilis ovata</i>	Pocketbook	E	
2003	<i>Lampsilis teres</i>	Yellow Sandshell	E	
1997	<i>Lepisosteus platostomus</i>	Shortnose Gar	E	
2003	<i>Ligumia recta</i>	Black Sandshell	T	
2001	<i>Lynx rufus</i>	Bobcat	T	
2003	<i>Megaloniais nervosa</i>	Washboard	E	



<u>Last Recorded</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>State Status</u>	<u>Federal Status</u>
1992	<i>Moxostoma carinatum</i>	River Redhorse	SC	
1997	<i>Notropis ariommus</i>	Popeye Shiner	E	
1999	<i>Notropis boops</i>	Bigeye Shiner	T	
1970	<i>Noturus eleutherus</i>	Mountain Madtom	T	
1963	<i>Noturus stigmosus</i>	Northern Madtom	E	
2007	<i>Obliquaria reflexa</i>	Threehorn Wartyback	T	
2008	<i>Opheodrys aestivus</i>	Northern Rough Greensnake	SC	
2001	<i>Percina copelandi</i>	Channel Darter	T	
1991	<i>Percina shumardi</i>	River Darter	T	
2002	<i>Plethobasus cyphus</i>	Sheepnose	E	FE
2003	<i>Pleurobema cordatum</i>	Ohio Pigtoe	E	
1973	<i>Pseudotriton montanus</i>	Mud Salamander	T	
2003	<i>Quadrula metanevra</i>	Monkeyface	E	
2003	<i>Quadrula nodulata</i>	Wartyback	E	
2006	<i>Regina septemvittata</i>	Queensnake	SC	
1982	<i>Scincella lateralis</i>	Little Brown Skink	SC	
1987	<i>Simpsonaias ambigua</i>	Salamander Mussel	SC	FSC
2007	<i>Terrapene carolina</i>	Eastern Box Turtle	SC	
1986	<i>Thryomanes bewickii</i>	Bewick's Wren	E	FSC
2003	<i>Truncilla donaciformis</i>	Fawnsfoot	T	
2003	<i>Truncilla truncata</i>	Deertoe	SC	
1987	<i>Villosa fabalis</i>	Rayed Bean	E	FE
2005	<i>Villosa lienosa</i>	Little Spectaclecase	E	
1979	<i>Virginia valeriae</i>	Smooth Earthsnake	SC	

**From:** [DNR obdrequest](#)  
**To:** ["Jason Earley"](#)  
**Subject:** RE: Database Request  
**Date:** Wednesday, January 30, 2013 4:21:53 PM

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Nearest Bald Eagle nest is about 5 miles SW of center of Phase 2 and 9 miles west of north end of phase 3.

*Greg Schneider, Program Administrator  
Ohio Natural Heritage Program  
Division of Wildlife  
Ohio Department of Natural Resources  
2045 Morse Rd., Bldg. G-3  
Columbus, Ohio 43229-6693  
Phone: (614) 265-6452  
Fax: (614) 267-3096  
<<mailto:greg.schneider@dnr.state.oh.us>>*

---

**From:** Jason Earley [<mailto:jeasley@ascgroup.net>]  
**Sent:** Wednesday, January 30, 2013 2:16 PM  
**To:** DNR obdrequest  
**Subject:** RE: Database Request

ODNR Ohio Natural Heritage Program:

I am in need of the nearest bald eagle nest location for the Phases 2 and 3 of the Portsmouth Bypass. This information was not included in the original response letter, I have reattached the Shapefiles to assist you in your search.

An email response stating that the nearest bald eagle nest is XXX miles in a direction from the project will suffice.

Thanks in advance.

Jason

Jason M. Earley  
Senior Environmental Specialist  
ASC Group, Inc.  
800 Freeway Drive North, Suite 101  
Columbus, Ohio 43229  
Work: (614) 643-3205  
Mobile: (614) 787-3454  
[jeasley@ascgroup.net](mailto:jeasley@ascgroup.net)

---

**From:** obdrequest [<mailto:obdrequest@dnr.state.oh.us>]  
**Sent:** Tuesday, November 06, 2012 1:59 PM  
**To:** [jeasley@ascgroup.net](mailto:jeasley@ascgroup.net)  
**Subject:** Re: Database Request

Mr. Early,

I am attaching the response letter to your Natural Heritage search request.

Please let me know if you have any questions.

Please note that we have changed the name of our program to: Ohio Natural Heritage Program

Future requests should be sent by mail or by email to this address.

[obdrequest@dnr.state.oh.us](mailto:obdrequest@dnr.state.oh.us)

Thanks!

*Greg Schneider, Program Administrator  
Ohio Natural Heritage Program  
Division of Wildlife  
Ohio Department of Natural Resources  
2045 Morse Rd., Bldg. G-3  
Columbus, Ohio 43229-6693  
Phone: (614) 265-6452  
Fax: (614) 267-3096  
<<mailto:greg.schneider@dnr.state.oh.us>>*

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**From:** Woischke, Debbie  
**Sent:** Thursday, November 01, 2012 7:00 AM  
**To:** obdrequest  
**Subject:** FW: Database Request

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**From:** Jason Earley [<mailto:jeasley@ascgroup.net>]  
**Sent:** Wednesday, October 31, 2012 3:36 PM  
**To:** Woischke, Debbie  
**Subject:** Database Request

Good afternoon Debbie:

Please find the attached database request letter and form. This request is for Phases 2 and 3 of the Portsmouth Bypass for an Ecological Survey we are currently working on for ODOT.

Please let me know if there is anything else I can provide to assist you with this request.

Thanks in advance.

Jason

Jason M. Earley  
Senior Environmental Specialist  
ASC Group, Inc.

800 Freeway Drive North, Suite 101  
Columbus, Ohio 43229  
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# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

Ecological Services  
4625 Morse Road, Suite 104  
Columbus, Ohio 43230  
(614) 416-8993 / FAX (614) 416-8994

March 12, 2012

Timothy M. Hill, Administrator  
Office of Environmental Services  
Ohio Department of Transportation  
P.O. Box 899  
Columbus, OH 43216-0899

TAILS: 03E15000-2012-I-0581 (PID 19415)

Attn: Michael Pettegrew, Matthew Raymond

RE: **SCI-823-0.00 Portsmouth Bypass**, Phase 1 (PID 19415), Phase 2, and Phase 3

Dear Mr. Hill,

This is in response to your November 9, 2011 letter received in our office on November 15, 2011 requesting U.S. Fish & Wildlife Service (Service) concurrence on your Endangered Species Act section 7(a)(2) effects determination for federally listed species in the SCI-823-0.00 Portsmouth Bypass project area. The project proposes to establish a 17-mile long bypass, to be constructed in three phases, with Phase 1 (the middle portion of the 3-phase project) to be built first. The construction schedule for the entire project is approximately 13 years. The Ohio Department of Transportation (ODOT) and the Federal Highway Administration (FHWA) have determined that each phase of the project has independent utility. Phase 1 includes interchanges with TR 234 (Shumway Hollow Road) and CR 28 Lucasville-Minford Road) and is approximately 3 miles long. According to Public Notice 2011-00646-OHR, recently issued by the U.S. Army Corps of Engineers (USACE) (Huntington District), the proposed work on Phase 1 would result in permanent discharge of approximately 1,381 cubic yards of fill material into 9,525 linear feet (1.22 acre) of streams; 5,076 cubic yards of fill material into 3.89 acres of emergent wetlands, and 26,137 cubic yards of fill material into 2.70 acres of ponds. Approximately 1,175 cubic yards of temporary fill material will be discharged 300 linear feet (0.26 acre) of stream for bridge construction access and staging areas.

This project lies within the range of the **Indiana bat** (*Myotis sodalis*), **sheepnose mussel** (*Plethobasus cyphus*), **running buffalo clover** (*Trifolium stoloniferum*), **snuffbox mussel** (*Epioblasma triquetra*), **rayed bean** (*Villosa fabalis*), **fanshell** (*Cyprogenia stegaria*), **northern riffleshell** (*Epioblasma torulosa rangiana*), **pink mucket pearlymussel** (*Lampsilis abrupta*), **clubshell** (*Pleurobema clava*), all federally endangered species; **small whorled pogonia** (*Isotria medeoloides*) and **Virginia spiraea** (*Spiraea virginiana*), both federally threatened plant species; and the **bald eagle** (*Haliaeetus leucocephalus*), **timber rattlesnake** (*Crotalus horridus*), and **eastern hellbender** (*Cryptobranchus a. alleganiensis*), federal species of concern.

Although only activities associated with Phase 1 have been public noticed for permitting by the USACE, ODOT chose to consult with the Service and address potential impacts to federally listed species within the entire bypass project corridor. Therefore, those impacts are addressed in this letter. However, if construction of the subsequent phases of the project is delayed for three or more years, ODOT/FHWA should re-initiate consultation with the Service to address any potential changes in species distributions or occurrence records within the Phase 2 and Phase 3 project areas.

As discussed during an interagency meeting held on February 10, 2011 between the Service, FHWA, ODOT, and USACE, suitable habitat streams for sheepnose, pink mucket, fanshell, snuffbox, and northern riffleshell mussels are not present within the bypass project area. Therefore, no impacts to these species are anticipated. During the February 2011 meeting, the Service also informed ODOT/FHWA that no surveys, in addition to those conducted in 2004, would be required for the timber rattlesnake or Virginia spiraea, as the earlier survey results are still valid.

A survey for federally listed mussel species was conducted in the Little Scioto River by Dr. Michael Hoggarth, a federally permitted malacologist, during the 2011 summer season. None of the federally listed mussel species were found during this survey. Based on the results of this survey and other less intensive surveys conducted in the other streams within the project area, as well as current records of species occurrence, impacts to the clubshell are not anticipated. Although no rayed bean mussels were discovered during Dr. Hoggarth's survey or the other less intensive surveys, suitable habitat for the species was present in the Little Scioto River. Therefore, it is possible that the species could occur in other reaches of the stream. Based on this information, ODOT has determined that the bypass project *may affect but is not likely to adversely affect* the rayed bean. The Service concurs with this determination.

Surveys for running buffalo clover and small whorled pogonia were conducted in May and June 2011. No individuals of either species were identified during these surveys; however, suitable habitat for each species was present within the project corridor. Therefore, ODOT has determined that the bypass project *may affect but is not likely to adversely affect* running buffalo clover and small whorled pogonia. The Service concurs with this determination.

On August 16, 2011, Greg Lipps, a professional herpetologist, surveyed the reach of the Little Scioto River that will be impacted by the bypass project for suitable habitat for the eastern hellbender. Although the hellbender is known to occur in the Little Scioto, no suitable habitat for the species was identified at or near the proposed crossing for the bypass. Therefore, no impacts to this species are anticipated.

The corridors associated with the proposed alignment of the bypass, both currently and in 2003, were surveyed for Indiana bat. Twenty-one net sites were surveyed in 2003 and Nineteen net sites were surveyed in 2011. No Indiana bats were captured during either survey, suggesting that the species is not present in the project area or occurs at very low density. Therefore, ODOT has determined that the project *may affect but is not likely to adversely affect* the Indiana bat. The Service concurs with this determination. We also appreciate ODOT's commitment to conduct tree clearing activities only between September 30 and April 1 to avoid direct take of bats during their summer brood-rearing season.

Although the bald eagle is known to occur in Scioto County, the nearest nest to the project construction limits is 3.9 miles from the northwestern project terminus along the Scioto River. Therefore, no impacts to this species are anticipated.

Our office has received copies of all the survey reports for the surveys conducted in 2011. As stated above, additional surveys may be necessary if construction on some or all of the bypass project does not occur for three or more years. Although no federally listed species were identified, the Service

recommends that best management practices (BMPs) be implemented to minimize impacts to water quality. We support and recommend mitigation activities that reduce the likelihood of invasive plant spread and encourage native plant colonization. Prevention of non-native, invasive plant establishment is critical in maintaining high quality habitats. All disturbed areas in the project vicinity should be mulched and revegetated with native plant species. Also, **Please note that if** the applicant plans to clear trees prior to issuance of a 404 and/or 401 permit: 1) Section 7 consultation with the Service must be completed; and 2) No tree clearing on any portion of the project should occur until both the U.S. Army Corps of Engineers and Ohio EPA anticipate that issuance of both a 404/NWP and a 401 permit authorizing the project as a whole is imminent. This will ensure that clearing will be limited to the footprint of the alternative that is ultimately permitted, and that no unnecessary clearing will occur.

These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), the Endangered Species Act, of 1973, as amended, and are consistent with the intent of the National Environmental Policy Act of 1969, and the U.S. Fish and Wildlife Service's Mitigation Policy. This concludes consultation on this action as required by section 7(a)(2) of the Endangered Species Act. Should, during the term of this action, additional information on listed or proposed species or their critical habitat become available, or if new information reveals effects of the action that were not previously considered, consultation with the Service should be reinitiated to assess whether the determinations are still valid.

If you have questions, or if we may be of further assistance in this matter, please contact Karen Hallberg at extension 23 in this office.

Sincerely,



Mary Knapp, Ph.D.  
Field Supervisor

cc: ODNR, DOW, SCEA Unit, Columbus, OH (*email only*)  
USACE, Ohio Regulatory Transportation Office, Columbus, OH (*email only*)  
OEPA, Columbus, OH (*email only*)





VIOLA PEDATA L.  
Bird-foot Violet

FAMILY: Violacea

SYNONYMS: *Viola pedata* L. var. *pedata*  
*Viola pedata* L. var. *lineariloba* DC.

HABIT: Stemless perennial herb to 1.6 dm.; flowering April-mid May; fruiting May, June.

SIMILAR SPECIES: *Viola pedata* can generally be distinguished from other stemless blue violets by its short, thick, vertical rootstalk, deeply pedately-cut leaves, and the absence of cleistogamous flowers during the summer. However, it is a highly polymorphic species, and non-flowering specimens cannot easily be distinguished from other species with deeply dissected leaves, such as *V. palmate*.

TOTAL RANGE: Se. ME, s. NH, e. MA to NY, MI, WI, and MN, s. to e. TX, MS, AL, GA, and SC.

STATE RANGE: There are post-1980 records from 4 counties: Adams, Fulton, Lucas, and Scioto. Pre-1980 records exist from Carroll, Henry, Lawrence, and Lorraine counties.

HABITAT: In well-drained, sunny, open situations, on rocky or sandy, often acidic, soil: open woods, fields, prairie remnants, along paths and roadsides, especially on road cuts through shales and sandstones.

HAZARDS: Overshading by woody species as a result of succession; digging of plants by wildflower gardeners.

RECOVERY POTENTIAL: Presumed good due to its variety of habitat and tolerance of disturbance. Steyermark (1963) states that it can be planted successfully.

INVENTORY GUIDELINES: Mature flowering material is needed for positive identification; avoid over-collecting.

COMMENTS: This is one of the most conspicuous of all our violets. In Ohio, *V. pedata* appears to be restricted to areas near Lake Erie and the Ohio River. More stations for this species should be sought in counties in these areas.

Several pre-1900 records exist from Lake County. Those specimens are from a population introduced prior to 1870. (Oh. J. Sci.:34(3):169)

Some authors recognize two varieties of this species. The typical variety is found in southern Ohio; the flowers are strongly bicolorous. The var. *lineariloba* occurs in northern Ohio; the flowers are concolorous. Russell (1965) treats *V. pedata* as a single variable species and does not recognize the status of these varieties.

SELECTED REFERENCES:

Miller, L.D. 1976. The Violaceae of Ohio. Unpublished M.S. thesis, Kent State University, Kent, OH. 203 p.

Russell, N.H. 1965. Violets (*Viola*) of central and eastern United States: An introductory survey. Sida 2: 1-113.

Schaffner, J.H., 1934. Additions to the Revised Catalog of Ohio Vascular Plants. The Ohio Journal of Science 34(3):165-174.

Steyermark, J.A. 1963. Flora of Missouri. The Iowa State University Press, Ames, IA. 1725 p.



Division of Natural Areas and Preserves  
Ohio Department of Natural Resources

Created: 1/1984 James F. Burns, Allison W. Cusick

## *Trifolium stoloniferum* Muhl. ex A. Eaton

### Running Buffalo Clover



ODNR Natural Heritage Program

**Family:** Fabaceae

**Synonyms:** None

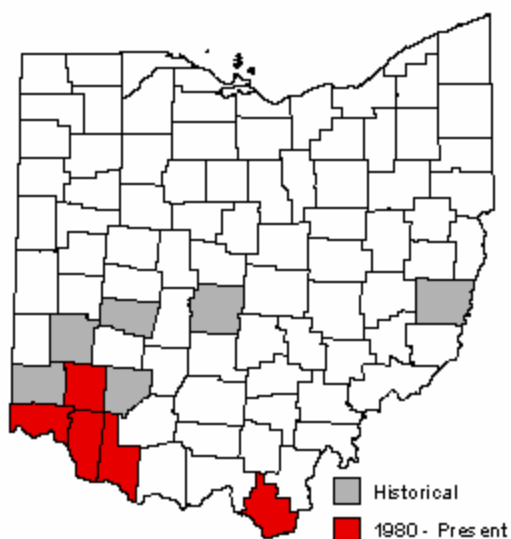
**Description:** Stoloniferous perennial; leaves long-petioled rising from ground level from a central crown or stolons except for short-petioled, opposite pair subtending the flower head; leaves of runners have 1-2 cm long ovate-lanceolate stipules; flower heads 9-12 mm round with white corolla, often with pink-purple veins.

**Flowering:** May - June

**Fruiting:** June - July

**Similar Species:** *Trifolium stoloniferum* is similar to the common white clover (*T. repens*) and the rare buffalo clover (*T. reflexum*), both of which grow in similar habitats. These three species can be distinguished as follows:

*T. stoloniferum* -- stoloniferous, flowering stems unbranched, with a pair of leaves in upper portion; *T. repens* --stoloniferous, flowering stems naked, arising directly from the rhizome; *T. reflexum* --not stoloniferous, flowering stems leafy and often branched. Brooks (1983b) provides a chart outlining the differences between these species.



**Total Range: USA:** IN, KY, MO, OH, WV

**Ohio Range:** Belmont, Butler, Brown, Clark, Clermont, Clinton, Franklin, Hamilton, Lawrence, Montgomery and Warren counties.

**Ohio Status:** [www.ohiodnr.com/dnap](http://www.ohiodnr.com/dnap)

**Habitats:** Mesic habitats with partial to filtered sunlight including woodlands and mowed lawns (U.S. Fish & Wildlife Service 2007).

**Threats:** Habitat destruction, habitat succession leading to severe shading and competition with non-native invasive plants are the most serious threats. A

lack of disturbance or too much disturbance may also be a concern. The amount of disturbance necessary to maintain a population is yet to be determined. This species once relied on bison to provide the right balance of periodic disturbance, soil enrichment, seed dispersal and seed

scarification to maintain itself (U.S. Fish & Wildlife Service 2007). It is unknown whether these requirements can be fulfilled sufficiently enough to maintain running buffalo clover populations in Ohio.

**Conservation Potential:** There are many unknown factors relating to the success of this species. More information needs to be gathered regarding the dependence of this species on disturbance and its reproductive requirements. With the loss of bison in Ohio's landscape, other undulates may not be promoting adequate seed germination and dispersal. Existing populations must be managed to prevent succession and maintain filtered sunlight.

**Inventory Guidelines:** Collecting is discouraged; the identification can be determined from photos; note stoloniferous habit.

**Comments:** Running buffalo clover apparently was locally common in southwestern Ohio before 1900. It is uncertain if the number of herbarium specimens only reflects the level of activity among Cincinnati botanists. After having been presumed extirpated, the species has been found to still be locally common in parts of southwest Ohio.

The largest populations occur in West Virginia with one site totaling over 100,000 root crowns (NatureServe 2007). Kentucky has the most populations with 71 occurrences and Ohio is third with 12 (NatureServe 2007).

In Ohio, several populations have dropped significantly in numbers within the last few years. Recent surveys have failed to find any plants at the only site in Warren County. Roberts & Cooperrider (1982) list this species from Sandusky County. This record is based upon a misidentified specimen of *Trifolium repens* (OS). Furlow (1991) reports it from Lake County but there is no specimen to verify the account.

#### **Selected References:**

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- NatureServe. 2007. NatureServe Explorer: An online encyclopedia of life [web application]. Version 6.2. NatureServe, Arlington, Virginia. Available <http://www.natureserve.org/explorer>. (Accessed: November 21, 2007 ).
- Roberts, M.L. and T.S. Cooperrider, 1982. Dicotyledons. In: Cooperrider, T.S. (ed.). Endangered and threatened plants of Ohio. *Ohio Biol. Surv. Biol. Notes* No. 16: 48-84.
- U.S. Fish and Wildlife Service. 2007. Running buffalo clover (*Trifolium stoloniferum*) recovery plan: first revision. U.S. Fish and Wildlife Service, Fort Snelling, MN. 76 pp.



### **Ohio Natural Heritage Program**

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Last Updated: Nov/2007

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### STENANTHIUM GRAMINEUM (Ker) Morong.

Feather-bells

#### BIODIVERSITY DATABASE PROGRAM

FAMILY: Liliaceae

[Rare Plant Species](#)

[Ohio Biodiversity Database](#)

SYNONYMS: *Stenanthium robustum* S. Wats. (= var. *robustum* (S. Wats.) Fern.

[Invasive Species](#)

HABIT: Stems arising from bulbous base are leafy below, reduced upwards to panicle, 0.25-1.9 m; flowers and fruits June-Sept.

#### INFORMATION

[Permits and Publications](#)

SIMILAR SPECIES: This genus, with only one species in Ohio, is very distinctive with its long grass-like leaves, panicked inflorescence and many smallish white flowers. Two types of flowers are present. Flowers of panicle branches are staminate, whereas flowers of the terminal unbranched axis are perfect.

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TOTAL RANGE: PA, OH, IN and MO, s. to FL and AR.

STATE RANGE: There are post-1960 records from Gallia, Jackson, Lawrence, Pike and Scioto Counties. There are pre-1960 records from Adams, Hamilton, Licking and Stark Counties.

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STATE STATUS: 1980-1987: Potentially Threatened, 1988 to present: Threatened.

#### Mailing Address:

2045 Morse Road,  
Building C-3  
Columbus, OH  
43229-6693  
(614) 265-6561

HABITAT: Moist rocky woods, rich wooded slopes; most frequent on acid soils.

HAZARDS: Possibly overgrowth by woody species as a result of succession; destruction of habitat by mining or logging.

For general information about the Division of Natural Areas and Preserves, e-mail your questions here.

RECOVERY POTENTIAL: Possibly poor; the species appears to be difficult to transplant (Deam 1940).

INVENTORY GUIDELINES: Collect mature flowering specimens.

COMMENTS: Two intergrading varieties occur in Ohio. The var. *robustum* is larger with wider leaves and a denser, longer panicle. The var. *robustum* has erect fruits, whereas var. *gramineum* has deflexed fruits. The species should be sought in southern Ohio.



#### SELECTED REFERENCES:

Braun, E.L. 1967. The Monocotyledoneae [of Ohio]: Cat-tails to orchids. The Ohio State Univ. Press, Columbus OH. 464 pp.

Deam, C.C. 1940. Flora of Indiana. Burford Printing Co., Indianapolis. 1236 pp.

Steyermark, J.A. 1963. Flora of Missouri. The Iowa State University Press, Ames IA. 1728 pp.

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***Spiraea virginiana* Britt.**  
Appalachian spiraea



ODNR Natural Heritage Program

**Family:** Rosaceae

**Synonyms:** None

**Description:** Clonal shrub reaching a height of 3 m tall; leaves oblanceolate and somewhat glaucous underneath; white flowers in corymbs.

**Flowering:** late June to early July

**Fruiting:** July to early September

**Similar Species:** *Spiraea alba* may be confused with *S. virginiana* but flower clusters of *S. alba* are more elongate and leaves are more sharply

toothed. The non-native *S. japonica* may also be confused with *S. virginiana* but the flowers are pink, leaves are more lanceolate, and has hairs on the branchlets. From a distance, *Spiraea virginiana* may be confused with *Hydrangea aborescens*.



**Total Range: USA:** AL, GA, KY, NC, OH, PA, TN, VA, WV.

**Ohio Range:** Scioto County

**Ohio Status:** [www.ohiodnr.com/dnap](http://www.ohiodnr.com/dnap)

**Habitats:** Gravelbars and creek banks of mid-size streams.

**Threats:** Changes in stream hydrology and invasive species. Ogle (1992) lists *Polygonum cuspidatum*, *Spiraea japonica* and *Rosa multiflora* as threats.

**Conservation Potential:** This species has very specific habitat requirements and poor reproduction. One site is now protected by the state. Recent field surveys have found one new population on Scioto Brush Creek; however surveys of other streams have not produced any new populations (Gardner & Moser 2007; Stine 1993).



**Inventory Guidelines:** *Spiraea virginiana* is a federally listed species and requires a federal collecting permit to collect. The species can be determined from detailed photographs of the plant, flowers, & habitat.

**Comments:** *Spiraea virginiana* is endemic to the southern Appalachians (Ogle 1991a). Stine first discovered this species in Ohio in 1991 on Scioto Brush Creek and it is presently known from a small stretch of this creek. This species is currently known from seven states and historically from Alabama and Pennsylvania.

Appalachian spiraea typically grows along scoured sections of high gradient streams requiring periodic flooding. In Ohio, *Spiraea virginiana* occurs in this type of habitat.

Sexual reproduction is very rare and suggests poor genetic variability (Anders & Murrell 2001, Ogle 1991b). Reproduction is primarily from vegetative propagules. Range-wide, fewer than 30 different genotypes are currently known (Anders and Murrell 2001; NatureServe 2006). Ohio populations are small with 5 or less clones. This is similar to populations in other parts of its range.

Some associates found at Ohio sites include *Acer saccharum*, *Aconitum uncinatum*, *Alnus serrulata*, *Apocynum cannabinum*, *Aruncus dioicus*, *Betula nigra*, *Bohemeria cylindrica*, *Campsis radicans*, *Carex frankii*, *Carpinus caroliniana*, *Chasmanthium latifolium*, *Cornus amomum*, *Crataegus* sp., *Eupatorium fistulosum*, *Fraxinus pennsylvanica*, *Glyceria striata*, *Helenium autumnale*, *Hydrangea arborescens*, *Hypericum prolificum*, *Iris cristata*, *Lindera benzoin*, *Lysimachia ciliata*, *Parthenocissus quinquefolia*, *Phlox paniculata*, *Pilea pumila*, *Platanus occidentalis*, *Salix caroliniana*, *Saururus cernuus*, *Senna hedecarpa*, *Thalictrum pubescens*, *Toxicodendron radicans*, *Ulmus americana*, and *Vitis riparia* (Gardner & Moser 2007; Stine 1993).

Future surveys could be done on Scioto Brush Creek and similar size streams in southeastern Ohio. Its Ohio range may be close to being known.

### **Selected References:**

- Anders, C.M. and Z.E. Murrell. 2001. Morphological, molecular, and biogeographical variation within the imperiled Virginia spiraea. *Castanea* 66(1-2): 24-41.
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Last Updated: Nov/2007

QUERCUS FALCATA Michx.  
Spanish Oak

FAMILY: Fagaceae

HABIT: Deciduous tree to 30 m.; flowering late April-early May; fruiting September-October.

SIMILAR SPECIES: Typical specimens of *Quercus falcata* are easily identified by the prolonged terminal lobe of the leaf blade. Occasionally, it can be confused with other members of the red oak group, especially *Q. coccinea* and *Q. velutina*. The acorns are distinctive and are the most reliable means of critical determination.

TOTAL RANGE: w. NJ and sw. PA to FL and TX, chiefly on the coastal plain, n. in the interior to OH, IN, and MO.

STATE RANGE (as of 2008): Post-1980 records are from Gallia, Jackson, Lawrence, and Scioto Counties.

HABITAT: Usually in dry upland woods, less frequently in alluvial woods.

HAZARDS: Cutting of trees for firewood; logging.

RECOVERY POTENTIAL: Presumed good only if planted in its native habitat.

INVENTORY GUIDELINES: This species can be identified in mature vegetative condition, but specimens with mature acorns are preferable.

COMMENTS: Although typical trees of *Quercus falcata* are distinctive, many Ohio specimens are difficult to determine. This species hybridizes with other members of the red oak group and these hybrids may be mistaken for the "true" *Q. falcata*. Braun (1961) lists the known hybrids involving *Q. falcata* that have been found in Ohio. This tree should be sought throughout the southern counties of the state.

SELECTED REFERENCES:

Braun, E.L. 1961. The woody plants of Ohio. The Ohio State University Press, Columbus, OH. 362 p.

Little, E.L., Jr. 1979. Checklist of United States trees (native and naturalized). U.S. Dept. Agric. Handb. 541. iv and 375 p.

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Division of Natural Areas and Preserves

Created: 1/1983 James F. Burns, Allison W. Cusick  
Revised: 2/1994 Greg Schneider

PHACELIA BIPINNATIFIDA Michx.  
Fern-leaf Scorpion-weed

FAMILY: Hydrophyllaceae

HABIT: Herbaceous biennial, 2-6 dm.; flowering April-June; fruiting June, July.

SIMILAR SPECIES: This species has larger leaves than any other *Phacelia* in Ohio. It is very similar to *Hydrophyllum virginianum*. *Phacelia bipinnatifida* is pubescent, however, and *H. virginianum* is glabrous.

TOTAL RANGE: VA to s. OH, n. IL, and se. MO, s. to GA, AL, and AR.

STATE RANGE (as of 2008): Post-1980 records are from Adams, Brown, Butler, Clermont, Hamilton, Harrison, and Scioto counties. Pre-1980 records are from Fairfield and Pike counties.

HABITAT: The most common habitat of this plant is in deciduous alluvial woods, generally on basic soils. However, Ohio collections have also been made from fields and roadsides.

HAZARDS: Unknown, perhaps removal of forest canopy.

RECOVERY POTENTIAL: Unknown, but possibly good due to its apparent tolerance of disturbance.

INVENTORY GUIDELINES: Mature flowering material is needed for identification.

COMMENTS: In Ohio, this plant may be under collected due to its similarity to *Hydrophyllum virginianum*. It should be sought throughout southern Ohio.

SELECTED REFERENCES:

Constance, L. 1949. A revision of *Phacelia* subgenus *Cosmanthus* (Hydrophyllaceae). *Contr. Gray Herb.* 168: 1-48.

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Created: 3/1981 David Spooner

PASPALUM REPENS (Elli.) Kunth  
Riverbank Paspalum

FAMILY: Poaceae.

SYNONYMS: *Paspalum mucronatum* Muhl.: *Paspalum fluitans* (Elliott) Kunth.

HABIT: Tufted annual, culms sprawling up to 2 meters long; flowering and fruiting August-October.

SIMILAR SPECIES: It is similar to other species in the genus *Paspalum* but has a distinctive inflorescence.

TOTAL RANGE: Widespread in s. U.S., n. on the coastal plain to se. VA and in the Mississippi Valley to w. KY, s. IN, c. IL, and c. MO.

STATE RANGE (as of 2008): Post-1980 records are from Adams, Clermont, Hamilton, Lawrence, and Scioto counties.

HABITAT: Shallow water or wet muddy soils; margins of temporary pools, riverbanks and riverine woodlands.

HAZARDS: Overgrowth of woody species through succession.

RECOVERY POTENTIAL: Unknown, possibly good due to its variety of moist habitats.

INVENTORY GUIDELINES: Collect complete, mature specimens.

COMMENTS: Southern Ohio is at the northern boundary of this species. It should be sought in suitable habitats along rivers throughout southern Ohio.

SELECTED REFERENCES:

Braun, E.L. 1967. The Monocotyledoneae [of Ohio]: Cat-tails to orchids. The Ohio State Univ. Press, Columbus, OH. 464 pp.

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Created: 4/1998 Richard Gardner

MAGNOLIA TRIPETALA L.  
Umbrella Magnolia

FAMILY: Magnoliaceae

HABIT: Small tree to 10 m., often with many stems arising very near each other and growing at an angle; flowering late May.

SIMILAR SPECIES: Very similar to *Magnolia macrophylla*, but differing in a number of characters. *M. tripetala* has leaves tapered to base and terminal buds glabrous, and *M. macrophylla* has leaves auricled at base and terminal buds pubescent. Also similar to *M. acuminata*, which has smaller non-auricled leaves and pubescent terminal buds.

TOTAL RANGE: GA to AR, n. to s. PA, WV, OH, KY, and e. MO.

STATE RANGE (as of 2008): There are post-1980 specimens from Gallia, Jackson, Scioto, and Vinton counties.

HABITAT: Mesic shaded ravines and coves.

HAZARDS: Opening of the canopy by logging operations. This tree is apparently unable to tolerate direct sunlight.

RECOVERY POTENTIAL: Unknown, but this tree has been reported to spread from cultivation in Massachusetts (Stone, 1913).

INVENTORY GUIDELINES: The leaves and buds of this species are sufficient for identification; the very few populations should not be disturbed.

COMMENTS: This plant is at the northern edge of its range on the Allegheny Plateau. Its Ohio distribution conforms very well to the preglacial Teays River drainage lines and its major tributaries. This plant very possibly reached Ohio in preglacial times by seeds carried along this river. This plant has interesting adaptations to insure cross-pollination. It is pollinated by beetles, which feed on various flower parts (Thien, 1974).

SELECTED REFERENCES:

Braun, E.L. 1961. The woody plants of Ohio. The Ohio State Univ. Press, Columbus OH. 362 pp.

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Thien, L.B. 1974. Floral biology of *Magnolia*. *Am. J. Bot.* 61: 1037-1045.



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Ohio Department of Natural Resources

Created: 3/1981 David Spooner  
Revised: 2/1994 Greg Schneider

ISOTRIA MEDEOLOIDES (Pursh) Raf.  
Little Whorled Pogonia

FAMILY: Orchidaceae

SYNONYMS: *Arethusa medeoloides* Pursh; *Isotria affinis* (Austin) Rydberg; *Odonectis affinis* (Austin) Schlechter; *Pogonia affinis* Austin ex A. Gray

HABIT: Herbaceous perennial, to 25 cm.; flowering mid-May to mid-June.

SIMILAR SPECIES: Vegetative plants resemble the vegetative plants of the common Indian Cucumber-root, *Medeola virginiana*, a member of the Liliaceae. Flowering plants could only be confused with the Larger Whorled Pogonia, *Isotria verticillata*, which differs in having larger sepals and longer peduncles, in addition to other, more obscure, vegetative characters. Also *I. verticillata* is colonial while *I. medeoloides* is not colonial.

TOTAL RANGE: Irregularly at widely scattered stations from s. ME to NC, w. to s. Ontario, MI and MO.

STATE RANGE (as of 2008): Post-1980 records are from Hocking and Scioto counties.

HABITAT: Often the habitat for this species is an open, second-growth stand of hardwoods.

HAZARDS: Maturation of habitat through succession; removal of canopy by logging activities; destruction of habitat for development purposes.

RECOVERY POTENTIAL: Unknown, but probably poor. This species is quite rare throughout its range, and populations tend to consist of few individuals.

INVENTORY GUIDELINES: Plants should not be collected, and disturbance to populations should be kept to a minimum. It should be noted that a Federal permit is required to collect this species.

COMMENTS: *Isotria medeoloides* is considered the rarest species of North American orchid. Populations are usually few in number, and easily may go undetected. Its rather generalized habitat makes this a difficult plant to seek out and successfully locate new populations, and its small size make it easy to overlook. While rather distinctive when in bloom, vegetative plants could easily be dismissed as the more common *Isotria verticillata*, or sterile plants of *Medeola virginiana*, the Indian Cucumber-root. *I. medeoloides* also blooms approximately two weeks later than *I. verticillata*.

The Scioto county record is from a single plant located in Shawnee State Forest in 1985. It is documented by photographs deposited at the University of Michigan herbarium.

SELECTED REFERENCES:

Case, Frederick W. Jr. 1987. Orchids of the Western Great Lakes Region. Cranbrook Institute of Science, Bull. 48. 251 p.



Gleason, H.A., and A. Cronquist. 1991. Manual of vascular plants of northeastern United States and adjacent Canada. New York Botanical Garden, Bronx, New York. 910 pp.

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Ohio Department of Natural Resources

Created: 4/1992 Jim McCormac

VIOLA PRIMULIFOLIA L.  
Primrose-leaved Violet

FAMILY: Violaceae

HABIT: Stemless perennial herb to 1.7 dm.; flowering early May-early June; fruiting June-August.

SIMILAR SPECIES: *Viola primulifolia* is very similar and closely related to *V. lanceolata*. *V. primulifolia* can generally be distinguished by its usually ovate leaf blades. The leaf blades of *V. lanceolata* are lanceolate to linear. However, leaf shape in *V. primulifolia* exhibits considerable variation, and thus technical characters are used to distinguish these species. Fernald (1949) states that after the spring flowering season, *V. primulifolia* is easily distinguished by its habit of sending out prostrate stolons that are essentially leafless and sterile. The prostrate stolons of *V. lanceolata* have well-developed leaves and bear many cleistogamous flowers.

TOTAL RANGE: FL to e. TX, n. to ME, PA, OH, MI, IN, and OK.

STATE RANGE: There are post-1980 records from Ashtabula, Jackson and Portage counties. There is a pre-1980 record from Scioto County.

HABITAT: In moist, open situations, usually on sandy soil: meadows, edges of ponds, streams, marshes, and swamps.

HAZARDS: Overshading by woody species as a result of succession; overdrying of the habitat.

RECOVERY POTENTIAL: Unknown, but possibly good due to its variety of habitat.

INVENTORY GUIDELINES: Mature flowering or fruiting material is needed for positive identification.

COMMENTS: *V. primulifolia* may be more frequent in Ohio than current records indicate. It could easily be overlooked due to its small size and similarity to *V. lanceolata*. It should be sought in suitable habitats throughout the state.

SELECTED REFERENCES:

Cooperrider, T.S. 1995. The Dicotyledoneae of Ohio. Part 2. Linaceae through Campanulaceae. Ohio State Univ. Press, Columbus, OH. 656 pp.

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Terri, J.A. 1968. Developmental variability of *Cornus canadensis* in northern New England. Rhodora 70: 161-175.

Wagner, W.H., Jr. 1975. A bunchberry, "Last Rose of Summer." Mich. Bot. 14: 201-202.

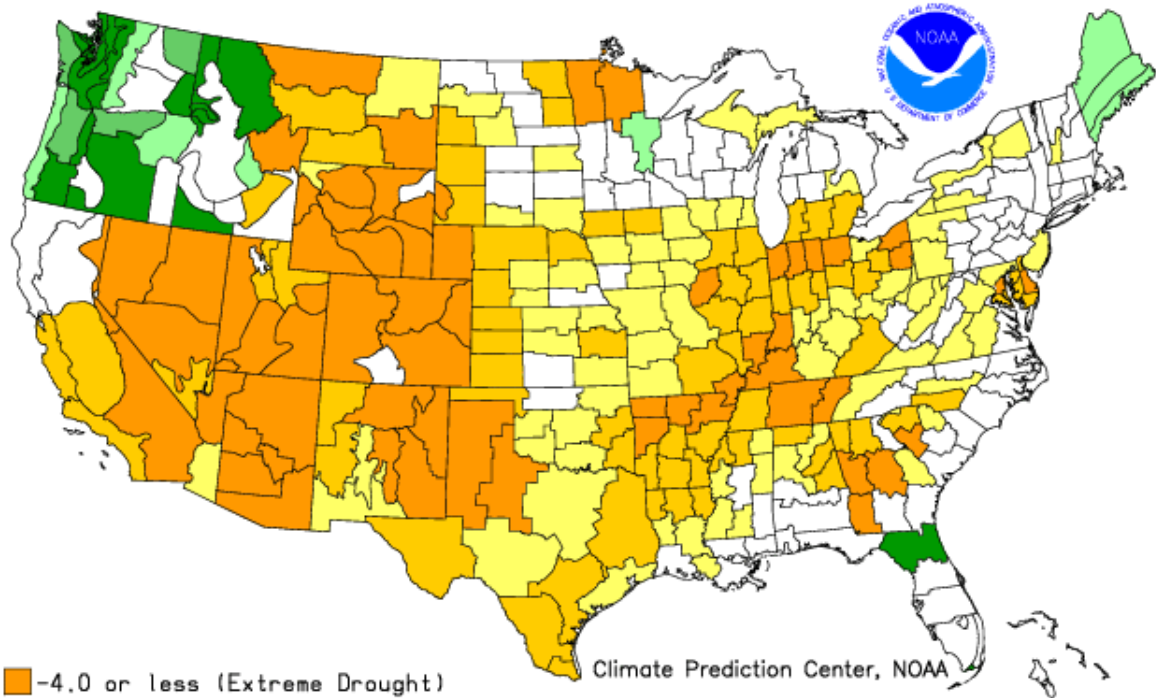


Ohio Department of Natural Resources  
Division of Natural Areas and Preserves

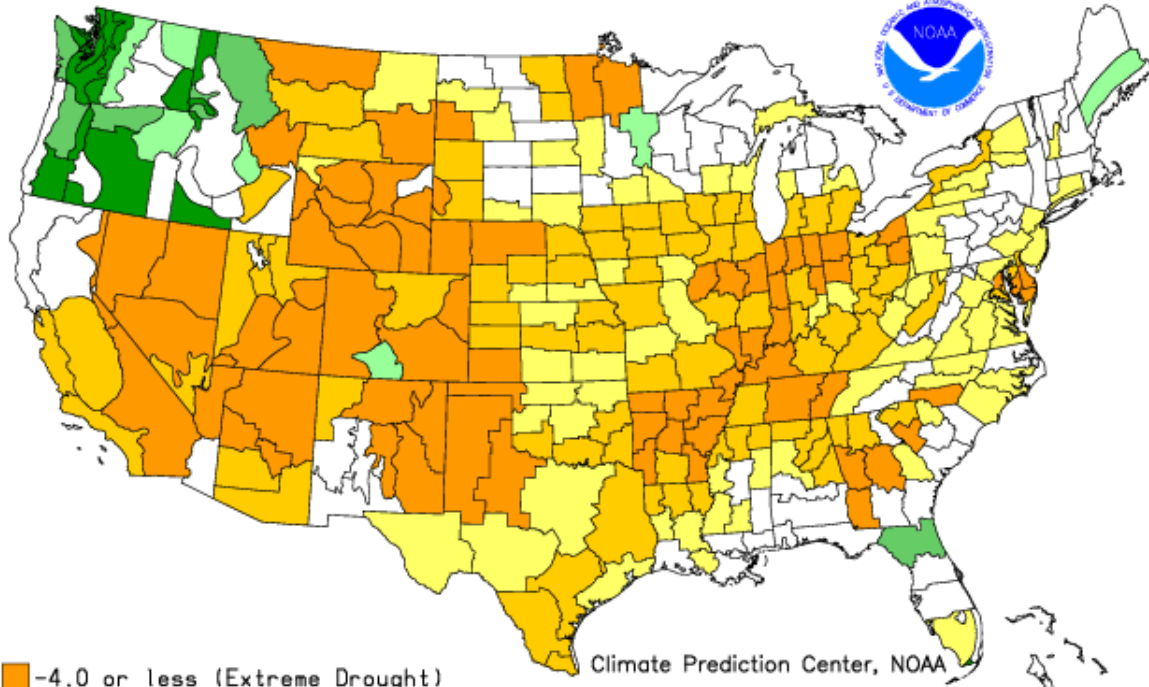
Created: 11/1983 Barbara K. Andreas

## **NOAA – Palmer Drought Severity Index Maps**

Drought Severity Index by Division  
 Weekly Value for Period Ending JUN 30, 2012  
 Long Term Palmer



Drought Severity Index by Division  
 Weekly Value for Period Ending JUL 7, 2012  
 Long Term Palmer

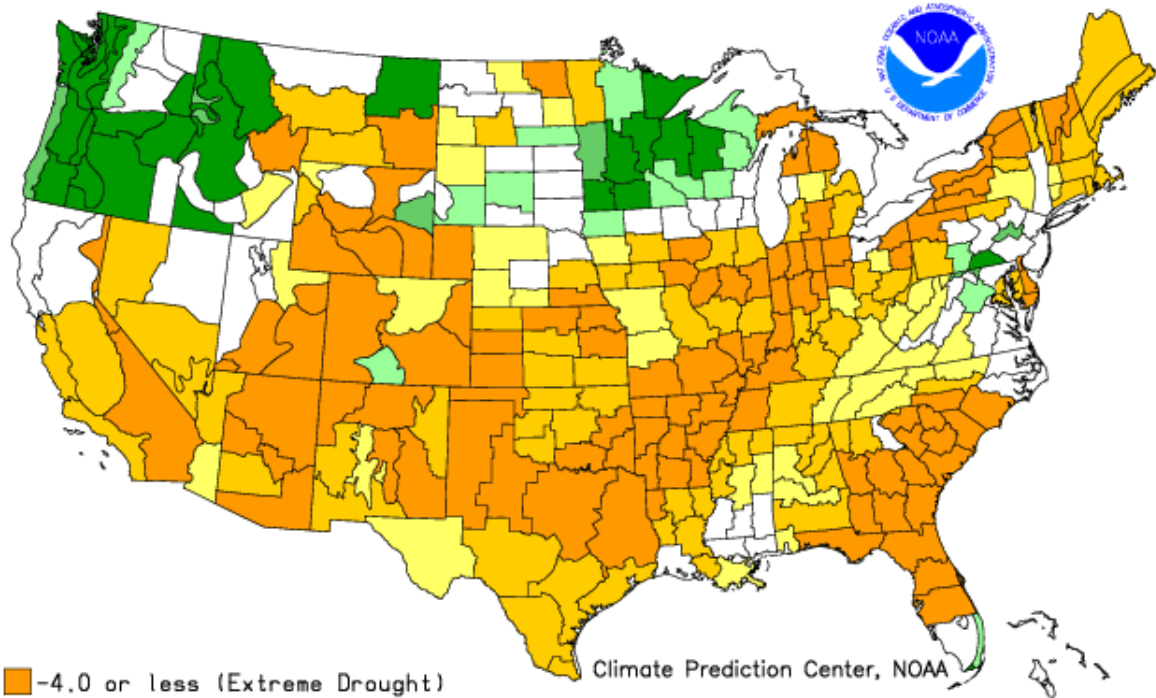









- 4.0 or less (Extreme Drought)
- 3.0 to -3.9 (Severe Drought)
- 2.0 to -2.9 (Moderate Drought)
- 1.9 to +1.9 (Near Normal)
- +2.0 to +2.9 (Unusual Moist Spell)
- +3.0 to +3.9 (Very Moist Spell)
- +4.0 and above (Extremely Moist)

Climate Prediction Center, NOAA



Drought Severity Index by Division  
 Weekly Value for Period Ending JUL 21, 2012  
 Long Term Palmer

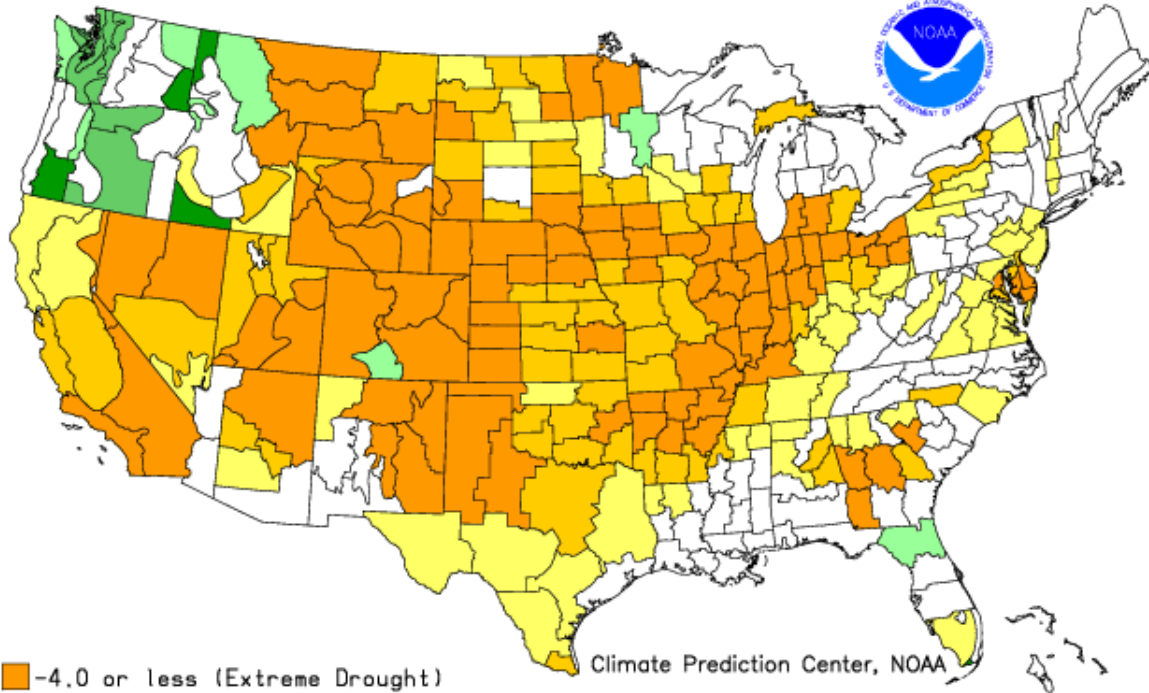









- |   |  |
|---|--|
|  -4.0 or less (Extreme Drought)  |  +2.0 to +2.9 (Unusual Moist Spell) |
|  -3.0 to -3.9 (Severe Drought)   |  +3.0 to +3.9 (Very Moist Spell)   |
|  -2.0 to -2.9 (Moderate Drought) |  +4.0 and above (Extremely Moist) |
|  -1.9 to +1.9 (Near Normal)     |  |

Climate Prediction Center, NOAA



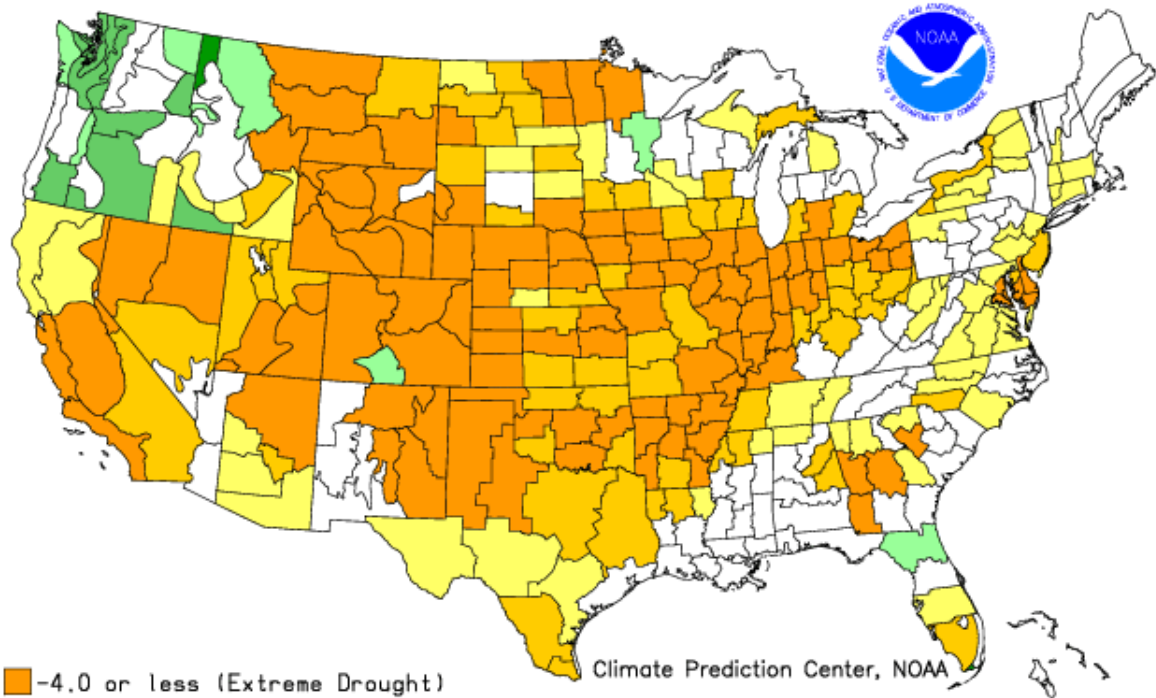
Drought Severity Index by Division  
 Weekly Value for Period Ending JUL 28, 2012  
 Long Term Palmer










- |  |  |
|--|--|
|  -4.0 or less (Extreme Drought)   |  +2.0 to +2.9 (Unusual Moist Spell) |
|  -3.0 to -3.9 (Severe Drought)    |  +3.0 to +3.9 (Very Moist Spell)   |
|  -2.0 to -2.9 (Moderate Drought) |  +4.0 and above (Extremely Moist) |
|  -1.9 to +1.9 (Near Normal)     |  |

Climate Prediction Center, NOAA

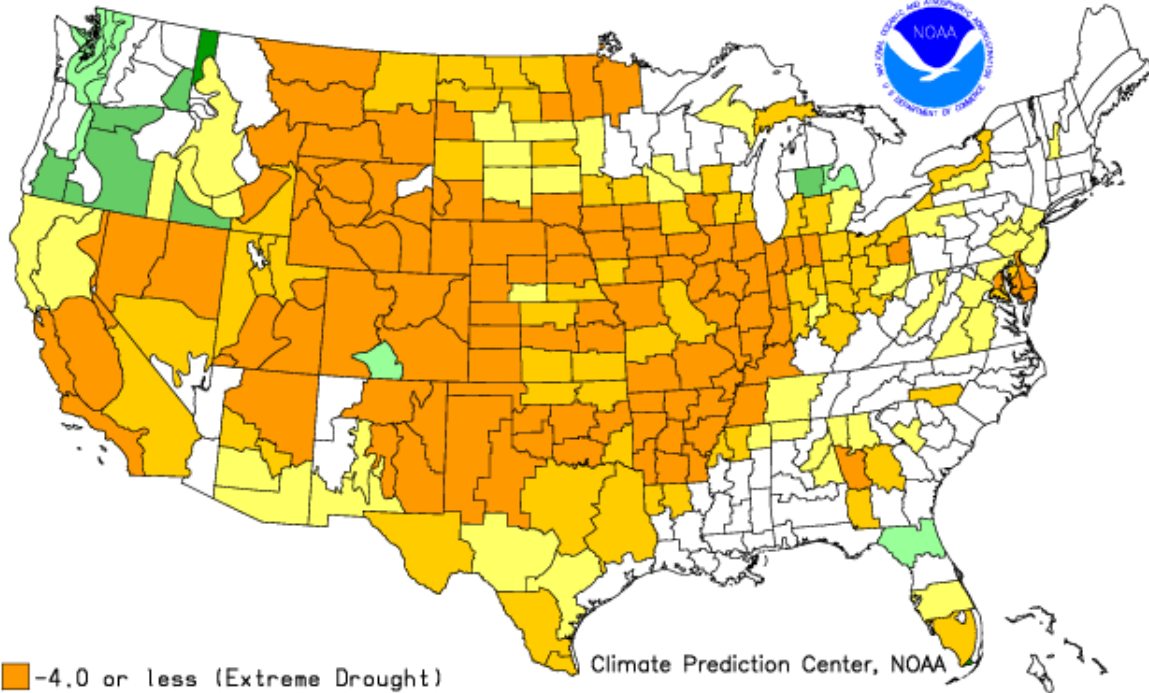
Drought Severity Index by Division  
 Weekly Value for Period Ending AUG 4, 2012  
 Long Term Palmer



- |  |  |
|--|--|
|  -4.0 or less (Extreme Drought)   |  +2.0 to +2.9 (Unusual Moist Spell) |
|  -3.0 to -3.9 (Severe Drought)    |  +3.0 to +3.9 (Very Moist Spell)   |
|  -2.0 to -2.9 (Moderate Drought) |  +4.0 and above (Extremely Moist) |
|  -1.9 to +1.9 (Near Normal)     |  |

Climate Prediction Center, NOAA

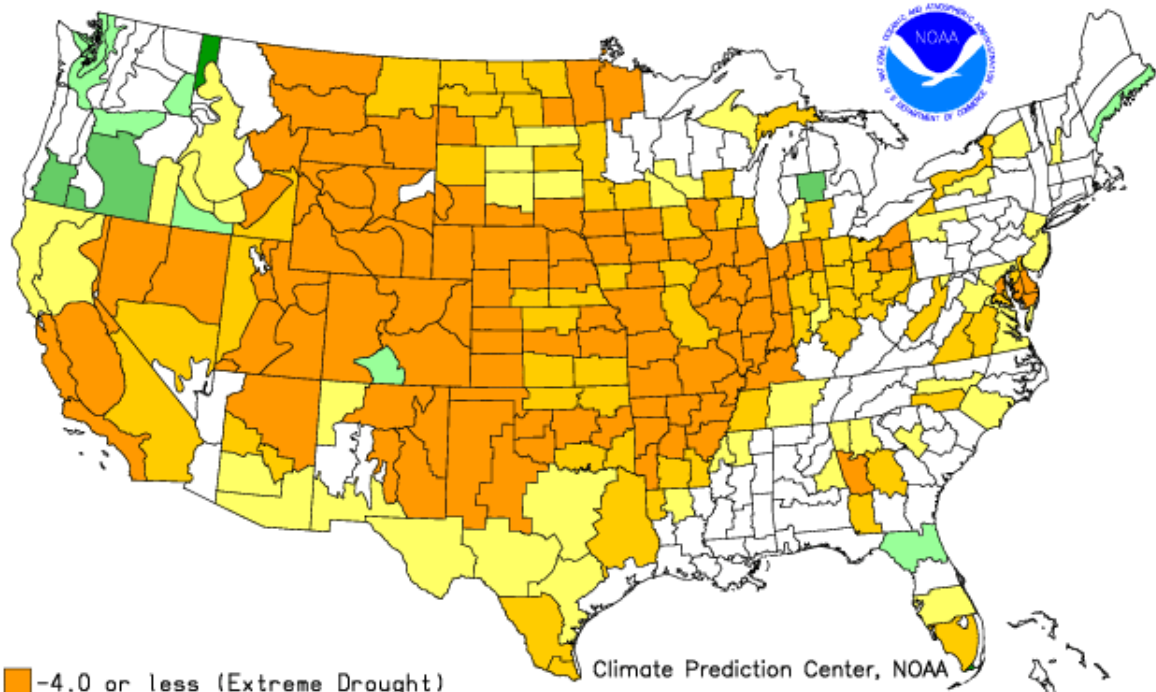
Drought Severity Index by Division  
 Weekly Value for Period Ending AUG 11, 2012  
 Long Term Palmer










- |                                 |                                    |
|---------------------------------|------------------------------------|
| -4.0 or less (Extreme Drought)  | +2.0 to +2.9 (Unusual Moist Spell) |
| -3.0 to -3.9 (Severe Drought)   | +3.0 to +3.9 (Very Moist Spell)    |
| -2.0 to -2.9 (Moderate Drought) | +4.0 and above (Extremely Moist)   |
| -1.9 to +1.9 (Near Normal)      |                                    |

Climate Prediction Center, NOAA

Drought Severity Index by Division  
 Weekly Value for Period Ending AUG 18, 2012  
 Long Term Palmer

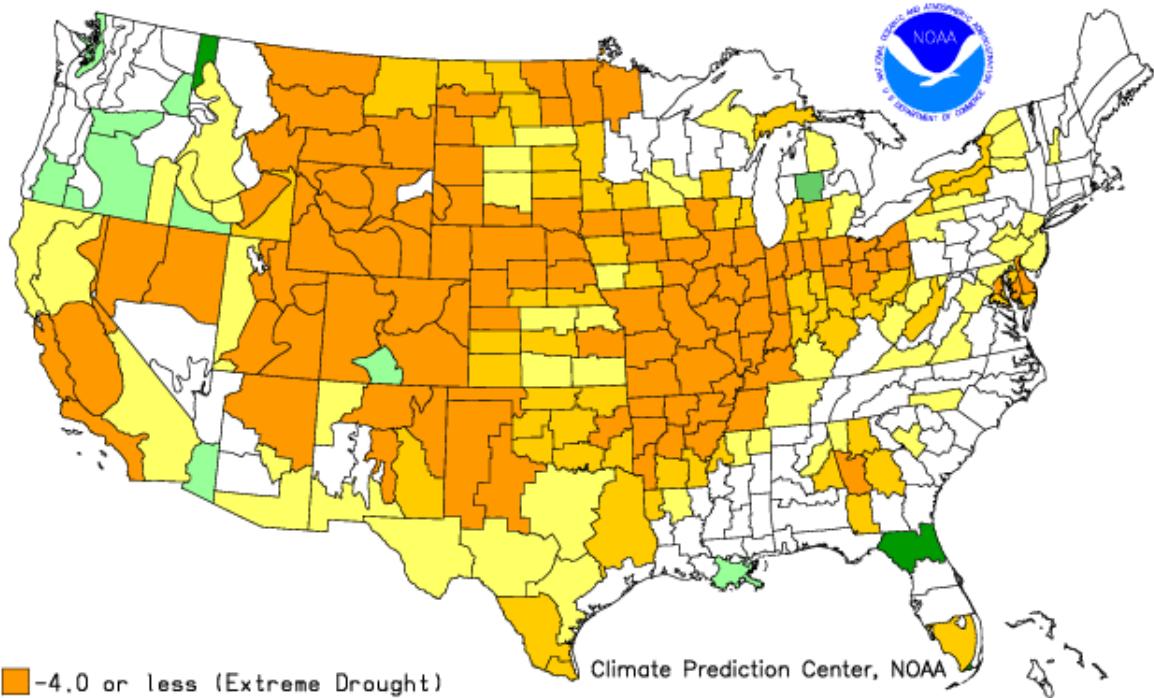









- |  |  |
|--|--|
|  -4.0 or less (Extreme Drought)   |  +2.0 to +2.9 (Unusual Moist Spell) |
|  -3.0 to -3.9 (Severe Drought)    |  +3.0 to +3.9 (Very Moist Spell)   |
|  -2.0 to -2.9 (Moderate Drought) |  +4.0 and above (Extremely Moist) |
|  -1.9 to +1.9 (Near Normal)     |  |

Climate Prediction Center, NOAA



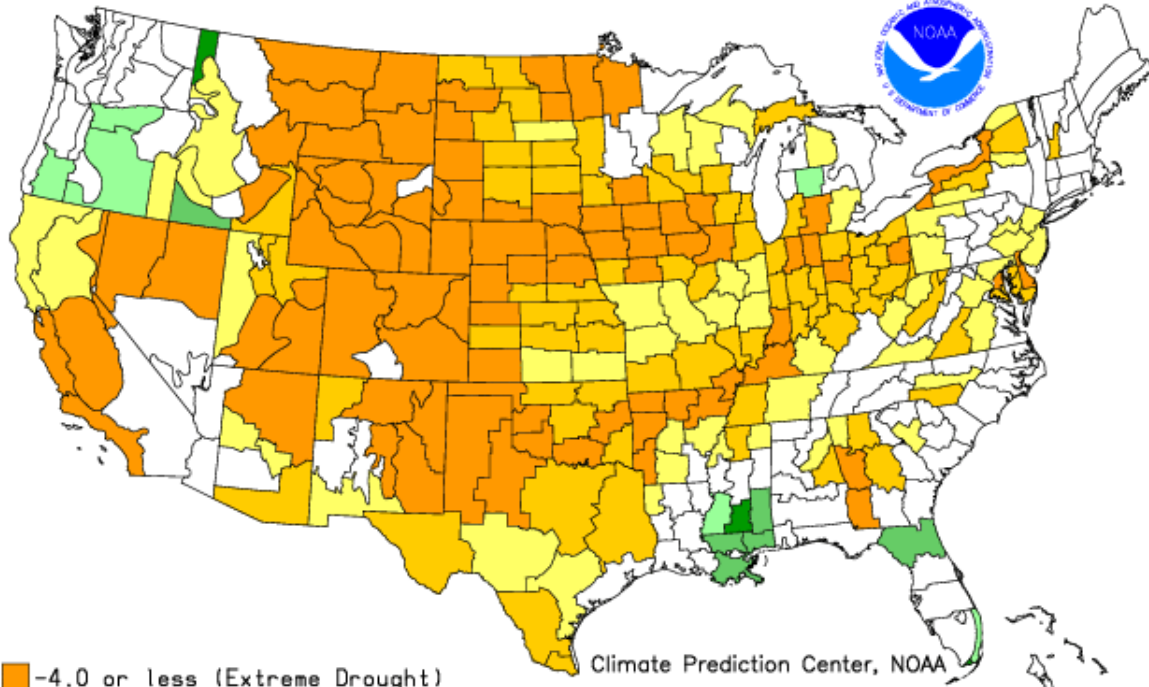
Drought Severity Index by Division  
 Weekly Value for Period Ending AUG 25, 2012  
 Long Term Palmer



- |  |  |
|--|--|
|  -4.0 or less (Extreme Drought)   |  +2.0 to +2.9 (Unusual Moist Spell) |
|  -3.0 to -3.9 (Severe Drought)    |  +3.0 to +3.9 (Very Moist Spell)   |
|  -2.0 to -2.9 (Moderate Drought) |  +4.0 and above (Extremely Moist) |
|  -1.9 to +1.9 (Near Normal)     |  |

Climate Prediction Center, NOAA

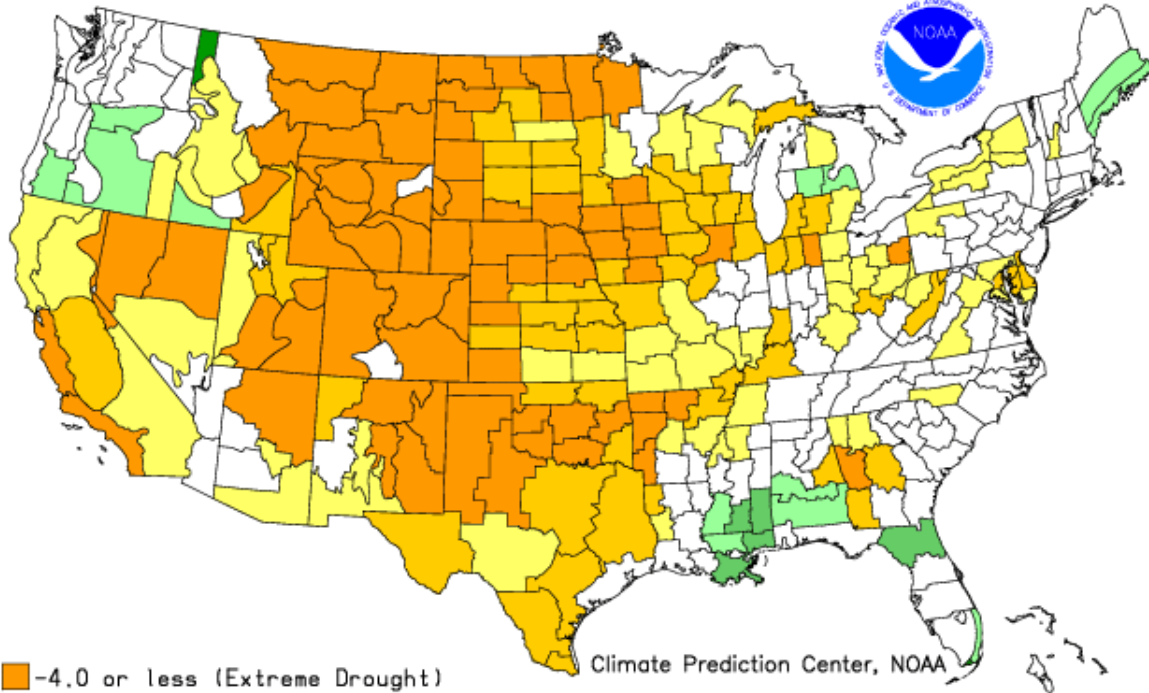
Drought Severity Index by Division  
 Weekly Value for Period Ending SEP 1, 2012  
 Long Term Palmer



- |                                 |                                    |
|---------------------------------|------------------------------------|
| -4.0 or less (Extreme Drought)  | +2.0 to +2.9 (Unusual Moist Spell) |
| -3.0 to -3.9 (Severe Drought)   | +3.0 to +3.9 (Very Moist Spell)    |
| -2.0 to -2.9 (Moderate Drought) | +4.0 and above (Extremely Moist)   |
| -1.9 to +1.9 (Near Normal)      |                                    |

Climate Prediction Center, NOAA

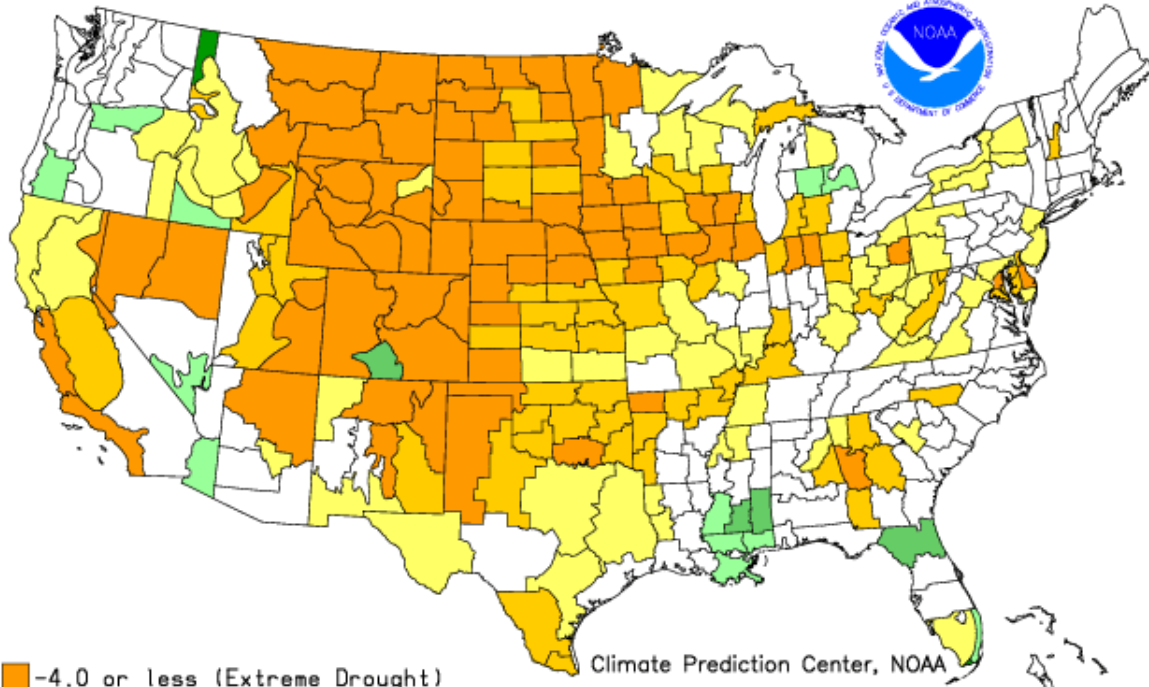
Drought Severity Index by Division  
 Weekly Value for Period Ending SEP 8, 2012  
 Long Term Palmer



- |   |  |   |   |
|---|--|---|---|
| <span style="display: inline-block; width: 15px; height: 15px; background-color: #e67e22; border: 1px solid black; margin-right: 5px;"></span> -4.0 or less (Extreme Drought) | <span style="display: inline-block; width: 15px; height: 15px; background-color: #f1c40f; border: 1px solid black; margin-right: 5px;"></span> -3.0 to -3.9 (Severe Drought)   | <span style="display: inline-block; width: 15px; height: 15px; background-color: #fff9c4; border: 1px solid black; margin-right: 5px;"></span> -2.0 to -2.9 (Moderate Drought)  | <span style="display: inline-block; width: 15px; height: 15px; background-color: #e0f7fa; border: 1px solid black; margin-right: 5px;"></span> +2.0 to +2.9 (Unusual Moist Spell) |
| <span style="display: inline-block; width: 15px; height: 15px; background-color: #fff2cc; border: 1px solid black; margin-right: 5px;"></span> -1.9 to +1.9 (Near Normal)     | <span style="display: inline-block; width: 15px; height: 15px; background-color: #e0ffe0; border: 1px solid black; margin-right: 5px;"></span> +3.0 to +3.9 (Very Moist Spell) | <span style="display: inline-block; width: 15px; height: 15px; background-color: #008000; border: 1px solid black; margin-right: 5px;"></span> +4.0 and above (Extremely Moist) |   |

Climate Prediction Center, NOAA

Drought Severity Index by Division  
 Weekly Value for Period Ending SEP 15, 2012  
 Long Term Palmer

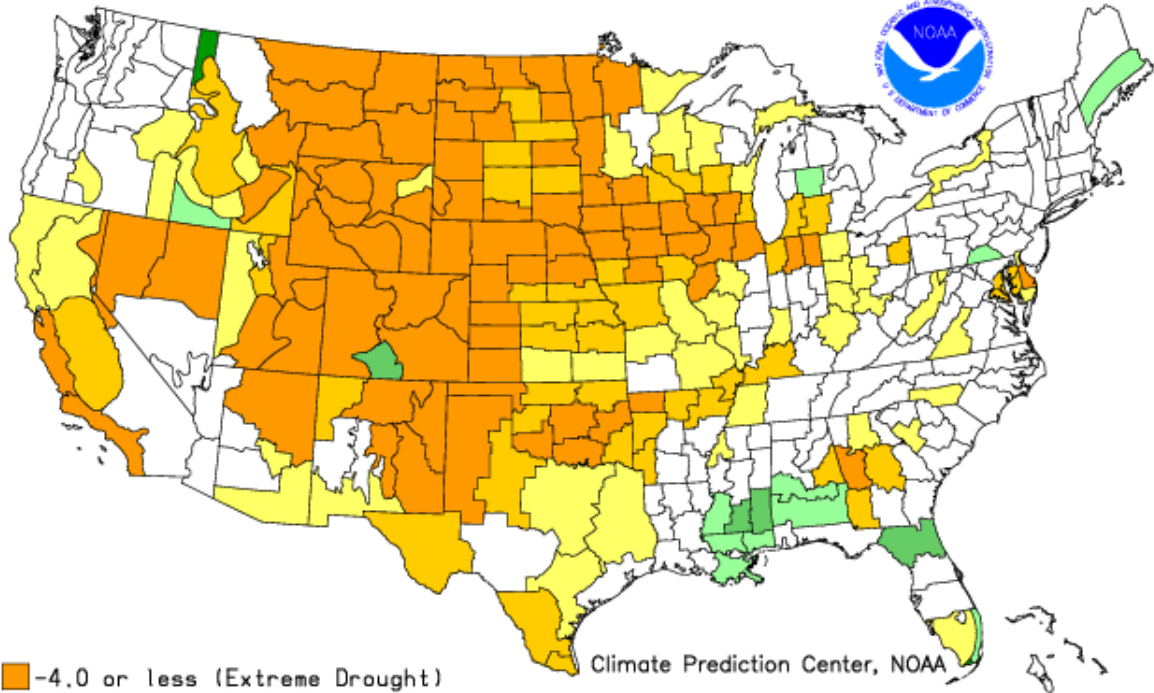


- |                                 |                                    |
|---------------------------------|------------------------------------|
| -4.0 or less (Extreme Drought)  | +2.0 to +2.9 (Unusual Moist Spell) |
| -3.0 to -3.9 (Severe Drought)   | +3.0 to +3.9 (Very Moist Spell)    |
| -2.0 to -2.9 (Moderate Drought) | +4.0 and above (Extremely Moist)   |
| -1.9 to +1.9 (Near Normal)      |                                    |

Climate Prediction Center, NOAA



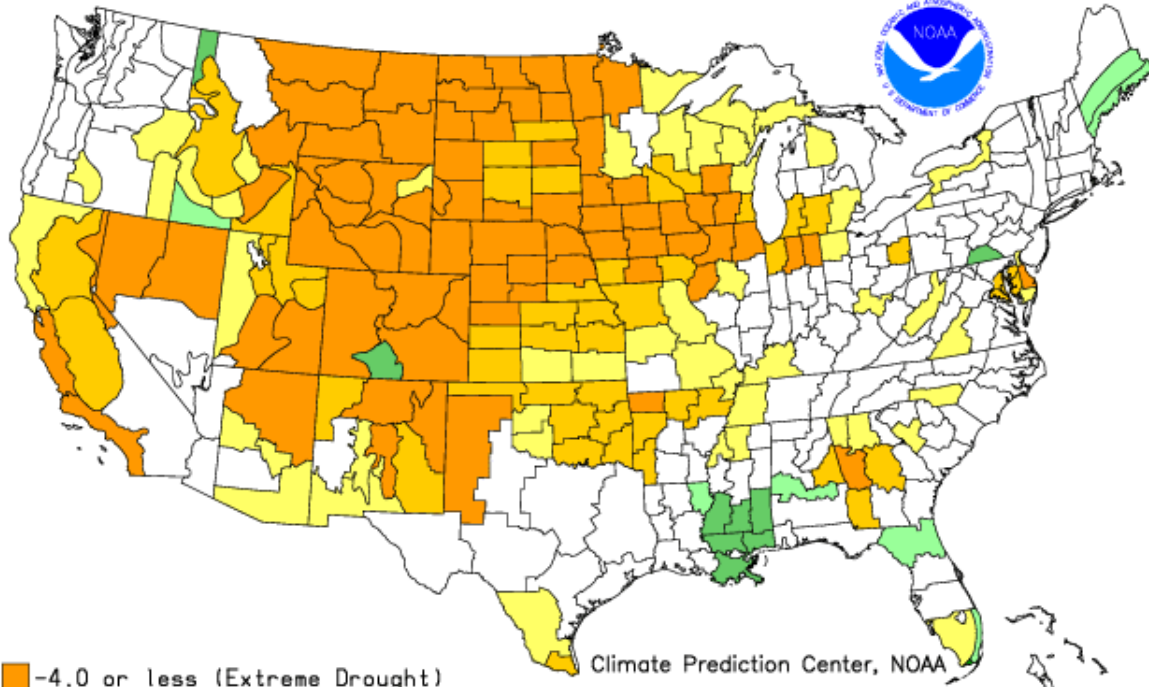
Drought Severity Index by Division  
 Weekly Value for Period Ending SEP 22, 2012  
 Long Term Palmer



- |                                 |                                    |
|---------------------------------|------------------------------------|
| -4.0 or less (Extreme Drought)  | +2.0 to +2.9 (Unusual Moist Spell) |
| -3.0 to -3.9 (Severe Drought)   | +3.0 to +3.9 (Very Moist Spell)    |
| -2.0 to -2.9 (Moderate Drought) | +4.0 and above (Extremely Moist)   |
| -1.9 to +1.9 (Near Normal)      |                                    |

Climate Prediction Center, NOAA

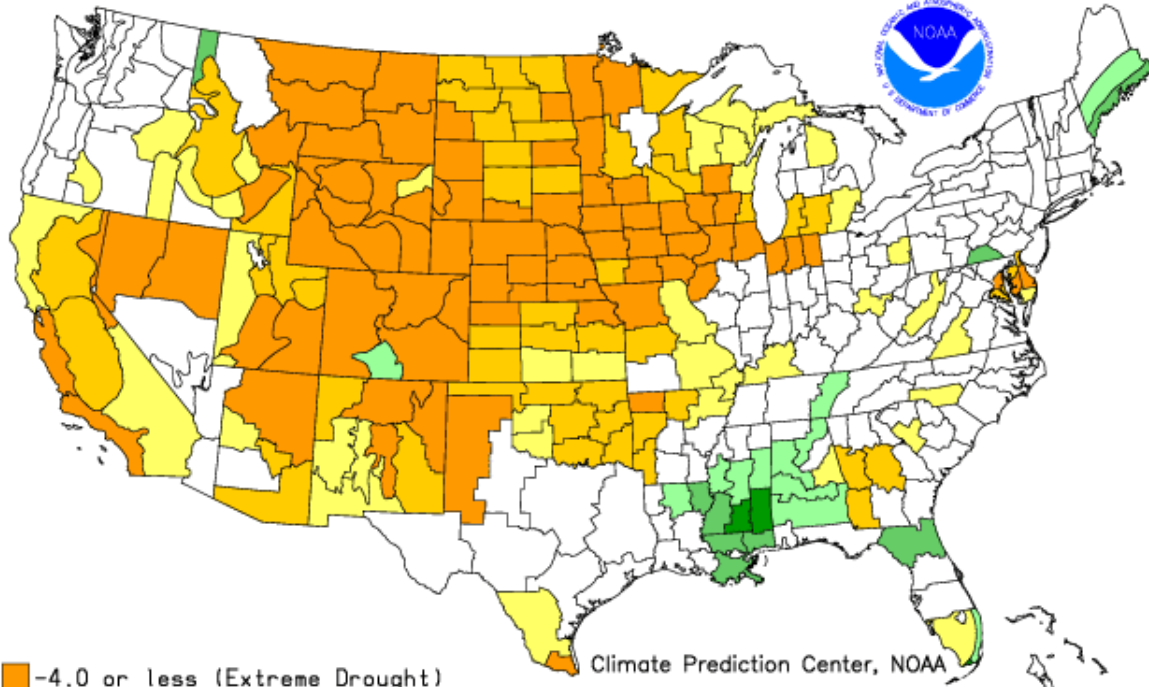
Drought Severity Index by Division  
 Weekly Value for Period Ending SEP 29, 2012  
 Long Term Palmer



- |                                 |                                    |
|---------------------------------|------------------------------------|
| -4.0 or less (Extreme Drought)  | +2.0 to +2.9 (Unusual Moist Spell) |
| -3.0 to -3.9 (Severe Drought)   | +3.0 to +3.9 (Very Moist Spell)    |
| -2.0 to -2.9 (Moderate Drought) | +4.0 and above (Extremely Moist)   |
| -1.9 to +1.9 (Near Normal)      |                                    |

Climate Prediction Center, NOAA

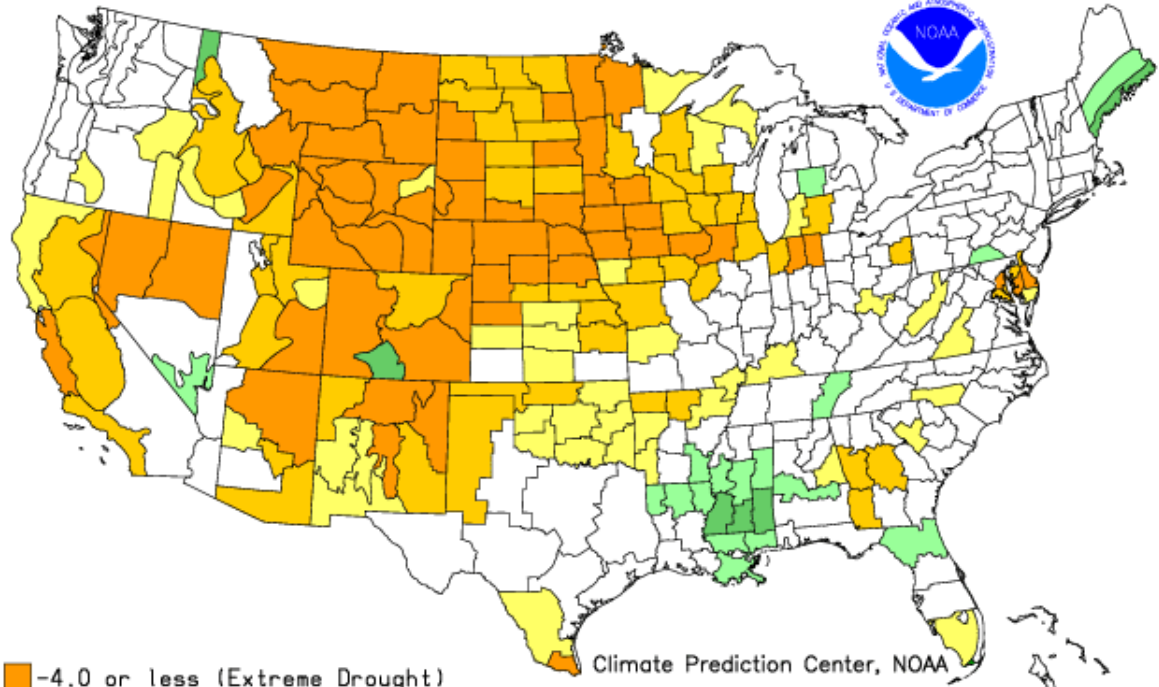
Drought Severity Index by Division  
 Weekly Value for Period Ending OCT 6, 2012  
 Long Term Palmer



- |                                 |                                    |
|---------------------------------|------------------------------------|
| -4.0 or less (Extreme Drought)  | +2.0 to +2.9 (Unusual Moist Spell) |
| -3.0 to -3.9 (Severe Drought)   | +3.0 to +3.9 (Very Moist Spell)    |
| -2.0 to -2.9 (Moderate Drought) | +4.0 and above (Extremely Moist)   |
| -1.9 to +1.9 (Near Normal)      |                                    |

Climate Prediction Center, NOAA

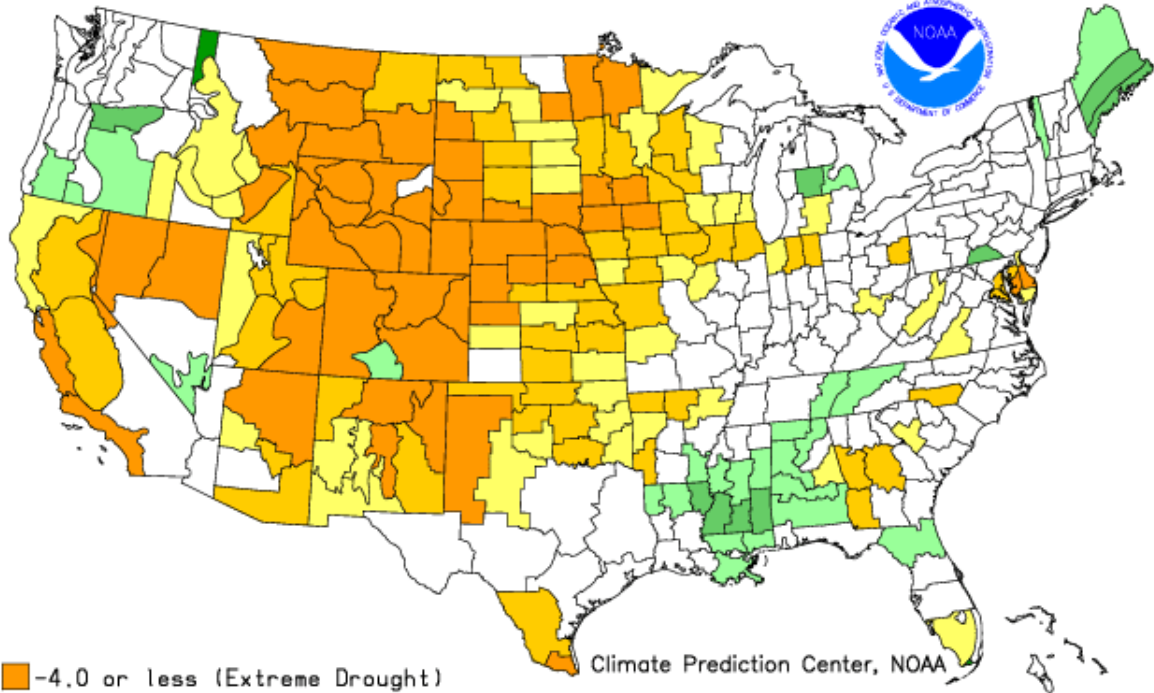
Drought Severity Index by Division  
 Weekly Value for Period Ending OCT 13, 2012  
 Long Term Palmer



- |                                 |                                    |
|---------------------------------|------------------------------------|
| -4.0 or less (Extreme Drought)  | +2.0 to +2.9 (Unusual Moist Spell) |
| -3.0 to -3.9 (Severe Drought)   | +3.0 to +3.9 (Very Moist Spell)    |
| -2.0 to -2.9 (Moderate Drought) | +4.0 and above (Extremely Moist)   |
| -1.9 to +1.9 (Near Normal)      |                                    |

Climate Prediction Center, NOAA

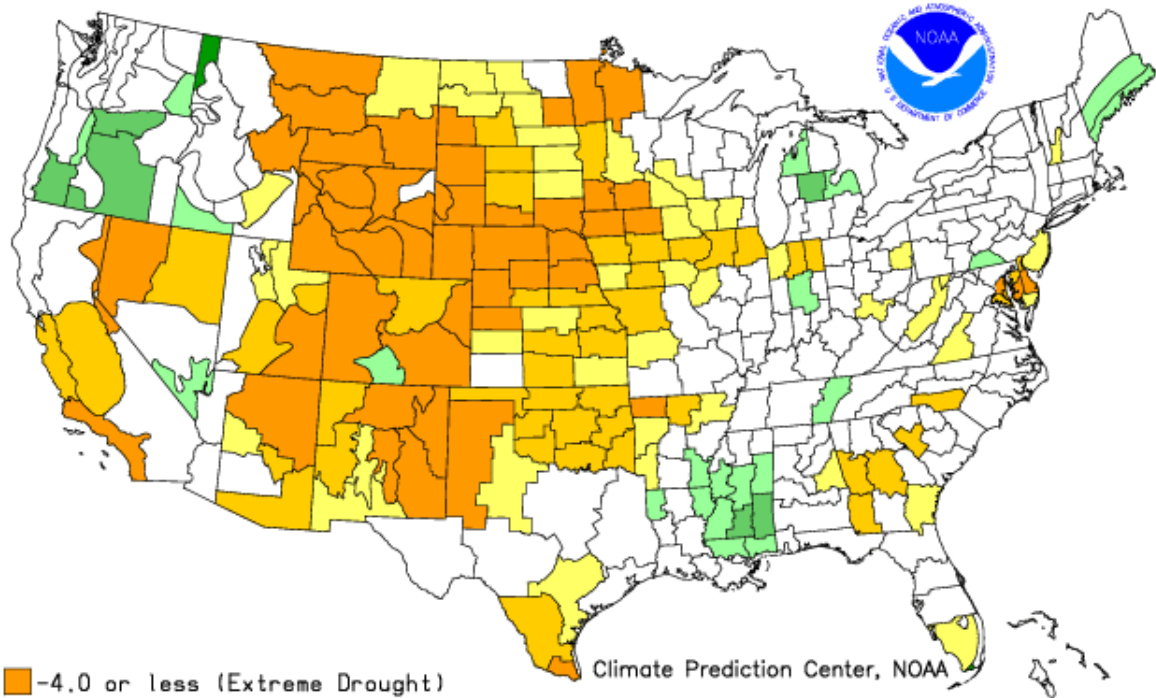
Drought Severity Index by Division  
 Weekly Value for Period Ending OCT 20, 2012  
 Long Term Palmer



- |                                 |                                    |
|---------------------------------|------------------------------------|
| -4.0 or less (Extreme Drought)  | +2.0 to +2.9 (Unusual Moist Spell) |
| -3.0 to -3.9 (Severe Drought)   | +3.0 to +3.9 (Very Moist Spell)    |
| -2.0 to -2.9 (Moderate Drought) | +4.0 and above (Extremely Moist)   |
| -1.9 to +1.9 (Near Normal)      |                                    |

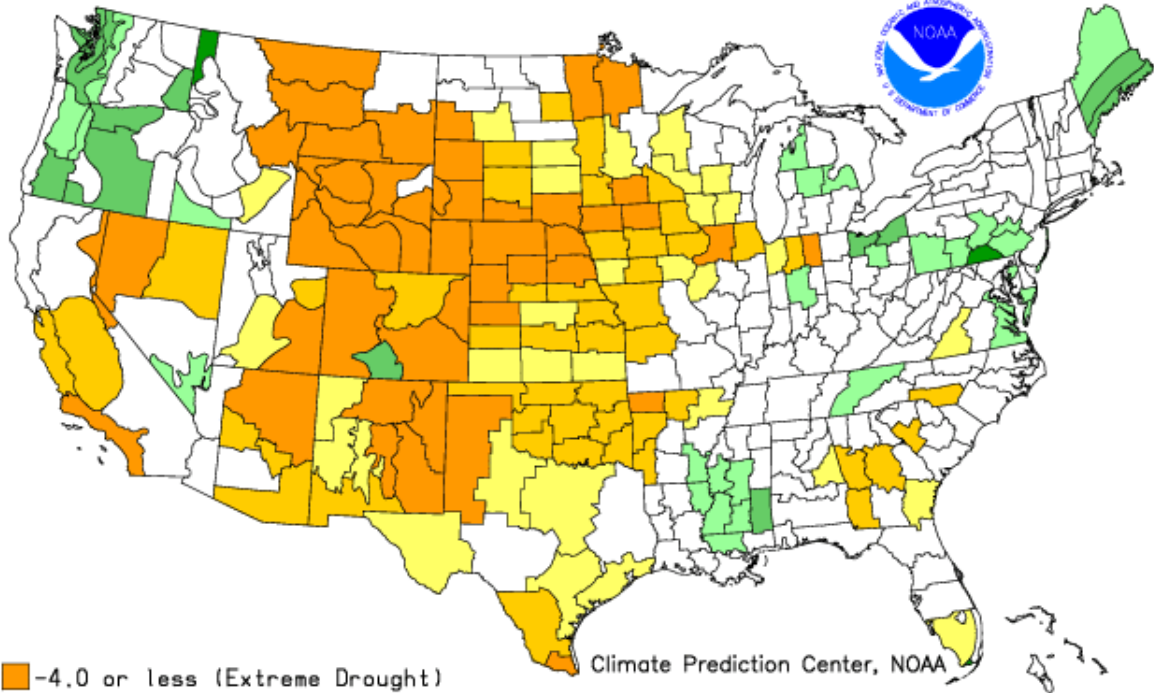
Climate Prediction Center, NOAA

Drought Severity Index by Division  
 Weekly Value for Period Ending OCT 27, 2012  
 Long Term Palmer





Drought Severity Index by Division  
 Weekly Value for Period Ending NOV 10, 2012  
 Long Term Palmer

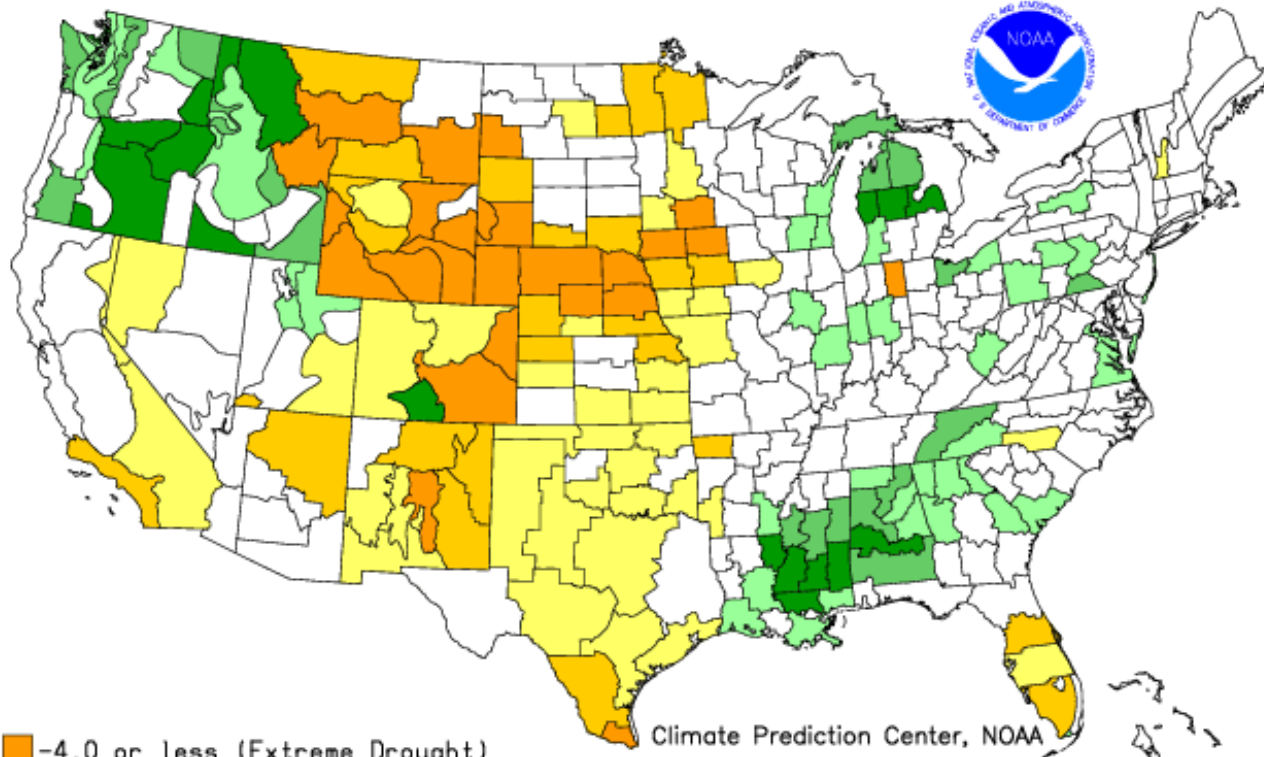






- |                                 |                                    |
|---------------------------------|------------------------------------|
| -4.0 or less (Extreme Drought)  | +2.0 to +2.9 (Unusual Moist Spell) |
| -3.0 to -3.9 (Severe Drought)   | +3.0 to +3.9 (Very Moist Spell)    |
| -2.0 to -2.9 (Moderate Drought) | +4.0 and above (Extremely Moist)   |
| -1.9 to +1.9 (Near Normal)      |                                    |




Climate Prediction Center, NOAA



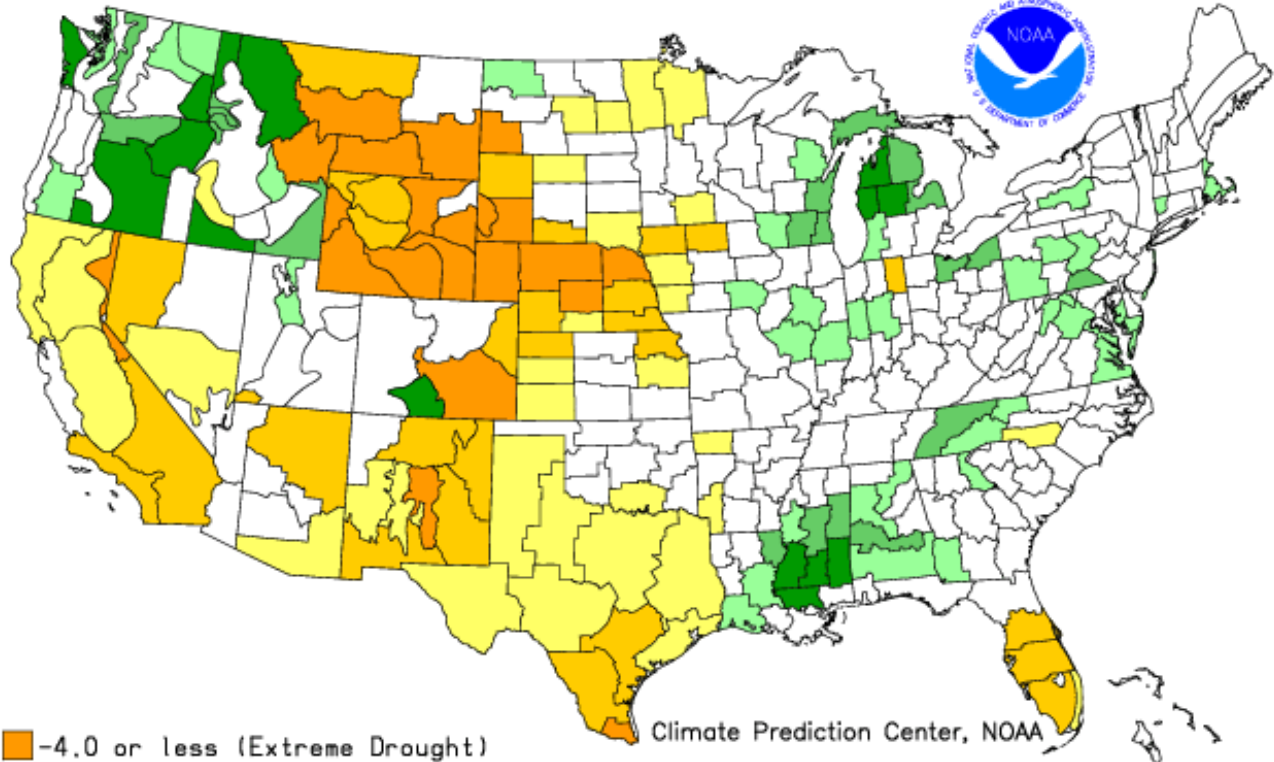
Drought Severity Index by Division  
Weekly Value for Period Ending FEB 23, 2013  
Long Term Palmer







-  -4.0 or less (Extreme Drought)
-  -3.0 to -3.9 (Severe Drought)
-  -2.0 to -2.9 (Moderate Drought)
-  -1.9 to +1.9 (Near Normal)




-  +2.0 to +2.9 (Unusual Moist Spell)
-  +3.0 to +3.9 (Very Moist Spell)
-  +4.0 and above (Extremely Moist)

Drought Severity Index by Division  
Weekly Value for Period Ending MAR 16, 2013  
Long Term Palmer



-  -4.0 or less (Extreme Drought)
-  -3.0 to -3.9 (Severe Drought)
-  -2.0 to -2.9 (Moderate Drought)
-  -1.9 to +1.9 (Near Normal)

Climate Prediction Center, NOAA

-  +2.0 to +2.9 (Unusual Moist Spell)
-  +3.0 to +3.9 (Very Moist Spell)
-  +4.0 and above (Extremely Moist)