

Stream 33 Mod. Class 1 HH-MOT-032316-03

# Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **23**

SITE NAME/LOCATION: Grand River - Barton  
SITE NUMBER: 03 RIVER BASIN: \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>): \_\_\_\_\_  
LENGTH OF STREAM REACH (ft): 700 ft LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE: \_\_\_\_\_  
DATE: 03/17/16 SCORER: CD/BCR COMMENTS: Spring Run  
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHHW Streams" for Instructions  
STREAM CHANNEL: ☐ NONE/NATURAL CHANNEL ☒ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY  
MODIFICATIONS: Natural grading, current break in channel

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>250 mm) (16 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-250 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (0 pts)	
<input type="checkbox"/> GRAVEL (2.44 mm) (8 pts)	20	<input type="checkbox"/> MUCK (0 pts)	
<input checked="" type="checkbox"/> SAND (<2 mm) (8 pts)	40	<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 9 (A) TOTAL NUMBER OF SUBSTRATE TYPES: 4 (B) A+B: 13  
SCORE OF TWO MOST PREDOMINANT 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 stormwater pipes). (Check ONLY one box.)

PERCENT	PERCENT
<input type="checkbox"/> > 30 centimeters (20 pts)	<input type="checkbox"/> > 5 cm - 10 cm (15 pts)
<input type="checkbox"/> > 22.5 - 30 cm (10 pts)	<input type="checkbox"/> < 5 cm (5 pts)
<input type="checkbox"/> > 10 - 22.5 cm (7.5 pts)	<input type="checkbox"/> NO WATER OR MOIST CHANNEL (0 pts)

COMMENTS: \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): 2.5

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

PERCENT	PERCENT
<input type="checkbox"/> > 4.0 meters (> 13') (30 pts)	<input type="checkbox"/> > 1.0 m - 1.5 m (> 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 (> 4' 8" - 9' 7") (20 pts)	

COMMENTS: \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): 2.5

This information must also be completed

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

RIPARIAN ZONE		FLOODPLAIN QUALITY	
L	R	L	R
<input checked="" 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 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)

PERCENT	PERCENT
<input checked="" type="checkbox"/> Stream Flowing	<input type="checkbox"/> Most Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (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)

PERCENT	PERCENT		
<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

PERCENT	PERCENT		
<input type="checkbox"/> Flat (0.5 ft/mi)	<input type="checkbox"/> Flat to Moderate	<input checked="" type="checkbox"/> Moderate (2 ft/mi)	<input type="checkbox"/> Moderate to Severe

Stream 33 HH-MOT-032316-03

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

OHEI PERFORMED? ☐ Yes ☒ No OHEI Score: \_\_\_\_\_ (If Yes, Attach Completed OHEI Form)  
DOWNSTREAM DESIGNATED USE(S): \_\_\_\_\_ Distance from Evaluated Stream: \_\_\_\_\_  
WASH 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) Y Date of last precipitation: Spring 2015 County: ?  
Photograph Information: 2 Photos, Upstream + Downstream  
Elevated Turbidity? (Y/N) N Canopy (% open): ?  
Were samples collected for water chemistry? (Y/N) N (Note: list sample no. or ID and attach res. to 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: N/A

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) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_ Salamanders Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_  
Frogs or Toads Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_ Aquatic Macroinvertebrates Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_  
Comments Regarding Bioty: \_\_\_\_\_

# 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 34 Mod. Class 1 HH-MOT-032316-03

# Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **23**

SITE NAME/LOCATION: Grand River - Barton  
SITE NUMBER: 03 RIVER BASIN: \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>): \_\_\_\_\_  
LENGTH OF STREAM REACH (ft): 700 ft LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE: \_\_\_\_\_  
DATE: 03/17/16 SCORER: CD/BCR COMMENTS: Spring Run  
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHHW Streams" for Instructions  
STREAM CHANNEL: ☐ NONE/NATURAL CHANNEL ☒ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY  
MODIFICATIONS: maintained Pile

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>250 mm) (16 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-250 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (0 pts)	
<input type="checkbox"/> GRAVEL (2.44 mm) (8 pts)	10	<input type="checkbox"/> MUCK (0 pts)	
<input checked="" type="checkbox"/> SAND (<2 mm) (8 pts)	20	<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 9 (A) TOTAL NUMBER OF SUBSTRATE TYPES: 4 (B) A+B: 13  
SCORE OF TWO MOST PREDOMINANT 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 stormwater pipes). (Check ONLY one box.)

PERCENT	PERCENT
<input type="checkbox"/> > 30 centimeters (20 pts)	<input type="checkbox"/> > 5 cm - 10 cm (15 pts)
<input type="checkbox"/> > 22.5 - 30 cm (10 pts)	<input type="checkbox"/> < 5 cm (5 pts)
<input type="checkbox"/> > 10 - 22.5 cm (7.5 pts)	<input type="checkbox"/> NO WATER OR MOIST CHANNEL (0 pts)

COMMENTS: \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): 2.5

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

PERCENT	PERCENT
<input type="checkbox"/> > 4.0 meters (> 13') (30 pts)	<input type="checkbox"/> > 1.0 m - 1.5 m (> 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 (> 4' 8" - 9' 7") (20 pts)	

COMMENTS: \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): 2.5

This information must also be completed

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

RIPARIAN ZONE		FLOODPLAIN QUALITY	
L	R	L	R
<input checked="" 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 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)

PERCENT	PERCENT
<input checked="" type="checkbox"/> Stream Flowing	<input type="checkbox"/> Most Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (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)

PERCENT	PERCENT		
<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

PERCENT	PERCENT		
<input type="checkbox"/> Flat (0.5 ft/mi)	<input type="checkbox"/> Flat to Moderate	<input checked="" type="checkbox"/> Moderate (2 ft/mi)	<input type="checkbox"/> Moderate to Severe

Stream 34 HH-MOT-032316-03

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

OHEI PERFORMED? ☐ Yes ☒ No OHEI Score: \_\_\_\_\_ (If Yes, Attach Completed OHEI Form)  
DOWNSTREAM DESIGNATED USE(S): \_\_\_\_\_ Distance from Evaluated Stream: \_\_\_\_\_  
WASH 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) N Date of last precipitation: Spring 2015 County: ?  
Photograph Information: 2 Photos, Upstream + Downstream  
Elevated Turbidity? (Y/N) N Canopy (% open): ?  
Were samples collected for water chemistry? (Y/N) N (Note: list sample no. or ID and attach res. to 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: \_\_\_\_\_)

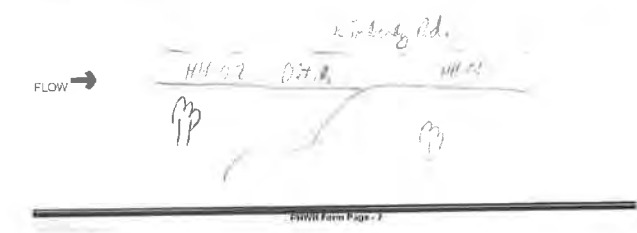
Additional comments/description of pollution impacts: roadside runoff

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) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_ Salamanders Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_  
Frogs or Toads Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_ Aquatic Macroinvertebrates Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_  
Comments Regarding Bioty: \_\_\_\_\_

# 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 35 Mtd. (Class 2) 11/10/07 037216-01

# Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **33**

SITE NAME/LOCATION: Wedge Pond

SITE NUMBER: 01 RIVER BASIN: 01 DRAINAGE AREA (sq mi): 0.1

LENGTH OF STREAM REACH (ft): 100 LAT: 40° 10' N LONG: 82° 45' W RIVER CODE: 01 RIVER MILE: 0.1

DATE: 03/16/07 SCORER: 01/100 COMMENTS: Spring

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

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

MODIFICATIONS: Maintained ditch

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 6). Final metric score is sum of boxes A & B.)

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDG SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (0 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	<u>20</u>	<input type="checkbox"/> MUCK (0 pts)	
<input checked="" type="checkbox"/> SAND (<2 mm) (4 pts)	<u>40</u>	<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bldg Slabs, Boulder, Cobble, Bedrock: 0 (A) 4 (B) 4

SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES: 4 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 concrete culverts or storm water pipes.) (Check ONLY one box.)

<input type="checkbox"/> > 30 centimeters (12 pts)	<input type="checkbox"/> > 5 cm - 10 cm (15 pts)
<input type="checkbox"/> 22.5 - 30 cm (10 pts)	<input type="checkbox"/> < 5 cm (3 pts)
<input type="checkbox"/> > 10 - 22.5 cm (25 pts)	<input type="checkbox"/> NO WATER OR MOIST CHANNEL (0 pts)

COMMENTS: Maximum pool depth (indicate metric) 4

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

<input type="checkbox"/> > 4 meters (12) (10 pts)	<input type="checkbox"/> > 1.0 m - 1.5 m (3' - 4' 8") (15 pts)
<input type="checkbox"/> > 3.0 m - 4.0 m (9' 6" - 13') (25 pts)	<input type="checkbox"/> < 1.0 m (3' 3" - 3' 10") (0 pts)
<input type="checkbox"/> > 1.5 m - 3.0 m (4' 8" - 9' 8") (20 pts)	

COMMENTS: Average bankfull width (meters) 2

4. RIPARIAN ZONE AND FLOODPLAIN QUALITY (This information must also be completed)

RIPARIAN ZONE: 01 (Per Bank) 01 (Most Predominant per Bank) 01 (Conservation Tillage)

FLOODPLAIN QUALITY: 01 (Mature Forest, Wetland) 01 (Immature Forest, Shrub or Old Field) 01 (Urban or Industrial)

COMMENTS: None

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

Stream Flowing: ☒ Stream Flowing ☐ Substrate Bar with isolated pools (intermittent) ☐ Dry channel, no water (ephemeral)

COMMENTS: Flowing stream with isolated pools

6. BIODIVERSITY (Number of birds per 61 m (200 ft) of channel) (Check ONLY one box)

None: 0 1.0: 0 2.0: 0 3.0: 0

0.5: 0 1.5: 0 2.5: 0 3.5: 0

7. STREAM GRADIENT ESTIMATE

Flat to Slight: ☐ Flat to Moderate: ☐ Moderate to Steep: ☒ Steep to Vertical: ☐

Stream 36 Good Wormwater 03/16/07 037216-01

# Ohio EPA Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

Stream & Location: Wedge Pond RM: 01 Date: 03/16/07

Scorer's Full Name & Affiliation: 01/100 Office/Work Location: 01

River Code: 01 STORET #: 01 LAT: 40° 10' N LONG: 82° 45' W

1. SUBSTRATE (Check ONLY two substrate TYPE boxes. estimate % or note every type present.)

BEST TYPES	OTHER TYPES	POOL RIFLE	ORIGIN	QUALITY
<input type="checkbox"/> BLDG SLABS (16)	<input type="checkbox"/> HARDPAN (4)	<input type="checkbox"/> LIMESTONE (1)	<input type="checkbox"/> HEAVY (2)	<input type="checkbox"/> MODERATE (-1)
<input type="checkbox"/> BOULDER (8)	<input type="checkbox"/> DETRITUS (3)	<input type="checkbox"/> TILLS (1)	<input type="checkbox"/> NORMAL (0)	<input type="checkbox"/> MODERATE (-1)
<input type="checkbox"/> COBBLE (8)	<input type="checkbox"/> MUCK (2)	<input type="checkbox"/> WETLANDS (3)	<input type="checkbox"/> FREE (1)	<input type="checkbox"/> MODERATE (-1)
<input type="checkbox"/> GRAVEL (8)	<input type="checkbox"/> SILT (1)	<input type="checkbox"/> HARDPAN (3)	<input type="checkbox"/> EXTENSIVE (-2)	<input type="checkbox"/> MODERATE (-1)
<input type="checkbox"/> SAND (8)	<input type="checkbox"/> ARTIFICIAL (3)	<input type="checkbox"/> SANDSTONE (3)	<input type="checkbox"/> MODERATE (-1)	<input type="checkbox"/> MODERATE (-1)
<input type="checkbox"/> BEDROCK (8)		<input type="checkbox"/> RIPRAP (3)	<input type="checkbox"/> NORMAL (0)	<input type="checkbox"/> MODERATE (-1)
		<input type="checkbox"/> LACUSTURNE (3)	<input type="checkbox"/> NONE (1)	<input type="checkbox"/> MODERATE (-1)
		<input type="checkbox"/> SHALE (1)		<input type="checkbox"/> MODERATE (-1)
		<input type="checkbox"/> COAL FINES (-2)		<input type="checkbox"/> MODERATE (-1)

NUMBER OF BEST TYPES: 2 or more (2) 2 or less (0)

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 logs that are stable, well developed rootwads in deep or fast water, large oxbows, backwaters, etc.))

UNDERCUT BANKS (1) POOLS > 70cm (2) OXBOWS, BACKWATERS (1) EXTENSIVE > 75% (1)

OVERHANGING VEGETATION (1) ROOTWADS (1) AQUATIC MACROPHYTES (1) MODERATE 25-75% (7)

SHALL OWNS IN SLOW WATER (1) BOULDERS (1) LOGS OR WOODY DEBRIS (1) SPARSE 5-25% (3)

ROOTWADS (1) NEARLY ABSENT < 5% (1)

COMMENTS: None

3. CHANNEL MORPHOLOGY (Check ONE in each category (Or 2 & average))

SINUOSITY: 4 DEVELOPMENT: 5 CHANNELIZATION: 4 STABILITY: 1

HIGH (4) EXCELLENT (7) NONE (0) HIGH (3)

MODERATE (3) GOOD (5) RECOVERED (4) MODERATE (2)

LOW (2) FAIR (3) RECOVERING (3) LOW (1)

NONE (1) POOR (1) RECENT OR NO RECOVERY (1)

COMMENTS: None

4. BANK EROSION AND RIPARIAN ZONE (Check ONE in each category for EACH BANK (Or 2 per bank & average))

EROSION: 1 RIPARIAN WIDTH: 3 FLOOD PLAIN QUALITY: 2

NONE / LITTLE (3) WIDE > 50m (4) FOREST, SWAMP (3)

MODERATE (2) MODERATE 10-50m (3) SHRUB OR OLD FIELD (2)

HEAVY / SEVERE (1) NARROW 5-10m (2) RESIDENTIAL, PARK, NEW FIELD (1)

CONSERVATION TILLAGE (1)

URBAN OR INDUSTRIAL (3)

MINING / CONSTRUCTION (3)

COMMENTS: None

5. POOL / GLIDE AND RIFLE / RUN QUALITY (Check ONE (ONLY) in each category (Or 2 & average))

MAXIMUM DEPTH: 1 CHANNEL WIDTH: 1 CURRENT VELOCITY: 1

> 1m (8) POOL WIDTH > RIFLE WIDTH (2) TORRENTIAL (1) SLOW (1)

0.7-1m (4) POOL WIDTH > RIFLE WIDTH (1) VERY FAST (1) INTERMITTENT (1)

0.4-0.7m (2) POOL WIDTH > RIFLE WIDTH (0) FAST (1) INTERMITTENT (1)

0.2-0.4m (1) POOL WIDTH > RIFLE WIDTH (0) MODERATE (1) EDDIES (1)

0-0.2m (0)

COMMENTS: None

6. RECREATION POTENTIAL (Check ONE (ONLY) in each category (Or 2 & average))

Primary Contact: 4 Secondary Contact: 1

Indicate for functional riffles: Best areas must be large enough to support a population of riffle-obligate species: ☐ NO RIFLE (metric=0)

RIFLE DEPTH: 1 RUN DEPTH: 1 RIFLE / RUN SUBSTRATE: 1 RIFLE / RUN EMBEDDEDNESS: 1

BEST AREAS > 10cm (2) MAXIMUM > 50cm (2) STABLE (e.g., Cobble, Boulder) (1) NONE (0)

BEST AREAS > 10cm (2) MAXIMUM > 50cm (2) MOD. STABLE (e.g., Large Gravel) (1) LOW (1)

BEST AREAS > 5cm (metric=1) UNSTABLE (e.g., Fine Gravel, Sand) (0) MODERATE (1) RIFLE / RUN EMBEDDEDNESS: 1

COMMENTS: None

7. GRADIENT (Check ONE (ONLY) in each category (Or 2 & average))

DRAINAGE AREA: 1 % POOL: 30 % GLIDE: 10 Gradient Maximum: 10

VERY LOW - LOW (2-4) % RUN: 50 % RIFLE: 22

MODERATE (8-10)

HIGH - VERY HIGH (10-14)

ADDITIONAL STREAM INFORMATION (This information must also be completed)

GHEI PERFORMED? ☐ Yes ☒ No GHEI Score: 01 (If Yes Attach Completed GHEI Form)

DOWNSTREAM DESIGNATED USE(S): 01 Distance from Evaluated Stream: 01

UPSTREAM DESIGNATED USE(S): 01 Distance from Evaluated Stream: 01

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

USGS Gage Name: 01 NRCS Soil Map Page: 01 NRCS Soil Map Stream Order: 01

County: 01 Township: 01

MISCELLANEOUS

Bank Erosion Conditions (Y/N): 01 Date of last precipitation: 01

Phylogenic Information: 01 Date of last precipitation: 01

Keyhole (Y/N) (Y/N) 01 Conductivity (µmhos/cm): 01

Were samples collected for water chemistry? (Y/N) 01 (Indicate sample no. or ID, and attach results Lab Number)

Field Observations: 01 Conductivity (µmhos/cm): 01

Is the stream reach representative of the stream? (Y/N) 01 (Indicate stream reach section is within)

Additional comments (e.g., description of pollution source, etc.): 01

BIOTIC EVALUATION

Performs? (Y/N): 01 (If Yes Report all class values. Voucher collected on optional "0075" if no voucher was collected with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N): 01 Voucher? (Y/N): 01 Amphibians Observed? (Y/N): 01 Voucher? (Y/N): 01

Frogs or Toads Observed? (Y/N): 01 Voucher? (Y/N): 01 Aquatic Macroinvertebrates Observed? (Y/N): 01 Voucher? (Y/N): 01

Comments Regarding Biotics: 01

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

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

FLOW: 01

COMMENTS: 01

Stream 36 Good Wormwater 03/16/07 037216-01

# Ohio EPA Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

Stream & Location: Wedge Pond RM: 01 Date: 03/16/07

Scorer's Full Name & Affiliation: 01/100 Office/Work Location: 01

River Code: 01 STORET #: 01 LAT: 40° 10' N LONG: 82° 45' W

1. SUBSTRATE (Check ONLY two substrate TYPE boxes. estimate % or note every type present.)

BEST TYPES	OTHER TYPES	POOL RIFLE	ORIGIN	QUALITY
<input type="checkbox"/> BLDG SLABS (16)	<input type="checkbox"/> HARDPAN (4)	<input type="checkbox"/> LIMESTONE (1)	<input type="checkbox"/> HEAVY (2)	<input type="checkbox"/> MODERATE (-1)
<input type="checkbox"/> BOULDER (8)	<input type="checkbox"/> DETRITUS (3)	<input type="checkbox"/> TILLS (1)	<input type="checkbox"/> NORMAL (0)	<input type="checkbox"/> MODERATE (-1)
<input type="checkbox"/> COBBLE (8)	<input type="checkbox"/> MUCK (2)	<input type="checkbox"/> WETLANDS (3)	<input type="checkbox"/> FREE (1)	<input type="checkbox"/> MODERATE (-1)
<input type="checkbox"/> GRAVEL (8)	<input type="checkbox"/> SILT (1)	<input type="checkbox"/> HARDPAN (3)	<input type="checkbox"/> EXTENSIVE (-2)	<input type="checkbox"/> MODERATE (-1)
<input type="checkbox"/> SAND (8)	<input type="checkbox"/> ARTIFICIAL (3)	<input type="checkbox"/> SANDSTONE (3)	<input type="checkbox"/> MODERATE (-1)	<input type="checkbox"/> MODERATE (-1)
<input type="checkbox"/> BEDROCK (8)		<input type="checkbox"/> RIPRAP (3)	<input type="checkbox"/> NORMAL (0)	<input type="checkbox"/> MODERATE (-1)
		<input type="checkbox"/> LACUSTURNE (3)	<input type="checkbox"/> NONE (1)	<input type="checkbox"/> MODERATE (-1)
		<input type="checkbox"/> SHALE (1)		<input type="checkbox"/> MODERATE (-1)
		<input type="checkbox"/> COAL FINES (-2)		<input type="checkbox"/> MODERATE (-1)

NUMBER OF BEST TYPES: 2 or more (2) 2 or less (0)

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 logs that are stable, well developed rootwads in deep or fast water, large oxbows, backwaters, etc.))

UNDERCUT BANKS (1) POOLS > 70cm (2) OXBOWS, BACKWATERS (1) EXTENSIVE > 75% (1)

OVERHANGING VEGETATION (1) ROOTWADS (1) AQUATIC MACROPHYTES (1) MODERATE 25-75% (7)

SHALL OWNS IN SLOW WATER (1) BOULDERS (1) LOGS OR WOODY DEBRIS (1) SPARSE 5-25% (3)

ROOTWADS (1) NEARLY ABSENT < 5% (1)

COMMENTS: None

3. CHANNEL MORPHOLOGY (Check ONE in each category (Or 2 & average))

SINUOSITY: 4 DEVELOPMENT: 5 CHANNELIZATION: 4 STABILITY: 1

HIGH (4) EXCELLENT (7) NONE (0) HIGH (3)

MODERATE (3) GOOD (5) RECOVERED (4) MODERATE (2)

LOW (2) FAIR (3) RECOVERING (3) LOW (1)

NONE (1) POOR (1) RECENT OR NO RECOVERY (1)

COMMENTS: None

4. BANK EROSION AND RIPARIAN ZONE (Check ONE in each category for EACH BANK (Or 2 per bank & average))

EROSION: 1 RIPARIAN WIDTH: 3 FLOOD PLAIN QUALITY: 2

NONE / LITTLE (3) WIDE > 50m (4) FOREST, SWAMP (3)

MODERATE (2) MODERATE 10-50m (3) SHRUB OR OLD FIELD (2)

HEAVY / SEVERE (1) NARROW 5-10m (2) RESIDENTIAL, PARK, NEW FIELD (1)

CONSERVATION TILLAGE (1)

URBAN OR INDUSTRIAL (3)

MINING / CONSTRUCTION (3)

COMMENTS: None

5. POOL / GLIDE AND RIFLE / RUN QUALITY (Check ONE (ONLY) in each category (Or 2 & average))

MAXIMUM DEPTH: 1 CHANNEL WIDTH: 1 CURRENT VELOCITY: 1

> 1m (8) POOL WIDTH > RIFLE WIDTH (2) TORRENTIAL (1) SLOW (1)

0.7-1m (4) POOL WIDTH > RIFLE WIDTH (1) VERY FAST (1) INTERMITTENT (1)

0.4-0.7m (2) POOL WIDTH > RIFLE WIDTH (0) FAST (1) INTERMITTENT (1)

0.2-0.4m (1) POOL WIDTH > RIFLE WIDTH (0) MODERATE (1) EDDIES (1)

0-0.2m (0)

COMMENTS: None

6. RECREATION POTENTIAL (Check ONE (ONLY) in each category (Or 2 & average))

Primary Contact: 4 Secondary Contact: 1

Indicate for functional riffles: Best areas must be large enough to support a population of riffle-obligate species: ☐ NO RIFLE (metric=0)

RIFLE DEPTH: 1 RUN DEPTH: 1 RIFLE / RUN SUBSTRATE: 1 RIFLE / RUN EMBEDDEDNESS: 1

BEST AREAS > 10cm (2) MAXIMUM > 50cm (2) STABLE (e.g., Cobble, Boulder) (1) NONE (0)

BEST AREAS > 10cm (2) MAXIMUM > 50cm (2) MOD. STABLE (e.g., Large Gravel) (1) LOW (1)

BEST AREAS > 5cm (metric=1) UNSTABLE (e.g., Fine Gravel, Sand) (0) MODERATE (1) RIFLE / RUN EMBEDDEDNESS: 1

COMMENTS: None

7. GRADIENT (Check ONE (ONLY) in each category (Or 2 & average))

DRAINAGE AREA: 1 % POOL: 30 % GLIDE: 10 Gradient Maximum: 10

VERY LOW - LOW (2-4) % RUN: 50 % RIFLE: 22

MODERATE (8-10)

HIGH - VERY HIGH (10-14)

Stream 37

Mod. Class 1

H/1-MOT-032216-02

Stream 37

H/1-MOT-032216-02

Ohio EPA

## Primary Headwater Habitat Evaluation Form

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

20

SITE NAME/LOCATION: W. 10th St. - Dayton  
 SITE NUMBER: 02 RIVER BASIN: 02 DRAINAGE AREA (mi<sup>2</sup>):  
 LENGTH OF STREAM REACH (ft): 150 ft LAT: LONG RIVER CODE: 02 RIVER MILE:  
 DATE: 03/19/08 SCORER: PHW/PHW COMMENTS: Exposed

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

STREAM CHANNEL: ☐ NONE/NATURAL CHANNEL ☒ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERYMODIFICATIONS: Transverse ROW, historic disturbance

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLR SLABS (16 pts)		<input checked="" type="checkbox"/> SILT (3 pts)	<u>30</u>
<input type="checkbox"/> BOULDER (>250 mm) (16 pts)		<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	<u>30</u>
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-250 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (0 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)		<input type="checkbox"/> MUCK (0 pts)	
<input type="checkbox"/> SAND (<2 mm) (6 pts)	<u>10</u>	<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Blr Slabs, Boulder, Cobble, Bedrock: 0 (A) 0 (B) 10  
 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 10

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the limit of evaluation. Avoid plunge pools from road culverts or storm water pipes). (Check ONLY one box)  
☐ > 30 centimeters (12 pts)  
☐ > 22.5 - 30 cm (10 pts)  
☒ > 10 - 22.5 cm (8 pts)  
☐ NO WATER OR MOST CHANNEL (0 pts)

COMMENTS: max pool depth

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements). (Check ONLY one box)  
☐ > 4.0 meters (> 13') (30 pts)  
☐ > 3.0 - 4.0 m (> 9' - 13') (25 pts)  
☒ > 1.5 - 3.0 m (> 4' - 9') (20 pts)

COMMENTS: avg

HHEI Metric Points

Substrate Max = 40

10

A + B

Pool Depth Max = 30

5

Bankfull Width Max = 30

5

HHEI Score

20

HHEI Score

20

HHEI Score

20

HHEI Score

20

HHEI Score

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HHEI Score

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HHEI Score

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HHEI Score

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HHEI Score

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HHEI Score

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HHEI Score

20

## ADDITIONAL STREAM INFORMATION (This Information Must Also Be Completed)

GHEI PERFORMED? ☐ Yes ☒ No GHEI Score: \_\_\_\_\_ (If Yes, Attach Completed GHEI 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 (if City): \_\_\_\_\_

## MISCELLANEOUS

Base Flow Conditions? (Y/N) N Date of this report: 03/19/08 County: 02Photograph Information: 2 Photos, 1 upstream, 1 downstreamElevated Turbidity? (Y/N) N Canopy (% open): 60Were 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 (5-11): \_\_\_\_\_ Conductivity (µmhos/cm): \_\_\_\_\_

Is the sampling reach representative of the stream? (Y/N) Y If not, please explain: \_\_\_\_\_Additional comments/description of pollution impacts: NA

## BIOTIC EVALUATION

Performed? (Y/N) N (If Yes, Record all observations. Voucher collection 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



PHHW Form Page - 2

Stream 38

Mod. Class 1

H/1-MOT-032216-02

Stream 38

H/1-MOT-032216-02

Ohio EPA

## Primary Headwater Habitat Evaluation Form

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

19

SITE NAME/LOCATION: W. 10th St. - Dayton  
 SITE NUMBER: 02 RIVER BASIN: 02 DRAINAGE AREA (mi<sup>2</sup>):  
 LENGTH OF STREAM REACH (ft): 150 ft LAT: LONG RIVER CODE: 02 RIVER MILE:  
 DATE: 03/19/08 SCORER: PHW/PHW COMMENTS: Exposed

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

STREAM CHANNEL: ☐ NONE/NATURAL CHANNEL ☒ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERYMODIFICATIONS: Trans ROW construction (historic)

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLR SLABS (16 pts)		<input checked="" type="checkbox"/> SILT (3 pts)	<u>30</u>
<input type="checkbox"/> BOULDER (>250 mm) (16 pts)		<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	<u>30</u>
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-250 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (0 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)		<input type="checkbox"/> MUCK (0 pts)	
<input type="checkbox"/> SAND (<2 mm) (6 pts)	<u>10</u>	<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Blr Slabs, Boulder, Cobble, Bedrock: 0 (A) 0 (B) 10  
 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 10

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the limit of evaluation. Avoid plunge pools from road culverts or storm water pipes). (Check ONLY one box)  
☐ > 30 centimeters (12 pts)  
☐ > 22.5 - 30 cm (10 pts)  
☒ > 10 - 22.5 cm (8 pts)  
☐ NO WATER OR MOST CHANNEL (0 pts)

COMMENTS: max pool depth

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements). (Check ONLY one box)  
☐ > 4.0 meters (> 13') (30 pts)  
☐ > 3.0 - 4.0 m (> 9' - 13') (25 pts)  
☒ > 1.5 - 3.0 m (> 4' - 9') (20 pts)

COMMENTS: avg

HHEI Metric Points

Substrate Max = 40

10

A + B

Pool Depth Max = 30

5

Bankfull Width Max = 30

5

HHEI Score

19

HHEI Score

19

HHEI Score

19

HHEI Score

19

HHEI Score

19

## ADDITIONAL STREAM INFORMATION (This Information Must Also Be Completed)

GHEI PERFORMED? ☐ Yes ☒ No GHEI Score: \_\_\_\_\_ (If Yes, Attach Completed GHEI 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 (if City): \_\_\_\_\_

## MISCELLANEOUS

Base Flow Conditions? (Y/N) Y Date of this report: 03/19/08 County: 02Photograph Information: 2 Photos, 1 upstream, 1 downstreamElevated Turbidity? (Y/N) N Canopy (% open): 60Were 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 (5-11): \_\_\_\_\_ Conductivity (µmhos/cm): \_\_\_\_\_

Is the sampling reach representative of the stream? (Y/N) Y If not, please explain: \_\_\_\_\_Additional comments/description of pollution impacts: NA

## BIOTIC EVALUATION

Performed? (Y/N) N (If Yes, Record all observations. Voucher collection 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)

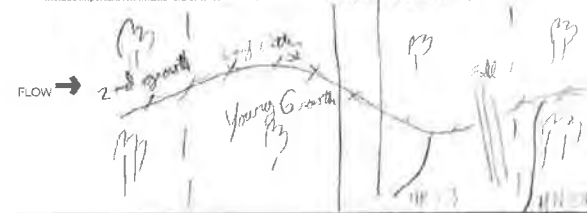
Fish Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_ Salamanders Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_

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



PHHW Form Page - 2

Stream 39 Class 1

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): 17

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

STREAM CHANNEL MODIFICATIONS: NONE / NATURAL CHANNEL

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

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.)

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

COMMENTS: AVERAGE BANKFULL WIDTH (meters)

4. RIPARIAN ZONE AND FLOODPLAIN QUALITY

PHWH Form Page - 1

Stream 39

ADDITIONAL STREAM INFORMATION (This information must also be completed):

QHEI PERFORMED? - ☒ Yes ☐ No QHEI Score \_\_\_\_\_ (If Yes Attach Completed QHEI Form)

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 \_\_\_\_\_

MISCELLANEOUS

Base Flow Conditions? (Y/N) \_\_\_\_\_ Date of last precipitation \_\_\_\_\_

Field Measures

BIOTIC EVALUATION

COMMENTS REGARDING BIOTIC

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 40 Mod. Class 2

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): 59

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

STREAM CHANNEL MODIFICATIONS: Transmission ROW construction (historic grading)

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

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.)

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

COMMENTS: AVERAGE BANKFULL WIDTH (meters)

COMMENTS: AVERAGE BANKFULL WIDTH (meters)

4. RIPARIAN ZONE AND FLOODPLAIN QUALITY

PHWH Form Page - 1

Stream 40

ADDITIONAL STREAM INFORMATION (This information must also be completed):

QHEI PERFORMED? - ☒ Yes ☐ No QHEI Score \_\_\_\_\_ (If Yes Attach Completed QHEI Form)

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 \_\_\_\_\_

MISCELLANEOUS

Base Flow Conditions? (Y/N) \_\_\_\_\_ Date of last precipitation \_\_\_\_\_

Field Measures

BIOTIC EVALUATION

COMMENTS REGARDING BIOTIC

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 41 Class 1

# Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **17**

SITE NAME/LOCATION: 1st road bridge - pike  
 DATE: 2/21/06 SITE NUMBER: 06 RIVER BASIN: 06 DRAINAGE AREA (mi<sup>2</sup>): 0.1  
 LENGTH OF STREAM REACH (ft): 200 LAT: 41.8 LONG: 83.5 RIVER CODE: 06 RIVER MILE: 0.1  
 COMMENTS: 1st road bridge - pike

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

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

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (5 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)		<input type="checkbox"/> MUCK (10 pts)	
<input type="checkbox"/> SAND (<2 mm) (8 pts)		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0 (A) 16 (B) 3

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 16 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):

☐ > 30 centimeters (20 pts)  
☐ > 22.5 - 30 cm (20 pts)  
☒ > 10 - 22.5 cm (25 pts)  
☐ NO WATER OR MOIST CHANNEL (0 pts)

COMMENTS: 1st road bridge - pike MAXIMUM POOL DEPTH (centimeters): 5

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

☐ > 4.0 meters (> 13') (30 pts)  
☐ > 3.0 m - 4.0 m (> 9' - 13') (25 pts)  
☒ > 1.5 m - 3.0 m (> 4' - 9') (20 pts)  
☐ < 1.0 m (< 3' 3") (15 pts)

COMMENTS: 1st road bridge - pike AVERAGE BANKFULL WIDTH (meters): 1.5

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

**RIPARIAN WIDTH** (Per Bank)

L: ☒ Wide > 10m ☐ Moderate 5-10m ☐ Narrow < 5m ☐ None

R: ☒ Mature Forest, Wetland ☐ Immature Forest, Shrub or Old Field ☐ Residential, Park, New Field ☐ Fenced Pasture

**FLOODPLAIN QUALITY**

L: ☐ Conservation Tillage ☐ Urban or Industrial ☐ Open Pasture, Row Crop ☐ Mining or Construction

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

☒ Stream Flowing ☐ Subsurface flow with isolated pools (intermittent) ☐ Moist Channel, isolated pools, no flow (intermittent) ☐ Dry channel, no water (ephemeral)

COMMENTS: 1st road bridge - pike

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

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

**STREAM GRADIENT ESTIMATE**

☐ Flat (< 1:100 ft) ☐ Flat to Moderate ☐ Moderate to Severe ☒ Severe (> 1:100 ft)

PHWH Form Page - 1

Stream 41

# Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **17**

SITE NAME/LOCATION: 1st road bridge - pike  
 DATE: 2/21/06 SITE NUMBER: 06 RIVER BASIN: 06 DRAINAGE AREA (mi<sup>2</sup>): 0.1  
 LENGTH OF STREAM REACH (ft): 200 LAT: 41.8 LONG: 83.5 RIVER CODE: 06 RIVER MILE: 0.1  
 COMMENTS: 1st road bridge - pike

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

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

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (5 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)		<input type="checkbox"/> MUCK (10 pts)	
<input type="checkbox"/> SAND (<2 mm) (8 pts)		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0 (A) 16 (B) 3

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 16 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):

☐ > 30 centimeters (20 pts)  
☐ > 22.5 - 30 cm (20 pts)  
☒ > 10 - 22.5 cm (25 pts)  
☐ NO WATER OR MOIST CHANNEL (0 pts)

COMMENTS: 1st road bridge - pike MAXIMUM POOL DEPTH (centimeters): 5

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

☐ > 4.0 meters (> 13') (30 pts)  
☐ > 3.0 m - 4.0 m (> 9' - 13') (25 pts)  
☒ > 1.5 m - 3.0 m (> 4' - 9') (20 pts)  
☐ < 1.0 m (< 3' 3") (15 pts)

COMMENTS: 1st road bridge - pike AVERAGE BANKFULL WIDTH (meters): 1.5

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

**RIPARIAN WIDTH** (Per Bank)

L: ☒ Wide > 10m ☐ Moderate 5-10m ☐ Narrow < 5m ☐ None

R: ☒ Mature Forest, Wetland ☐ Immature Forest, Shrub or Old Field ☐ Residential, Park, New Field ☐ Fenced Pasture

**FLOODPLAIN QUALITY**

L: ☐ Conservation Tillage ☐ Urban or Industrial ☐ Open Pasture, Row Crop ☐ Mining or Construction

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

☒ Stream Flowing ☐ Subsurface flow with isolated pools (intermittent) ☐ Moist Channel, isolated pools, no flow (intermittent) ☐ Dry channel, no water (ephemeral)

COMMENTS: 1st road bridge - pike

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

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

**STREAM GRADIENT ESTIMATE**

☐ Flat (< 1:100 ft) ☐ Flat to Moderate ☐ Moderate to Severe ☒ Severe (> 1:100 ft)

PHWH Form Page - 1

Stream 42 Class 2

# Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **64**

SITE NAME/LOCATION: 1st road bridge - pike  
 DATE: 2/21/06 SITE NUMBER: 06 RIVER BASIN: 06 DRAINAGE AREA (mi<sup>2</sup>): 0.1  
 LENGTH OF STREAM REACH (ft): 200 LAT: 41.8 LONG: 83.5 RIVER CODE: 06 RIVER MILE: 0.1  
 COMMENTS: 1st road bridge - pike

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

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

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (5 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)		<input type="checkbox"/> MUCK (10 pts)	
<input type="checkbox"/> SAND (<2 mm) (8 pts)		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0 (A) 16 (B) 3

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 16 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):

☐ > 30 centimeters (20 pts)  
☐ > 22.5 - 30 cm (20 pts)  
☒ > 10 - 22.5 cm (25 pts)  
☐ NO WATER OR MOIST CHANNEL (0 pts)

COMMENTS: 1st road bridge - pike MAXIMUM POOL DEPTH (centimeters): 5

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

☐ > 4.0 meters (> 13') (30 pts)  
☐ > 3.0 m - 4.0 m (> 9' - 13') (25 pts)  
☒ > 1.5 m - 3.0 m (> 4' - 9') (20 pts)  
☐ < 1.0 m (< 3' 3") (15 pts)

COMMENTS: 1st road bridge - pike AVERAGE BANKFULL WIDTH (meters): 1.5

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

**RIPARIAN WIDTH** (Per Bank)

L: ☒ Wide > 10m ☐ Moderate 5-10m ☐ Narrow < 5m ☐ None

R: ☒ Mature Forest, Wetland ☐ Immature Forest, Shrub or Old Field ☐ Residential, Park, New Field ☐ Fenced Pasture

**FLOODPLAIN QUALITY**

L: ☐ Conservation Tillage ☐ Urban or Industrial ☐ Open Pasture, Row Crop ☐ Mining or Construction

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

☒ Stream Flowing ☐ Subsurface flow with isolated pools (intermittent) ☐ Moist Channel, isolated pools, no flow (intermittent) ☐ Dry channel, no water (ephemeral)

COMMENTS: 1st road bridge - pike

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

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

**STREAM GRADIENT ESTIMATE**

☐ Flat (< 1:100 ft) ☐ Flat to Moderate ☐ Moderate to Severe ☒ Severe (> 1:100 ft)

PHWH Form Page - 1

Stream 43

HH-MDT-032216-07

OhioEPA

## Primary Headwater Habitat Evaluation Form

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

24

SITE NAME/LOCATION: Cedar Ridge  
 SITE NUMBER: 06 RIVER BASIN: \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>): \_\_\_\_\_  
 LENGTH OF STREAM REACH (ft): 200 LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE: \_\_\_\_\_  
 DATE: 03/23/16 SCORER: MDT/BCR COMMENTS: Perennial

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

STREAM CHANNEL: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☒ RECENT OR NO RECOVERY  
 MODIFICATIONS: Stream filled with weeds and, stream flows over

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]		<input type="checkbox"/> SILT [3 pts]	
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]		<input type="checkbox"/> CLAY or HARDPAN [0 pts]	
<input type="checkbox"/> GRAVEL (2-64 mm) [8 pts]		<input type="checkbox"/> MUCK [0 pts]	
<input type="checkbox"/> SAND (<2 mm) [8 pts]		<input type="checkbox"/> ARTIFICIAL [3 pts]	

Total of Percentages of Blot Slabs, Boulder, Cobble, Bedrock: 15 (A) 9 (B) 5  
 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 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 [10 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): 20

**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" - 4' 8") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	

COMMENTS: \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): 2.5

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
<input checked="" type="checkbox"/> Wide >10m	<input type="checkbox"/> Most Predominant per Bank
<input type="checkbox"/> Moderate 5-10m	<input type="checkbox"/> Mature Forest, Wetland
<input type="checkbox"/> Narrow <5m	<input type="checkbox"/> Immature Forest, Shrub or Old Field
<input type="checkbox"/> None	<input type="checkbox"/> Residential, Park, New Field
<input type="checkbox"/> None	<input type="checkbox"/> Fenced Pasture

COMMENTS: Stream filled with weeds

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Most 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 type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

<input type="checkbox"/> Flat (0.5 m/100 ft)	<input type="checkbox"/> Flat to Moderate	<input type="checkbox"/> Moderate (2 m/100 ft)	<input type="checkbox"/> Moderate to Severe	<input checked="" type="checkbox"/> Severe (>2 m/100 ft)
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PWH Form Page - 1

Stream 43

HH-MDT-032216-07

## 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: \_\_\_\_\_  
 CWN 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? Yes 4 Photos Upstream & DownstreamPhotograph Information: 4 Photos Upstream & DownstreamElevated Turbidity? (Y/N) N Canopy (% open) 75%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 pool: on inside of narrow

## 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) NFrogs 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

FLOW →

Stream filled with weeds

ATV Trails and Bridge

Food Plot

PWH Form Page - 2

Stream 44

Mod. Class 2

HH-MDT-032216-16

OhioEPA

## Primary Headwater Habitat Evaluation Form

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

60

SITE NAME/LOCATION: AEP Good Hope - Poston TLine HH-MDT-032216-16  
 SITE NUMBER: 2 RIVER BASIN: \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>): \_\_\_\_\_  
 LENGTH OF STREAM REACH (ft): 200 LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE: \_\_\_\_\_  
 DATE: 03/22/16 SCORER: MDT/BCR COMMENTS: Perennial

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

STREAM CHANNEL: ☐ NONE / NATURAL CHANNEL ☒ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY  
 MODIFICATIONS: ATV bridge over channel

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pts]	20%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	0%
<input type="checkbox"/> BEDROCK [16 pts]	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 pts]	0%
<input type="checkbox"/> GRAVEL (2-64 mm) [8 pts]	70%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [8 pts]	10%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Blot Slabs, Boulder, Cobble, Bedrock: 0.00% (A) 12 (B) 3  
 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 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 [10 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 (inches): 10

**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" - 4' 8") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	

COMMENTS: \_\_\_\_\_ AVERAGE BANKFULL WIDTH (Feet): 4.00

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
<input type="checkbox"/> Wide >10m	<input type="checkbox"/> Most Predominant per Bank
<input type="checkbox"/> Moderate 5-10m	<input type="checkbox"/> Mature Forest, Wetland
<input type="checkbox"/> Narrow <5m	<input type="checkbox"/> Immature Forest, Shrub or Old Field
<input type="checkbox"/> None	<input type="checkbox"/> Residential, Park, New Field
<input type="checkbox"/> None	<input type="checkbox"/> Fenced Pasture

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

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Most 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 type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

<input type="checkbox"/> Flat (0.5 m/100 ft)	<input type="checkbox"/> Flat to Moderate	<input checked="" type="checkbox"/> Moderate (2 m/100 ft)	<input type="checkbox"/> Moderate to Severe	<input type="checkbox"/> Severe (>2 m/100 ft)
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PWH Form Page - 1

Stream 44

HH-MDT-032216-16

## 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: \_\_\_\_\_  
 CWN 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: Athens Township: \_\_\_\_\_ City: \_\_\_\_\_

## MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: \_\_\_\_\_ Quantity: 0.00Photograph Information: 2 Photos Upstream and DownstreamElevated Turbidity? (Y/N) N Canopy (% open) 75%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 surrounded by anthropogenic disturbance. Primarily atv trail and a food plot.

## 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) NFrogs 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

FLOW →

Stream surrounded by anthropogenic disturbance. Primarily atv trail and a food plot.

ATV Trails and Bridge

Food Plot

PWH Form Page - 2

Stream 45

Mod. Class 3

HH-AD7-03214-08

Stream 45

HH-AD7-03214-08

# **OhioEPA** Primary Headwater Habitat Evaluation Form

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

14

SITE NAME/LOCATION: Headwater Forest  
 SITE NUMBER: 001 RIVER BASIN: 001 DRAINAGE AREA (mi<sup>2</sup>): 0.1  
 LENGTH OF STREAM REACH (ft): 100 LAT: 40° 15' N LONG: 82° 30' W RIVER CODE: 001 RIVER MILE: 0.1  
 DATE: 03/21/08 SCORER: 001 COMMENTS: Equivalent  
 NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWW Streams" for Instructions  
 STREAM CHANNEL: ☐ NONE / NATURAL CHANNEL ☒ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY  
 MODIFICATIONS: Trans. Line ROW construction (historic)

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY <u>two</u> predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B)				HHEI Metric Points			
TYPE	PERCENT	TYPE	PERCENT	Substrate Max = 40	A + B		
<input type="checkbox"/> BLDR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)				7	7
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)					
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)					
<input type="checkbox"/> COBBLE (65-256 mm) (16 pts)		<input type="checkbox"/> CLAY or HARDPAN (3 pts)					
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)		<input type="checkbox"/> MUCK (3 pts)					
<input type="checkbox"/> SAND (<2 mm) (8 pts)		<input type="checkbox"/> ARTIFICIAL (3 pts)					
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock				(A) 6	(B) 3		
SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES:				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 head culverts or stormwater pipes). (Check ONLY one box)  
☐ > 30 centimeters (10 pts)  
☐ > 22.5 - 30 cm (10 pts)  
☐ > 10 - 22.5 cm (25 pts)  
☒ NO WATER OR MOIST CHANNEL (0 pts)  
 COMMENTS: None MAXIMUM POOL DEPTH (meters): 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements). (Check ONLY one box):  
☐ > 4.0 meters (> 13') (10 pts)  
☐ > 3.0 - 4.0 m (> 9' 7" - 13') (25 pts)  
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") (20 pts)  
☒ < 1.0 m (< 3' 3" - 4' 8") (15 pts)  
☒ < 1.0 m (< 3' 3" - 4' 8") (15 pts)  
 COMMENTS: None AVERAGE BANK FULL WIDTH (meters): 1.5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY: NOTE: River Left (L) and Right (R) as looking downstream  
 RIPARIAN WIDTH (Per Bank): Wide > 10m  
☐ Moderate 5-10m  
☐ Narrow < 5m  
☐ None  
 COMMENTS: None  
 FLOODPLAIN QUALITY (Most Predominant per Bank):  
☐ Mature Forest, Wetland  
☒ Immature Forest, Shrub or Old Field  
☐ Residential, Park, New Field  
☐ Fenced Pasture  
☐ Conservation Tillage  
☐ Urban or Industrial  
☐ Open Pasture, Row Crop  
☐ Mining or Construction  
 FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  
☐ Stream Flowing  
☐ Subsurface flow with isolated pools (intermittent)  
☒ Most Channel, isolated pools, no flow (intermittent)  
☒ Dry channel, no water (ephemeral)  
 COMMENTS: None  
 SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  
☐ None  
☐ 0.5  
☐ 1.0  
☐ 1.5  
☐ 2.0  
☐ 2.5  
☐ 3.0  
☐ > 3  
 STREAM GRADIENT ESTIMATE  
☐ Flat (< 5 m/m)  
☐ Flat to Moderate  
☐ Moderate (> 5 m/m)  
☐ Moderate to Severe  
☐ Severe (> 10 m/m)

PHWW Form Page - 1

## ADDITIONAL STREAM INFORMATION (This information Must Also be Completed)

QHEI PERFORMED? ☐ Yes ☒ No QHEI Score: 0 (If Yes, Attach Completed QHEI Form)  
 DOWNSTREAM DESIGNATED USE(S):  
☐ VWH Name: None Distance from Evaluated Stream: 0  
☐ CWM Name: None Distance from Evaluated Stream: 0  
☐ EWH Name: None Distance from Evaluated Stream: 0  
 MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION  
 USGS Quadrangle Name: None NRCS Soil Map Page: None NRCS Soil Map Stream Order: None  
 County: None Township: None

### MISCELLANEOUS

Base Flow Conditions? (Y/N) Y Date of last precipitation: 03/21/08 Quantity: 7  
 Photograph Information: 2 Photos, Upstream & Downstream  
 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: None  
 Field Measures: Temp (°C): None Dissolved Oxygen (mg/L): None pH (S.U.): None Conductivity (umhos/cm): None  
 Is the sampling reach representative of the stream (Y/N) Y If not, please explain: None

Additional comments/narrative of pollution impacts: None

### BIOTIC EVALUATION

Performed? (Y/N) N (If Yes, Record all observations. Voucher collection 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 Toads Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N  
 Comments Regarding Biology: None

### 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

Drawing showing stream reach with landmarks: Head, Flow, young Growth, PP, Growth.  
 FLOW →

PHWW Form Page - 2

Stream 46

Mod. Class 2

HH-AD7-03216-07

Stream 46

HH-AD7-03216-07

# **OhioEPA** Primary Headwater Habitat Evaluation Form

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

13

SITE NAME/LOCATION: Headwater Forest  
 SITE NUMBER: 001 RIVER BASIN: 001 DRAINAGE AREA (mi<sup>2</sup>): 0.1  
 LENGTH OF STREAM REACH (ft): 100 LAT: 40° 15' N LONG: 82° 30' W RIVER CODE: 001 RIVER MILE: 0.1  
 DATE: 04/01/08 SCORER: 001 COMMENTS: Equivalent  
 NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWW Streams" for Instructions  
 STREAM CHANNEL: ☐ NONE / NATURAL CHANNEL ☒ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY  
 MODIFICATIONS: atv trails at stream head

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY <u>two</u> predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B)				HHEI Metric Points			
TYPE	PERCENT	TYPE	PERCENT	Substrate Max = 40	A + B		
<input type="checkbox"/> BLDR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)				8	8
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)					
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)					
<input type="checkbox"/> COBBLE (65-256 mm) (16 pts)		<input type="checkbox"/> CLAY or HARDPAN (3 pts)					
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)		<input type="checkbox"/> MUCK (3 pts)					
<input type="checkbox"/> SAND (<2 mm) (8 pts)		<input type="checkbox"/> ARTIFICIAL (3 pts)					
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock				(A) 6	(B) 2		
SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES:				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 stormwater pipes). (Check ONLY one box)  
☐ > 30 centimeters (10 pts)  
☐ > 22.5 - 30 cm (10 pts)  
☐ > 10 - 22.5 cm (25 pts)  
☒ NO WATER OR MOIST CHANNEL (0 pts)  
 COMMENTS: None MAXIMUM POOL DEPTH (meters): 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements). (Check ONLY one box):  
☐ > 4.0 meters (> 13') (10 pts)  
☐ > 3.0 - 4.0 m (> 9' 7" - 13') (25 pts)  
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") (20 pts)  
☒ < 1.0 m (< 3' 3" - 4' 8") (15 pts)  
☒ < 1.0 m (< 3' 3" - 4' 8") (15 pts)  
 COMMENTS: None AVERAGE BANK FULL WIDTH (meters): 1.5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY: NOTE: River Left (L) and Right (R) as looking downstream  
 RIPARIAN WIDTH (Per Bank): Wide > 10m  
☐ Moderate 5-10m  
☐ Narrow < 5m  
☐ None  
 COMMENTS: None  
 FLOODPLAIN QUALITY (Most Predominant per Bank):  
☐ Mature Forest, Wetland  
☒ Immature Forest, Shrub or Old Field  
☐ Residential, Park, New Field  
☐ Fenced Pasture  
☐ Conservation Tillage  
☐ Urban or Industrial  
☐ Open Pasture, Row Crop  
☐ Mining or Construction  
 FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  
☐ Stream Flowing  
☐ Subsurface flow with isolated pools (intermittent)  
☒ Most Channel, isolated pools, no flow (intermittent)  
☒ Dry channel, no water (ephemeral)  
 COMMENTS: None  
 SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  
☐ None  
☐ 0.5  
☐ 1.0  
☐ 1.5  
☐ 2.0  
☐ 2.5  
☐ 3.0  
☐ > 3  
 STREAM GRADIENT ESTIMATE  
☐ Flat (< 5 m/m)  
☐ Flat to Moderate  
☐ Moderate (> 5 m/m)  
☐ Moderate to Severe  
☐ Severe (> 10 m/m)

PHWW Form Page - 1

## ADDITIONAL STREAM INFORMATION (This information Must Also be Completed)

QHEI PERFORMED? ☐ Yes ☒ No QHEI Score: 0 (If Yes, Attach Completed QHEI Form)  
 DOWNSTREAM DESIGNATED USE(S):  
☐ VWH Name: None Distance from Evaluated Stream: 0  
☐ CWM Name: None Distance from Evaluated Stream: 0  
☐ EWH Name: None Distance from Evaluated Stream: 0  
 MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION  
 USGS Quadrangle Name: None NRCS Soil Map Page: None NRCS Soil Map Stream Order: None  
 County: None Township: None

### MISCELLANEOUS

Base Flow Conditions? (Y/N) Y Date of last precipitation: 04/01/08 Quantity: 7  
 Photograph Information: 2 Photos, Upstream & Downstream  
 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: None  
 Field Measures: Temp (°C): None Dissolved Oxygen (mg/L): None pH (S.U.): None Conductivity (umhos/cm): None  
 Is the sampling reach representative of the stream (Y/N) Y If not, please explain: None

Additional comments/narrative of pollution impacts: None

### BIOTIC EVALUATION

Performed? (Y/N) N (If Yes, Record all observations. Voucher collection 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 Toads Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N  
 Comments Regarding Biology: None

### 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

Drawing showing stream reach with landmarks: atv trails, Flow, young Growth, PP, Growth.  
 FLOW →

PHWW Form Page - 2

Stream 47

Class 2

Stream 47



## Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): 24

SITE NAME/LOCATION: Rocky Creek SITE NUMBER: 100-10 RIVER BASIN: 100-10 DRAINAGE AREA (mi<sup>2</sup>): 100  
 LENGTH OF STREAM REACH (ft): 200 LAT: 40° 10' N LONG: 80° 10' W RIVER CODE: 100-10 RIVER MILE: 100  
 DATE: 22 Nov 2004 COMMENTS: PCB

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

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

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLOR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (0 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)		<input type="checkbox"/> MUCK (0 pts)	
<input type="checkbox"/> SAND (<2 mm) (8 pts)		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Blor Slabs, Boulder, Cobble, Bedrock: 15 (A) 9 (B) 24  
 SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES: 24 TOTAL NUMBER OF SUBSTRATE TYPES: 8

**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 (10 pts)	<input type="checkbox"/> < 5 cm (5 pts)
<input type="checkbox"/> > 10 - 22.5 cm (2.5 pts)	<input type="checkbox"/> NO WATER OR MOIST CHANNEL (0 pts)

COMMENTS: MAXIMUM POOL DEPTH (centimeters): 15

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

<input type="checkbox"/> > 4.0 meters (> 13') (20 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') (15 pts)	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") (15 pts)
<input type="checkbox"/> > 1.5 m - 3.0 m (> 4' 8" - 9' 7") (10 pts)	

COMMENTS: AVERAGE BANKFULL WIDTH (meters): 1.5

HHEI Metric Points

Substrate

Max = 40

15

A + B

24

Pool Depth

Max = 20

15

Bankfull Width

Max = 20

15

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Stream 49

Class 2

Stream 49

11/10/11 3:00 PM

## OhioEPA Primary Headwater Habitat Evaluation Form

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

13

SITE NAME/LOCATION: 217 Road SITE NUMBER: 107 RIVER BASIN: 107 DRAINAGE AREA (mi<sup>2</sup>): 107  
 LENGTH OF STREAM REACH (ft): 220 LAT: 40° 10' N LONG: 82° 10' W RIVER CODE: 107 RIVER MILE: 107  
 DATE: 11/10/11 SCORER: MD, RCE COMMENTS: 107

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

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

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)		<input checked="" type="checkbox"/> SILT (3 pts)	36
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]		<input type="checkbox"/> CLAY or HARDPAN (3 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) [8 pts]		<input type="checkbox"/> MUCK (3 pts)	
<input type="checkbox"/> SAND (<2 mm) [8 pts]		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0 (A) 0 (B) 36  
 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 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.)  
☐ > 30 centimeters [20 pts] ☐ > 5 cm - 10 cm [15 pts] ☐ < 5 cm [5 pts] ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: 107 MAXIMUM POOL DEPTH (centimeters): 107

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements). (Check ONLY one box):  
☐ > 4.0 meters (> 13') [20 pts] ☐ > 1.0 m - 1.5 m (> 3' - 4' 8") [15 pts] ☐ < 1.0 m (< 3' 3") [5 pts]

COMMENTS: 107 AVERAGE BANKFULL WIDTH (meters): 107

HHEI Metric Points

Substrate Max = 40

A + B

Pool Depth Max = 30

BANKFULL WIDTH Max = 30

BANKFULL WIDTH Max = 30

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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):  
☐ WW: 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) Y Date of last precipitation: 11/10/11 Quantity: 107Photograph Information: 107Elevated Turbidity? (Y/N) N Canopy (% open): 5Were samples collected for water chemistry? (Y/N) 107 (Indicate sample no. or ID and attach results) Lab Number: 107

Field Measures: Temp (°C): Dissolved Oxygen (mg/L): pH (SU): Conductivity (µmhos/cm):

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

Additional comments (e.g., 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) Y Voucher? (Y/N) Y Salamanders Observed? (Y/N) Y Voucher? (Y/N) YFrogs or Toads Observed? (Y/N) Y Voucher? (Y/N) Y Aquatic Macroinvertebrates Observed? (Y/N) Y Voucher? (Y/N) Y

Comments Regarding Bioty:

## 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



PFWH Form Page 3

Stream 50

Class 2

Stream 50

11/10/11 3:00 PM

## OhioEPA Primary Headwater Habitat Evaluation Form

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

35

SITE NAME/LOCATION: 217 Road SITE NUMBER: 107 RIVER BASIN: 107 DRAINAGE AREA (mi<sup>2</sup>): 107  
 LENGTH OF STREAM REACH (ft): 220 LAT: 40° 10' N LONG: 82° 10' W RIVER CODE: 107 RIVER MILE: 107  
 DATE: 11/10/11 SCORER: MD, RCE COMMENTS: 107

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

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

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)		<input checked="" type="checkbox"/> SILT (3 pts)	36
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]		<input type="checkbox"/> CLAY or HARDPAN (3 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) [8 pts]		<input type="checkbox"/> MUCK (3 pts)	
<input type="checkbox"/> SAND (<2 mm) [8 pts]		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0 (A) 0 (B) 36  
 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 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.)  
☐ > 30 centimeters [20 pts] ☐ > 5 cm - 10 cm [15 pts] ☐ < 5 cm [5 pts] ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: 107 MAXIMUM POOL DEPTH (centimeters): 107

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements). (Check ONLY one box):  
☐ > 4.0 meters (> 13') [20 pts] ☐ > 1.0 m - 1.5 m (> 3' - 4' 8") [15 pts] ☐ < 1.0 m (< 3' 3") [5 pts]

COMMENTS: 107 AVERAGE BANKFULL WIDTH (meters): 107

HHEI Metric Points

Substrate Max = 40

A + B

Pool Depth Max = 30

BANKFULL WIDTH Max = 30

BANKFULL WIDTH Max = 30

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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):  
☐ WW: 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) Y Date of last precipitation: 11/10/11 Quantity: 107Photograph Information: 107Elevated Turbidity? (Y/N) N Canopy (% open): 5Were samples collected for water chemistry? (Y/N) 107 (Indicate sample no. or ID and attach results) Lab Number: 107

Field Measures: Temp (°C): Dissolved Oxygen (mg/L): pH (SU): Conductivity (µmhos/cm):

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

Additional comments (e.g., 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) Y Voucher? (Y/N) Y Salamanders Observed? (Y/N) Y Voucher? (Y/N) YFrogs or Toads Observed? (Y/N) Y Voucher? (Y/N) Y Aquatic Macroinvertebrates Observed? (Y/N) Y Voucher? (Y/N) Y

Comments Regarding Bioty:

## 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



PFWH Form Page 3



Stream 51 Class 1

# Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **20**

SITE NAME/LOCATION: W. and Hope - 1st Line RIVER BASIN: 14 DRAINAGE AREA (mi<sup>2</sup>): 14

LENGTH OF STREAM REACH (ft): 22 LAT: 42° 16' 10" N LONG: 82° 56' 10" W RIVER CODE: 14 RIVER MILE: 14

DATE: 03/22/16 SCORER: MDT/BCR COMMENTS: Perennial

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

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

MODIFICATIONS: ☐ Channel mostly undisturbed, yet evidence of historic transmission ROW construction evident.

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY Y for predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input checked="" type="checkbox"/> SILT [3 pts]	10%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	0%
<input type="checkbox"/> BEDROCK [16 pts]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> COBBLE (63-256 mm) [12 pts]	0%	<input type="checkbox"/> CLAY or HARDPAN [0 pts]	0%
<input type="checkbox"/> GRAVEL (2-64 mm) [8 pts]	20%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [8 pts]	80%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: **5.00%** (A) **6** (B) **11** A + B

SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES: **15** 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 drains). (Check ONLY Y one box.)

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

COMMENTS: Shallow MAXIMUM POOL DEPTH: 12 inches

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

☐ > 4.0 meters (> 13' [30 pts]) ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ☐ > 1.5 m - 3.0 m (> 4' 9" - 9' 7") [20 pts] ☐ < 1.5 m (< 4' 9" - 9' 7") [5 pts]

COMMENTS: Good AVERAGE BANKFULL WIDTH: 6.00 meters

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

**RIPARIAN WIDTH** (Per Bank)

L: ☐ Wide >10m ☐ Moderate 5-10m ☐ Narrow <5m ☐ None

R: ☐ Wide >10m ☐ Moderate 5-10m ☐ Narrow <5m ☐ None

**FLOODPLAIN QUALITY** (Most Predominant per Bank)

L: ☐ Mature Forest, Wetland ☐ Immature Forest, Shrub or Old Field ☐ Residential, Park, New Field ☐ Fenced Pasture

R: ☐ Mature Forest, Wetland ☐ Immature Forest, Shrub or Old Field ☐ Residential, Park, New Field ☐ Fenced Pasture

Conservation Tillage ☐ Urban or Industrial ☐ Open Pasture, Row Crop ☐ Mining or Construction

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

☐ Stream Flowing ☐ Subsurface flow with isolated pools (intermittent) ☐ Most Channel isolated pools, no flow (intermittent) ☐ Dry channel, no water (ephemeral)

COMMENTS: Intermittent

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

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

**STREAM GRADIENT ESTIMATE**

☐ Flat (< 5 m/100 ft) ☐ Flat to Moderate ☒ Moderate (2 m/100 ft) ☐ Moderate to Severe ☐ Severe (> 10 m/100 ft)

PHWH Form Page - 1

Stream 51

# Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **20**

SITE NAME/LOCATION: W. and Hope - 1st Line RIVER BASIN: 14 DRAINAGE AREA (mi<sup>2</sup>): 14

LENGTH OF STREAM REACH (ft): 22 LAT: 42° 16' 10" N LONG: 82° 56' 10" W RIVER CODE: 14 RIVER MILE: 14

DATE: 03/22/16 SCORER: MDT/BCR COMMENTS: Perennial

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

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

MODIFICATIONS: ☐ Channel mostly undisturbed, yet evidence of historic transmission ROW construction evident.

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY Y for predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input checked="" type="checkbox"/> SILT [3 pts]	10%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	0%
<input type="checkbox"/> BEDROCK [16 pts]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> COBBLE (63-256 mm) [12 pts]	0%	<input type="checkbox"/> CLAY or HARDPAN [0 pts]	0%
<input type="checkbox"/> GRAVEL (2-64 mm) [8 pts]	20%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [8 pts]	80%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: **5.00%** (A) **6** (B) **11** A + B

SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES: **15** 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 drains). (Check ONLY Y one box.)

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

COMMENTS: Shallow MAXIMUM POOL DEPTH: 12 inches

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

☐ > 4.0 meters (> 13' [30 pts]) ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ☐ > 1.5 m - 3.0 m (> 4' 9" - 9' 7") [20 pts] ☐ < 1.5 m (< 4' 9" - 9' 7") [5 pts]

COMMENTS: Good AVERAGE BANKFULL WIDTH: 6.00 meters

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

**RIPARIAN WIDTH** (Per Bank)

L: ☐ Wide >10m ☐ Moderate 5-10m ☐ Narrow <5m ☐ None

R: ☐ Wide >10m ☐ Moderate 5-10m ☐ Narrow <5m ☐ None

**FLOODPLAIN QUALITY** (Most Predominant per Bank)

L: ☐ Mature Forest, Wetland ☐ Immature Forest, Shrub or Old Field ☐ Residential, Park, New Field ☐ Fenced Pasture

R: ☐ Mature Forest, Wetland ☐ Immature Forest, Shrub or Old Field ☐ Residential, Park, New Field ☐ Fenced Pasture

Conservation Tillage ☐ Urban or Industrial ☐ Open Pasture, Row Crop ☐ Mining or Construction

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

☐ Stream Flowing ☐ Subsurface flow with isolated pools (intermittent) ☐ Most Channel isolated pools, no flow (intermittent) ☐ Dry channel, no water (ephemeral)

COMMENTS: Intermittent

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

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

**STREAM GRADIENT ESTIMATE**

☐ Flat (< 5 m/100 ft) ☐ Flat to Moderate ☒ Moderate (2 m/100 ft) ☐ Moderate to Severe ☐ Severe (> 10 m/100 ft)

PHWH Form Page - 1

Stream 52

# Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **69**

SITE NAME/LOCATION: AEP Good Hope - Poston TLine, HH-MDT-032216-17 RIVER BASIN: 17 DRAINAGE AREA (mi<sup>2</sup>): 17

LENGTH OF STREAM REACH (ft): 200 LAT: 42° 16' 10" N LONG: 82° 56' 10" W RIVER CODE: 17 RIVER MILE: 17

DATE: 03/22/16 SCORER: MDT/BCR COMMENTS: Perennial

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

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

MODIFICATIONS: ☐ Channel mostly undisturbed, yet evidence of historic transmission ROW construction evident.

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY Y for predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pts]	10%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	0%
<input type="checkbox"/> BEDROCK [16 pts]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> COBBLE (63-256 mm) [12 pts]	0%	<input type="checkbox"/> CLAY or HARDPAN [0 pts]	0%
<input type="checkbox"/> GRAVEL (2-64 mm) [8 pts]	20%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [8 pts]	80%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: **5.00%** (A) **6** (B) **11** A + B

SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES: **15** 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 drains). (Check ONLY Y one box.)

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

COMMENTS: Shallow MAXIMUM POOL DEPTH: 12 inches

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

☐ > 4.0 meters (> 13' [30 pts]) ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ☐ > 1.5 m - 3.0 m (> 4' 9" - 9' 7") [20 pts] ☐ < 1.5 m (< 4' 9" - 9' 7") [5 pts]

COMMENTS: Good AVERAGE BANKFULL WIDTH: 6.00 meters

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

**RIPARIAN WIDTH** (Per Bank)

L: ☐ Wide >10m ☐ Moderate 5-10m ☐ Narrow <5m ☐ None

R: ☐ Wide >10m ☐ Moderate 5-10m ☐ Narrow <5m ☐ None

**FLOODPLAIN QUALITY** (Most Predominant per Bank)

L: ☐ Mature Forest, Wetland ☐ Immature Forest, Shrub or Old Field ☐ Residential, Park, New Field ☐ Fenced Pasture

R: ☐ Mature Forest, Wetland ☐ Immature Forest, Shrub or Old Field ☐ Residential, Park, New Field ☐ Fenced Pasture

Conservation Tillage ☐ Urban or Industrial ☐ Open Pasture, Row Crop ☐ Mining or Construction

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

☐ Stream Flowing ☐ Subsurface flow with isolated pools (intermittent) ☐ Most Channel isolated pools, no flow (intermittent) ☐ Dry channel, no water (ephemeral)

COMMENTS: Intermittent

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

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

**STREAM GRADIENT ESTIMATE**

☐ Flat (< 5 m/100 ft) ☐ Flat to Moderate ☒ Moderate (2 m/100 ft) ☐ Moderate to Severe ☐ Severe (> 10 m/100 ft)

PHWH Form Page - 1

Stream 52

# Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **69**

SITE NAME/LOCATION: AEP Good Hope - Poston TLine, HH-MDT-032216-17 RIVER BASIN: 17 DRAINAGE AREA (mi<sup>2</sup>): 17

LENGTH OF STREAM REACH (ft): 200 LAT: 42° 16' 10" N LONG: 82° 56' 10" W RIVER CODE: 17 RIVER MILE: 17

DATE: 03/22/16 SCORER: MDT/BCR COMMENTS: Perennial

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

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

MODIFICATIONS: ☐ Channel mostly undisturbed, yet evidence of historic transmission ROW construction evident.

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY Y for predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> SILT [3 pts]	10%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	0%
<input type="checkbox"/> BEDROCK [16 pts]	0%	<input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> COBBLE (63-256 mm) [12 pts]	0%	<input type="checkbox"/> CLAY or HARDPAN [0 pts]	0%
<input type="checkbox"/> GRAVEL (2-64 mm) [8 pts]	20%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [8 pts]	80%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: **5.00%** (A) **6** (B) **11** A + B

SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES: **15** 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 drains). (Check ONLY Y one box.)

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

COMMENTS: Shallow MAXIMUM POOL DEPTH: 12 inches

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

☐ > 4.0 meters (> 13' [30 pts]) ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ☐ > 1.5 m - 3.0 m (> 4' 9" - 9' 7") [20 pts] ☐ < 1.5 m (< 4' 9" - 9' 7") [5 pts]

COMMENTS: Good AVERAGE BANKFULL WIDTH: 6.00 meters

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

**RIPARIAN WIDTH** (Per Bank)

L: ☐ Wide >10m ☐ Moderate 5-10m ☐ Narrow <5m ☐ None

R: ☐ Wide >10m ☐ Moderate 5-10m ☐ Narrow <5m ☐ None

**FLOODPLAIN QUALITY** (Most Predominant per Bank)

L: ☐ Mature Forest, Wetland ☐ Immature Forest, Shrub or Old Field ☐ Residential, Park, New Field ☐ Fenced Pasture

R: ☐ Mature Forest, Wetland ☐ Immature Forest, Shrub or Old Field ☐ Residential, Park, New Field ☐ Fenced Pasture

Conservation Tillage ☐ Urban or Industrial ☐ Open Pasture, Row Crop ☐ Mining or Construction

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

☐ Stream Flowing ☐ Subsurface flow with isolated pools (intermittent) ☐ Most Channel isolated pools, no flow (intermittent) ☐ Dry channel, no water (ephemeral)

COMMENTS: Intermittent

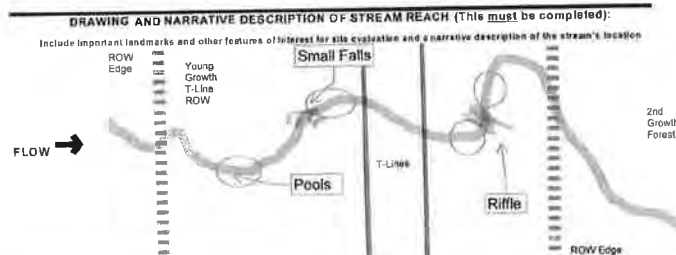
**SINUOSITY** (Number of bends per 61 m (200 ft) of channel). (Check ONLY Y one box.)

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

**STREAM GRADIENT ESTIMATE**

☐ Flat (< 5 m/100 ft) ☐ Flat to Moderate ☒ Moderate (2 m/100 ft) ☐ Moderate to Severe ☐ Severe (> 10 m/100 ft)

PHWH Form Page - 1



Stream 53

Mod. Class 1

HH-BAE-032216-05

Stream 53

HH-BAE-032216-15

# **Ohio EPA** Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3): **15**

SITE NAME/LOCATION: 1-A High Bridge  
 SITE NUMBER: 015 RIVER BASIN: \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>): \_\_\_\_\_  
 LENGTH OF STREAM REACH (ft): 200 ft LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE: \_\_\_\_\_  
 DATE: 3/16/15 SCORER: DAE/BAE COMMENTS: Reconstruction  
 NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWHV Streams" for Instructions  
 STREAM CHANNEL: ☐ NONE / NATURAL CHANNEL ☒ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY  
 MODIFICATIONS: Trans. Row Construction (historic)

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLOR SLABS (10 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACKWOODY DEBRIS (3 pts)	35
<input type="checkbox"/> BEDROCK (16 pts)	5	<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]		<input type="checkbox"/> CLAY or HARDPAN (0 pts)	
<input type="checkbox"/> GRAVEL (2.4 mm) [8 pts]		<input type="checkbox"/> MUCK (0 pts)	60
<input type="checkbox"/> SAND (<2 mm) [8 pts]		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bed Slabs, Boulder, Cobble, Bedrock: 5 (A) 3 (B) 3  
 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 [10 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 15 - 22.5 cm [5 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): 2'

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

<input type="checkbox"/> > 4.0 meters (> 13') [20 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [10 pts]	<input type="checkbox"/> < 1.0 m (< 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [5 pts]	

COMMENTS: \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): 2'

This information must also be completed. NOTE: River Left (L) and Right (R) as looking downstream.

RIPARIAN ZONE AND FLOODPLAIN QUALITY

RIPARIAN ZONE		FLOODPLAIN QUALITY	
L	R	L	R
<input checked="" type="checkbox"/> Wide > 10m	<input type="checkbox"/> (Per Bank)	<input type="checkbox"/> Mature Forest, Wetland	<input type="checkbox"/> Conservation Tillage
<input type="checkbox"/> Moderate 5-10m	<input checked="" type="checkbox"/> (Most Predominant per Bank)	<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 type="checkbox"/> Mining or Construction
<input type="checkbox"/> None	<input type="checkbox"/> Fenced Pasture		

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 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

<input type="checkbox"/> Flat (< 1:100 ft)	<input type="checkbox"/> Flat to Moderate	<input type="checkbox"/> Moderate (> 1:100 ft)	<input checked="" type="checkbox"/> Moderate to Severe	<input type="checkbox"/> Severe (> 1:50 ft)
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PWHV Form Page 1

## 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	Distance from Evaluated Stream
<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) N Date of last precipitation: Spring 2014 Quantity: \_\_\_\_\_

Photograph information: 2 Photos, Hypsometer + Barometer

Elevated Turbidity? (Y/N) N Canopy (% open): 15

Were samples collected for water chemistry? (Y/N) N (If Yes, include sample no. w/ all attach results) Lab Number: \_\_\_\_\_

Field Measures: Temp (°C): \_\_\_\_\_ Dissolved Oxygen (mg/l): \_\_\_\_\_ pH (± 0.1): \_\_\_\_\_ Conductivity (µmhos/cm): \_\_\_\_\_

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

Additional comments/description of pollution impacts: N/A

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 Bioty: \_\_\_\_\_

## 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 →

Hand-drawn sketch of the stream reach showing flow direction and landmarks.

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HH-BAE-032216-05

Class 1

Stream 5H

Stream 5H

# **Ohio EPA** Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3): **22**

SITE NAME/LOCATION: GA-Bellows  
 SITE NUMBER: 05 RIVER BASIN: \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>): \_\_\_\_\_  
 LENGTH OF STREAM REACH (ft): \_\_\_\_\_ LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE: \_\_\_\_\_  
 DATE: 3/22/16 SCORER: DAE/LCMS COMMENTS: ephemeral  
 NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWHV Streams" for Instructions  
 STREAM CHANNEL: ☒ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY  
 MODIFICATIONS: \_\_\_\_\_

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLOR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACKWOODY DEBRIS (3 pts)	36
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]		<input type="checkbox"/> CLAY or HARDPAN (0 pts)	
<input type="checkbox"/> GRAVEL (2.4 mm) [8 pts]	10	<input type="checkbox"/> MUCK (0 pts)	
<input type="checkbox"/> SAND (<2 mm) [8 pts]	10	<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bed Slabs, Boulder, Cobble, Bedrock: 20 (A) 9 (B) 3  
 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 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 [10 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 15 - 22.5 cm [5 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): 5

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

<input type="checkbox"/> > 4.0 meters (> 13') [20 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [10 pts]	<input type="checkbox"/> < 1.0 m (< 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [5 pts]	

COMMENTS: \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): 2'

This information must also be completed. NOTE: River Left (L) and Right (R) as looking downstream.

RIPARIAN ZONE AND FLOODPLAIN QUALITY

RIPARIAN ZONE		FLOODPLAIN QUALITY	
L	R	L	R
<input checked="" type="checkbox"/> Wide > 10m	<input type="checkbox"/> (Per Bank)	<input type="checkbox"/> Mature Forest, Wetland	<input type="checkbox"/> Conservation Tillage
<input type="checkbox"/> Moderate 5-10m	<input checked="" type="checkbox"/> (Most Predominant per Bank)	<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 type="checkbox"/> Mining or Construction
<input type="checkbox"/> None	<input type="checkbox"/> Fenced Pasture		

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 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 type="checkbox"/> > 3

STREAM GRADIENT ESTIMATE

<input type="checkbox"/> Flat (< 1:100 ft)	<input type="checkbox"/> Flat to Moderate	<input type="checkbox"/> Moderate (> 1:100 ft)	<input type="checkbox"/> Moderate to Severe	<input type="checkbox"/> Severe (> 1:50 ft)
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PWHV Form Page 1

## 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	Distance from Evaluated Stream
<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: 3/20/16 Quantity: \_\_\_\_\_

Photograph information: \_\_\_\_\_

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

Were samples collected for water chemistry? (Y/N) \_\_\_\_\_ (If Yes, include sample no. w/ all attach results) Lab Number: \_\_\_\_\_

Field Measures: Temp (°C): \_\_\_\_\_ Dissolved Oxygen (mg/l): \_\_\_\_\_ pH (± 0.1): \_\_\_\_\_ 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) 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 Bioty: \_\_\_\_\_

## 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

Hand-drawn sketch of the stream reach showing flow direction and landmarks. Includes labels: 333 RIFLES, ROW, POOL, WETLAND, WOODS, DEBRIS ROW, ROW, CL, ROW.

PWHV Form Page 2

Stream 55

## OhioEPA Primary Headwater Habitat Evaluation Form

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

27

SITENAME/LOCATION Gr - Acker  
W. side 03224.01 SITE NUMBER 04 RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (sq)  
 LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT \_\_\_\_\_ LONG \_\_\_\_\_ RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_  
 DATE 3/22/16 SCORE BAE/MS COMMENTS enhancement

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

STREAM CHANNEL ☒ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

MODIFICATIONS:

<b>1. SUBSTRATE</b> (Estimate percent of every type of substrate present. Check ONLY <u>two</u> predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Sum of 2). Final metric score is sum of boxes A & B.			
TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]		<input type="checkbox"/> SILT [3 pt]	
<input type="checkbox"/> BOULDER (>25 mm) [16 pts]		<input type="checkbox"/> LEAF PACKWOODY DEBRIS [3 pts]	
<input type="checkbox"/> BEDROCK [16 pt]		<input type="checkbox"/> FINE DETRITUS [16 pts]	
<input type="checkbox"/> COBBLE (5-25 mm) [12 pts]		<input type="checkbox"/> CLAY or MUD SPAN [0 pt]	
<input type="checkbox"/> GRAVEL (>4 mm) [8 pts]	100	<input type="checkbox"/> MUCK [10 pts]	
<input checked="" type="checkbox"/> SAND (<2 mm) [8 pts]	40	<input type="checkbox"/> ARTIFICIAL [3 pts]	

Total of Percentages of  
Bldg debris, Boulder, Cobble, Bedrock

(A) 15

(B) 2

**SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES:**

---

**2. Maximum Pool Depth** (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunging pools (bottom is currents or underwater weirs). (Check ONLY one box)

☐ > 30 centimeters [20 pts]  
☐ > 25 - 30 cm [10 pts]  
☐ > 10 - 25 cm [5 pts]  
☐ NO WATER OR NO MUST CHANNEL [0 pts]

1"

5

**COMMENTS:**

**MAXIMUM POOL DEPTH (centimeters):**

---

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

☐ > 4.0 meters (> 12') [30 pts]  
☐ > 3.0 - 4.0 m (> 9' - 12') [15 pts]  
☐ > 1.5 - 3.0 m (> 4' - 9') [10 pts]

2

5

**COMMENTS:**

**AVERAGE BANKFULL WIDTH (meters)**

This information must also be completed

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

RIPARIAN WIDTH		FLOODPLAIN QUALITY	
L	R	L	R
<input type="checkbox"/> (Per Bank)	<input checked="" type="checkbox"/> (Per Bank)	<input checked="" type="checkbox"/> Mature Forest, Wetland	<input type="checkbox"/> Conservation Tillage
<input type="checkbox"/> Wide >10m	<input type="checkbox"/> Moderate 5-10m	<input 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** (All Time of Evaluation) (Check ONLY 1 one box)

☒ Stream Flowing ☐ Most Channel, moist pools, no flow (intermittent)

☐ Subsurface flow with isolated pools (interstitial) ☐ Dry channel, no water (Epheermal)

**COMMENTS**

---

**BINDUOSITY** (Number of bends per 61 m (200 ft) of channel) (Check ONLY 1 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 (2.0/100) ☐ Flat to Moderate ☐ Moderate to Steep (2.0/100) ☒ Moderate to Severe ☐ Severe (12.0/100)

PHWH Form Page - 1

Stream 56

## Ohio EPA Primary Headwater Habitat Evaluation Form

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

42

SITE NAME/LOCATION INSTANT-6000000

SITE NUMBER \_\_\_\_\_ RIVER BASIN \_\_\_\_\_ DRAINAGE AREA (m<sup>2</sup>) \_\_\_\_\_

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT \_\_\_\_\_ LONG \_\_\_\_\_ RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE 3/22/16 SCORER BAE/KMS COMMENTS Intermittent

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

STREAM CHANNEL ☒ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

MODIFICATIONS:

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY 2 predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found. Check ONLY 2 pool predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found. Check ONLY 2 Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> SILT	<input type="checkbox"/> 10	<input type="checkbox"/> SILT (3-5 pts)	<input type="checkbox"/> 20
<input type="checkbox"/> RILOR SLABG (16 pts)	<input type="checkbox"/> 10	<input type="checkbox"/> LEAF DEBRITWUOY DEBRIS (3 pts)	<input type="checkbox"/> 20
<input type="checkbox"/> RICULORUOY (>250 mm) [16 pts]	<input type="checkbox"/> 10	<input type="checkbox"/> FINE DETRITUS (3 pts)	<input type="checkbox"/> 20
<input type="checkbox"/> BEDROCK (16 pts)	<input type="checkbox"/> 10	<input type="checkbox"/> CLAY or MARL/PAN (3 pts)	<input type="checkbox"/> 20
<input type="checkbox"/> COBBLES (<63-250 mm) [12 pts]	<input type="checkbox"/> 10	<input type="checkbox"/> MUCK (3 pts)	<input type="checkbox"/> 20
<input type="checkbox"/> GRAVEL (2-64 mm) [10 pts]	<input type="checkbox"/> 10	<input type="checkbox"/> ARTIFICIAL (3 pts)	<input type="checkbox"/> 20
<input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="checkbox"/> 10		

Total of Percentages of  
Silt, Slabs, Boulder, Cobble, Bedrock

(A) 9 (B) 3

SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES:

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 1 box below.)

<input type="checkbox"/> > 30 cm (12 pts)	<input type="checkbox"/> > 5 cm - 10 cm (3 pts)
<input type="checkbox"/> > 25 - 30 cm (10 pts)	<input type="checkbox"/> < 5 cm (3 pts)
<input type="checkbox"/> 10 - 25 cm (8 pts)	<input type="checkbox"/> NO WATER OR MOIST CHANNEL (0 pts)

COMMENT # 3 MAXIMUM POOL DEPTH (meters):

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

<input type="checkbox"/> > 6 meters (4) [20 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (3) - 4" - 8" [16 pts]
<input type="checkbox"/> > 3.6 - 4.0 m (4) - 8" - 12" [12 pts]	<input type="checkbox"/> > 1.0 m (< 3) [8 pts]
<input type="checkbox"/> > 1.8 - 3.0 m (4) - 8" - 2" [8 pts]	

COMMENT # 4 AVERAGE BANKFULL WIDTH (meters)

This information must also be completed

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

RIPARIAN ZONE AND FLOODPLAIN QUALITY		FLOODPLAIN QUALITY	
<b>RIPARIAN ZONE</b>		<b>FLOODPLAIN</b>	
L	R	L	R
Per Bank	Per Bank	Mature Forest, Wooded	
Width >10m		Immature Forest, Shrub or Old Field	
<input type="checkbox"/> Moderate 5-10m	<input type="checkbox"/>	Residential, Park New Field	<input type="checkbox"/>
<input type="checkbox"/> narrow <5m	<input type="checkbox"/>	Fenced Pasture	<input type="checkbox"/>
<input type="checkbox"/> None	<input type="checkbox"/>		
COMMENTS			
FLOW REGIME (At Time of Evaluation) (Check ONLY one box)			
Stream Flowing		<input type="checkbox"/> Mudd Channel, Isolated pools no flow (intermittent)	
Subsides face flow with isolated pools (intermittent)		<input type="checkbox"/> Dry channel, no water (ephemeral)	
COMMENTS			
SINUOSITY (Number of bends per 81 m [200 ft] of channel) (Check ONLY one box)			
None		<input type="checkbox"/> 3.0	
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
STREAM GRADIENT ESTIMATE			
<input type="checkbox"/> Flat (0.5-10%) <input type="checkbox"/> Flat to Moderate <input type="checkbox"/> Moderate to 1:1 (10-15%) <input type="checkbox"/> Moderate to Severe <input type="checkbox"/> Severe to Extreme			

PHWH Form Page - 1

Strano 55

**ADDITIONAL STREAM INFORMATION:** This information must also be furnished:

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 \_\_\_\_\_

☐ DWH Name \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

NOTES: 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 3/20/10 Quantity \_\_\_\_\_

Photograph Information \_\_\_\_\_

Elevated Turbidity? (Y/N) N Conductivity (µmhos/cm) 1076

Were samples collected for water chemistry? (Y/N) \_\_\_\_\_ (Indicate sample no. or id. and attach results) Lab Number \_\_\_\_\_

Field Measures Temp (°C) \_\_\_\_\_ Dissolved Oxygen (mg/l) \_\_\_\_\_ pH (5-14) \_\_\_\_\_ Conductivity (µmhos/cm) \_\_\_\_\_

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

#### BIOTIC EVALUATION

Performed? (Y/N) \_\_\_\_\_ (PVA: Record all observations. Voucher collection optional) NOTE: All voucher samples must be labeled with the site ID number. Include appropriate field data sheets for the Primary Herpetoreptile Habitat Assessment (Manual)

Fish Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_ Salamanders Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_  
 Frogs or Toads Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_ Aquatic Macroinvertebrates Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_

Comments: Field Site Biology

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

PRIST Form Page - 2

200'

Print Form Page - 2

Stream 56

**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 \_\_\_\_\_

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 ATHENS Township \_\_\_\_\_ City \_\_\_\_\_

## MISCELLANEOUS

Base Flow Considers? (Y/N)   L   Date of collection   3/20/16   Quantity           

**Photograph information**

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

Were samples collected for water chemistry? (Y/N)            (Circle lab sample no. or ID and attach results Lab Number           )

Field Measures    Temp (°C)            Dissolved Oxygen (mg/L)            pH (SU)            Conductivity (µmhos/cm)           

In the time to reach representative of the stream (min)            If not, please explain           

#### BIOTIC EVALUATION

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

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

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

**DRAWING AND NARRATIVE DESCRIPTION**  
 Includes important landmarks and other features of interest for site evaluation and a narrative description of the stream's location.

A hand-drawn sketch of a stream channel. On the left, a vertical line represents a boundary with three arrows pointing right towards the stream, labeled 'FLOW'. The stream channel is depicted with a winding path. Inside the channel, there are three small circles, each containing a cross. To the right of the channel, there are two more circles with crosses. At the far right, the channel ends at another vertical line with an arrow pointing right. The signature 'CL' is written in the bottom right corner.

**WILSON** *Journal of Planning Literature*

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HH-BAE-032316-01 Class 1 Stream 59

# Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **27**

SITE NAME/LOCATION: BAE-032316-01 SITE NUMBER: 01 RIVER BASIN: BAE DRAINAGE AREA (mi<sup>2</sup>): 0.1  
 LENGTH OF STREAM REACH (ft): 12 LAT: 41.23 LONG: 82.31 RIVER CODE: BAE RIVER MILE: 0.1  
 DATE: 3/22/16 SCORER: BAE/KMS COMMENTS: Intermittent

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

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

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDG SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACKWOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (63-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (0 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	<u>30</u>	<input type="checkbox"/> MUCK (0 pts)	
<input type="checkbox"/> SAND (<2 mm) (8 pts)	<u>70</u>	<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bldg Slabs, Boulder, Cobble, Bedrock: (A) 15 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 2  
 SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES: 15 + 2 = 17

**2. Maximum Pool Depth** (Measure the maximum pool depth within the 81 meter (260 ft) evaluation reach at the time of evaluation. Avoid plunge pools from small 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 (10 pts)	<input type="checkbox"/> < 5 cm (5 pts)
<input type="checkbox"/> > 10 - 22.5 cm (2.5 pts)	<input type="checkbox"/> NO WATER OR MOST CHANNEL (0 pts)

COMMENTS: MAXIMUM POOL DEPTH (centimeters): 2"

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

<input type="checkbox"/> > 4.0 meters (12) (20 pts)	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' - 4') (15 pts)
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' - 12') (25 pts)	<input type="checkbox"/> < 1.0 m (< 3' 3") (5 pts)
<input type="checkbox"/> > 1.5 m - 3.0 m (> 4' 9" - 9' 8") (20 pts)	

COMMENTS: AVERAGE BANKFULL WIDTH (meters): 2'

HHEI Metric Points  
 Substrate Max = 40  
 Pool Depth Max = 20  
 Bankfull Width Max = 20  
 A + B = 17

## 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) Y Date of last precipitation: 3/20/16 Quantity: \_\_\_\_\_  
 Photograph Information: \_\_\_\_\_  
 Elevation/Turbidity? (Y/N) N Canopy (% open): 10%  
 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 (5 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) N (If Yes, Record all observations. Voucher numbers 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) \_\_\_\_\_ Salamanders Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_  
 Frogs or Toads Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_ Aquatic Macroinvertebrates Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_  
 Comments Regarding Bioty: \_\_\_\_\_

## 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

PHWH Form Page - 2

HH-BAE-032216-01 Class 1 Stream 60

# Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **27**

SITE NAME/LOCATION: BAE-032216-01 SITE NUMBER: 01 RIVER BASIN: BAE DRAINAGE AREA (mi<sup>2</sup>): 0.1  
 LENGTH OF STREAM REACH (ft): 12 LAT: 41.23 LONG: 82.31 RIVER CODE: BAE RIVER MILE: 0.1  
 DATE: 3/22/16 SCORER: BAE/KMS COMMENTS: Intermittent

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

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

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDG SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACKWOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (63-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (0 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	<u>50</u>	<input type="checkbox"/> MUCK (0 pts)	
<input type="checkbox"/> SAND (<2 mm) (8 pts)	<u>50</u>	<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bldg Slabs, Boulder, Cobble, Bedrock: (A) 15 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 2  
 SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES: 15 + 2 = 17

**2. Maximum Pool Depth** (Measure the maximum pool depth within the 81 meter (260 ft) evaluation reach at the time of evaluation. Avoid plunge pools from small 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 (10 pts)	<input type="checkbox"/> < 5 cm (5 pts)
<input type="checkbox"/> > 10 - 22.5 cm (2.5 pts)	<input type="checkbox"/> NO WATER OR MOST CHANNEL (0 pts)

COMMENTS: MAXIMUM POOL DEPTH (centimeters): 2"

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

<input type="checkbox"/> > 4.0 meters (12) (20 pts)	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' - 4') (15 pts)
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' - 12') (25 pts)	<input type="checkbox"/> < 1.0 m (< 3' 3") (5 pts)
<input type="checkbox"/> > 1.5 m - 3.0 m (> 4' 9" - 9' 8") (20 pts)	

COMMENTS: AVERAGE BANKFULL WIDTH (meters): 3'

HHEI Metric Points  
 Substrate Max = 40  
 Pool Depth Max = 20  
 Bankfull Width Max = 20  
 A + B = 17

## 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: ATHENS Township/City: \_\_\_\_\_

MISCELLANEOUS  
 Base Flow Conditions? (Y/N) Y Date of last precipitation: 3/20/16 Quantity: \_\_\_\_\_  
 Photograph Information: \_\_\_\_\_  
 Elevation/Turbidity? (Y/N) N Canopy (% open): 10%  
 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 (5 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) N (If Yes, Record all observations. Voucher numbers 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) \_\_\_\_\_ Salamanders Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_  
 Frogs or Toads Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_ Aquatic Macroinvertebrates Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_  
 Comments Regarding Bioty: \_\_\_\_\_

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

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

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HW-PJR-032216-12 Mod. Class 2 Stream 61

# **Ohio EPA** Primary Headwater Habitat Evaluation Form

**HHEI Score (sum of metrics 1, 2, 3):** 36

**SITE NAME/LOCATION:** gill Perch

**SITE NUMBER:** HW-2016-12 **RIVER BASIN:** Hocking **DRAINAGE AREA (mi<sup>2</sup>):** \_\_\_\_\_

**LENGTH OF STREAM REACH (ft):** \_\_\_\_\_ **LAT:** \_\_\_\_\_ **LONG:** \_\_\_\_\_ **RIVER CODE:** \_\_\_\_\_ **RIVER MILE:** \_\_\_\_\_

**DATE:** 3/22/16 **SCORER:** PJR **COMMENTS:** Intermittent Stream

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

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

**MODIFICATIONS:** \_\_\_\_\_

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY 1 predominant substrate TYPE boxes. (Max of 40). Add total number of significant substrate types found (Max of 6). Final metric score is sum of boxes A & B.)

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLOR SLABS (16 pts)	_____	<input type="checkbox"/> SILT (3 pts)	_____
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)	_____	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	_____
<input type="checkbox"/> BEDROCK (16 pts)	_____	<input type="checkbox"/> FINE DETRITUS (3 pts)	_____
<input type="checkbox"/> COBBLE (63-256 mm) (12 pts)	_____	<input type="checkbox"/> CLAY or HARDPAN (3 pts)	_____
<input type="checkbox"/> GRAVEL (2-64 mm) (9 pts)	_____	<input type="checkbox"/> MUCK (3 pts)	_____
<input type="checkbox"/> SAND (<2 mm) (6 pts)	_____	<input type="checkbox"/> ARTIFICIAL (3 pts)	_____

Total of Percentages of Substrate Types: 12 (A) 4 (B) 16 (A+B)

**SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES:** \_\_\_\_\_

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

☐ > 30 centimeters (12 pts) ☐ > 5 cm - 10 cm (15 pts) ☐ > 10 m - 1.5 m (> 3' - 4' 8") (15 pts)

☐ > 22.5 - 30 cm (20 pts) ☐ < 5 cm (5 pts) ☐ 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.)

☐ > 4.0 meters (> 13' 0" pts) ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") (15 pts)

☐ > 3.0 m - 4.0 m (> 9' 8" - 13') (25 pts) ☐ < 1.0 m (< 3' 3") (5 pts)

☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 8") (20 pts)

**COMMENTS:** \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters):** 0.9

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

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

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

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

☐ Stream Flowing ☐ Subsurface flow with isolated pools (intermittent) ☐ Most Channel, isolated pools, no flow (intermittent) ☐ Dry channel, no water (ephemeral)

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

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

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

**7. STREAM GRADIENT ESTIMATE**

☐ Flat (< 0.5 m/m) ☐ Flat to Moderate ☐ Moderate to Severe ☒ Severe (> 1.0 m/m)

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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):** \_\_\_\_\_

**WWH Name:** \_\_\_\_\_ **Distance from Evaluated Stream:** \_\_\_\_\_

**CWH Name:** \_\_\_\_\_ **Distance from Evaluated Stream:** \_\_\_\_\_

**EWI 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):** 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 (5 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)

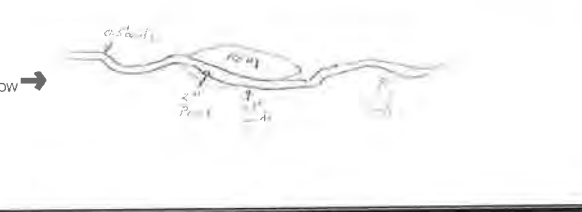
**Fish Observed?** (Y/N) N **Voucher?** (Y/N) N **Salamanders Observed?** (Y/N) N **Voucher?** (Y/N) N

**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**

**FLOW** → 

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HW-PJR-032216-13 Mod. Class 1 Stream 62

# **Ohio EPA** Primary Headwater Habitat Evaluation Form

**HHEI Score (sum of metrics 1, 2, 3):** 10

**SITE NAME/LOCATION:** gill Perch

**SITE NUMBER:** HW-2016-13 **RIVER BASIN:** Hocking **DRAINAGE AREA (mi<sup>2</sup>):** \_\_\_\_\_

**LENGTH OF STREAM REACH (ft):** \_\_\_\_\_ **LAT:** \_\_\_\_\_ **LONG:** \_\_\_\_\_ **RIVER CODE:** \_\_\_\_\_ **RIVER MILE:** \_\_\_\_\_

**DATE:** 3/22/16 **SCORER:** PJR **COMMENTS:** Intermittent Stream

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

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

**MODIFICATIONS:** \_\_\_\_\_

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY 1 predominant substrate TYPE boxes. (Max of 40). Add total number of significant substrate types found (Max of 6). Final metric score is sum of boxes A & B.)

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLOR SLABS (16 pts)	_____	<input type="checkbox"/> SILT (3 pts)	_____
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)	_____	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	_____
<input type="checkbox"/> BEDROCK (16 pts)	_____	<input type="checkbox"/> FINE DETRITUS (3 pts)	_____
<input type="checkbox"/> COBBLE (63-256 mm) (12 pts)	_____	<input type="checkbox"/> CLAY or HARDPAN (3 pts)	_____
<input type="checkbox"/> GRAVEL (2-64 mm) (9 pts)	_____	<input type="checkbox"/> MUCK (3 pts)	_____
<input type="checkbox"/> SAND (<2 mm) (6 pts)	_____	<input type="checkbox"/> ARTIFICIAL (3 pts)	_____

Total of Percentages of Substrate Types: 5 (A) 5 (B) 10 (A+B)

**SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES:** \_\_\_\_\_

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

☐ > 30 centimeters (12 pts) ☐ > 5 cm - 10 cm (15 pts) ☐ > 10 m - 1.5 m (> 3' 3" - 4' 8") (15 pts)

☐ > 22.5 - 30 cm (20 pts) ☐ < 5 cm (5 pts) ☐ NO WATER OR MOIST CHANNEL (0 pts)

**COMMENTS:** \_\_\_\_\_ **MAXIMUM POOL DEPTH (centimeters):** 1

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

☐ > 4.0 meters (> 13' 0" pts) ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") (15 pts)

☐ > 3.0 m - 4.0 m (> 9' 8" - 13') (25 pts) ☐ < 1.0 m (< 3' 3") (5 pts)

☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 8") (20 pts)

**COMMENTS:** \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters):** 1.0

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

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

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

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

☐ Stream Flowing ☐ Subsurface flow with isolated pools (intermittent) ☐ Most Channel, isolated pools, no flow (intermittent) ☐ Dry channel, no water (ephemeral)

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

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

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

**7. STREAM GRADIENT ESTIMATE**

☐ Flat (< 0.5 m/m) ☐ Flat to Moderate ☐ Moderate to Severe ☒ Severe (> 1.0 m/m)

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Stream 62

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

**EWI 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):** 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 (5 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)

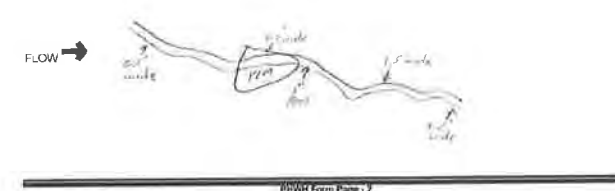
**Fish Observed?** (Y/N) N **Voucher?** (Y/N) N **Salamanders Observed?** (Y/N) N **Voucher?** (Y/N) N

**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**

**FLOW** → 

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H-PR-037216-14

Mod. Class 1

Stream 63

# **Ohio EPA** Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3): **14**

SITE NAME/LOCATION: 637216-14 RIVER BASIN: W. RIVER BASIN DRAINAGE AREA (mi<sup>2</sup>):  
 LENGTH OF STREAM REACH (ft): 12 LAT: 41° 16' LONG: 83° 16' RIVER CODE: P3R RIVER MILE:  
 DATE: 3/24/16 SCORER: P3R COMMENTS: NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for instructions  
 STREAM CHANNEL: ☐ NONE / NATURAL CHANNEL ☒ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY  
 MODIFICATIONS:

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY Y (yes) predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACKWOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]		<input type="checkbox"/> CLAY or KAROPAN (3 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) [8 pts]		<input type="checkbox"/> MUCK (3 pts)	
<input type="checkbox"/> SAND (<2 mm) [8 pts]		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Box Slabs, Boulder, Cobble, Bedrock: 12 (A) 6 (B) 18 A + B

SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES: 18 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 stormwater 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 [10 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [5 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: NO WATER OR MOIST CHANNEL [0 pts] MAXIMUM POOL DEPTH (centimeters): 0

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

<input type="checkbox"/> > 4.6 meters (> 15 ft) [25 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.6 m (> 9' 7" - 15 ft) [10 pts]	<input type="checkbox"/> < 1.0 m (< 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [5 pts]	

COMMENTS: NO WATER OR MOIST CHANNEL [0 pts] AVERAGE BANKFULL WIDTH (meters): 0

This information must also be completed. NOTE: River Left (L) and Right (R) as looking downstream.

**RIPARIAN ZONE AND FLOODPLAIN QUALITY**

RIPARIAN ZONE		FLOODPLAIN QUALITY	
L	R	L	R
<input checked="" type="checkbox"/> (Per Bank) Wide > 10m	<input type="checkbox"/> Mature Forest, Wetland	<input type="checkbox"/> 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 type="checkbox"/> Mining or Construction	

COMMENTS: NO WATER OR MOIST CHANNEL [0 pts]

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Most Channel, isolated pools, no flow (intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (intermittent)	<input type="checkbox"/> Dry channel, no water (ephemeral)

COMMENTS: NO WATER OR MOIST CHANNEL [0 pts]

**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 type="checkbox"/> > 3.0

STREAM GRADIENT ESTIMATE: ☐ Flat (< 0.100 ft) ☐ Flat to Moderate ☐ Moderate to Severe ☒ Severe (> 0.100 ft)

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H-PR-037216-15

Mod. Class 2

Stream 64

# **Ohio EPA** Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3): **61**

SITE NAME/LOCATION: 637216-15 RIVER BASIN: W. RIVER BASIN DRAINAGE AREA (mi<sup>2</sup>):  
 LENGTH OF STREAM REACH (ft): 12 LAT: 41° 16' LONG: 83° 16' RIVER CODE: P3R RIVER MILE:  
 DATE: 3/24/16 SCORER: P3R COMMENTS: NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for instructions  
 STREAM CHANNEL: ☐ NONE / NATURAL CHANNEL ☒ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY  
 MODIFICATIONS:

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY Y (yes) predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACKWOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]		<input type="checkbox"/> CLAY or KAROPAN (3 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) [8 pts]		<input type="checkbox"/> MUCK (3 pts)	
<input type="checkbox"/> SAND (<2 mm) [8 pts]		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Box Slabs, Boulder, Cobble, Bedrock: 12 (A) 15 (B) 27 A + B

SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES: 27 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 stormwater 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 [10 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [5 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: NO WATER OR MOIST CHANNEL [0 pts] MAXIMUM POOL DEPTH (centimeters): 0

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

<input type="checkbox"/> > 4.6 meters (> 15 ft) [25 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.6 m (> 9' 7" - 15 ft) [10 pts]	<input type="checkbox"/> < 1.0 m (< 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [5 pts]	

COMMENTS: NO WATER OR MOIST CHANNEL [0 pts] AVERAGE BANKFULL WIDTH (meters): 0

This information must also be completed. NOTE: River Left (L) and Right (R) as looking downstream.

**RIPARIAN ZONE AND FLOODPLAIN QUALITY**

RIPARIAN ZONE		FLOODPLAIN QUALITY	
L	R	L	R
<input type="checkbox"/> (Per Bank) Wide > 10m	<input type="checkbox"/> Mature Forest, Wetland	<input type="checkbox"/> 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 type="checkbox"/> Mining or Construction	

COMMENTS: NO WATER OR MOIST CHANNEL [0 pts]

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

<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Most Channel, isolated pools, no flow (intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (intermittent)	<input type="checkbox"/> Dry channel, no water (ephemeral)

COMMENTS: NO WATER OR MOIST CHANNEL [0 pts]

**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 type="checkbox"/> > 3.0

STREAM GRADIENT ESTIMATE: ☐ Flat (< 0.100 ft) ☒ Flat to Moderate ☐ Moderate to Severe ☐ Severe (> 0.100 ft)

PHWH Form Page - 1

Stream 63

## 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) Y Date of last precipitation: \_\_\_\_\_ Quantity: \_\_\_\_\_

Photograph Information: \_\_\_\_\_

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 (5 U) \_\_\_\_\_ Conductivity (µmhos/cm) \_\_\_\_\_

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

**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) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_ Salamanders Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_  
 Frogs or Toads 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



PHWH Form Page - 2

Stream 64

## 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) Y Date of last precipitation: 3/24 Quantity: \_\_\_\_\_

Photograph Information: \_\_\_\_\_

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 (5 U) \_\_\_\_\_ Conductivity (µmhos/cm) \_\_\_\_\_

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

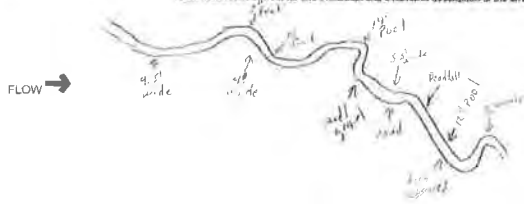
**BIOTIC EVALUATION**

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) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_ Salamanders Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_  
 Frogs or Toads 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



PHWH Form Page - 2

HH PJR-032216-16

Mod. Class 1

Stream 65

# **OHNEPA** Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **15**SITE NAME/LOCATION: CH-16-16-1SITE NUMBER HH-16-16-1 RIVER BASIN Hocking DRAINAGE AREA (mi<sup>2</sup>) \_\_\_\_\_

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. \_\_\_\_\_ LONG. \_\_\_\_\_ RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE 3/22/16 SCORER PJR COMMENTS Field

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

STREAM CHANNEL ☐ NONE/NATURAL CHANNEL ☒ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

MODIFICATIONS:

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B)

TYPE	PERCENT	TYPE	PERCENT
<input checked="" type="checkbox"/> BLDR SLABS (18 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) (18 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (18 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (3 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (9 pts)		<input type="checkbox"/> MUCK (3 pts)	
<input type="checkbox"/> SAND (<2 mm) (6 pts)		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0 (A) 6 (B) 4

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

**2. MAXIMUM POOL DEPTH** (Measure the maximum pool depth within the 81 meter (269 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 (12 pts)	<input type="checkbox"/> > 5 cm - 10 cm (15 pts)
<input type="checkbox"/> > 22.5 - 30 cm (10 pts)	<input type="checkbox"/> < 5 cm (3 pts)
<input type="checkbox"/> > 10 - 22.5 cm (25 pts)	<input type="checkbox"/> NO WATER OR MOIST CHANNEL (3 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 (12) (20 pts)	<input type="checkbox"/> > 1.0 m - 1.5 m (2' 3" - 4' 8") (15 pts)
<input type="checkbox"/> > 3.0 m - 4.0 m (4' 8" - 13' 1") (25 pts)	<input type="checkbox"/> < 1.0 m (< 3' 3") (3 pts)
<input type="checkbox"/> > 1.9 m - 3.0 m (4' 4" - 9' 7") (20 pts)	

COMMENTS: \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): 0.6

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

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

**FLOODPLAIN QUALITY**

L	R	(Most Predominant per Bank)
<input type="checkbox"/>	<input 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
<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"/> Most Channel, isolated pools, no flow (intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (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 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 m/100 ft) ☐ Flat to Moderate ☐ Moderate (2 m/100 ft) ☐ Moderate to Severe ☐ Severe (10 m/100 ft) ☒

PHWW Form Page - 1

Date 3/22/16

Stream 65

## 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): Y Date of last precipitation: \_\_\_\_\_ Quantity: \_\_\_\_\_

Photograph Information: \_\_\_\_\_

Elevated Turbidity? (Y/N) N Canopy (% open) 30Water 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)

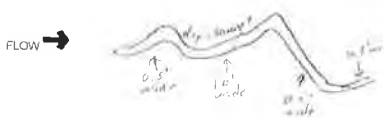
Fish Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_ Salamanders Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_

Frogs or Toadpoles 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



1 - 2, 2.0 m/100 ft

PHWW Form Page - 2

HH PJR-032216-01

Mod. Class 1

Stream 66

# **OHNEPA** Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **16**SITE NAME/LOCATION: CH-16-16-2SITE NUMBER HH-16-16-2 RIVER BASIN Hocking DRAINAGE AREA (mi<sup>2</sup>) \_\_\_\_\_

LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. \_\_\_\_\_ LONG. \_\_\_\_\_ RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE 3/22/16 SCORER PJR COMMENTS Field

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

STREAM CHANNEL ☐ NONE/NATURAL CHANNEL ☒ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

MODIFICATIONS:

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B)

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (18 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) (18 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (18 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (3 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (9 pts)		<input type="checkbox"/> MUCK (3 pts)	
<input type="checkbox"/> SAND (<2 mm) (6 pts)		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 2 (A) 6 (B) 5

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

**2. MAXIMUM POOL DEPTH** (Measure the maximum pool depth within the 81 meter (269 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 (12 pts)	<input type="checkbox"/> > 5 cm - 10 cm (15 pts)
<input type="checkbox"/> > 22.5 - 30 cm (10 pts)	<input type="checkbox"/> < 5 cm (3 pts)
<input type="checkbox"/> > 10 - 22.5 cm (25 pts)	<input type="checkbox"/> NO WATER OR MOIST CHANNEL (3 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 (12) (20 pts)	<input type="checkbox"/> > 1.0 m - 1.5 m (2' 3" - 4' 8") (15 pts)
<input type="checkbox"/> > 3.0 m - 4.0 m (4' 8" - 13' 1") (25 pts)	<input type="checkbox"/> < 1.0 m (< 3' 3") (3 pts)
<input type="checkbox"/> > 1.9 m - 3.0 m (4' 4" - 9' 7") (20 pts)	

COMMENTS: \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): 1.2

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

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

**FLOODPLAIN QUALITY**

L	R	(Most Predominant per Bank)
<input type="checkbox"/>	<input 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
<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"/> Most Channel, isolated pools, no flow (intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (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 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 m/100 ft) ☐ Flat to Moderate ☐ Moderate (2 m/100 ft) ☐ Moderate to Severe ☐ Severe (10 m/100 ft) ☒

PHWW Form Page - 1

Date 3/22/16

Stream 66

## 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) Y Date of last precipitation: \_\_\_\_\_ Quantity: \_\_\_\_\_

Photograph Information: \_\_\_\_\_

Elevated Turbidity? (Y/N) N Canopy (% open) 25Water 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)

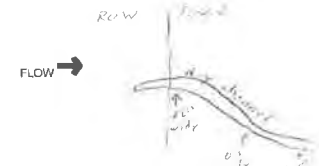
Fish Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_ Salamanders Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_

Frogs or Toadpoles 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



1 - 2, 2.0 m/100 ft

PHWW Form Page - 2

111-PJR-032216-07

Mod. Class 1

Stream 67

## Ohio EPA Primary Headwater Habitat Evaluation Form

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

25

WATER LOCATION: CHL 2216  
 SITE NUMBER: 111-PJR-032216-07 RIVER BASIN: Mod. Class 1 DRAINAGE AREA (sq mi):  
 LENGTH OF STREAM REACH (ft): \_\_\_\_\_ LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE:  
 DATE: 3/22/16 SCORER: PJR COMMENTS: \_\_\_\_\_

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

STREAM CHANNEL: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY  
 MODIFICATIONS: \_\_\_\_\_

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY 1 pre-dominant substrate TYPE box (Max of 40). Add total number of significant substrate types found (Max of 6). Final metric score is sum of boxes A & B.)

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)	12	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	2
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	10
<input type="checkbox"/> COBBLE (65-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (3 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	20	<input type="checkbox"/> MUCK (8 pts)	
<input type="checkbox"/> SAND (<2 mm) (8 pts)		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 20 (A) 6 (B) 12 (A+B)  
 SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES: 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 stormwater pipes). (Check ONLY one box)  
☐ > 30 centimeters (12 pts)  
☐ > 22.5 - 30 cm (10 pts)  
☐ > 10 - 22.5 cm (5 pts)  
☒ NO WATER OR MUST CHANNEL (0 pts)  
 COMMENTS: \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): 1

**3. BANK FULL WIDTH** (Measured as the average of 3-4 measurements). (Check ONLY one box)  
☐ > 4.0 m (w/ 12) (10 pts)  
☐ > 3.0 - 4.0 m (w/ 7'-12) (5 pts)  
☐ > 1.5 m - 3.0 m (w/ 4'-6'-7') (2 pts)  
☒ None (0 pts)  
 COMMENTS: \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): 1.5

This information must also be completed

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

RIPARIAN ZONE		FLOODPLAIN QUALITY	
L	R	L	R
<input type="checkbox"/> (Per Bank)	<input type="checkbox"/> (Per Bank)	<input type="checkbox"/> (Most Pre-dominant per Bank)	<input type="checkbox"/> (Most Pre-dominant per Bank)
<input type="checkbox"/> Wide >10m	<input type="checkbox"/> Wide >10m	<input checked="" type="checkbox"/> Mature Forest: Wetland	<input type="checkbox"/> Conservation Tillage
<input type="checkbox"/> Moderate 5-10m	<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"/> Narrow <5m	<input type="checkbox"/> Residential: Park, New Field	<input type="checkbox"/> Open Pasture, Row Crop
<input type="checkbox"/> None	<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)  
☐ Stream Flowing  
☐ Subsurface flow with isolated pools (intermittent)  
☒ Most Channel, isolated pools, no flow (intermittent)  
☐ Dry channel, no water (ephemeral)  
 COMMENTS: \_\_\_\_\_

**SINUOSITY** (Number of bends per 61 m (200 ft) of channel). (Check ONLY one box)  
☐ None  
☐ 0.5  
☒ 1.0  
☐ 1.5  
☐ 2.0  
☐ 2.5  
☐ 3.0  
☐ >3

**STREAM GRADIENT ESTIMATE**  
☐ Flat (0.5 ft/mi) ☐ Flat to Moderate ☐ Moderate (2 ft/mi) ☐ Moderate to Severe ☒ Severe (10 ft/mi)

PHWH Form Page - 1

ADDITIONAL STREAM INFORMATION (This information must also be completed):OHEI PERFORMED? - ☐ Yes ☒ No OHEI Score: \_\_\_\_\_ (If Yes, Attach Completed OHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWF 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) Y Date of last precipitation: \_\_\_\_\_ Quantity: \_\_\_\_\_

Photograph information: \_\_\_\_\_

Elevated Turbidity? (Y/N) N Canopy (% open) 85Were 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)

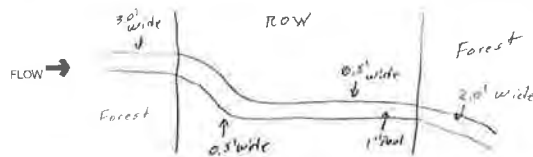
Fish Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_ Salamanders Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_

Frogs or Toads Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_ Aquatic Macroinvertebrates Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_

Comments Regarding Bioty: \_\_\_\_\_

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



PHWH Form Page - 2

111-PJR-032216-03

Mod. Class 2

Stream 68

## Ohio EPA Primary Headwater Habitat Evaluation Form

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

57

WATER LOCATION: CHL 2216  
 SITE NUMBER: 111-PJR-032216-03 RIVER BASIN: Mod. Class 2 DRAINAGE AREA (sq mi):  
 LENGTH OF STREAM REACH (ft): \_\_\_\_\_ LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE:  
 DATE: 3/22/16 SCORER: PJR COMMENTS: Water with old

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

STREAM CHANNEL: ☐ NONE / NATURAL CHANNEL ☒ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY  
 MODIFICATIONS: \_\_\_\_\_

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY 1 pre-dominant substrate TYPE box (Max of 40). Add total number of significant substrate types found (Max of 6). Final metric score is sum of boxes A & B.)

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)	1	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	1
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	1
<input type="checkbox"/> COBBLE (65-256 mm) (12 pts)	10	<input type="checkbox"/> CLAY or HARDPAN (3 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	47	<input type="checkbox"/> MUCK (8 pts)	
<input type="checkbox"/> SAND (<2 mm) (8 pts)		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 13 (A) 12 (B) 5 (A+B)  
 SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES: 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)  
☐ > 30 centimeters (12 pts)  
☐ > 22.5 - 30 cm (10 pts)  
☐ > 10 - 22.5 cm (5 pts)  
☒ NO WATER OR MUST CHANNEL (0 pts)  
 COMMENTS: \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): 5

**3. BANK FULL WIDTH** (Measured as the average of 3-4 measurements). (Check ONLY one box)  
☐ > 4.0 m (w/ 12) (10 pts)  
☐ > 3.0 - 4.0 m (w/ 7'-12) (5 pts)  
☐ > 1.5 m - 3.0 m (w/ 4'-6'-7') (2 pts)  
☒ None (0 pts)  
 COMMENTS: \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): 1.5

This information must also be completed**RIPARIAN ZONE AND FLOODPLAIN QUALITY** (NOTE: River Left (L) and Right (R) as looking downstream)

RIPARIAN ZONE		FLOODPLAIN QUALITY	
L	R	L	R
<input type="checkbox"/> (Per Bank)	<input type="checkbox"/> (Per Bank)	<input type="checkbox"/> (Most Pre-dominant per Bank)	<input type="checkbox"/> (Most Pre-dominant per Bank)
<input checked="" type="checkbox"/> Wide >10m	<input checked="" type="checkbox"/> Wide >10m	<input checked="" type="checkbox"/> Mature Forest: Wetland	<input type="checkbox"/> Conservation Tillage
<input type="checkbox"/> Moderate 5-10m	<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"/> Narrow <5m	<input type="checkbox"/> Residential: Park, New Field	<input type="checkbox"/> Open Pasture, Row Crop
<input type="checkbox"/> None	<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)
☐ Stream Flowing  
☐ Subsurface flow with isolated pools (intermittent)  
☒ Most Channel, isolated pools, no flow (intermittent)  
☐ Dry channel, no water (ephemeral)  
 COMMENTS: \_\_\_\_\_
**SINUOSITY** (Number of bends per 61 m (200 ft) of channel). (Check ONLY one box)
☐ None  
☐ 0.5  
☐ 1.0  
☐ 1.5  
☐ 2.0  
☐ 2.5  
☒ 3.0  
☐ >3
**STREAM GRADIENT ESTIMATE**
☐ Flat (0.5 ft/mi) ☐ Flat to Moderate ☐ Moderate (2 ft/mi) ☐ Moderate to Severe ☒ Severe (10 ft/mi)

PHWH Form Page - 1

ADDITIONAL STREAM INFORMATION (This information must also be completed):OHEI PERFORMED? - ☐ Yes ☒ No OHEI Score: \_\_\_\_\_ (If Yes, Attach Completed OHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWF 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) Y Date of last precipitation: \_\_\_\_\_ Quantity: \_\_\_\_\_

Photograph information: \_\_\_\_\_

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

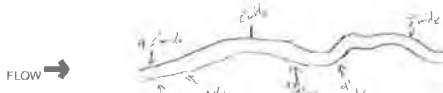
Fish Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_ Salamanders Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_

Frogs or Toads Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_ Aquatic Macroinvertebrates Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_

Comments Regarding Bioty: \_\_\_\_\_

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



PHWH Form Page - 2

OH EPA Primary Headwater Habitat Evaluation Form  
HHEI Score (sum of metrics 1, 2, 3): 27

SITE NAME/LOCATION: Col. Pallen  
RIVER NUMBER: HN 2216-04 RIVER BASIN: Hocking DRAINAGE AREA (mi<sup>2</sup>):  
LENGTH OF STREAM REACH (ft): 312 LAT: 40° 16' N LONG: 82° 16' W RIVER CODE: 1 RIVER MILE: 1.0  
DATE: 3/22/16 SCORER: PJR COMMENTS: Intermittent  
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions  
STREAM CHANNEL: ☒ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY  
MODIFICATIONS:

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]		<input type="checkbox"/> SILT [3 pts]	
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input type="checkbox"/> COBBLE (63-256 mm) [12 pts]		<input type="checkbox"/> CLAY or HARDPAN [3 pts]	
<input type="checkbox"/> GRAVEL (2-64 mm) [8 pts]		<input type="checkbox"/> MUCK [3 pts]	
<input type="checkbox"/> SAND (<2 mm) [8 pts]		<input type="checkbox"/> ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 3 (A) 16 (B) 17  
SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES: 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):  
☐ > 30 centimeters [20 pts] ☐ > 5 cm - 10 cm [15 pts] ☐ < 5 cm [15 pts] ☐ NO WATER OR MOIST CHANNEL [0 pts]  
COMMENTS: MAXIMUM POOL DEPTH (centimeters): 1.5  
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements). (Check ONLY one box):  
☐ > 4.0 meters (> 13' [20 pts]) ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ☐ < 1.0 m (< 3' 3" [15 pts])  
COMMENTS: AVERAGE BANKFULL WIDTH (meters): 1.5

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

RIPIARIAN WIDTH	FLOODPLAIN QUALITY	
<input checked="" type="checkbox"/> L/R (Per Bank) Wide >10m	<input type="checkbox"/> L/R (Most Predominant per Bank) Mature Forest, Wetland	<input type="checkbox"/> 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 type="checkbox"/> Mining or Construction

COMMENTS:   
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  
☐ Stream Flowing ☐ Most Channel, Isolated pools, no flow (Intermittent)  
☐ Subsurface flow with isolated pools (Intermittent) ☐ Dry channel, no water (Ephemeral)  
COMMENTS:   
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  
☐ None ☐ 0.5 ☐ 1.0 ☐ 1.5 ☐ 2.0 ☐ 2.5 ☐ 3.0 ☐ >3  
STREAM GRADIENT ESTIMATE  
☐ Flat (< 0.1%) ☐ Flat to Moderate ☐ Moderate (2-4%) ☐ Moderate to Severe ☒ Severe (> 4%)

PHWH Form Page - 1

OH EPA Primary Headwater Habitat Evaluation Form  
HHEI Score (sum of metrics 1, 2, 3): 26

SITE NAME/LOCATION: Col. Pallen  
RIVER NUMBER: HN 2216-05 RIVER BASIN: Hocking DRAINAGE AREA (mi<sup>2</sup>):  
LENGTH OF STREAM REACH (ft): 312 LAT: 40° 16' N LONG: 82° 16' W RIVER CODE: 1 RIVER MILE: 1.0  
DATE: 3/22/16 SCORER: PJR COMMENTS: Intermittent  
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions  
STREAM CHANNEL: ☒ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY  
MODIFICATIONS:

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS [16 pts]		<input type="checkbox"/> SILT [3 pts]	
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input type="checkbox"/> COBBLE (63-256 mm) [12 pts]		<input type="checkbox"/> CLAY or HARDPAN [3 pts]	
<input type="checkbox"/> GRAVEL (2-64 mm) [8 pts]		<input type="checkbox"/> MUCK [3 pts]	
<input type="checkbox"/> SAND (<2 mm) [8 pts]		<input type="checkbox"/> ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0 (A) 12 (B) 16  
SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES: 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):  
☐ > 30 centimeters [20 pts] ☐ > 5 cm - 10 cm [15 pts] ☐ < 5 cm [15 pts] ☐ NO WATER OR MOIST CHANNEL [0 pts]  
COMMENTS: MAXIMUM POOL DEPTH (centimeters): 1.5  
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements). (Check ONLY one box):  
☐ > 4.0 meters (> 13' [20 pts]) ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ☐ < 1.0 m (< 3' 3" [15 pts])  
COMMENTS: AVERAGE BANKFULL WIDTH (meters): 1.5

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

RIPIARIAN WIDTH	FLOODPLAIN QUALITY	
<input checked="" type="checkbox"/> L/R (Per Bank) Wide >10m	<input type="checkbox"/> L/R (Most Predominant per Bank) Mature Forest, Wetland	<input type="checkbox"/> 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 type="checkbox"/> Mining or Construction

COMMENTS:   
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  
☐ Stream Flowing ☐ Most Channel, Isolated pools, no flow (Intermittent)  
☐ Subsurface flow with isolated pools (Intermittent) ☐ Dry channel, no water (Ephemeral)  
COMMENTS:   
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  
☐ None ☐ 0.5 ☐ 1.0 ☐ 1.5 ☐ 2.0 ☐ 2.5 ☐ 3.0 ☐ >3  
STREAM GRADIENT ESTIMATE  
☐ Flat (< 0.1%) ☐ Flat to Moderate ☐ Moderate (2-4%) ☐ Moderate to Severe ☒ Severe (> 4%)


PHWH Form Page - 1

OH EPA Primary Headwater Habitat Evaluation Form  
HHEI Score (sum of metrics 1, 2, 3): 27

SITE NAME/LOCATION: Col. Pallen  
RIVER NUMBER: HN 2216-04 RIVER BASIN: Hocking DRAINAGE AREA (mi<sup>2</sup>):  
LENGTH OF STREAM REACH (ft): 312 LAT: 40° 16' N LONG: 82° 16' W RIVER CODE: 1 RIVER MILE: 1.0  
DATE: 3/22/16 SCORER: PJR COMMENTS: Intermittent  
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions  
STREAM CHANNEL: ☒ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY  
MODIFICATIONS:

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) Y Date of last precipitation:  Quantity:   
Photograph Information:   
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 (e.g., location of pollution inputs):   
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

FLOW → 

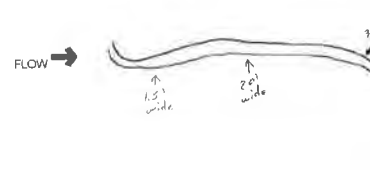
PHWH Form Page - 2

OH EPA Primary Headwater Habitat Evaluation Form  
HHEI Score (sum of metrics 1, 2, 3): 26

SITE NAME/LOCATION: Col. Pallen  
RIVER NUMBER: HN 2216-05 RIVER BASIN: Hocking DRAINAGE AREA (mi<sup>2</sup>):  
LENGTH OF STREAM REACH (ft): 312 LAT: 40° 16' N LONG: 82° 16' W RIVER CODE: 1 RIVER MILE: 1.0  
DATE: 3/22/16 SCORER: PJR COMMENTS: Intermittent  
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions  
STREAM CHANNEL: ☒ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY  
MODIFICATIONS:

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) Y Date of last precipitation:  Quantity:   
Photograph Information:   
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 (e.g., location of pollution inputs):   
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

FLOW → 

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# OH EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **60**

SITE NAME/LOCATION: OH-32216-06 RIVER BASIN: Hocking DRAINAGE AREA (mi<sup>2</sup>): 1.0  
 LENGTH OF STREAM REACH (ft): 100 LAT: 40° 15' N LONG: 82° 45' W RIVER CODE: 100 RIVER MILE: 1.0  
 DATE: 3/2/16 SCORER: PJR COMMENTS: Intermittent  
 NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions  
 STREAM CHANNEL: ☒ NONE/NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY  
 MODIFICATIONS: None

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B)

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACKWOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]		<input type="checkbox"/> CLAY or HARDPAN (3 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) [8 pts]		<input type="checkbox"/> MUCK (3 pts)	
<input type="checkbox"/> SAND (<2 mm) [8 pts]		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Box Slabs, Boulder, Cobble, Bedrock: 0 (A) 6 (B) 14  
 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 TOTAL NUMBER OF SUBSTRATE TYPES: 14

**2. Maximum Pool Depth** (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the line of evaluation. Avoid plunge pools from road culverts or storm water pipes). (Check ONLY one box):  
☐ > 30 centimeters [20 pts]  
☐ > 22.5 - 30 cm [10 pts]  
☐ > 15 - 22.5 cm [5 pts]  
☐ NO WATER OR MOIST CHANNEL [0 pts]  
 COMMENTS: None MAXIMUM POOL DEPTH (centimeters): 0

**3. BANK FULL WIDTH** (Measured as the average of 3-4 measurements). (Check ONLY one box):  
☐ > 4.0 meters (> 13') [20 pts]  
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [10 pts]  
☐ > 1.5 m - 3.0 m (> 4' 9" - 9' 7") [5 pts]  
☐ None [0 pts]  
 COMMENTS: None AVERAGE BANKFULL WIDTH (meters): 1.5

**HHEI Metric Points**  
 Substrate Max = 40  
 Pool Depth Max = 30  
 Bankfull Width Max = 20  
 A + B = **60**

This information must also be completed  
**RIPARIAN ZONE AND FLOODPLAIN QUALITY** (NOTE: River Left (L) and Right (R) as looking downstream)  
**RIPARIAN WIDTH** (Per Bank) **FLOODPLAIN QUALITY** (Most Predominant per Bank)

L	R	L	R
<input checked="" 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 type="checkbox"/> None	<input type="checkbox"/> Fenced Pasture	<input type="checkbox"/> Mining or Construction	

**FLOW REGIME** (At Time of Evaluation) (Check ONLY one box):  
☐ Stream Flowing  
☐ Subsurface flow with isolated pools (Intermittent)  
☐ Dry channel, no water (Ephemeral)  
 COMMENTS: None

**SINUOSITY** (Number of bends per 61 m (200 ft) of channel). (Check ONLY one box):  
☐ None  
☐ 0.5  
☐ 1.0  
☐ 1.5  
☐ 2.0  
☐ 2.5  
☐ 3.0  
☐ >3  
 COMMENTS: None

**STREAM GRADIENT ESTIMATE**  
☐ Flat (0.5 m/m)  
☐ Flat to Moderate  
☐ Moderate (2 m/m)  
☐ Moderate to Severe  
☒ Severe (>10 m/m)

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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)  
☐ 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) Y Date of last precipitation: \_\_\_\_\_ Quantity: \_\_\_\_\_  
 Photograph Information: \_\_\_\_\_  
 Elevated Turbidity? (Y/N) N Canopy (% open) 40  
 Were samples collected for water chemistry? (Y/N) N (Note lab sample no. ex. 42 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 comment/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) \_\_\_\_\_ 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



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# OH EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **62**

SITE NAME/LOCATION: OH-32216-07 RIVER BASIN: Hocking DRAINAGE AREA (mi<sup>2</sup>): 1.0  
 LENGTH OF STREAM REACH (ft): 100 LAT: 40° 15' N LONG: 82° 45' W RIVER CODE: 100 RIVER MILE: 1.0  
 DATE: 3/2/16 SCORER: PJR COMMENTS: Intermittent  
 NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions  
 STREAM CHANNEL: ☒ NONE/NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY  
 MODIFICATIONS: Within existing transmission line ROW

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B)

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACKWOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]		<input type="checkbox"/> CLAY or HARDPAN (3 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) [8 pts]		<input type="checkbox"/> MUCK (3 pts)	
<input type="checkbox"/> SAND (<2 mm) [8 pts]		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Box Slabs, Boulder, Cobble, Bedrock: 10 (A) 15 (B) 25  
 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 10 TOTAL NUMBER OF SUBSTRATE TYPES: 25

**2. Maximum Pool Depth** (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the line of evaluation. Avoid plunge pools from road culverts or storm water pipes). (Check ONLY one box):  
☐ > 30 centimeters [20 pts]  
☐ > 22.5 - 30 cm [10 pts]  
☐ > 15 - 22.5 cm [5 pts]  
☐ NO WATER OR MOIST CHANNEL [0 pts]  
 COMMENTS: High seasonal flow MAXIMUM POOL DEPTH (centimeters): 0

**3. BANK FULL WIDTH** (Measured as the average of 3-4 measurements). (Check ONLY one box):  
☐ > 4.0 meters (> 13') [20 pts]  
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [10 pts]  
☐ > 1.5 m - 3.0 m (> 4' 9" - 9' 7") [5 pts]  
☐ None [0 pts]  
 COMMENTS: None AVERAGE BANKFULL WIDTH (meters): 1.5

**HHEI Metric Points**  
 Substrate Max = 40  
 Pool Depth Max = 30  
 Bankfull Width Max = 20  
 A + B = **62**

This information must also be completed  
**RIPARIAN ZONE AND FLOODPLAIN QUALITY** (NOTE: River Left (L) and Right (R) as looking downstream)  
**RIPARIAN WIDTH** (Per Bank) **FLOODPLAIN QUALITY** (Most Predominant per Bank)

L	R	L	R
<input checked="" 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 type="checkbox"/> None	<input type="checkbox"/> Fenced Pasture	<input type="checkbox"/> Mining or Construction	

**FLOW REGIME** (At Time of Evaluation) (Check ONLY one box):  
☒ Stream Flowing  
☐ Subsurface flow with isolated pools (Intermittent)  
☐ Dry channel, no water (Ephemeral)  
 COMMENTS: None

**SINUOSITY** (Number of bends per 61 m (200 ft) of channel). (Check ONLY one box):  
☐ None  
☐ 0.5  
☐ 1.0  
☐ 1.5  
☐ 2.0  
☐ 2.5  
☐ 3.0  
☐ >3  
 COMMENTS: None

**STREAM GRADIENT ESTIMATE**  
☐ Flat (0.5 m/m)  
☐ Flat to Moderate  
☐ Moderate (2 m/m)  
☒ Moderate to Severe  
☐ Severe (>10 m/m)

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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)  
☐ 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) N Date of last precipitation: \_\_\_\_\_ Quantity: \_\_\_\_\_  
 Photograph Information: \_\_\_\_\_  
 Elevated Turbidity? (Y/N) N Canopy (% open) 15  
 Were samples collected for water chemistry? (Y/N) N (Note lab sample no. ex. 42 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 comment/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) \_\_\_\_\_ 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



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# OHIO EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **80/85**

SITE NAME/LOCATION: CH-10-10-10  
 SITE NUMBER: HH-10-10-10 RIVER BASIN: Hocking DRAINAGE AREA (mi<sup>2</sup>):  
 LENGTH OF STREAM REACH (ft): 100 LAT: 40° 15' N LONG: 82° 45' W RIVER CODE: 100 RIVER MILE:  
 DATE: 3/2/16 SCORER: PJR COMMENTS: Restoration  
 NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions  
 STREAM CHANNEL: ☐ NONE/NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY  
 MODIFICATIONS:

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY top predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 6). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLOR SLABS (18 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	15	<input type="checkbox"/> LEAF PACKWOODY DEBRIS (3 pts)	10
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	45	<input type="checkbox"/> CLAY or HARDPAN (0 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) [8 pts]	30	<input type="checkbox"/> MUCK (0 pts)	
<input type="checkbox"/> SAND (<2 mm) [0 pts]		<input type="checkbox"/> ARTIFICIAL (0 pts)	

Total of Percentages of Box Slabs, Boulder, Cobble, Bedrock: 60 (A) 21 (B) 4  
 SCORE OF TWO MOST PREDOMINANT 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):  
☐ > 20 centimeters (20 pts) ☐ > 5 cm - 10 cm (15 pts) ☐ < 5 cm (5 pts) ☐ NO WATER OR MOST CHANNEL (0 pts)  
 COMMENTS: 10  
 MAXIMUM POOL DEPTH (centimeters): 10  
 3. BANK FULL WIDTH (Measured as the average of 3-4 measurements). (Check ONLY one box):  
☐ > 4.0 meters (> 13) [30 pts] ☐ > 1.0 m - 1.5 m (> 3' - 4' 8") [15 pts] ☐ < 1.0 m (< 3' 3") [5 pts]  
☐ > 3.0 m - 4.0 m (> 9' 8" - 13) [25 pts] ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 8") [20 pts]  
 COMMENTS: 10  
 AVERAGE BANKFULL WIDTH (meters): 1.0

This information must also be completed  
 RIPARIAN ZONE AND FLOODPLAIN QUALITY (NOTE: River Left (L) and Right (R) as looking downstream)  
 RIPARIAN ZONE (Per Bank) FLOODPLAIN QUALITY (Most Predominant per Bank)  

L	R	L	R
<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 checked="" type="checkbox"/> Narrow <5m	<input checked="" type="checkbox"/> Residential, Park, New Field	<input type="checkbox"/> Open Pasture, Row Crop	
<input type="checkbox"/> None	<input type="checkbox"/> Fenced Pasture	<input type="checkbox"/> Mining or Construction	

 COMMENTS: 10  
 FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  
☐ Stream Flowing Subsurface flow with isolated pools (intermittent) ☐ Most Channel, isolated pools, no flow (intermittent) ☐ Dry channel, no water (ephemeral)  
 COMMENTS: 10  
 SINUOSITY (Number of bends per 61 m (200 ft) of channel). (Check ONLY one box):  
☐ None 0.5 ☐ 1.0 ☐ 1.5 ☐ 2.0 ☐ 2.5 ☒ 3.0 ☐ >3  
 STREAM GRADIENT ESTIMATE  
☐ Flat (< 0.10%) ☐ Flat to Moderate ☐ Moderate to Severe ☒ Severe (> 10.10%)

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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)  
☐ 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

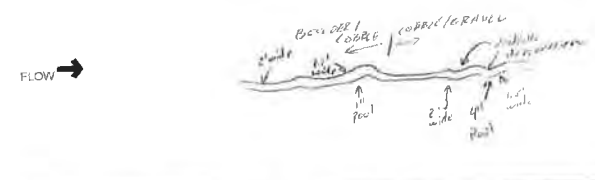
Base Flow Conditions? (Y/N) Y Date of last precipitation: \_\_\_\_\_ Quantity: \_\_\_\_\_  
 Photograph information: \_\_\_\_\_  
 Elevated Turbidity? (Y/N) N Canopy (% open) 85  
 Were samples collected for water chemistry? (Y/N) N (Note lab sample no. or id and attach results) Lab Number: \_\_\_\_\_  
 Field Measures Temp (°C) \_\_\_\_\_ Dissolved Oxygen (mg/l) \_\_\_\_\_ pH (5 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) \_\_\_\_\_ 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 Bioty: \_\_\_\_\_

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

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



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# OHIO EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **10**

SITE NAME/LOCATION: CH-10-10-10  
 SITE NUMBER: HH-10-10-10 RIVER BASIN: Hocking DRAINAGE AREA (mi<sup>2</sup>):  
 LENGTH OF STREAM REACH (ft): 100 LAT: 40° 15' N LONG: 82° 45' W RIVER CODE: 100 RIVER MILE:  
 DATE: 3/2/16 SCORER: PJR COMMENTS: Restoration  
 NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions  
 STREAM CHANNEL: ☐ NONE/NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY  
 MODIFICATIONS:

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY top predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 6). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLOR SLABS (18 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACKWOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	8	<input type="checkbox"/> CLAY or HARDPAN (0 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) [8 pts]	7	<input type="checkbox"/> MUCK (0 pts)	
<input type="checkbox"/> SAND (<2 mm) [0 pts]		<input type="checkbox"/> ARTIFICIAL (0 pts)	

Total of Percentages of Box Slabs, Boulder, Cobble, Bedrock: 15 (A) 6 (B) 1  
 SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES: 6 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):  
☐ > 20 centimeters (20 pts) ☐ > 5 cm - 10 cm (15 pts) ☐ < 5 cm (5 pts) ☐ NO WATER OR MOST CHANNEL (0 pts)  
 COMMENTS: 10  
 MAXIMUM POOL DEPTH (centimeters): 10  
 3. BANK FULL WIDTH (Measured as the average of 3-4 measurements). (Check ONLY one box):  
☐ > 4.0 meters (> 13) [30 pts] ☐ > 1.0 m - 1.5 m (> 3' - 4' 8") [15 pts] ☐ < 1.0 m (< 3' 3") [5 pts]  
☐ > 3.0 m - 4.0 m (> 9' 8" - 13) [25 pts] ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 8") [20 pts]  
 COMMENTS: 10  
 AVERAGE BANKFULL WIDTH (meters): 1.0

This information must also be completed  
 RIPARIAN ZONE AND FLOODPLAIN QUALITY (NOTE: River Left (L) and Right (R) as looking downstream)  
 RIPARIAN ZONE (Per Bank) FLOODPLAIN QUALITY (Most Predominant per Bank)  

L	R	L	R
<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 checked="" type="checkbox"/> Narrow <5m	<input checked="" type="checkbox"/> Residential, Park, New Field	<input type="checkbox"/> Open Pasture, Row Crop	
<input type="checkbox"/> None	<input type="checkbox"/> Fenced Pasture	<input type="checkbox"/> Mining or Construction	

 COMMENTS: 10  
 FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  
☐ Stream Flowing Subsurface flow with isolated pools (intermittent) ☐ Most Channel, isolated pools, no flow (intermittent) ☐ Dry channel, no water (ephemeral)  
 COMMENTS: 10  
 SINUOSITY (Number of bends per 61 m (200 ft) of channel). (Check ONLY one box):  
☐ None 0.5 ☐ 1.0 ☐ 1.5 ☐ 2.0 ☐ 2.5 ☒ 3.0 ☐ >3  
 STREAM GRADIENT ESTIMATE  
☐ Flat (< 0.10%) ☐ Flat to Moderate ☐ Moderate to Severe ☒ Severe (> 10.10%)

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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)  
☐ 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

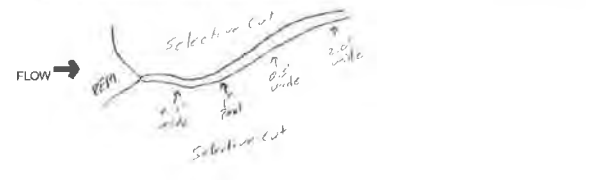
Base Flow Conditions? (Y/N) Y Date of last precipitation: \_\_\_\_\_ Quantity: \_\_\_\_\_  
 Photograph information: \_\_\_\_\_  
 Elevated Turbidity? (Y/N) N Canopy (% open) 85  
 Were samples collected for water chemistry? (Y/N) N (Note lab sample no. or id and attach results) Lab Number: \_\_\_\_\_  
 Field Measures Temp (°C) \_\_\_\_\_ Dissolved Oxygen (mg/l) \_\_\_\_\_ pH (5 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) \_\_\_\_\_ 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 Bioty: \_\_\_\_\_

## 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



PHWH Form Page - 2

# OH EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **20**

SITE NAME/LOCATION: GR-Hess

SITE NUMBER: HS-10 RIVER BASIN: NEVER BASIN DRAINAGE AREA (mi<sup>2</sup>):

LENGTH OF STREAM REACH (ft): LAT: LONG: RIVER CODE: RIVER MILE:

DATE: 3/22/16 SCORER: PJR COMMENTS: Intermittent stream

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

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

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLOR SLABS (10 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>250 mm) (16 pts)	<u>20</u>	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (85-250 mm) (12 pts)	<u>10</u>	<input type="checkbox"/> CLAY or HARPAN (10 pts)	
<input type="checkbox"/> GRAVEL (2-84 mm) (8 pts)	<u>40</u>	<input type="checkbox"/> MUCK (10 pts)	
<input type="checkbox"/> SAND (<2 mm) (8 pts)		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Sub Slabs, Boulder, Cobble, Bedrock: 30 (A) 25 (B) 5 A + B

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES: 10

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

☐ > 30 centimeters (20 pts) ☐ > 5 cm - 10 cm (15 pts) ☐ > 22.5 - 30 cm (10 pts) ☐ < 5 cm (5 pts) ☐ NO WATER OR MOIST CHANNEL (0 pts)

COMMENTS: MAXIMUM POOL DEPTH (centimeters): 10

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

☐ > 4.0 meters (> 13') (30 pts) ☐ > 3.0 m - 4.0 m (> 9' - 13') (25 pts) ☐ > 1.5 m - 3.0 m (> 4' - 9') (20 pts) ☐ < 1.0 m (< 3' - 4') (15 pts) ☐ < 0.5 m (< 1' - 3') (10 pts)

COMMENTS: AVERAGE BANKFULL WIDTH (meters): 1.5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

RIPARIAN ZONE (Per Bank)

☐ L R Wide > 10m ☐ L R Mature Forest, Wetland ☐ L R Conservation Tillage

☐ Moderate 5-10m ☐ Immature Forest, Shrub or Old Field ☐ Urban or Industrial

☒ Narrow < 5m ☐ Residential, Park, New Field ☐ Open 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) ☐ Dry channel, no water (ephemeral)

COMMENTS:

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

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

STREAM GRADIENT ESTIMATE

☐ Flat (< 0.1%) ☐ Flat to Moderate ☐ Moderate (> 0.1%) ☐ Moderate to Severe ☒ Severe (> 1.0%)

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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)

☐ 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) Y Date of last precipitation: Quantity:

Photograph Information:

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 (5.1): 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

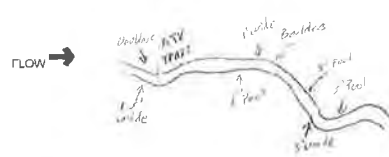
Performed? (Y/N) N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) 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



PHWH Form Page - 2

# OH EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **37**

SITE NAME/LOCATION: GR-Hess

SITE NUMBER: HS-11 RIVER BASIN: NEVER BASIN DRAINAGE AREA (mi<sup>2</sup>):

LENGTH OF STREAM REACH (ft): LAT: LONG: RIVER CODE: RIVER MILE:

DATE: 3/22/16 SCORER: PJR COMMENTS: Intermittent

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

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

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLOR SLABS (10 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>250 mm) (16 pts)	<u>5</u>	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (85-250 mm) (12 pts)	<u>10</u>	<input type="checkbox"/> CLAY or HARPAN (10 pts)	
<input type="checkbox"/> GRAVEL (2-84 mm) (8 pts)	<u>30</u>	<input type="checkbox"/> MUCK (10 pts)	
<input type="checkbox"/> SAND (<2 mm) (8 pts)		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Sub Slabs, Boulder, Cobble, Bedrock: 15 (A) 16 (B) 5 A + B

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES: 10

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

☐ > 30 centimeters (20 pts) ☐ > 5 cm - 10 cm (15 pts) ☐ > 22.5 - 30 cm (10 pts) ☐ < 5 cm (5 pts) ☐ NO WATER OR MOIST CHANNEL (0 pts)

COMMENTS: MAXIMUM POOL DEPTH (centimeters): 10

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

☐ > 4.0 meters (> 13') (30 pts) ☐ > 3.0 m - 4.0 m (> 9' - 13') (25 pts) ☐ > 1.5 m - 3.0 m (> 4' - 9') (20 pts) ☐ < 1.0 m (< 3' - 4') (15 pts) ☐ < 0.5 m (< 1' - 3') (10 pts)

COMMENTS: AVERAGE BANKFULL WIDTH (meters): 1.5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

RIPARIAN ZONE (Per Bank)

☐ L R Wide > 10m ☐ L R Mature Forest, Wetland ☐ L R Conservation Tillage

☐ Moderate 5-10m ☐ Immature Forest, Shrub or Old Field ☐ Urban or Industrial

☒ Narrow < 5m ☐ Residential, Park, New Field ☐ Open 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) ☐ Dry channel, no water (ephemeral)

COMMENTS:

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

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

STREAM GRADIENT ESTIMATE

☐ Flat (< 0.1%) ☐ Flat to Moderate ☐ Moderate (> 0.1%) ☐ Moderate to Severe ☒ Severe (> 1.0%)

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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)

☐ 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) Y Date of last precipitation: Quantity:

Photograph Information:

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 (5.1): 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) 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



PHWH Form Page - 2

HH-RJR-032116-09 Mod Class 1 Stream 77

# **Ohio EPA** Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **41**

SITE NAME/LOCATION: C-N-Town  
 SITE NUMBER: HH-302116-3 RIVER BASIN: Hocking DRAINAGE AREA (mi<sup>2</sup>):  
 LENGTH OF STREAM REACH (ft): 30 LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE:  
 DATE: 3/1/16 SCORER: PSR COMMENTS: ephemeral stream

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

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

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDG SLABS (18 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (18 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (64-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (8 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	5	<input type="checkbox"/> MUCK (8 pts)	
<input type="checkbox"/> SAND (<2 mm) (8 pts)		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bldg Slabs, Boulder, Cobble, Bedrock, Gravel, Sand: 5 (A) 7 (B) 12 (A+B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 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)

☐ > 30 centimeters (20 pts)  
☐ > 22.5 - 30 cm (10 pts)  
☐ > 10 - 22.5 cm (25 pts)

NO WATER OR MOIST CHANNEL: (0 pts) 0

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

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

☐ > 4.0 meters (12) (10 pts)  
☐ > 3.0 m - 4.0 m (8' 7" - 13') (25 pts)  
☐ > 1.5 m - 3.0 m (4' 9" - 9' 7") (20 pts)

COMMENTS: \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): 1

This information must also be completed

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

RIPARIAN ZONE		FLOODPLAIN QUALITY	
L	R	L	R
<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 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):

☐ Stream Flowing  
☐ Subsurface flow with isolated pools (intermittent)  
☐ Dry channel, no water (ephemeral)

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

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

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

STREAM GRADIENT ESTIMATE: ☐ Flat (< 5 ft/100 ft) ☒ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (> 10 ft/100 ft)

PHWH Form Page - 1

HH-RJR-032116-08 Class 2 Stream 78

# **Ohio EPA** Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION: C-N-Town  
 SITE NUMBER: HH-302116-2 RIVER BASIN: Hocking DRAINAGE AREA (mi<sup>2</sup>):  
 LENGTH OF STREAM REACH (ft): 30 LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE:  
 DATE: 3/1/16 SCORER: PSR COMMENTS: intermittent stream

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

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

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDG SLABS (18 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (18 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (64-256 mm) (12 pts)	5	<input type="checkbox"/> CLAY or HARDPAN (8 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	45	<input type="checkbox"/> MUCK (8 pts)	
<input type="checkbox"/> SAND (<2 mm) (8 pts)		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bldg Slabs, Boulder, Cobble, Bedrock, Gravel, Sand: 50 (A) 17 (B) 67 (A+B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 17 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)

☐ > 30 centimeters (20 pts)  
☐ > 22.5 - 30 cm (10 pts)  
☐ > 10 - 22.5 cm (25 pts)

NO WATER OR MOIST CHANNEL: (0 pts) 0

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

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

☐ > 4.0 meters (12) (10 pts)  
☐ > 3.0 m - 4.0 m (8' 7" - 13') (25 pts)  
☐ > 1.5 m - 3.0 m (4' 9" - 9' 7") (20 pts)

COMMENTS: \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): 4.0

This information must also be completed

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

RIPARIAN ZONE		FLOODPLAIN QUALITY	
L	R	L	R
<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 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):

☐ Stream Flowing  
☐ Subsurface flow with isolated pools (intermittent)  
☐ Dry channel, no water (ephemeral)

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

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

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

STREAM GRADIENT ESTIMATE: ☐ Flat (< 5 ft/100 ft) ☒ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (> 10 ft/100 ft)

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Stream 77

## 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: \_\_\_\_\_ NRC's Soil Map Page \_\_\_\_\_ NRC's 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) 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)

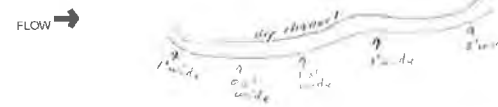
Fish Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_ Salamanders Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_

Frogs or Toadpoles 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



PHWH Form Page - 2

Stream 78

## 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: \_\_\_\_\_ NRC's Soil Map Page \_\_\_\_\_ NRC's 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) 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) 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 Toadpoles 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



PHWH Form Page - 2

HH-PJR-032116-07 Modified Class 2 Stream 79

# ChNEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **62**

SITE NAME/LOCATION: ChNEPA  
SITE NUMBER: HH-32116-7 RIVER BASIN: Hocking DRAINAGE AREA (mi<sup>2</sup>):  
LENGTH OF STREAM REACH (ft): \_\_\_\_\_ LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE: \_\_\_\_\_  
DATE: 3/21/16 SCORER: PJR COMMENTS: Intermittent stream  
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHHW Streams" for Instructions  
STREAM CHANNEL: ☒ NONE / NATURAL CHANNEL ☒ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY  
MODIFICATIONS: Within existing ROW, historic modification

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY top predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input checked="" type="checkbox"/> SILT (<2mm) [10 pts]	5	<input type="checkbox"/> SILT (3-10)	0
<input type="checkbox"/> BOULDER (>256 mm) [10 pts]	0	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	0
<input type="checkbox"/> BEDROCK [10 pts]	0	<input type="checkbox"/> FINE DETRITUS [3 pts]	0
<input type="checkbox"/> COBBLE (63-256 mm) [12 pts]	0	<input type="checkbox"/> CLAY or HARDPAN [3 pts]	0
<input type="checkbox"/> GRAVEL (2-64 mm) [8 pts]	0	<input type="checkbox"/> MUCK [3 pts]	0
<input type="checkbox"/> SAND (<2 mm) [8 pts]	0	<input type="checkbox"/> ARTIFICIAL [3 pts]	0

Total of Percentages of Box Slats, Boulder, Cobble, Bedrock: 5 (A) 5 (B) 5  
TOTAL NUMBER OF SUBSTRATE TYPES: 5

2. Maximum Pool Depth (Measure the maximum pool depth within the 81 meter (269 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes). (Check ONLY one box):  
☐ > 30 centimeters [20 pts] ☐ > 5 cm - 10 cm [10 pts] ☐ < 5 cm [5 pts] ☐ NO WATER OR MOIST CHANNEL [0 pts]  
MAXIMUM POOL DEPTH (centimeters): 15

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements). (Check ONLY one box):  
☐ > 4.0 meters (> 13') [20 pts] ☐ > 1.0 m - 1.5 m (3' 3" - 4' 8") [10 pts] ☐ < 1.0 m (< 3' 3") [5 pts]  
☐ > 2.5 - 3.0 m (8' 2" - 9' 8") [20 pts] ☐ > 1.5 m - 2.0 m (4' 9" - 6' 7") [20 pts]  
AVERAGE BANKFULL WIDTH (meters): 1.4

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

This information must also be completed  
RIPARIAN ZONE AND FLOODPLAIN QUALITY - NOTE: River Left (L) and Right (R) as looking downstream

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

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

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  
☒ Stream Flowing ☐ Moist Channel, isolated pools, no flow (intermittent)  
☐ Subsurface flow with isolated pools (intermittent) ☐ Dry channel, no water (ephemeral)

SINUOSITY (Number of bends per 81 m (269 ft) of channel) (Check ONLY one box):  
☐ None ☐ 0.5 ☐ 1.0 ☐ 1.5 ☐ 2.0 ☐ 2.5 ☒ 3.0 ☐ > 3.0

STREAM GRADIENT ESTIMATE  
☐ Flat (< 5%) ☐ Flat to Moderate ☒ Moderate (2-10%) ☐ Moderate to Severe ☐ Severe (> 10%)

Stream 79

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: \_\_\_\_\_  
☐ CWN Name: \_\_\_\_\_ Distance from Evaluated Stream: \_\_\_\_\_  
☐ DWH Name: \_\_\_\_\_ Distance from Evaluated Stream: \_\_\_\_\_  
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION  
USGS Quadrangle Name: \_\_\_\_\_ NRCB Soil Map Page: \_\_\_\_\_ NRCB 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) 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 (6 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: If 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

Flow →

Bankfull width: 10' wide

Pool depth: 15'

10' wide

HH-PJR-032116-06 Mod. Class 2 Stream 80

# ChNEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **43**

SITE NAME/LOCATION: ChNEPA  
SITE NUMBER: HH-32116-6 RIVER BASIN: Hocking DRAINAGE AREA (mi<sup>2</sup>):  
LENGTH OF STREAM REACH (ft): \_\_\_\_\_ LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE: \_\_\_\_\_  
DATE: 3/21/16 SCORER: PJR COMMENTS: Intermittent stream  
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHHW Streams" for Instructions  
STREAM CHANNEL: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY  
MODIFICATIONS: \_\_\_\_\_

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY top predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> SILT (<2mm) [10 pts]	0	<input type="checkbox"/> SILT (3-10)	0
<input type="checkbox"/> BOULDER (>256 mm) [10 pts]	0	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	0
<input type="checkbox"/> BEDROCK [10 pts]	0	<input type="checkbox"/> FINE DETRITUS [3 pts]	0
<input type="checkbox"/> COBBLE (63-256 mm) [12 pts]	0	<input type="checkbox"/> CLAY or HARDPAN [3 pts]	0
<input type="checkbox"/> GRAVEL (2-64 mm) [8 pts]	0	<input type="checkbox"/> MUCK [3 pts]	0
<input type="checkbox"/> SAND (<2 mm) [8 pts]	0	<input type="checkbox"/> ARTIFICIAL [3 pts]	0

Total of Percentages of Box Slats, Boulder, Cobble, Bedrock: 0 (A) 0 (B) 0  
TOTAL NUMBER OF SUBSTRATE TYPES: 0

2. Maximum Pool Depth (Measure the maximum pool depth within the 81 meter (269 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes). (Check ONLY one box):  
☐ > 30 centimeters [20 pts] ☐ > 5 cm - 10 cm [10 pts] ☐ < 5 cm [5 pts] ☐ NO WATER OR MOIST CHANNEL [0 pts]  
MAXIMUM POOL DEPTH (centimeters): 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements). (Check ONLY one box):  
☐ > 4.0 meters (> 13') [20 pts] ☐ > 1.0 m - 1.5 m (3' 3" - 4' 8") [10 pts] ☐ < 1.0 m (< 3' 3") [5 pts]  
☐ > 2.5 - 3.0 m (8' 2" - 9' 8") [20 pts] ☐ > 1.5 m - 2.0 m (4' 9" - 6' 7") [20 pts]  
AVERAGE BANKFULL WIDTH (meters): 0

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

This information must also be completed  
RIPARIAN ZONE AND FLOODPLAIN QUALITY - NOTE: River Left (L) and Right (R) as looking downstream

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

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

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  
☐ Stream Flowing ☐ Moist Channel, isolated pools, no flow (intermittent)  
☐ Subsurface flow with isolated pools (intermittent) ☐ Dry channel, no water (ephemeral)

SINUOSITY (Number of bends per 81 m (269 ft) of channel) (Check ONLY one box):  
☐ None ☐ 0.5 ☐ 1.0 ☐ 1.5 ☐ 2.0 ☐ 2.5 ☐ 3.0 ☐ > 3.0

STREAM GRADIENT ESTIMATE  
☐ Flat (< 5%) ☐ Flat to Moderate ☐ Moderate (2-10%) ☐ Moderate to Severe ☐ Severe (> 10%)

Stream 80

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: \_\_\_\_\_  
☐ CWN Name: \_\_\_\_\_ Distance from Evaluated Stream: \_\_\_\_\_  
☐ DWH Name: \_\_\_\_\_ Distance from Evaluated Stream: \_\_\_\_\_  
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION  
USGS Quadrangle Name: \_\_\_\_\_ NRCB Soil Map Page: \_\_\_\_\_ NRCB 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) 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 (6 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) \_\_\_\_\_ 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

Flow →

Bankfull width: 10' wide

Pool depth: 15'

10' wide



HH-PJR-032116-05

Mod Class 1

Stream 81

# **OH-EPA** Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION: CN-Portico  
 SITE NUMBER: HH-1116-5 RIVER BASIN: Hocking DRAINAGE AREA (mi<sup>2</sup>):  
 LENGTH OF STREAM REACH (ft): \_\_\_\_\_ LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE: \_\_\_\_\_  
 DATE: 3/21/16 SCORER: PJR COMMENTS: Zachariah Creek  
 NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWH Streams" for Instructions  
 STREAM CHANNEL: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY  
 MODIFICATIONS:

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR GLASS (16 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) (18 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (3 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)		<input type="checkbox"/> MUCK (3 pts)	
<input type="checkbox"/> SAND (<2 mm) (4 pts)		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Box Slabs, Boulder, Cobble, Bedrock: 16 (A) 3 (B) 19 (A+B)  
 SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES: 19  
 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 stormwater pipes.) (Check ONLY one box):  
☐ > 30 centimeters (20 pts)  
☐ > 22.5 - 30 cm (16 pts)  
☐ > 10 - 22.5 cm (12 pts)  
☐ NO WATER OR MOST CHANNEL (0 pts)  
 COMMENTS: 15  
 MAXIMUM POOL DEPTH (centimeters): 15  
 3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  
☐ > 4.0 meters (> 13' (20 pts))  
☐ > 3.0 m - 4.0 m (> 9' 7" - 13' (16 pts))  
☐ > 1.6 m - 3.0 m (> 4' 9" - 9' 7" (12 pts))  
☐ None  
 COMMENTS: 15  
 AVERAGE BANKFULL WIDTH (meters): 15

This information must also be completed  
 RIPARIAN ZONE AND FLOODPLAIN QUALITY (NOTE: River Left (L) and Right (R) as looking downstream)

RIPARIAN ZONE		FLOODPLAIN QUALITY	
L	R	L	R
<input type="checkbox"/> Wide >10m	<input type="checkbox"/> Moderate 5-10m	<input type="checkbox"/> Mature Forest, Wetland	<input type="checkbox"/> Immature Forest, Shrub or Old Field
<input type="checkbox"/> Narrow <5m	<input type="checkbox"/> None	<input type="checkbox"/> Residential, Park, New Field	<input type="checkbox"/> Fenced Pasture
COMMENTS:		COMMENTS:	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): <input type="checkbox"/> Stream Flowing <input type="checkbox"/> Subsurface flow with isolated pools (intermittent) <input type="checkbox"/> Most Channel, isolated pools, no flow (intermittent) <input type="checkbox"/> Dry channel, no water (ephemeral) COMMENTS: <u>15</u>			
BIVOUSITY (Number of bands 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 <input type="checkbox"/> Flat (< 5:100 ft) <input type="checkbox"/> Flat to Moderate <input checked="" type="checkbox"/> Moderate to Severe <input type="checkbox"/> Severe (> 10:100 ft)			

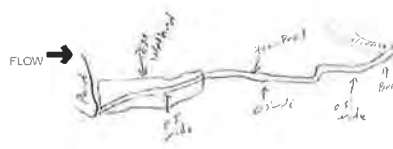
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## ADDITIONAL STREAM INFORMATION (This information must also be completed):

QHEI PERFORMED? ☐ Yes ☒ No QHEI Score: \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)  
 DOWNSTREAM DESIGNATED USE(S)  
☐ WW: Name: \_\_\_\_\_ Distance from Evaluated Stream: \_\_\_\_\_  
☐ CDD: 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) Y Date of last precipitation: \_\_\_\_\_ Quantity: \_\_\_\_\_  
 Photograph Information: \_\_\_\_\_  
 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 (5 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) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_ Salamanders Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_  
 Frogs or Toads 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



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HH-PSR 032116-04

Class 1

Stream 82

# **OH-EPA** Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **14**

SITE NAME/LOCATION: CN-Portico  
 SITE NUMBER: HH-1116-4 RIVER BASIN: Hocking DRAINAGE AREA (mi<sup>2</sup>):  
 LENGTH OF STREAM REACH (ft): \_\_\_\_\_ LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE: \_\_\_\_\_  
 DATE: 3/21/16 SCORER: PJR COMMENTS: Ephemeral Stream  
 NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWH Streams" for Instructions  
 STREAM CHANNEL: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY  
 MODIFICATIONS:

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR GLASS (16 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) (18 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (3 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)		<input type="checkbox"/> MUCK (3 pts)	
<input type="checkbox"/> SAND (<2 mm) (4 pts)		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Box Slabs, Boulder, Cobble, Bedrock: 0 (A) 6 (B) 6 (A+B)  
 SCORE OF TWO MOST PREDOMINANT 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 stormwater pipes.) (Check ONLY one box):  
☐ > 30 centimeters (20 pts)  
☐ > 22.5 - 30 cm (16 pts)  
☐ > 10 - 22.5 cm (12 pts)  
☐ NO WATER OR MOST CHANNEL (0 pts)  
 COMMENTS: 0  
 MAXIMUM POOL DEPTH (centimeters): 0  
 3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  
☐ > 4.0 meters (> 13' (20 pts))  
☐ > 3.0 m - 4.0 m (> 9' 7" - 13' (16 pts))  
☐ > 1.6 m - 3.0 m (> 4' 9" - 9' 7" (12 pts))  
☐ None  
 COMMENTS: 0  
 AVERAGE BANKFULL WIDTH (meters): 0

This information must also be completed  
 RIPARIAN ZONE AND FLOODPLAIN QUALITY (NOTE: River Left (L) and Right (R) as looking downstream)

RIPARIAN ZONE		FLOODPLAIN QUALITY	
L	R	L	R
<input type="checkbox"/> Wide >10m	<input type="checkbox"/> Moderate 5-10m	<input type="checkbox"/> Mature Forest, Wetland	<input type="checkbox"/> Immature Forest, Shrub or Old Field
<input type="checkbox"/> Narrow <5m	<input type="checkbox"/> None	<input type="checkbox"/> Residential, Park, New Field	<input type="checkbox"/> Fenced Pasture
COMMENTS:		COMMENTS:	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): <input type="checkbox"/> Stream Flowing <input type="checkbox"/> Subsurface flow with isolated pools (intermittent) <input type="checkbox"/> Most Channel, isolated pools, no flow (intermittent) <input type="checkbox"/> Dry channel, no water (ephemeral) COMMENTS: <u>0</u>			
BIVOUSITY (Number of bands 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 type="checkbox"/> 2.5 <input type="checkbox"/> 3.0 <input type="checkbox"/> >3			
STREAM GRADIENT ESTIMATE <input type="checkbox"/> Flat (< 5:100 ft) <input type="checkbox"/> Flat to Moderate <input type="checkbox"/> Moderate to Severe <input type="checkbox"/> Severe (> 10:100 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)  
☐ WW: Name: \_\_\_\_\_ Distance from Evaluated Stream: \_\_\_\_\_  
☐ CDD: 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) Y Date of last precipitation: \_\_\_\_\_ Quantity: \_\_\_\_\_  
 Photograph Information: \_\_\_\_\_  
 Elevated Turbidity? (Y/N) N Canopy (% open) 10  
 Were samples collected for water chemistry? (Y/N) N (Note lab sample no. or id and attach results) Lab Number: \_\_\_\_\_  
 Field Measures: Temp (°C) \_\_\_\_\_ Dissolved Oxygen (mg/l) \_\_\_\_\_ pH (5 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) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_ Salamanders Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_  
 Frogs or Toads 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



PWH Form Page - 2

PWH Form Page - 2

HH PJR-032116-03 Modified Class 2 Stream 83

**OH EPA** Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): 64

SITE NAME/LOCATION: 644-116-03

SITE NUMBER: 31116-3 RIVER BASIN: Hocking DRAINAGE AREA (sq mi): \_\_\_\_\_

LENGTH OF STREAM REACH (ft): \_\_\_\_\_ LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE: \_\_\_\_\_

DATE: 12/16/16 SCORER: PSR COMMENTS: Intermittent

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

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

MODIFICATIONS: Within transmission line ROW

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> SLUR SLABS (16 pts)	<u>1</u>	<input type="checkbox"/> SILT (3 pts)	<u>2</u>
<input type="checkbox"/> BOULDER (>250 mm) (16 pts)	<u>1</u>	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	<u>2</u>
<input type="checkbox"/> BEDROCK (16 pts)	<u>1</u>	<input type="checkbox"/> FINE DETRITUS (3 pts)	<u>1</u>
<input type="checkbox"/> COBBLE (65-250 mm) (12 pts)	<u>5</u>	<input type="checkbox"/> CLAY or HARDPAN (3 pts)	<u>1</u>
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	<u>4</u>	<input type="checkbox"/> MUCK (3 pts)	<u>1</u>
<input type="checkbox"/> SAND (<2 mm) (8 pts)	<u>1</u>	<input type="checkbox"/> ARTIFICIAL (3 pts)	<u>1</u>

Total of Percentages of Substrates, Boulder, Cobble, Bedrock: 20 (A) 12 (B) 7

SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES: \_\_\_\_\_ TOTAL NUMBER OF SUBSTRATE TYPES: \_\_\_\_\_

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

☒ > 30 centimeters (30 pts)

☐ > 22.5 - 30 cm (20 pts)

☐ > 10 - 22.5 cm (15 pts)

☐ NO WATER OR MOIST CHANNEL (0 pts)

COMMENTS: high seasonal flow MAXIMUM POOL DEPTH (centimeters): \_\_\_\_\_

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

☒ > 4.0 meters (> 13) (30 pts)

☐ > 3.0 m - 4.0 m (> 9' 7" - 13') (20 pts)

☐ > 1.5 m - 3.0 m (> 4' 9" - 9' 7") (10 pts)

☐ < 1.0 m (< 3' 3" - 4' 8") (15 pts)

☐ < 1.0 m (< 3' 3" - 4' 8") (15 pts)

COMMENTS: \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): 4.3

**HHEI Metric Points**

Substrate Max = 40 19

Pool Depth Max = 30 30

Bankfull Width Max = 30 15

A + B = 64

This information must also be completed

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

**RIPARIAN ZONE AND FLOODPLAIN QUALITY**

**RIPARIAN ZONE** (Per Bank)

☐ L ☐ R

☐ Wide > 10m

☐ Moderate 5-10m

☐ Narrow < 5m

☐ None

**FLOODPLAIN QUALITY** (Most Predominant per Bank)

☐ L ☐ R

☐ Mature Forest, Wetland

☐ Immature Forest, Shrub or Old Field

☐ Residential, Park, New Field

☐ Fenced Pasture

☐ Conservation Tillage

☐ Urban or Industrial

☐ Open Pasture - Row Crop

☐ Mining or Construction

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

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

☒ Stream Flowing

☐ Subsurface flow with isolated pools (intermittent)

☐ Moist Channel, isolated pools, no flow (intermittent)

☐ Dry channel, no water (Ephemeral)

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

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

☐ None

☐ 0.5

☐ 1.0

☐ 1.5

☐ 2.0

☐ 2.5

☒ 3.0

☐ > 3.0

**STREAM GRADIENT ESTIMATE**

☐ Flat (< 1:100 ft)

☐ Flat to Moderate

☐ Moderate (> 1:100 ft)

☒ Moderate to Severe

☐ Severe (> 1:100 ft)

PHWH Form Page - 1

Stream 83

**ADDITIONAL STREAM INFORMATION** (This information must also be completed)

GHEI PERFORMED? ☐ Yes ☒ No GHEI Score: \_\_\_\_\_ (If Yes, Attach Completed GHEI 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) Y Date of last precipitation: \_\_\_\_\_ Quantity: \_\_\_\_\_

Photograph Information: \_\_\_\_\_

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 comment/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) \_\_\_\_\_ 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.

FLOW →

PHWH Form Page - 2

HH PJR-032116-02 Mod. Class 1 Stream 84

**OH EPA** Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): 26

SITE NAME/LOCATION: 644-116-02

SITE NUMBER: 31116-2 RIVER BASIN: Hocking DRAINAGE AREA (sq mi): \_\_\_\_\_

LENGTH OF STREAM REACH (ft): \_\_\_\_\_ LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE: \_\_\_\_\_

DATE: 12/16/16 SCORER: PSR COMMENTS: Intermittent Stream

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

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

MODIFICATIONS: \_\_\_\_\_

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> SLUR SLABS (16 pts)	<u>1</u>	<input type="checkbox"/> SILT (3 pts)	<u>1</u>
<input type="checkbox"/> BOULDER (>250 mm) (16 pts)	<u>1</u>	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	<u>1</u>
<input type="checkbox"/> BEDROCK (16 pts)	<u>1</u>	<input type="checkbox"/> FINE DETRITUS (3 pts)	<u>1</u>
<input type="checkbox"/> COBBLE (65-250 mm) (12 pts)	<u>1</u>	<input type="checkbox"/> CLAY or HARDPAN (3 pts)	<u>1</u>
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	<u>1</u>	<input type="checkbox"/> MUCK (3 pts)	<u>1</u>
<input type="checkbox"/> SAND (<2 mm) (8 pts)	<u>1</u>	<input type="checkbox"/> ARTIFICIAL (3 pts)	<u>1</u>

Total of Percentages of Substrates, Boulder, Cobble, Bedrock: 1 (A) 12 (B) 4

SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES: \_\_\_\_\_ TOTAL NUMBER OF SUBSTRATE TYPES: \_\_\_\_\_

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

☐ > 30 centimeters (30 pts)

☐ > 22.5 - 30 cm (20 pts)

☐ > 10 - 22.5 cm (15 pts)

☐ NO WATER OR MOIST CHANNEL (0 pts)

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

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

☐ > 4.0 meters (> 13) (30 pts)

☐ > 3.0 m - 4.0 m (> 9' 7" - 13') (20 pts)

☐ > 1.5 m - 3.0 m (> 4' 9" - 9' 7") (10 pts)

☐ < 1.0 m (< 3' 3" - 4' 8") (15 pts)

☐ < 1.0 m (< 3' 3" - 4' 8") (15 pts)

COMMENTS: \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): 4.3

**HHEI Metric Points**

Substrate Max = 40 16

Pool Depth Max = 30 15

Bankfull Width Max = 30 15

A + B = 26

This information must also be completed

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

**RIPARIAN ZONE AND FLOODPLAIN QUALITY**

**RIPARIAN ZONE** (Per Bank)

☐ L ☐ R

☐ Wide > 10m

☐ Moderate 5-10m

☐ Narrow < 5m

☐ None

**FLOODPLAIN QUALITY** (Most Predominant per Bank)

☐ L ☐ R

☐ Mature Forest, Wetland

☐ Immature Forest, Shrub or Old Field

☐ Residential, Park, New Field

☐ Fenced Pasture

☐ Conservation Tillage

☐ Urban or Industrial

☐ Open Pasture - Row Crop

☐ Mining or Construction

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

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

☐ Stream Flowing

☐ Subsurface flow with isolated pools (intermittent)

☐ Moist Channel, isolated pools, no flow (intermittent)

☐ Dry channel, no water (Ephemeral)

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

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

☐ None

☐ 0.5

☐ 1.0

☐ 1.5

☐ 2.0

☐ 2.5

☐ 3.0

☐ > 3.0

**STREAM GRADIENT ESTIMATE**

☐ Flat (< 1:100 ft)

☐ Flat to Moderate

☐ Moderate (> 1:100 ft)

☐ Moderate to Severe

☒ Severe (> 1:100 ft)

PHWH Form Page - 1

Stream 84

**ADDITIONAL STREAM INFORMATION** (This information must also be completed)

GHEI PERFORMED? ☐ Yes ☒ No GHEI Score: \_\_\_\_\_ (If Yes, Attach Completed GHEI 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) Y Date of last precipitation: \_\_\_\_\_ Quantity: \_\_\_\_\_

Photograph Information: \_\_\_\_\_

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 comment/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) \_\_\_\_\_ 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.

FLOW →

PHWH Form Page - 2



Mod. Class 2

Stream 87

HH-BAG-0321K-10

# **Ohio EPA** Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3): **54**

SITE NAME/LOCATION: REE POND - CLEVELAND  
 SITE NUMBER: 10 RIVER BASIN: \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>): \_\_\_\_\_  
 LENGTH OF STREAM REACH (ft): \_\_\_\_\_ LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE: \_\_\_\_\_  
 DATE: 03/01/10 SCORER: BAG, JBL COMMENTS: TECHNICAL  
 NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHHW Streams" for Instructions

STREAM CHANNEL: ☒ NONE/NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY  
 MODIFICATIONS: PORTON W/IN EXISTING ROW

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY Y predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (10 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>250 mm) (18 pts)	<u>25</u>	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (18 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-250 mm) (12 pts)	<u>15</u>	<input type="checkbox"/> CLAY or HARDPAN (0 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	<u>15</u>	<input type="checkbox"/> MUCK (0 pts)	
<input type="checkbox"/> SAND (<2 mm) (6 pts)	<u>25</u>	<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: (A) 32 (B) 5  
 SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES: \_\_\_\_\_ 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):  
☐ > 30 centimeters (20 pts) ☐ > 5 cm - 10 cm (15 pts) ☐ > 1.0 m - 1.5 m (15 pts) ☐ > 3' - 4' (8 pts) ☐ > 10' (5 pts)  
☐ > 22.5 - 30 cm (10 pts) ☐ < 5 cm (5 pts) ☐ NO WATER OR MOST CHANNEL DRY  
 COMMENTS: \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): 6"

**3. BANK FULL WIDTH** (Measured as the average of 3-4 measurements). (Check ONLY one box):  
☐ > 4.0 meters (> 13') (20 pts) ☐ > 1.0 m - 1.5 m (> 3' - 4') (15 pts) ☐ > 3.0 m - 4.0 m (> 9' - 13') (10 pts) ☐ > 1.0 m (< 3' - 4') (5 pts)  
☐ > 3.0 m - 4.0 m (> 9' - 13') (10 pts) ☐ > 1.5 m - 3.0 m (> 4' - 9') (5 pts)  
 COMMENTS: \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): 5'

This information must also be completed  
 RIPARIAN ZONE AND FLOODPLAIN QUALITY (NOTE: River Left (L) and Right (R) as looking downstream)

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

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

**FLOW REGIME** (At Time of Evaluation) (Check ONLY one box):  
☒ Stream Flowing ☐ Most Channel, isolated pools, no flow (intermittent)  
☐ Subsurface flow with isolated pools (intermittent) ☐ Dry channel, no water (ephemeral)  
 COMMENTS: \_\_\_\_\_

**SINUOSITY** (Number of bends per 61 m (200 ft) of channel). (Check ONLY one box):  
☐ None ☐ 1.0 ☐ 2.0 ☐ 3.0  
☐ 0.5 ☐ 1.5 ☒ 2.5 ☐ > 2.5

**STREAM GRADIENT ESTIMATE**  
☐ Flat (< 0.1%) ☐ Flat to Moderate ☐ Moderate (> 0.1%) ☐ Moderate to Steep ☒ Steep (> 0.5%)

PHHW Form Page - 1

Mod. Class 1

Stream 88

HH-BAG-0321K-09

# **Ohio EPA** Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3): **16**

SITE NAME/LOCATION: REE POND - CLEVELAND  
 SITE NUMBER: \_\_\_\_\_ RIVER BASIN: \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>): \_\_\_\_\_  
 LENGTH OF STREAM REACH (ft): \_\_\_\_\_ LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE: \_\_\_\_\_  
 DATE: 03/01/10 SCORER: BAG, JBL COMMENTS: TECHNICAL  
 NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHHW Streams" for Instructions

STREAM CHANNEL: ☐ NONE/NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY  
 MODIFICATIONS: W/IN ROW

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY Y predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (10 pts)		<input type="checkbox"/> SILT (3 pts)	<u>40</u>
<input type="checkbox"/> BOULDER (>250 mm) (18 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	<u>25</u>
<input type="checkbox"/> BEDROCK (18 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-250 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (0 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	<u>15</u>	<input type="checkbox"/> MUCK (0 pts)	
<input type="checkbox"/> SAND (<2 mm) (6 pts)	<u>30</u>	<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Blr Slabs, Boulder, Cobble, Bedrock: (A) 9 (B) 4  
 SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES: \_\_\_\_\_ 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):  
☐ > 30 centimeters (20 pts) ☐ > 5 cm - 10 cm (15 pts) ☐ > 1.0 m - 1.5 m (> 3' - 4') (15 pts) ☐ > 3' - 4' (8 pts) ☐ > 10' (5 pts)  
☐ > 22.5 - 30 cm (10 pts) ☐ < 5 cm (5 pts) ☐ NO WATER OR MOST CHANNEL DRY  
 COMMENTS: \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): 0

**3. BANK FULL WIDTH** (Measured as the average of 3-4 measurements). (Check ONLY one box):  
☐ > 4.0 meters (> 13') (20 pts) ☐ > 1.0 m - 1.5 m (> 3' - 4') (15 pts) ☐ > 3.0 m - 4.0 m (> 9' - 13') (10 pts) ☐ > 1.0 m (< 3' - 4') (5 pts)  
☐ > 3.0 m - 4.0 m (> 9' - 13') (10 pts) ☐ > 1.5 m - 3.0 m (> 4' - 9') (5 pts)  
 COMMENTS: \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): 5

This information must also be completed  
 RIPARIAN ZONE AND FLOODPLAIN QUALITY (NOTE: River Left (L) and Right (R) as looking downstream)

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

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

**FLOW REGIME** (At Time of Evaluation) (Check ONLY one box):  
☐ Stream Flowing ☐ Most Channel, isolated pools, no flow (intermittent)  
☐ Subsurface flow with isolated pools (intermittent) ☐ Dry channel, no water (ephemeral)  
 COMMENTS: \_\_\_\_\_

**SINUOSITY** (Number of bends per 61 m (200 ft) of channel). (Check ONLY one box):  
☐ None ☐ 1.0 ☐ 2.0 ☐ 3.0  
☐ 0.5 ☐ 1.5 ☐ 2.5 ☐ > 2.5

**STREAM GRADIENT ESTIMATE**  
☐ Flat (< 0.1%) ☒ Flat to Moderate ☐ Moderate (> 0.1%) ☐ Moderate to Steep ☐ Steep (> 0.5%)

PHHW Form Page - 1

Stream 87

HH-BAG-0321K-10

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

GHEI PERFORMED? ☐ Yes ☒ No GHEI Score: \_\_\_\_\_ (If Yes, Attach Completed GHEI Form)  
 DOWNSTREAM DESIGNATED USE(S): \_\_\_\_\_ Distance from Evaluated Stream: \_\_\_\_\_  
☐ 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) Y Date of last precipitation: UNK Quantity: UNK  
 Photograph Information: 2 Photos  
 Elevated Turbidity? (Y/N) Y 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: \_\_\_\_\_

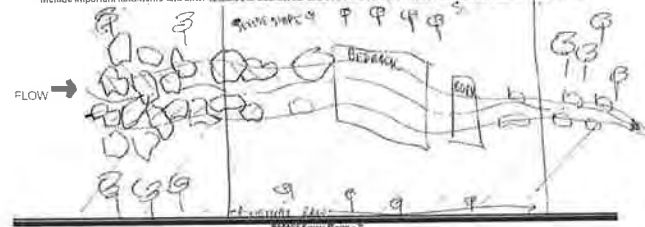
Additional comments/description of pollution impacts: \_\_\_\_\_

## BIOTIC EVALUATION

Performed? (Y/N) 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 Bioty: \_\_\_\_\_

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

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



PHHW Form Page - 2

Stream 88

HH-BAG-0321K-09

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

GHEI PERFORMED? ☐ Yes ☒ No GHEI Score: \_\_\_\_\_ (If Yes, Attach Completed GHEI Form)  
 DOWNSTREAM DESIGNATED USE(S): \_\_\_\_\_ Distance from Evaluated Stream: \_\_\_\_\_  
☐ 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) N Date of last precipitation: UNK Quantity: UNK  
 Photograph Information: 2 Photos  
 Elevated Turbidity? (Y/N) N Canopy (% open): 70  
 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: \_\_\_\_\_

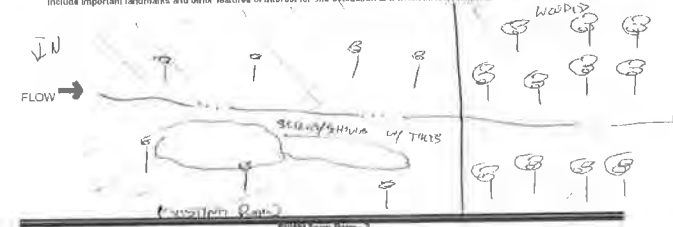
Additional comments/description of pollution impacts: \_\_\_\_\_

## 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 Bioty: \_\_\_\_\_

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

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



PHHW Form Page - 2

Stream 89

Mod. Class 1

HH 840-03/14-08

## Ohio EPA Primary Headwater Habitat Evaluation Form

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

12

SITE NAME/LOCATION: HP PRRON Creek, NWSITE NUMBER: \_\_\_\_\_ RIVER BASIN: \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>): \_\_\_\_\_

LENGTH OF STREAM REACH (ft): \_\_\_\_\_ LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE: \_\_\_\_\_

DATE: 02/21/16 SCORER: BAJ, JBL COMMENTS: See notes

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

STREAM CHANNEL: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERYMODIFICATIONS: W/W EXISTING ROW

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 6). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	30
<input type="checkbox"/> BOULDER (>250 mm) (16 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	30
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	40
<input type="checkbox"/> COBBLE (65-250 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (0 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)		<input type="checkbox"/> MUCK (0 pts)	
<input type="checkbox"/> SAND (<2 mm) (8 pts)	10	<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: (A) 3 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES: 3 + 4 = 7

**2. Maximum Pool Depth** (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid scour pools from flood events or stormwater inputs. Check ONLY one box.)

<input type="checkbox"/> > 30 centimeters (12 pts)	<input type="checkbox"/> > 5 cm - 10 cm (15 pts)
<input type="checkbox"/> > 22.5 - 30 cm (10 pts)	<input type="checkbox"/> < 5 cm (5 pts)
<input type="checkbox"/> > 10 - 22.5 cm (12 pts)	<input 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"/> > 4.6 meters (> 15 ft) (20 pts)	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' - 4' 8") (15 pts)
<input type="checkbox"/> > 3.0 m - 4.6 m (> 9' 7" - 15 ft) (15 pts)	<input type="checkbox"/> < 1.0 m (< 3' 3") (5 pts)
<input type="checkbox"/> > 1.5 m - 3.0 m (> 4' 8" - 9' 7") (10 pts)	

COMMENTS: \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): 5

This information must also be completed

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

RIPARIAN ZONE	FLOODPLAIN QUALITY
<input checked="" type="checkbox"/> L R (Per Bank)	<input type="checkbox"/> L R (Most Predominant per Bank)
<input type="checkbox"/> Wide > 10m	<input type="checkbox"/> Mature Forest, Wetland
<input type="checkbox"/> Moderate 5-10m	<input type="checkbox"/> Immature Forest, Shrub or Old Field
<input type="checkbox"/> Narrow < 5m	<input type="checkbox"/> Residential, Park, New Field
<input type="checkbox"/> None	<input type="checkbox"/> Fenced Pasture
COMMENTS: _____	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 (intermittent)	<input type="checkbox"/> Dry channel, no water (ephemeral)

COMMENTS: epi-interm

**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 type="checkbox"/> > 3.0

**STREAM GRADIENT ESTIMATE**

<input type="checkbox"/> Flat (< 0.5%)	<input checked="" type="checkbox"/> Flat to Moderate	<input type="checkbox"/> Moderate to Severe	<input type="checkbox"/> Severe (> 10%)
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PWHW Form Page - 1

Stream 89

HH 840-03/14-08

## ADDITIONAL STREAM INFORMATION (This Information Must Also Be Completed)

OHEI PERFORMED? ☐ Yes ☒ No OHEI Score: \_\_\_\_\_ (If Yes, Attach Completed OHEI 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: \_\_\_\_\_ NRCSS Soil Map Page: \_\_\_\_\_ NRCSS Soil Map Stream Order: \_\_\_\_\_

County: \_\_\_\_\_ Township: \_\_\_\_\_ City: \_\_\_\_\_

## MISCELLANEOUS

Base Flow Conditions? (Y/N) N Date of last precipitation: UKN Quantity: UKNPhotograph Information: 2 photosElevated Turbidity? (Y/N) N Canopy (% open): 80

Were samples collected for water chemistry? (Y/N) \_\_\_\_\_ (Note lab sample no. or lab and stream results) L&amp;S 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/assessment of pollution impacts: \_\_\_\_\_

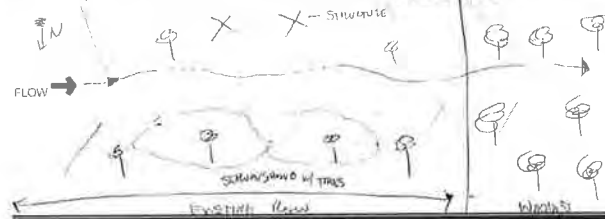
## BIOTIC EVALUATION

Performed? (Y/N) N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher specimens must be labeled with the site number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual.)Fish Observed? (Y/N) N Voucher? (Y/N) \_\_\_\_\_ Salamanders Observed? (Y/N) N Voucher? (Y/N) \_\_\_\_\_Frogs or Toads Observed? (Y/N) N Voucher? (Y/N) \_\_\_\_\_ Aquatic Invertebrates Observed? (Y/N) 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



PWHW Form Page - 2

Stream 90

Class 1

HH 840-03/14-08

## Ohio EPA Primary Headwater Habitat Evaluation Form

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

25

SITE NAME/LOCATION: HP Good Hope PRRONSITE NUMBER: 04 RIVER BASIN: \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>): \_\_\_\_\_

LENGTH OF STREAM REACH (ft): \_\_\_\_\_ LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE: \_\_\_\_\_

DATE: 02/21/16 SCORER: BAJ, JBL COMMENTS: See notes

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

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

MODIFICATIONS: \_\_\_\_\_

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 6). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	30
<input type="checkbox"/> BOULDER (>250 mm) (16 pts)	5	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	15
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	5
<input type="checkbox"/> COBBLE (65-250 mm) (12 pts)	20	<input type="checkbox"/> CLAY or HARDPAN (0 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	20	<input type="checkbox"/> MUCK (0 pts)	
<input type="checkbox"/> SAND (<2 mm) (8 pts)	25	<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: (A) 5 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 6

SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES: 5 + 6 = 11

**2. Maximum Pool Depth** (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid scour pools from flood events or stormwater inputs. Check ONLY one box.)

<input type="checkbox"/> > 30 centimeters (12 pts)	<input type="checkbox"/> > 5 cm - 10 cm (15 pts)
<input type="checkbox"/> > 22.5 - 30 cm (10 pts)	<input type="checkbox"/> < 5 cm (5 pts)
<input type="checkbox"/> > 10 - 22.5 cm (12 pts)	<input type="checkbox"/> NO WATER OR MOIST CHANNEL (0 pts)

COMMENTS: \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): 2

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

<input type="checkbox"/> > 4.6 meters (> 15 ft) (20 pts)	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' - 4' 8") (15 pts)
<input type="checkbox"/> > 3.0 m - 4.6 m (> 9' 7" - 15 ft) (15 pts)	<input type="checkbox"/> < 1.0 m (< 3' 3") (5 pts)
<input type="checkbox"/> > 1.5 m - 3.0 m (> 4' 8" - 9' 7") (10 pts)	

COMMENTS: \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): 2

This information must also be completed

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

RIPARIAN ZONE	FLOODPLAIN QUALITY
<input checked="" type="checkbox"/> L R (Per Bank)	<input type="checkbox"/> L R (Most Predominant per Bank)
<input type="checkbox"/> Wide > 10m	<input type="checkbox"/> Mature Forest, Wetland
<input type="checkbox"/> Moderate 5-10m	<input type="checkbox"/> Immature Forest, Shrub or Old Field
<input type="checkbox"/> Narrow < 5m	<input type="checkbox"/> Residential, Park, New Field
<input type="checkbox"/> None	<input type="checkbox"/> Fenced Pasture
COMMENTS: _____	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 (intermittent)	<input type="checkbox"/> Dry channel, no water (ephemeral)

COMMENTS: epi-interm

**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 type="checkbox"/> > 3.0

**STREAM GRADIENT ESTIMATE**

<input type="checkbox"/> Flat (< 0.5%)	<input checked="" type="checkbox"/> Flat to Moderate	<input type="checkbox"/> Moderate to Severe	<input type="checkbox"/> Severe (> 10%)
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PWHW Form Page - 1

Stream 90

HH 840-03/14-08

## ADDITIONAL STREAM INFORMATION (This Information Must Also Be Completed)

OHEI PERFORMED? ☐ Yes ☒ No OHEI Score: \_\_\_\_\_ (If Yes, Attach Completed OHEI 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: \_\_\_\_\_ NRCSS Soil Map Page: \_\_\_\_\_ NRCSS Soil Map Stream Order: \_\_\_\_\_

County: \_\_\_\_\_ Township: \_\_\_\_\_ City: \_\_\_\_\_

## MISCELLANEOUS

Base Flow Conditions? (Y/N) N Date of last precipitation: UKN Quantity: UKNPhotograph Information: 2 photosElevated Turbidity? (Y/N) N Canopy (% open): 80

Were samples collected for water chemistry? (Y/N) \_\_\_\_\_ (Note lab sample no. or lab and stream results) L&amp;S 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/assessment of pollution impacts: \_\_\_\_\_

## BIOTIC EVALUATION

Performed? (Y/N) N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher specimens must be labeled with the site number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual.)Fish Observed? (Y/N) N Voucher? (Y/N) \_\_\_\_\_ Salamanders Observed? (Y/N) N Voucher? (Y/N) \_\_\_\_\_Frogs or Toads Observed? (Y/N) N Voucher? (Y/N) \_\_\_\_\_ Aquatic Invertebrates Observed? (Y/N) 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



PWHW Form Page - 2



Stream 91 Class 2 PH 880-03400-06

# Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **34**

SITE NAME/LOCATION: RY 2nd St. 400 ft. E. of  
 SITE NUMBER: 06 RIVER BASIN: \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>): \_\_\_\_\_  
 LENGTH OF STREAM REACH (ft): \_\_\_\_\_ LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE: \_\_\_\_\_  
 DATE: 8/2/16 SCORER: Bob J. Galt COMMENTS: 7th CENTURY  
 NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions  
 STREAM CHANNEL ☒ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY  
 MODIFICATIONS: \_\_\_\_\_

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)

TYPE	PERCENT	TYPE	PERCENT
<input checked="" type="checkbox"/> BLDR SLABS (16 pts)	_____	<input checked="" type="checkbox"/> SILT (3 pts)	3
<input checked="" type="checkbox"/> BOULDER (>256 mm) (16 pts)	_____	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	3
<input checked="" type="checkbox"/> BEDROCK (16 pts)	_____	<input checked="" type="checkbox"/> FINE DETRITUS (3 pts)	3
<input checked="" type="checkbox"/> COBBLE (65-256 mm) (12 pts)	10	<input checked="" type="checkbox"/> CLAY or HARDPAN (0 pts)	0
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	10	<input checked="" type="checkbox"/> MUCK (0 pts)	0
<input checked="" type="checkbox"/> SAND (<2 mm) (8 pts)	10	<input checked="" type="checkbox"/> ARTIFICIAL (3 pts)	3

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 40 (A) 9 (B) 5  
 SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES: 9 5 **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):  
☒ > 30 centimeters (20 pts) ☐ > 5 cm - 10 cm (15 pts) ☐ < 5 cm (5 pts) ☐ 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):  
☒ > 4.0 meters (15) (25 pts) ☐ > 1.0 m - 1.5 m (3.3 - 4.8) (15 pts) ☐ > 1.0 m - 1.5 m (3.3 - 4.8) (15 pts) ☐ > 1.0 m - 1.5 m (3.3 - 4.8) (15 pts)  
 COMMENTS: \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 4**

HHEI Metric Points  
Substrate Max = 40  
**14**  
A + B

Pool Depth Max = 10  
**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 ZONE		FLOODPLAIN QUALITY	
L	R	L	R
<input checked="" type="checkbox"/> Wide > 10m	<input checked="" type="checkbox"/> Moderate 5-10m	<input checked="" type="checkbox"/> Mature Forest, Wetland	<input checked="" type="checkbox"/> Urban or Industrial
<input checked="" type="checkbox"/> Narrow < 5m	<input checked="" type="checkbox"/> None	<input checked="" type="checkbox"/> Residential, Park, New Field	<input checked="" type="checkbox"/> Open Pasture, Row Crop
<input checked="" type="checkbox"/> None	<input checked="" type="checkbox"/> Fenced Pasture	<input checked="" type="checkbox"/> Fenced Pasture	<input checked="" type="checkbox"/> Mining or Construction

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

**FLOW REGIME** (At Time of Evaluation) (Check ONLY one box):  
☒ Stream Flowing  
☐ Subsurface flow with isolated pools (epithermal)  
☐ Dry channel: no water (epithermal)  
 COMMENTS: 1st 9m of reach

**SINUOSITY** (Number of bends per 61 m (200 ft) of channel). (Check ONLY one box):  
☒ None  
☐ 0.5  
☐ 1.0  
☐ 1.5  
☐ 2.0  
☐ 2.5  
☐ 3.0  
☐ > 3

**STREAM GRADIENT ESTIMATE**  
☐ Flat (0-5%) ☐ Flat to Moderate ☒ Moderate to Steep ☐ Moderate to Severe ☐ Steep (> 10%)

PHWH Form Page - 1

Stream 91 PH 880-03400-06

## ADDITIONAL STREAM INFORMATION (This information Must Also be Completed)

ONE PERFORMED? ☒ Yes ☐ No (Check ONE)  
 (Check ONLY one box)  
☒ Trawl Net  
☐ Cast Net  
☐ Dip Net  
 MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION  
 USGS Quadrangle Name: \_\_\_\_\_ HRCSS Map Page: \_\_\_\_\_ HRCSS Map Sheet Number: \_\_\_\_\_  
 County: \_\_\_\_\_ Township: \_\_\_\_\_

**MISCELLANEOUS**  
 Date First Collected: 8/2/16 Date of this collection: 8/2/16 County: OHIO  
 Project Name: 2nd St. 400 ft. E. of  
 Channel Type: 1 Channel Order: 20  
 Water Sample Collected for Water Chemistry? ☒ Yes ☐ No (If Yes, specify in # of water sample collected for chemistry)  
 Field Observations: None (Check ONLY one box)  
☐ No Observations ☐ Observations (Specify) \_\_\_\_\_  
 (If the sampling reach represents a lot of stream reach, field observations are not required)

**BOTIC EVALUATION**  
 Fish Caught? (Y/N) ☒ Y ☐ N (If Yes, Record all observations. Standard collection type: OTFC (Structure sample must be taken within the 61 meter evaluation reach. Include a sketch of the structure in the Primary Headwater Habitat Evaluation Manual.)  
 Fish Caught? (Y/N) ☒ Y ☐ N (If Yes, Record all observations. Standard collection type: OTFC (Structure sample must be taken within the 61 meter evaluation reach. Include a sketch of the structure in the Primary Headwater Habitat Evaluation Manual.)  
 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 analysis and description of the stream's location

PHWH Form Page - 2

Stream 92 Mod. Class 1 PH 880-03400-05

# Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **18**

SITE NAME/LOCATION: 2nd St. 400 ft. E. of  
 SITE NUMBER: 05 RIVER BASIN: \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>): \_\_\_\_\_  
 LENGTH OF STREAM REACH (ft): \_\_\_\_\_ LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE: \_\_\_\_\_  
 DATE: 8/2/16 SCORER: Bob J. Galt COMMENTS: 7th CENTURY  
 NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions  
 STREAM CHANNEL ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY  
 MODIFICATIONS: DEBRIS PILES THROUGHOUT REACH, FORMER DISTURBANCE

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)

TYPE	PERCENT	TYPE	PERCENT
<input checked="" type="checkbox"/> BLDR SLABS (16 pts)	_____	<input checked="" type="checkbox"/> SILT (3 pts)	3
<input checked="" type="checkbox"/> BOULDER (>256 mm) (16 pts)	_____	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	3
<input checked="" type="checkbox"/> BEDROCK (16 pts)	_____	<input checked="" type="checkbox"/> FINE DETRITUS (3 pts)	3
<input checked="" type="checkbox"/> COBBLE (65-256 mm) (12 pts)	10	<input checked="" type="checkbox"/> CLAY or HARDPAN (0 pts)	0
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	10	<input checked="" type="checkbox"/> MUCK (0 pts)	0
<input checked="" type="checkbox"/> SAND (<2 mm) (8 pts)	10	<input checked="" type="checkbox"/> ARTIFICIAL (3 pts)	3

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 40 (A) 3 (B) 5  
 SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES: 3 5 **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):  
☒ > 30 centimeters (20 pts) ☐ > 5 cm - 10 cm (15 pts) ☐ < 5 cm (5 pts) ☐ 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):  
☒ > 4.0 meters (15) (25 pts) ☐ > 1.0 m - 1.5 m (3.3 - 4.8) (15 pts) ☐ > 1.0 m - 1.5 m (3.3 - 4.8) (15 pts) ☐ > 1.0 m - 1.5 m (3.3 - 4.8) (15 pts)  
 COMMENTS: \_\_\_\_\_ **AVERAGE BANKFULL WIDTH (meters): 2**

HHEI Metric Points  
Substrate Max = 40  
**16**  
A + B

Pool Depth Max = 10  
**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 ZONE		FLOODPLAIN QUALITY	
L	R	L	R
<input checked="" type="checkbox"/> Wide > 10m	<input checked="" type="checkbox"/> Moderate 5-10m	<input checked="" type="checkbox"/> Mature Forest, Wetland	<input checked="" type="checkbox"/> Urban or Industrial
<input checked="" type="checkbox"/> Narrow < 5m	<input checked="" type="checkbox"/> None	<input checked="" type="checkbox"/> Residential, Park, New Field	<input checked="" type="checkbox"/> Open Pasture, Row Crop
<input checked="" type="checkbox"/> None	<input checked="" type="checkbox"/> Fenced Pasture	<input checked="" type="checkbox"/> Fenced Pasture	<input checked="" type="checkbox"/> Mining or Construction

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

**FLOW REGIME** (At Time of Evaluation) (Check ONLY one box):  
☒ Stream Flowing  
☐ Subsurface flow with isolated pools (epithermal)  
☐ Dry channel: no water (epithermal)  
 COMMENTS: \_\_\_\_\_

**SINUOSITY** (Number of bends per 61 m (200 ft) of channel). (Check ONLY one box):  
☒ None  
☐ 0.5  
☐ 1.0  
☐ 1.5  
☐ 2.0  
☐ 2.5  
☐ 3.0  
☐ > 3

**STREAM GRADIENT ESTIMATE**  
☐ Flat (0-5%) ☐ Flat to Moderate ☒ Moderate to Steep ☐ Moderate to Severe ☐ Steep (> 10%)

PHWH Form Page - 1

Stream 92 PH 880-03400-05

## ADDITIONAL STREAM INFORMATION (This information Must Also be Completed)

ONE PERFORMED? ☒ Yes ☐ No (Check ONE)  
 (Check ONLY one box)  
☒ Trawl Net  
☐ Cast Net  
☐ Dip Net  
 MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION  
 USGS Quadrangle Name: \_\_\_\_\_ HRCSS Map Page: \_\_\_\_\_ HRCSS Map Sheet Number: \_\_\_\_\_  
 County: \_\_\_\_\_ Township: \_\_\_\_\_

**MISCELLANEOUS**  
 Date First Collected: 8/2/16 Date of this collection: 8/2/16 County: OHIO  
 Project Name: 2nd St. 400 ft. E. of  
 Channel Type: 1 Channel Order: 20  
 Water Sample Collected for Water Chemistry? ☒ Yes ☐ No (If Yes, specify in # of water sample collected for chemistry)  
 Field Observations: None (Check ONLY one box)  
☐ No Observations ☐ Observations (Specify) \_\_\_\_\_  
 (If the sampling reach represents a lot of stream reach, field observations are not required)

**BOTIC EVALUATION**  
 Fish Caught? (Y/N) ☒ Y ☐ N (If Yes, Record all observations. Standard collection type: OTFC (Structure sample must be taken within the 61 meter evaluation reach. Include a sketch of the structure in the Primary Headwater Habitat Evaluation Manual.)  
 Fish Caught? (Y/N) ☒ Y ☐ N (If Yes, Record all observations. Standard collection type: OTFC (Structure sample must be taken within the 61 meter evaluation reach. Include a sketch of the structure in the Primary Headwater Habitat Evaluation Manual.)  
 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 analysis and description of the stream's location

PHWH Form Page - 2

Stream 93

Mod. Class 1

HH-BPO-032111-03

# **Ohio EPA** Primary Headwater Habitat Evaluation Form

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

23

**SITE NAME/LOCATION:** 6500 S. 1st St. Elyria  
**SITE NUMBER:** 03 **RIVER BASIN:** 03 **DRAINAGE AREA (mi<sup>2</sup>):** 0.04  
**LENGTH OF STREAM REACH (ft):** 100 **LAT:** 41° 45' N **LONG:** 81° 55' W **RIVER CODE:** 03 **RIVER MILE:** 0.04  
**DATE:** 03/21/10 **SCORER:** PHW/JBL **COMMENTS:** 1st PFWH Form  
 NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PFWH Streams" for Instructions  
**STREAM CHANNEL:** ☐ NONE (NATURAL CHANNEL) ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY  
**MODIFICATIONS:** Drainage Pipes, Locust Disturbance, W/In Road

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY top predominant substrate TYPE boxes (Max. of 40). Add total number of significant substrate types found (Max. of 8). Final metric score is sum of boxes A & B.)

TYPE	PERCENT	TYPE	PERCENT
<input checked="" type="checkbox"/> BLUR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (63-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (0 pts)	
<input type="checkbox"/> GRAVEL (2.64 mm) (8 pts)		<input type="checkbox"/> MUCK (0 pts)	
<input type="checkbox"/> SAND (<2 mm) (8 pts)		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Substrate Types: 5 (A) 9 (B) 4  
**SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES:** 9 4  
**2. Maximum Pool Depth** (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Assess plunge pools from road culverts or stream waterfalls. (Check ONLY one box.)  
☐ > 30 centimeters (20 pts)  
☐ 22.5 - 30 cm (10 pts)  
☐ 16 - 22.5 cm (5 pts)  
☒ NO WATER OR MOIST CHANNEL (0 pts)  
**COMMENTS:** NO WATER OR MOIST CHANNEL (0 pts)  
**MAXIMUM POOL DEPTH (centimeters):** 0  
**3. BANK FULL WIDTH** (Measured as the average of 3-4 measurements) (Check ONLY one box.)  
☐ > 4.6 meters (15) (20 pts)  
☐ 3.0 m - 4.6 m (9.7' - 15') (15 pts)  
☐ 1.5 m - 3.0 m (4.9' - 9.7') (10 pts)  
☒ NO WATER OR MOIST CHANNEL (0 pts)  
**COMMENTS:** NO WATER OR MOIST CHANNEL (0 pts)  
**AVERAGE BANKFULL WIDTH (meters):** 0

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

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

**COMMENTS:** None

**FLOW REGIME** (At Time of Evaluation) (Check ONLY one box.)  
☒ Stream Flowing  
☐ Subsurface flow with isolated pools (Intermittent)  
☐ Dry channel, no water (Ephemeral)  
**COMMENTS:** Stream Flowing

**SINUOSITY** (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box.)  
☐ None  
☐ 0.5  
☐ 1.0  
☐ 1.5  
☐ 2.0  
☐ 2.5  
☐ 3.0  
☐ >3  
☒ None  
☐ 0.5  
☐ 1.0  
☐ 1.5  
☐ 2.0  
☐ 2.5  
☐ 3.0  
☐ >3

**STREAM GRADIENT ESTIMATE**  
☐ Flat (0.5 m/m)  
☐ Flat to Moderate  
☒ Moderate to Steep  
☐ Steep

PHWH Form Page - 1

Stream 93

HH-BPO-032111-03

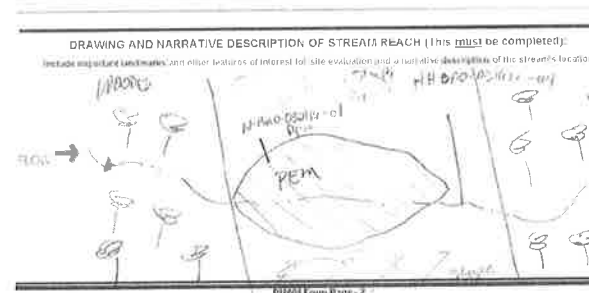
## ADDITIONAL STREAM INFORMATION (This information must also be completed)

**ONE PERFORMED:** ☒ Yes ☐ No **ONE DATE:** 03/21/10 **IF YES, Attach Completed ONE Form**  
**DOUGLAS REACH DESIGNATION:** ☐ **Stream Name:** 6500 S. 1st St. Elyria **Distance from PFWH Stream:** 0.04  
**Stream Code:** 03 **Stream Mile:** 0.04 **Distance from Evaluation Reach:** 0.04

**MAPPING:** ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.  
**USGS Geographic Name:** 6500 S. 1st St. Elyria **USGS Map Page:** 03 **USGS Map Sheet Order:** 03  
**County:** Cuyahoga **Township:** 03

**MISCELLANEOUS**  
**Base River Classification:** Y **Date of last evaluation:** 03/21/10 **County:** 03  
**Photograph Information:** 0 **Photo File Name:** 03  
**Stream Velocity (ft/s):** Y **Channel Velocity:** 80  
**Water samples collected for water chemistry (ft/s):** Y **Water sample no. at site:** 03 **Water sample no. at site:** 03  
**Field Observations:** Temp 60° **Channel Oxygen (mg/l):** 03 **Channel pH (ft/s):** 03  
**By this sampling reach is representative of the stream reach:** Y **Stream reach length:** 03

**BIOTIC EVALUATION**  
**Performance (ft/s):** 03 **Stream reach length:** 03 **Stream reach length:** 03 **Stream reach length:** 03  
**Stream reach length:** 03 **Stream reach length:** 03 **Stream reach length:** 03 **Stream reach length:** 03  
**Stream reach length:** 03 **Stream reach length:** 03 **Stream reach length:** 03 **Stream reach length:** 03

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH** (This must be completed.)  
 Include significant landmarks and other features of interest for site evaluation and a narrative description of the stream's location.  


PHWH Form Page - 2

Stream 94

Mod. Class 1

HH-BPO-032111-03

# **Ohio EPA** Primary Headwater Habitat Evaluation Form

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

24

**SITE NAME/LOCATION:** 6500 S. 1st St. Elyria  
**SITE NUMBER:** 03 **RIVER BASIN:** 03 **DRAINAGE AREA (mi<sup>2</sup>):** 0.04  
**LENGTH OF STREAM REACH (ft):** 100 **LAT:** 41° 45' N **LONG:** 81° 55' W **RIVER CODE:** 03 **RIVER MILE:** 0.04  
**DATE:** 03/21/10 **SCORER:** PHW/JBL **COMMENTS:** 1st PFWH Form  
 NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PFWH Streams" for Instructions  
**STREAM CHANNEL:** ☐ NONE (NATURAL CHANNEL) ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY  
**MODIFICATIONS:** W/In EXISTING ROAD, RIPARIAN RECOVERING

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY top predominant substrate TYPE boxes (Max. of 40). Add total number of significant substrate types found (Max. of 8). Final metric score is sum of boxes A & B.)

TYPE	PERCENT	TYPE	PERCENT
<input checked="" type="checkbox"/> BLUR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (63-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (0 pts)	
<input type="checkbox"/> GRAVEL (2.64 mm) (8 pts)		<input type="checkbox"/> MUCK (0 pts)	
<input type="checkbox"/> SAND (<2 mm) (8 pts)		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Substrate Types: 5 (A) 9 (B) 4  
**SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES:** 9 4  
**2. Maximum Pool Depth** (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Assess plunge pools from road culverts or stream waterfalls. (Check ONLY one box.)  
☐ > 30 centimeters (20 pts)  
☐ 22.5 - 30 cm (10 pts)  
☐ 16 - 22.5 cm (5 pts)  
☒ NO WATER OR MOIST CHANNEL (0 pts)  
**COMMENTS:** NO WATER OR MOIST CHANNEL (0 pts)  
**MAXIMUM POOL DEPTH (centimeters):** 0  
**3. BANK FULL WIDTH** (Measured as the average of 3-4 measurements) (Check ONLY one box.)  
☐ > 4.6 meters (15) (20 pts)  
☐ 3.0 m - 4.6 m (9.7' - 15') (15 pts)  
☐ 1.5 m - 3.0 m (4.9' - 9.7') (10 pts)  
☒ NO WATER OR MOIST CHANNEL (0 pts)  
**COMMENTS:** NO WATER OR MOIST CHANNEL (0 pts)  
**AVERAGE BANKFULL WIDTH (meters):** 0

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

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

**COMMENTS:** None

**FLOW REGIME** (At Time of Evaluation) (Check ONLY one box.)  
☒ Stream Flowing  
☐ Subsurface flow with isolated pools (Intermittent)  
☐ Dry channel, no water (Ephemeral)  
**COMMENTS:** Stream Flowing

**SINUOSITY** (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box.)  
☐ None  
☐ 0.5  
☐ 1.0  
☐ 1.5  
☐ 2.0  
☐ 2.5  
☐ 3.0  
☐ >3  
☒ None  
☐ 0.5  
☐ 1.0  
☐ 1.5  
☐ 2.0  
☐ 2.5  
☐ 3.0  
☐ >3

**STREAM GRADIENT ESTIMATE**  
☐ Flat (0.5 m/m)  
☐ Flat to Moderate  
☒ Moderate to Steep  
☐ Steep

PHWH Form Page - 1

Stream 94

HH-BPO-032111-03

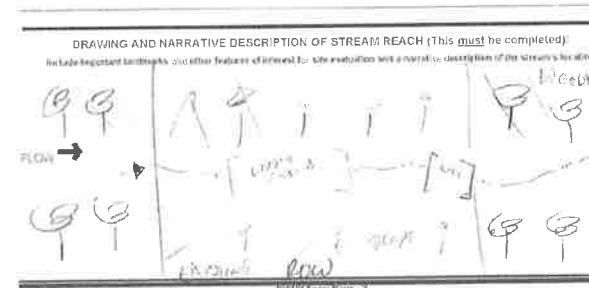
## ADDITIONAL STREAM INFORMATION (This information must also be completed)

**ONE PERFORMED:** ☒ Yes ☐ No **ONE DATE:** 03/21/10 **IF YES, Attach Completed ONE Form**  
**DOUGLAS REACH DESIGNATION:** ☐ **Stream Name:** 6500 S. 1st St. Elyria **Distance from PFWH Stream:** 0.04  
**Stream Code:** 03 **Stream Mile:** 0.04 **Distance from Evaluation Reach:** 0.04

**MAPPING:** ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.  
**USGS Geographic Name:** 6500 S. 1st St. Elyria **USGS Map Page:** 03 **USGS Map Sheet Order:** 03  
**County:** Cuyahoga **Township:** 03

**MISCELLANEOUS**  
**Base River Classification:** Y **Date of last evaluation:** 03/21/10 **County:** 03  
**Photograph Information:** 0 **Photo File Name:** 03  
**Stream Velocity (ft/s):** Y **Channel Velocity:** 80  
**Water samples collected for water chemistry (ft/s):** Y **Water sample no. at site:** 03 **Water sample no. at site:** 03  
**Field Observations:** Temp 60° **Channel Oxygen (mg/l):** 03 **Channel pH (ft/s):** 03  
**By this sampling reach is representative of the stream reach:** Y **Stream reach length:** 03

**BIOTIC EVALUATION**  
**Performance (ft/s):** 03 **Stream reach length:** 03 **Stream reach length:** 03 **Stream reach length:** 03  
**Stream reach length:** 03 **Stream reach length:** 03 **Stream reach length:** 03 **Stream reach length:** 03  
**Stream reach length:** 03 **Stream reach length:** 03 **Stream reach length:** 03 **Stream reach length:** 03

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH** (This must be completed.)  
 Include significant landmarks and other features of interest for site evaluation and a narrative description of the stream's location.  


PHWH Form Page - 2

**OhioEPA** Primary Headwater Habitat Evaluation Form

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

23

SITE NAME LOCATION: Forest Creek Dept

SITE NUMBER 1 RIVER BASIN \_\_\_\_\_ CATCHMENT AREA \_\_\_\_\_

LENGTH OF STREAM REACH (ft) 147 LONG \_\_\_\_\_ RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE 03/01/06 SCORER BIG JBL COMMENTS CPUH #1005

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

**STREAM CHANNEL**      ☐ NONE / NATURAL CHANNEL    ☐ RECOVERED    ☒ RECOVERING    ☐ RECENT OR NO RECOVERY

**MODIFICATIONS:** w/o EXISTING ROW

**1.** SUBSTRATE (Estimate percent of every type of substrate present, Check ONLY two predominant; substrate Type counts Max of 40). Add total percent of significant substrate types found (Max of 8). Fine metric score is sum of boxes A + B.

TYPE	PERCENT	TYPE	PERCENT	HHEI Metric Points
<input type="checkbox"/> BLDR GLASS [16 pts]	<input type="checkbox"/>	<input type="checkbox"/> SILT [3 pt]	<input type="checkbox"/>	Substrate Max = 40  <b>15</b>
<input type="checkbox"/> ROULDER (>25 mm) [16 pts]	<input type="checkbox"/>	<input type="checkbox"/> LEAF LITTER/MOODY DEBRIS [3 pts]	<input type="checkbox"/>	
<input type="checkbox"/> BEDROCK [16 pt]	<input type="checkbox"/>	<input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="checkbox"/>	
<input type="checkbox"/> COBBLE (16-25 mm) [12 pts]	<u>10</u>	<input type="checkbox"/> CLAY or HARDPAN [8 pt]	<input type="checkbox"/>	
<input type="checkbox"/> GRAVEL (2-64 mm) [8 pts]	<u>20</u>	<input type="checkbox"/> MUCK [8 pts]	<input type="checkbox"/>	
<input type="checkbox"/> SAND (<2 mm) [6 pts]	<u>70</u>	<input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="checkbox"/>	

Total of Percentages of Box Shaded Boulder, Cobble, Bedrock 10 (A) 7 (B)

SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES TOTAL NUMBER OF SUBSTRATE TYPES

**2.** Maximum Pool Depth (Measure the maximum pool depth within the reach center (20 ft) evaluation reach at the time of evaluation. Exclude average pools from box elements of stream width survey. Check ONLY one item.)

<input type="checkbox"/> > 25 centimeter [20 pts]	<input type="checkbox"/>	> 10 m - 15 m [2' - 4'] [8 pts]	Pool Depth Max = 30  <b>5</b>
<input type="checkbox"/> > 25 - 30 cm [10 pts]	<input type="checkbox"/>	> 5 cm [15 ft]	
<input type="checkbox"/> 10 - 25 cm [25 pts]	<input type="checkbox"/>	NO MEASUREMENT OF POOL CHANGES [0 pts]	

COMMENTS \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters) 71

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

<input type="checkbox"/> > 4 Centres (e.g. 12') [30 pts]	<input type="checkbox"/>	> 1.0 m - 1.5 m [3' - 4'] [8 pts]	Bank Full Width Max = 30  <b>5</b>
<input type="checkbox"/> > 3.0 m - 4.0 m [15 - 17] [15 pts]	<input type="checkbox"/>	> 1.0 m (e.g. 3.33) [6 pts]	
<input type="checkbox"/> > 1.5 m - 3.0 m (e.g. 4'-6") [7 pts]	<input type="checkbox"/>		

COMMENTS \_\_\_\_\_ AVERAGE BANK FULL WIDTH (meters) 4.4

This information <u>must</u> also be completed										
RIPARIAN ZONE AND FLOODPLAIN QUALITY					SINGLE River (left) and Right (R) as flowing downstream or					
<u>RIPARIAN W/ST</u>					<u>FLOODPLAIN QUALITY</u>					
<input checked="" type="checkbox"/> 1	<input checked="" type="checkbox"/> 2	<input checked="" type="checkbox"/> 3	<input checked="" type="checkbox"/> 4	<input checked="" type="checkbox"/> 5	<input checked="" type="checkbox"/> L	<input checked="" type="checkbox"/> R	<input checked="" type="checkbox"/> 1	<input checked="" type="checkbox"/> 2	<input checked="" type="checkbox"/> 3	
Wade <10m					Mature Forest, Wetland					Conservation Tillage
Moderate >10m					Immature Forest, Shrub or Old Field					Urban or Industrial
Narrow <5m					Residential, Park, New Field					Open Pasture, Row Crop
None					Perennial Wetland					Mining or Construction
COMMENTS										
<div> <input checked="" type="checkbox"/> 1           <input checked="" type="checkbox"/> 2           <input checked="" type="checkbox"/> 3           <input checked="" type="checkbox"/> 4           <input checked="" type="checkbox"/> 5         </div>										
FLOW REGIME (At Time of Evaluation) (check ONE) one box					Mouth Channel, Barred pools, no flow (Intermittent)					Drainage no water (Ephemeral)
Stream Flooding										
Subsurface flow with isolated pools (intermittent)										
COMMENTS					Ephemeral					
BIODIVERSITY (Number of species per 61 m (260 ft) of channel) (check ONE) one box										
None					1-5					6-10
1-5					6-10					11-15
					16-20					21-25
STREAM GRADIENT ESTIMATE										
<input type="checkbox"/> Flat or nearly flat		<input type="checkbox"/> Flat to Moderate		<input type="checkbox"/> Moderate to Steep		<input type="checkbox"/> Moderate to Severe		<input checked="" type="checkbox"/> Severe		

ADDITIONAL STEAM INFORMATION (This information must also be completed):

QHE1 PERFORMED BY: ☐ Yes ☒ No QHE1 DATE: \_\_\_\_\_ BY: Yes ☐ No ☒ Complete ☐ Other

Distance from Estimated Origin

Distance from Estimated Origin

Distance from Estimated Origin

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

USGS Occurrence Name \_\_\_\_\_ NRCOS Get Map Page \_\_\_\_\_ NRCOS Get Map Drawn Date \_\_\_\_\_  
County \_\_\_\_\_ Township/Range \_\_\_\_\_

## MISCELLANEOUS

Base Price Calculation (100%) 100 Base Effect per person 1000 Quantity 1000  
 Indicated Impairment 20 20000  
 Estimated Fair Value (100%) 100 Capacity/Use per day 70  
 Were persons subjected to water damage? 0 0 (check for injury, crop or other damage resulting from flood)  
 Estimated Damage Temp. 100 Estimated Damage Height 10 100 1000 (check for damage)  
 Is the resulting flood attributable to other causes? 0 0 (check for other causes)  
 Additional comments (nature, location of person or objects)

### INDICING EVALUATION

[illegible]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.

A hand-drawn diagram of a river cross-section. A horizontal line represents the riverbed. Above it, a wavy line represents the water surface. An arrow labeled 'FLOW' points to the right. On the left bank, there is a small structure labeled 'N' and a tree. On the right bank, there is a tree labeled 'Woods'. In the center of the river, there is a small island or sandbar labeled 'SAND BAR' and '100'.

## OhioEPA Primary Headwater Habitat Evaluation Form

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

ॐ

SITE NAME LOCATION: <u>21250 1<sup>st</sup> AVE, BASH</u>		DATE: <u>08/16</u>	
SITE NUMBER: <u>100</u>		DRAINAGE AREA (mi <sup>2</sup> ): <u>          </u>	
LENGTH OF STREAM REACH (ft): <u>          </u>		RIVER CODE: <u>          </u>	
LAT: <u>          </u> LONG: <u>          </u>		RIVER MILES: <u>          </u>	
UTM: <u>081616</u> SCORER: <u>Bag Scl</u> COMMENTS: <u>08/16/16</u>			
NOTE: Complete All Sections On This Form - Refer to "Field Evaluation Manual for Ohio's PAVH Streams" for instructions.			
STREAM CHANNEL: <input type="checkbox"/> NONE / NATURAL CHANNEL <input type="checkbox"/> RECOVERED <input checked="" type="checkbox"/> RECOVERING <input type="checkbox"/> RECENT OR NO RECOVERY			
MODIFICATIONS: <u>Repaired w/ in existing ROW</u>			

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY <u>two</u> predominant substrate TYPE boxes (Max of 40). Add total percent of significant substrate types found (Max of 10). Final metric score is sum of boxes A & B.								
		PERCENT		TYPE		PERCENT		<b>NHEI Metric Points</b>  Substrate Max = 40  <div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto; display: flex; align-items: center; justify-content: center; font-size: 24px;">13</div>
<input type="checkbox"/>	BLDR SLABS (16 pts)	<input type="checkbox"/>	LEAF (3 pts)	<input type="checkbox"/>	SILT (3 pts)	<input checked="" type="checkbox"/>	40	
<input type="checkbox"/>	BOULDER (>256 mm) (16 pts)	<input type="checkbox"/>	SELT PACK/WOODY DEBRIS (3 pts)	<input type="checkbox"/>	FINE DETRITUS (3 pts)	<input type="checkbox"/>		
<input type="checkbox"/>	BEDROCK (16 pts)	<input type="checkbox"/>	GLASS OR HANDPANS (3 pts)	<input type="checkbox"/>	MUCK (8 pts)	<input type="checkbox"/>		
<input type="checkbox"/>	COBBLE (65-256 mm) (12 pts)	<input checked="" type="checkbox"/>	GRAVEL (12-64 mm) (8 pts)	<input type="checkbox"/>	NUCK (8 pts)	<input type="checkbox"/>		
<input checked="" type="checkbox"/>	SAND (<2 mm) (6 pts)	<input checked="" type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		
Total of Percentages of Blr Clsby, Boulder, Cobble, Bedrock		(A) <u>10</u>		(B) <u>4</u>		A + B		
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:								

2. Maximum Pool Depth (Measure the maximum pool depth within the 81 meter (260 ft) evaluation reach at the base of maximum flood plunge pools from trained subjects or stream water pipes)			
> 35 centimeter (13.8 in) <input type="checkbox"/> < 35 cm - 10 cm (15 pts) <input type="checkbox"/> < 10 cm - 5 cm (5 pts) <input type="checkbox"/> < 5 cm (5 pts) <input type="checkbox"/> NO WATER OR URBAN CHANNEL (0 pts)			
COMMENTS:			
MAXIMUM POOL DEPTH (cm/feet):			

3. BANK FILL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box).			
> 4 m (13 ft) (20 pts) <input type="checkbox"/> > 3 m - 1.5 m (3-3' 3") (8 pts) <input type="checkbox"/> > 1.5 m - 1.0 m (4' 7" - 3' 3") (5 pts) <input type="checkbox"/> > 1.0 m - 0.75 m (2' 9" - 2' 5") (3 pts) <input type="checkbox"/>			
COMMENTS:			
AVERAGE BANKFILL WIDTH (m/feet)			

This information must also be completed

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

RIPARIAN WDT:

(Per Bank)

Wide > 10m

Moderate 5-10m

Narrow < 5m

None

COMMENTS

FLOODPLAIN QUALITY

(Most Predominant per Bank):

Meadow Forest, Wetland

Immature Forest, Shrub or Old Field

Residential, Parks, New Field

Fenced Pasture

Conservation Refuge

Urban or Industrial

Open Pasture Low Crop

Mining or Construction

FLOW REGIME (at Time of Evaluation) (Check ONLY one box)

Stream Flowing

Subsurface flow with isolated pools (intermittent)

Most Channel, isolated pools, no flow (intermittent)

Dry channel, no water (ephemeral)

COMMENTS

SINUOSITY (Number of bends per E1 m (200 ft) of channel) (Check ONLY one box)

None

0.5

1.0

1.5

2.0

2.5

3.0

3.5

STREAM GRADIENT ESTIMATE

Flat or nearly so

Slightly to Moderately

Wicketlike or steeper

Extensive to Steep

Scalld or steeper

ADDITIONAL STREAM INFORMATION (This information must also be completed)

THIS PERFORMED BY: 7/11/04 JHE/Jan BY: 7/11/04, Alan, Completed On-Demand

QUESTIONS

Q1 Name	Business for Dummies
Q4 Name	Learning to Succeed in Business
Q5 Name	Business for Dummies

\*\*\*\*\* ATTACH COMES ON MAPS, INCLUDING THE 80-TIME WATERSHED AREA. CLEARLY MARK THE SITE LOCATION \*\*\*\*\*

USPS Delivery Point \_\_\_\_\_ NPSN for My Page \_\_\_\_\_ NPSN for My Unsub Order \_\_\_\_\_

二、對本報的批評與建議

Basic Flow Control (rate) 1.2 / Unit of oil consumption 1.2 / Quantity \_\_\_\_\_  
 Fuel pump identifier 2 / Fuel pump ID 1000  
 Price of Fuel (per unit) 4 / Energy (per unit) 60  
 (Units consumed) (per unit electricity) 1 / (Units consumed) (per unit electricity) (per unit) \_\_\_\_\_  
 Fuel Price (per unit) 1 / (Units consumed) (per unit) 1 / (Units consumed) (per unit) \_\_\_\_\_  
 (Units consumed) (per unit electricity) (per unit) 1 / (Units consumed) (per unit) \_\_\_\_\_  
 (Units consumed) (per unit electricity) (per unit) 1 / (Units consumed) (per unit) \_\_\_\_\_  
 (Units consumed) (per unit electricity) (per unit) 1 / (Units consumed) (per unit) \_\_\_\_\_

### QUALITATIVE EVALUATION

[illegible]

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

much the structure and formwork, and other features of interest for site evaluation and a visual description of the stream's location.

SITE NAME/LOCATION		AEP Position-Good Hope			
SITE NUMBER		RIVER BASIN		DRAINAGE AREA (mi <sup>2</sup> )	
LENGTH OF STREAM REACH (ft)		LAT		RIVER MILE	
DATE <b>03/23/16</b>		SCORER <b>BAO/JBL</b>		COMMENTS <b>Ephemeral; hh-bao-032316-01</b>	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWW Streams" for Instructions					
STREAM CHANNEL MODIFICATIONS:		<input type="checkbox"/> NONE / NATURAL CHANNEL <input type="checkbox"/> RECOVERED <input type="checkbox"/> RECOVERING <input type="checkbox"/> RECENT OR NO RECOVERY			
<b>1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY 1 most predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types listed (Max of 8). Final metric score is sum of boxes A &amp; B.)</b>					
TYPE		PERCENT	TYPE		PERCENT
<input type="checkbox"/>	BLDR SLABS [16 pts]	0%	<input type="checkbox"/>	SILT [3 pt]	40%
<input type="checkbox"/>	BOULDER (>256 mm) [18 pts]	0%	<input type="checkbox"/>	LEAF PACKWOODY DEBRIS [3 pts]	15%
<input type="checkbox"/>	BEDROCK [18 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]	15%	<input type="checkbox"/>	MUCK [0 pts]	0%
<input type="checkbox"/>	SAND (<2 mm) [9 pts]	30%	<input type="checkbox"/>	ARTIFICIAL [3 pts]	0%
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:		9	TOTAL NUMBER OF SUBSTRATE TYPES: 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 taking pools from road culverts or storm water pipes). (Check ONLY 1 one box)</b>					
<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm [10 pt] [15 pts]				
<input type="checkbox"/> 22.5 - 30 cm [10 pts]	<input type="checkbox"/> < 5 cm [5 pts]				
<input type="checkbox"/> 16 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]				
<b>3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY 1 one box):</b>					
<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' - 4' 8") [16 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]					

**HHEI Metric Points**  
  
 Substrate Max = 40  
  

13

  
  
 A + B

Pool Depth Max = 30  
  

5

Bankfull Width Max=0  
  

5

**ADDITIONAL STREAM INFORMATION (This information must also be completed):**

QHEI PERFORMED? ☐ No ☒ Yes 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: Hocking Township / City: \_\_\_\_\_

**MISCELLANEOUS**

Base Flow Conditions? (Y/N) Y Date of last precipitation: \_\_\_\_\_ Quantity: 0.00

Photograph Information: 2 photos

Elevated Turbidity? (Y/N) Y 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 (umhos/cm) \_\_\_\_\_

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

Additional comments/description of pollution impacts: \_\_\_\_\_

pasture runoff, algae concerns

**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 97**

hh-bao-032315-01

FLOW

slope

pasture



Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION **AEP Poston-Good Hope**

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

LENGTH OF STREAM REACH (mi) \_\_\_\_\_ LAT. \_\_\_\_\_ LONG. \_\_\_\_\_ RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_

DATE **03/23/16** SCORER **BAO/JBL** COMMENTS **Ephemeral; hi-bao-032316-02**

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWHV 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 6). 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)	40%
<input type="checkbox"/> BOULDER (>256 mm) (10 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) (8 pts)	10%	<input type="checkbox"/> MUCK (0 pts)	0%
<input type="checkbox"/> SAND (<2 mm) (6 pts)	45%	<input type="checkbox"/> ARTIFICIAL (3 pts)	0%

Total of Percentages of

0.00%

(A)

(B)

Bldr Slabs Boulder Cobble Bedrock

SCORE OF TWO MOST PREDOMINANT 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 Two box)

<input type="checkbox"/> > 30 centimeters (20 pts)	<input type="checkbox"/> 5.0 m - 10 m (15 pts)
<input type="checkbox"/> > 25 - 30 cm (10 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 In inches \_\_\_\_\_

MAXIMUM POOL DEPTH (centimeters): **1**

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

<input type="checkbox"/> > 4.0 meters (> 13') (20 pts)	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' - 4.8') (16 pts)
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9.7' - 13') (25 pts)	<input type="checkbox"/> > 1.0 m (< 3' - 3') (8 pts)
<input type="checkbox"/> > 1.5 m - 3.0 m (> 4.7' - 9.7') (20 pts)	

COMMENTS In feet \_\_\_\_\_

AVERAGE BANKFULL WIDTH (meters): **1.00**

HHEI Metric Points

Substrate Max = 40

13

A + B

Pool Depth Max = 30

5

Bankfull Width Max=30

5

**Stream 98**

**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: Hocking Township / City: \_\_\_\_\_

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): Y Date of last precipitation: \_\_\_\_\_ Quantity: 0.00

Photograph Information: 2 photos

Elevated Turbidity? (Y/N): Y 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: \_\_\_\_\_

pasture runoff, algae concerns

**BIOTIC EVALUATION**

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

Fish Observed? (Y/N): 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

hh-bao-032315-02

FLOW

slope

highly disturbed

pasture

PHOTO Form Page - 2

October 24, 2002 Revision

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

SITE NAME/LOCATION: AEP Poston-Good Hope

SITE NUMBER: \_\_\_\_\_ RIVER BASIN: \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>): \_\_\_\_\_  
 LENGTH OF STREAM REACH (ft): \_\_\_\_\_ LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE: \_\_\_\_\_  
 DATE: 03/23/16 SCORER: BAO/JBL COMMENTS: Intermittent; hh-bao-032316-03

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  
☒ pasture impact

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 6). 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 pts)	30%
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)	0%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	0%
<input type="checkbox"/> BEDROCK (16 pts)	50%	<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 pts)	5%
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	10%	<input type="checkbox"/> MUCK (0 pts)	0%
<input type="checkbox"/> SAND (<2 mm) (6 pts)	5%	<input type="checkbox"/> ARTIFICIAL (3 pts)	0%

Total Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 50.00% (A) (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 81 meter (269 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes). (Check ONLY one box.)

☐ > 30 centimeters (20 pts)  
☐ > 22.5 - 30 cm (30 pts)  
☐ > 10 - 22.5 cm (25 pts)

COMMENTS: In inches MAXIMUM POOL DEPTH (centimeters): 16

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

☐ > 4.0 meters (> 13') (30 pts)  
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') (25 pts)  
☐ > 1.5 m - 3.0 m (> 4' 7" - 9' 7") (20 pts)

COMMENTS: In feet AVERAGE BANKFULL WIDTH (meters): 3.00

HHEI Metric Points: 24 (A+B)

This information must also be completed

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

**RIPARIAN WIDTH** (Per Bank)

☒ Wide >10m  
☒ Moderate 5-10m  
☐ Narrow <5m  
☐ None

**FLOODPLAIN QUALITY** (Most Predominant per Bank)

☐ Mature Forest, Wetland  
☒ Immature Forest, Shrub or Old Field  
☐ Residential, Park, New Field  
☐ Fenced Pasture

**Conservation Tillage**  
☐ Urban or Industrial  
☐ Open Pasture, Row Crop  
☐ Mining or Construction

**COMMENTS:**

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

☒ Stream Flowing  
☐ Subsurface flow with isolated pools (interstitial)  
☐ Dry channel, no water (Ephemeral)

COMMENTS: intermittent

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

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

**STREAM GRADIENT ESTIMATE**

☐ Flat (0 to 100 ft)  
☐ Flat to Moderate  
☒ Moderate (2 to 100 ft)  
☐ Moderate to Severe  
☐ Severe (10 to 100 ft)

October 24, 2002 Revision

PHWH Form Page - 1

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

SITE NAME/LOCATION: AEP Poston-Good Hope

SITE NUMBER: \_\_\_\_\_ RIVER BASIN: \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>): \_\_\_\_\_  
 LENGTH OF STREAM REACH (ft): \_\_\_\_\_ LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE: \_\_\_\_\_  
 DATE: 03/23/16 SCORER: BAO/JBL COMMENTS: Ephemeral; hh-bao-032316-04

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  
☒ Existing ROW impact

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 6). 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 pts)	50%
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)	0%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	10%
<input type="checkbox"/> BEDROCK (16 pts)	0%	<input type="checkbox"/> FINE DETRITUS (3 pts)	0%
<input type="checkbox"/> COBBLE (65-256 mm) (12 pts)	5%	<input type="checkbox"/> CLAY or HARDPAN (0 pts)	0%
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	20%	<input type="checkbox"/> MUCK (0 pts)	0%
<input type="checkbox"/> SAND (<2 mm) (6 pts)	35%	<input type="checkbox"/> ARTIFICIAL (3 pts)	0%

Total Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 5.00% (A) (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 81 meter (269 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes). (Check ONLY one box.)

☐ > 30 centimeters (20 pts)  
☐ > 22.5 - 30 cm (30 pts)  
☐ > 10 - 22.5 cm (25 pts)

COMMENTS: In inches MAXIMUM POOL DEPTH (centimeters): 3

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

☐ > 4.0 meters (> 13') (30 pts)  
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') (25 pts)  
☐ > 1.5 m - 3.0 m (> 4' 7" - 9' 7") (20 pts)

COMMENTS: In feet AVERAGE BANKFULL WIDTH (meters): 2.00

HHEI Metric Points: 14 (A+B)

This information must also be completed

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

**RIPARIAN WIDTH** (Per Bank)

☒ Wide >10m  
☒ Moderate 5-10m  
☐ Narrow <5m  
☐ None

**FLOODPLAIN QUALITY** (Most Predominant per Bank)

☐ Mature Forest, Wetland  
☒ Immature Forest, Shrub or Old Field  
☐ Residential, Park, New Field  
☐ Fenced Pasture

**Conservation Tillage**  
☐ Urban or Industrial  
☐ Open Pasture, Row Crop  
☐ Mining or Construction

**COMMENTS:**

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

☐ Stream Flowing  
☐ Subsurface flow with isolated pools (interstitial)  
☐ Dry channel, no water (Ephemeral)

COMMENTS: ephemeral

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

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

**STREAM GRADIENT ESTIMATE**

☐ Flat (0 to 100 ft)  
☐ Flat to Moderate  
☐ Moderate (2 to 100 ft)  
☒ Moderate to Severe  
☐ Severe (10 to 100 ft)

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PHWH Form Page - 1

ADDITIONAL STREAM INFORMATION (This information must also be completed):

Stream 99

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: Hocking Township / City: \_\_\_\_\_

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: \_\_\_\_\_ Quantity: 0.00Photograph Information: 2 photosElevated Turbidity? (Y/N): Y 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: \_\_\_\_\_

pasture ripoff

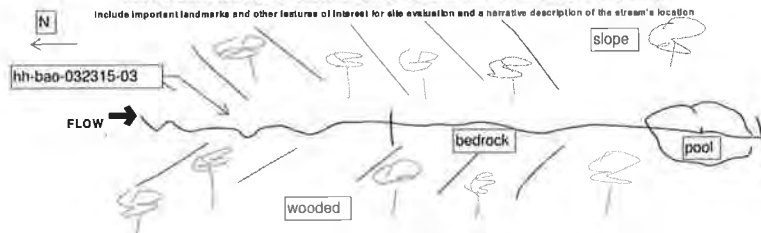
BIOTIC EVALUATION

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): NFrogs 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



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PHWH Form Page - 2

ADDITIONAL STREAM INFORMATION (This information must also be completed):

Stream 100

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: Hocking Township / City: \_\_\_\_\_

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: \_\_\_\_\_ Quantity: 0.00Photograph Information: 2 photosElevated Turbidity? (Y/N): Y 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: \_\_\_\_\_

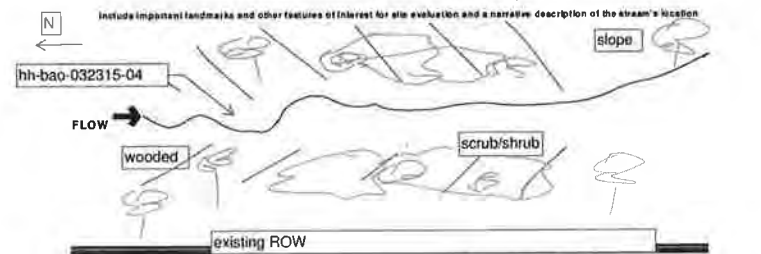
BIOTIC EVALUATION

Performed? (Y/N): 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): NFrogs 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



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PHWH Form Page - 2



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

SITE NAME/LOCATION: AEP Poston-Good Hope
 SITE NUMBER: \_\_\_\_\_ RIVER BASIN: \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>): \_\_\_\_\_  
 LENGTH OF STREAM REACH (ft): \_\_\_\_\_ LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE: \_\_\_\_\_  
 DATE: 03/23/16 SCORER: BAO/JBL COMMENTS: Ephemeral; hh-bao-032316-05

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  
☒ Existing ROW impact

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)	0%	<input type="checkbox"/> SILT (3 pts)	40%
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)	0%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	15%
<input type="checkbox"/> BEDROCK (16 pts)	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 pts)	0%
<input type="checkbox"/> GRAVEL (2-64 mm) (9 pts)	10%	<input type="checkbox"/> MUCK (0 pts)	0%
<input type="checkbox"/> SAND (<2 mm) (8 pts)	35%	<input type="checkbox"/> ARTIFICIAL (3 pts)	0%

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

SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 4

TYPE	PERCENT
<input type="checkbox"/> Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes). (Check ONLY one box):	
> 30 centimeters (30 pts)	0%
> 22.5 - 30 cm (30 pts)	0%
> 10 - 22.5 cm (25 pts)	0%
< 5 cm (5 pts)	0%
NO WATER OR MOIST CHANNEL (0 pts)	0%

COMMENTS: In inches \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): 1

TYPE	PERCENT
<input type="checkbox"/> BANK FULL WIDTH (Measured as the average of 3-4 measurements). (Check ONLY one box):	
> 4.0 meters (> 13') (30 pts)	0%
> 3.0 m - 4.0 m (> 9' 7" - 13') (25 pts)	0%
> 1.5 m - 3.0 m (> 4' 7" - 9' 7") (20 pts)	0%
< 1.0 m (< 3' 3") (5 pts)	0%

COMMENTS: In feet \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): 1.00

RIPARIAN ZONE AND FLOODPLAIN QUALITY		FLOODPLAIN QUALITY	
<input checked="" type="checkbox"/> Wide > 10m	<input type="checkbox"/> (Per Bank)	<input type="checkbox"/> Mature Forest, Wetland	<input type="checkbox"/> Conservation Tillage
<input type="checkbox"/> Moderate 5-10m	<input type="checkbox"/> (Most Predominant per Bank)	<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 type="checkbox"/> Mining or Construction
<input type="checkbox"/> None	<input type="checkbox"/> Fenced Pasture		

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 (Intermittent)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

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

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

SITE NAME/LOCATION: AEP Poston-Good Hope
 SITE NUMBER: \_\_\_\_\_ RIVER BASIN: \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>): \_\_\_\_\_  
 LENGTH OF STREAM REACH (ft): \_\_\_\_\_ LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE: \_\_\_\_\_  
 DATE: 03/23/16 SCORER: BAO/JBL COMMENTS: Ephemeral; hh-bao-032316-06

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  
☒ Existing ROW impact

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)	0%	<input type="checkbox"/> SILT (3 pts)	40%
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)	0%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	15%
<input type="checkbox"/> BEDROCK (16 pts)	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 pts)	0%
<input type="checkbox"/> GRAVEL (2-64 mm) (9 pts)	10%	<input type="checkbox"/> MUCK (0 pts)	0%
<input type="checkbox"/> SAND (<2 mm) (8 pts)	35%	<input type="checkbox"/> ARTIFICIAL (3 pts)	0%

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

SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 4

TYPE	PERCENT
<input type="checkbox"/> Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes). (Check ONLY one box):	
> 30 centimeters (30 pts)	0%
> 22.5 - 30 cm (30 pts)	0%
> 10 - 22.5 cm (25 pts)	0%
< 5 cm (5 pts)	0%
NO WATER OR MOIST CHANNEL (0 pts)	0%

COMMENTS: In inches \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): 1

TYPE	PERCENT
<input type="checkbox"/> BANK FULL WIDTH (Measured as the average of 3-4 measurements). (Check ONLY one box):	
> 4.0 meters (> 13') (30 pts)	0%
> 3.0 m - 4.0 m (> 9' 7" - 13') (25 pts)	0%
> 1.5 m - 3.0 m (> 4' 7" - 9' 7") (20 pts)	0%
< 1.0 m (< 3' 3") (5 pts)	0%

COMMENTS: In feet \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): 1.00

RIPARIAN ZONE AND FLOODPLAIN QUALITY		FLOODPLAIN QUALITY	
<input checked="" type="checkbox"/> Wide > 10m	<input type="checkbox"/> (Per Bank)	<input type="checkbox"/> Mature Forest, Wetland	<input type="checkbox"/> Conservation Tillage
<input type="checkbox"/> Moderate 5-10m	<input type="checkbox"/> (Most Predominant per Bank)	<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 type="checkbox"/> Mining or Construction
<input type="checkbox"/> None	<input type="checkbox"/> Fenced Pasture		

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 (Intermittent)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

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

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

Stream 101

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: Hocking Township / City: \_\_\_\_\_

MISCELLANEOUS

Base Flow Conditions? (Y/N): \_\_\_\_\_ Date of last precipitation: \_\_\_\_\_ Quantity: 0.00Photograph Information: 2 photosElevated Turbidity? (Y/N): \_\_\_\_\_ Canopy (% open): 80%

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 (5.0): \_\_\_\_\_ 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)

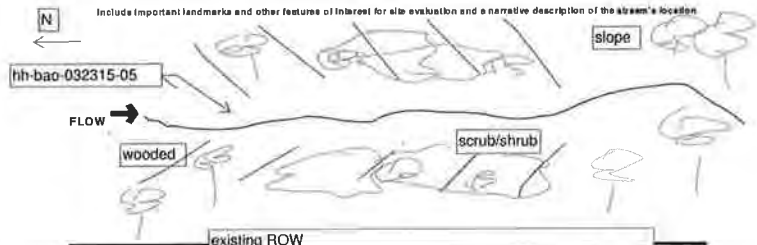
Fish Observed? (Y/N): \_\_\_\_\_ Voucher? (Y/N): \_\_\_\_\_ Salamanders Observed? (Y/N): \_\_\_\_\_ Voucher? (Y/N): \_\_\_\_\_

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



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PWH Form Page - 2

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

Stream 102

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: Hocking Township / City: \_\_\_\_\_

MISCELLANEOUS

Base Flow Conditions? (Y/N): \_\_\_\_\_ Date of last precipitation: \_\_\_\_\_ Quantity: 0.00Photograph Information: 2 photosElevated Turbidity? (Y/N): \_\_\_\_\_ Canopy (% open): 80%

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 (5.0): \_\_\_\_\_ 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)

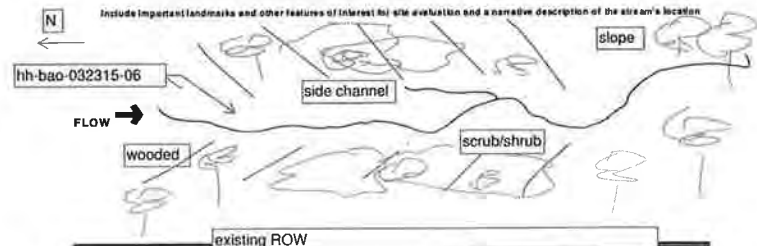
Fish Observed? (Y/N): \_\_\_\_\_ Voucher? (Y/N): \_\_\_\_\_ Salamanders Observed? (Y/N): \_\_\_\_\_ Voucher? (Y/N): \_\_\_\_\_

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



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Mod. Class 1 Stream 103

**OhioEPA** Primary Headwater Habitat Evaluation Form

**HHEI Score (sum of metrics 1, 2, 3):** 24

SITE NAME/LOCATION: **AEP Poston-Good Hope**

SITE NUMBER: RIVER BASIN: DRAINAGE AREA (mi<sup>2</sup>):

LENGTH OF STREAM REACH (ft): LAT: LONG: RIVER CODE: RIVER MILE:

DATE: **03/23/16** SCORER: **BAQ/JBL** COMMENTS: **Ephemeral; hh-bao-032316-07**

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

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

Existing ROW Impact

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY Y for 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"/> BLDG SLABS (16 pts)	0%	<input type="checkbox"/> SILT (3 pts)	35%
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)	0%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	15%
<input type="checkbox"/> BEDROCK (16 pts)	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 pts)	10%
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	10%	<input type="checkbox"/> MUCK (0 pts)	0%
<input type="checkbox"/> SAND (<2 mm) (8 pts)	30%	<input type="checkbox"/> ARTIFICIAL (3 pts)	0%

Total Percentages of Bldg Slabs, Boulder, Cobble, Bedrock: 0.00% (A) (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)

☐ > 30 centimeters (12 pts)

☐ 22.5 - 30 cm (10 pts)

☐ < 5 cm (5 pts)

☐ NO WATER OR MOIST CHANNEL (0 pts)

COMMENTS: In inches MAXIMUM POOL DEPTH (centimeters): **2**

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

☐ > 4.0 meters (> 13') (30 pts)

☐ 3.0 m - 4.0 m (> 9' 7" - 13') (25 pts)

☐ 1.5 m - 3.0 m (> 4' 7" - 9' 7") (10 pts)

COMMENTS: In feet AVERAGE BANKFULL WIDTH (meters): **1.00**

**HHEI Metric Points**

Substrate Max = 40 **14**

Pool Depth Max = 30 **5**

Bankfull Width Max = 30 **5**

This information must also be completed

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

**RIPARIAN ZONE AND FLOODPLAIN QUALITY**

**RIPARIAN WIDTH** (Per Bank)

☐ Wide >10m

☐ Moderate 5-10m

☐ Narrow <5m

☐ None

COMMENTS:

**FLOODPLAIN QUALITY**

☐ (Most Predominant per Bank)

☐ Mature Forest, Wetland

☐ Immature Forest, Shrub or Old Field

☐ Residential, Park, New Field

☐ Fenced Pasture

☐ Conservation Tillage

☐ Urban or Industrial

☐ Open Pasture, Row Crop

☐ Mining or Construction

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

☐ Stream Flowing

☐ Subsurface flow with isolated pools (interstitial)

☐ Moist Channel, isolated pools, no flow (intermittent)

☐ Dry channel, no water (Ephemeral)

COMMENTS: ephemeral

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

☐ None

☐ 0.5

☐ 1.0

☐ 1.5

☐ 2.0

☐ 2.5

☐ 3.0

☐ >3

**STREAM GRADIENT ESTIMATE**

☐ Flat (0.5 n/100 ft)

☐ Flat to Moderate

☐ Moderate (2 n/100 ft)

☐ Moderate to Severe

☐ Severe (10 n/100 ft)

Stream 103

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: Hocking Township / City:

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): ☒ V Date of last precipitation: Quantity: **0.00**

Photograph Information: **2** photos

Elevated Turbidity? (Y/N): ☒ Y 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 (5.0): 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

hh-bao-032315-07

FLOW

slope

scrub/shrub

wooded

existing ROW

October 24, 2002 Revision PWHW Form Page - 2

Mod. Class 1 Stream 104

**OhioEPA** Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION: **AEP Poston-Good Hope**

SITE NUMBER: RIVER BASIN: DRAINAGE AREA (mi<sup>2</sup>):

LENGTH OF STREAM REACH (ft): LAT: LONG: RIVER CODE: RIVER MILE:

DATE: **03/23/16** SCORER: **BAQ/JBL** COMMENTS: **Ephemeral; hh-bao-032316-08**

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

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

Existing ROW Impact

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY Y for 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"/> BLDG SLABS (16 pts)	0%	<input type="checkbox"/> SILT (3 pts)	35%
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)	0%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	15%
<input type="checkbox"/> BEDROCK (16 pts)	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 pts)	10%
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	10%	<input type="checkbox"/> MUCK (0 pts)	0%
<input type="checkbox"/> SAND (<2 mm) (8 pts)	15%	<input type="checkbox"/> ARTIFICIAL (3 pts)	0%

Total Percentages of Bldg Slabs, Boulder, Cobble, Bedrock: 5.00% (A) (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **6** 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)

☐ > 30 centimeters (12 pts)

☐ 22.5 - 30 cm (10 pts)

☐ < 5 cm (5 pts)

☐ NO WATER OR MOIST CHANNEL (0 pts)

COMMENTS: In inches MAXIMUM POOL DEPTH (centimeters): **0**

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

☐ > 4.0 meters (> 13') (30 pts)

☐ 3.0 m - 4.0 m (> 9' 7" - 13') (25 pts)

☐ 1.5 m - 3.0 m (> 4' 7" - 9' 7") (10 pts)

COMMENTS: In feet AVERAGE BANKFULL WIDTH (meters): **1.00**

**HHEI Metric Points**

Substrate Max = 40 **11**

Pool Depth Max = 30 **0**

Bankfull Width Max = 30 **5**

This information must also be completed

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

**RIPARIAN ZONE AND FLOODPLAIN QUALITY**

**RIPARIAN WIDTH** (Per Bank)

☐ Wide >10m

☐ Moderate 5-10m

☐ Narrow <5m

☐ None

COMMENTS:

**FLOODPLAIN QUALITY**

☐ (Most Predominant per Bank)

☐ Mature Forest, Wetland

☐ Immature Forest, Shrub or Old Field

☐ Residential, Park, New Field

☐ Fenced Pasture

☐ Conservation Tillage

☐ Urban or Industrial

☐ Open Pasture, Row Crop

☐ Mining or Construction

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

☐ Stream Flowing

☐ Subsurface flow with isolated pools (interstitial)

☐ Moist Channel, isolated pools, no flow (intermittent)

☐ Dry channel, no water (Ephemeral)

COMMENTS: ephemeral

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

☐ None

☐ 0.5

☐ 1.0

☐ 1.5

☐ 2.0

☐ 2.5

☐ 3.0

☐ >3

**STREAM GRADIENT ESTIMATE**

☐ Flat (0.5 n/100 ft)

☐ Flat to Moderate

☐ Moderate (2 n/100 ft)

☐ Moderate to Severe

☐ Severe (10 n/100 ft)

Stream 104

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: Hocking Township / City:

**MISCELLANEOUS**

Base Flow Conditions? (Y/N): ☒ V Date of last precipitation: Quantity: **0.00**

Photograph Information: **2** photos

Elevated Turbidity? (Y/N): ☒ Y 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 (5.0): 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

hh-bao-032315-08

FLOW

steep slope

scrub/shrub

wooded

high gradient

existing ROW

October 24, 2002 Revision PWHW Form Page - 2

SITE NAME/LOCATION: AEP Poston-Good Hope
 SITE NUMBER: 105 RIVER BASIN: BAO DRAINAGE AREA (mi<sup>2</sup>): 105  
 LENGTH OF STREAM REACH (ft): 105 LAT: 40° 23' 16" LONG: 82° 03' 16" RIVER CODE: BAO RIVER MILE: 105  
 DATE: 03/23/16 SCORER: BAO/JBL COMMENTS: Intermittent; hh-bao-032316-09

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  
 within existing ROW

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 pts)	30%
<input type="checkbox"/> BOULDER (>250 mm) [16 pts]	100%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	0%
<input type="checkbox"/> BEDROCK (16 pts)	0%	<input type="checkbox"/> FINE DETRITUS (3 pts)	0%
<input type="checkbox"/> COBBLE (65-250 mm) [12 pts]	10%	<input type="checkbox"/> CLAY or HARDPAN (0 pts)	0%
<input type="checkbox"/> GRAVEL (2-64 mm) [8 pts]	10%	<input type="checkbox"/> MUCK (0 pts)	0%
<input type="checkbox"/> SAND (<2 mm) [8 pts]	20%	<input type="checkbox"/> ARTIFICIAL (3 pts)	0%

Total Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 20.00% (A) 9 (B) 15  
 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 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):  
☐ > 30 centimeters [20 pts] ☐ > 5 cm - 10 cm [15 pts] ☐ > 2.5 - 30 cm [10 pts] ☐ > 16 - 22.5 cm [5 pts] ☐ NO WATER OR MOIST CHANNEL (0 pts)  
 COMMENTS: Inches MAXIMUM POOL DEPTH (centimeters): 2

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements). (Check ONLY one box):  
☐ < 0 meters (< 3') [10 pts] ☐ > 1.0 m - 1.5 m (> 3' - 4' 8") [10 pts] ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 8") [10 pts] ☐ > 3.0 m - 4.0 m (> 9' 8" - 13' 1") [10 pts] ☐ > 4.0 m (> 13' 1") [10 pts]  
 COMMENTS: in feet AVERAGE BANKFULL WIDTH (meters): 2.00

HHEI Metric Points

Substrate Max = 40

15

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 ZONE		FLOODPLAIN QUALITY	
L	R	L	R
<input type="checkbox"/> Wide >10m	<input type="checkbox"/> Moderate 5-10m	<input type="checkbox"/> Mature Forest, Wetland	<input type="checkbox"/> Immature Forest, Shrub or Old Field
<input type="checkbox"/> Moderate 5-10m	<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"/> None	<input type="checkbox"/> Fenced Pasture	<input type="checkbox"/> Mining or Construction

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  
☐ Stream Flowing ☐ Moist Channel, isolated pools, no flow (Intermittent)  
☐ Subsurface flow with isolated pools (Intermittent) ☐ Dry channel, no water (Ephemeral)  
 COMMENTS: Intermittent

SINUOSITY (Number of bends per 61 m (200 ft) of channel). (Check ONLY one box):  
☐ None ☐ 0.5 ☐ 1.0 ☐ 1.5 ☐ 2.0 ☐ 2.5 ☐ 3.0 ☐ >3

STREAM GRADIENT ESTIMATE  
☐ Flat (0.5 m/100 ft) ☐ Flat to Moderate ☐ Moderate (2 m/100 ft) ☐ Moderate to Severe ☐ Severe (10 m/100 ft)

October 24, 2002: Revision

PWH Form Page - 1

 SITE NAME/LOCATION: AEP Poston-Good Hope  
 SITE NUMBER: 105 RIVER BASIN: BAO DRAINAGE AREA (mi<sup>2</sup>): 105  
 LENGTH OF STREAM REACH (ft): 105 LAT: 40° 23' 16" LONG: 82° 03' 16" RIVER CODE: BAO RIVER MILE: 105  
 DATE: 03/23/16 SCORER: BAO/JBL COMMENTS: Intermittent; hh-bao-032316-09

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  
 within existing ROW

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)	0%	<input type="checkbox"/> SILT (3 pts)	30%
<input type="checkbox"/> BOULDER (>250 mm) [16 pts]	100%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	0%
<input type="checkbox"/> BEDROCK (16 pts)	0%	<input type="checkbox"/> FINE DETRITUS (3 pts)	0%
<input type="checkbox"/> COBBLE (65-250 mm) [12 pts]	10%	<input type="checkbox"/> CLAY or HARDPAN (0 pts)	0%
<input type="checkbox"/> GRAVEL (2-64 mm) [8 pts]	10%	<input type="checkbox"/> MUCK (0 pts)	0%
<input type="checkbox"/> SAND (<2 mm) [8 pts]	20%	<input type="checkbox"/> ARTIFICIAL (3 pts)	0%

Total Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 20.00% (A) 3 (B) 7  
 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):  
☐ > 30 centimeters [20 pts] ☐ > 5 cm - 10 cm [15 pts] ☐ > 2.5 - 30 cm [10 pts] ☐ > 16 - 22.5 cm [5 pts] ☐ NO WATER OR MOIST CHANNEL (0 pts)  
 COMMENTS: Inches MAXIMUM POOL DEPTH (centimeters): 3

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements). (Check ONLY one box):  
☐ < 0 meters (< 3') [10 pts] ☐ > 1.0 m - 1.5 m (> 3' - 4' 8") [10 pts] ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 8") [10 pts] ☐ > 3.0 m - 4.0 m (> 9' 8" - 13' 1") [10 pts] ☐ > 4.0 m (> 13' 1") [10 pts]  
 COMMENTS: in feet AVERAGE BANKFULL WIDTH (meters): 2.00

HHEI Metric Points

Substrate Max = 40

7

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 ZONE		FLOODPLAIN QUALITY	
L	R	L	R
<input type="checkbox"/> Wide >10m	<input type="checkbox"/> Moderate 5-10m	<input type="checkbox"/> Mature Forest, Wetland	<input type="checkbox"/> Immature Forest, Shrub or Old Field
<input type="checkbox"/> Moderate 5-10m	<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"/> None	<input type="checkbox"/> Fenced Pasture	<input type="checkbox"/> Mining or Construction

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  
☐ Stream Flowing ☐ Moist Channel, isolated pools, no flow (Intermittent)  
☐ Subsurface flow with isolated pools (Intermittent) ☐ Dry channel, no water (Ephemeral)  
 COMMENTS: Intermittent

SINUOSITY (Number of bends per 61 m (200 ft) of channel). (Check ONLY one box):  
☐ None ☐ 0.5 ☐ 1.0 ☐ 1.5 ☐ 2.0 ☐ 2.5 ☐ 3.0 ☐ >3

STREAM GRADIENT ESTIMATE  
☒ Flat (0.5 m/100 ft) ☐ Flat to Moderate ☐ Moderate (2 m/100 ft) ☐ Moderate to Severe ☐ Severe (10 m/100 ft)

PWH Form Page - 1

ADDITIONAL STREAM INFORMATION (This information must also be completed):

Stream 105

QHEI PERFORMED? ☐ Yes ☒ No QHEI Score: 0 (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

 WWH Name: BAO Distance from Evaluated Stream: 105  
 CWH Name: BAO Distance from Evaluated Stream: 105  
 EWH Name: BAO Distance from Evaluated Stream: 105

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

USGS Quadrangle Name: BAO NRCS Soil Map Page: BAO NRCS Soil Map Stream Order: BAOCounty: Hocking Township / City: BAO

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 03/23/16 Quantity: 0.00Photograph Information: 2 photosElevated 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: BAOField Measures: Temp (°C): BAO Dissolved Oxygen (mg/l): BAO pH (B.U.): BAO Conductivity (µmhos/cm): BAOIs the sampling reach representative of the stream (Y/N): N If not, please explain: BAOAdditional comments/description of pollution impacts: BAO

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): NFrogs or Tadpoles Observed? (Y/N): N Voucher? (Y/N): N Aquatic Macroinvertebrates Observed? (Y/N): N Voucher? (Y/N): NComments Regarding Biology: BAO

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

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



October 24, 2002: Revision

PWH Form Page - 2

Hand Points

ADDITIONAL STREAM INFORMATION (This information must also be completed):

QHEI PERFORMED? ☐ Yes ☒ No QHEI Score: 0 (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

 WWH Name: BAO Distance from Evaluated Stream: 105  
 CWH Name: BAO Distance from Evaluated Stream: 105  
 EWH Name: BAO Distance from Evaluated Stream: 105

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

USGS Quadrangle Name: BAO NRCS Soil Map Page: BAO NRCS Soil Map Stream Order: BAOCounty: Hocking Township / City: BAO

MISCELLANEOUS

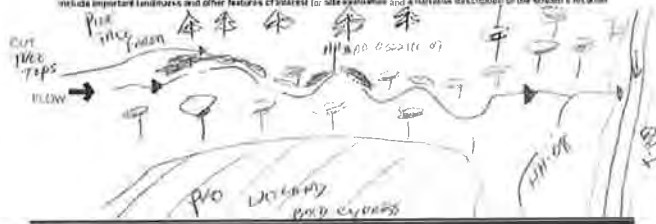
Base Flow Conditions? (Y/N): N Date of last precipitation: 03/23/16 Quantity: 0.00Photograph Information: 2 photosElevated Turbidity? (Y/N): N Canopy (% open): 40%Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or ID, and attach results) Lab Number: BAOField Measures: Temp (°C): BAO Dissolved Oxygen (mg/l): BAO pH (B.U.): BAO Conductivity (µmhos/cm): BAOIs the sampling reach representative of the stream (Y/N): N If not, please explain: BAOAdditional comments/description of pollution impacts: BAO

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): NFrogs or Tadpoles Observed? (Y/N): N Voucher? (Y/N): N Aquatic Macroinvertebrates Observed? (Y/N): N Voucher? (Y/N): NComments Regarding Biology: BAO

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



PWH Form Page - 2





SITE NAME/LOCATION: Stream 109 Mod. Class 1 11/10/03/216 07  
 SITE NUMBER: 07 RIVER BASIN: 07 DRAINAGE AREA (mi<sup>2</sup>):  
 LENGTH OF STREAM REACH (ft): 100 LAT: 07 LONG: 07 RIVER CODE: 07 RIVER MILE:  
 DATE: 07/20/16 SCORER: BAO/UBL COMMENTS: EPHEDRUS  
 NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions  
 STREAM CHANNEL: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY  
 MODIFICATIONS: W/In existing Row, Repair C

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 49). 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"/> BLDG SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (63-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (0 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)		<input type="checkbox"/> MUCK (0 pts)	
<input type="checkbox"/> SAND (<2 mm) (6 pts)		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bldg Slabs, Boulder, Cobble, Bedrock: (A) 0 (B) 15  
 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 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):  
☐ > 30 centimeters (30 pts)  
☐ > 22.5 - 30 cm (30 pts)  
☐ > 10 - 22.5 cm (25 pts)  
☐ NO WATER OR MOIST CHANNEL (0 pts)  
 COMMENTS: MAXIMUM POOL DEPTH (centimeters): 1

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements). (Check ONLY one box):  
☐ > 4 meters (> 13' (30 pts))  
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') (25 pts)  
☐ > 1.5 m - 3.0 m (> 4' 7" - 9' 7") (20 pts)  
☐ < 1.0 m (< 3' 3" - 4' 7") (15 pts)  
☐ < 1.0 m (< 3' 3" - 4' 7") (15 pts)  
 COMMENTS: AVERAGE BANKFULL WIDTH (meters): 1

This information must also be completed

1. RIPARIAN ZONE AND FLOODPLAIN QUALITY (NOTE: River Left (L) and Right (R) is looking downstream)

RIPARIAN ZONE	FLOODPLAIN QUALITY
<input type="checkbox"/> L R (Per Bank)	<input type="checkbox"/> L R (Most Predominant per Bank)
<input type="checkbox"/> Wide >10m	<input type="checkbox"/> Mature Forest, Wetland
<input type="checkbox"/> Moderate 5-10m	<input type="checkbox"/> Immature Forest, Shrub or Old Field
<input checked="" type="checkbox"/> Narrow <5m	<input type="checkbox"/> Residential, Park, New Field
<input type="checkbox"/> None	<input type="checkbox"/> Fenced Pasture
COMMENTS:	

2. FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  
☒ Stream Flowing  
☐ Subsurface flow with isolated pools (Intermittent)  
☐ Dry channel, no water (Ephemeral)  
 COMMENTS:

3. SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  
☐ None  
☒ 0.5  
☐ 1.0  
☐ 1.5  
☐ 2.0  
☐ 2.5  
☐ 3.0  
☐ >3.0

4. STREAM GRADIENT ESTIMATE  
☐ Flat (0.5 m/100 ft)  
☐ Flat to Moderate  
☐ Moderate (2 m/100 ft)  
☒ Moderate to Severe  
☐ Severe (10 m/100 ft)

PHWH Form Page - 1

SITE NAME/LOCATION: Mod. Class 2 Stream 110 11/10/03/216 07  
 SITE NUMBER: 07 RIVER BASIN: 07 DRAINAGE AREA (mi<sup>2</sup>):  
 LENGTH OF STREAM REACH (ft): 100 LAT: 07 LONG: 07 RIVER CODE: 07 RIVER MILE:  
 DATE: 03/22/16 SCORER: BAO/UBL COMMENTS: Intermittent; hh-bao-032216-06  
 NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions  
 STREAM CHANNEL: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY  
 MODIFICATIONS:

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 49). 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"/> BLDG SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (63-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (0 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)		<input type="checkbox"/> MUCK (0 pts)	
<input type="checkbox"/> SAND (<2 mm) (6 pts)		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bldg Slabs, Boulder, Cobble, Bedrock: (A) 10.00% (B) 20  
 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 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):  
☐ > 30 centimeters (30 pts)  
☐ > 22.5 - 30 cm (30 pts)  
☐ > 10 - 22.5 cm (25 pts)  
☐ NO WATER OR MOIST CHANNEL (0 pts)  
 COMMENTS: in inches MAXIMUM POOL DEPTH (centimeters): 6

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements). (Check ONLY one box):  
☐ > 4 meters (> 13' (30 pts))  
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') (25 pts)  
☐ > 1.5 m - 3.0 m (> 4' 7" - 9' 7") (20 pts)  
☐ < 1.0 m (< 3' 3" - 4' 7") (15 pts)  
☐ < 1.0 m (< 3' 3" - 4' 7") (15 pts)  
 COMMENTS: in feet AVERAGE BANKFULL WIDTH (meters): 4.00

This information must also be completed

1. RIPARIAN ZONE AND FLOODPLAIN QUALITY (NOTE: River Left (L) and Right (R) is looking downstream)

RIPARIAN ZONE	FLOODPLAIN QUALITY
<input type="checkbox"/> L R (Per Bank)	<input type="checkbox"/> L R (Most Predominant per Bank)
<input type="checkbox"/> Wide >10m	<input type="checkbox"/> Mature Forest, Wetland
<input type="checkbox"/> Moderate 5-10m	<input type="checkbox"/> Immature Forest, Shrub or Old Field
<input type="checkbox"/> Narrow <5m	<input type="checkbox"/> Residential, Park, New Field
<input type="checkbox"/> None	<input type="checkbox"/> Fenced Pasture
COMMENTS:	

2. FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  
☐ Stream Flowing  
☐ Subsurface flow with isolated pools (Intermittent)  
☐ Dry channel, no water (Ephemeral)  
 COMMENTS: Intermittent

3. SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  
☐ None  
☐ 0.5  
☐ 1.0  
☐ 1.5  
☐ 2.0  
☐ 2.5  
☐ 3.0  
☐ >3.0

4. STREAM GRADIENT ESTIMATE  
☐ Flat (0.5 m/100 ft)  
☐ Flat to Moderate  
☐ Moderate (2 m/100 ft)  
☐ Moderate to Severe  
☐ Severe (10 m/100 ft)

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

GHEI PERFORMED? ☐ Yes ☒ No GHEI Score: (If Yes, Attach Completed GHEI 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): Y Date of last precipitation: 11/10/03 Quantity: 11/10/03  
 Photograph Information: 2 photos  
 Elevated Turbidity? (Y/N): 100 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 (5 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

FLOW →

Ex. Gully Row

PHWH Form Page - 2

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

GHEI PERFORMED? ☐ Yes ☒ No GHEI Score: (If Yes, Attach Completed GHEI 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: Hocking Township / City:  
 MISCELLANEOUS  
 Base Flow Conditions? (Y/N): Y Date of last precipitation: 0.00 Quantity: 0.00  
 Photograph Information: 2 photos  
 Elevated Turbidity? (Y/N): Y 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 (5 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

hh-bao-032216-06

FLOW →

LG Stream

slope

wooded

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PHWH Form Page - 2



SITE NAME/LOCATION: AEP Poston-Good Hope

SITE NUMBER: RIVER BASIN: DRAINAGE AREA (mi<sup>2</sup>):

LENGTH OF STREAM REACH (ft): LAT: LONG: RIVER CODE: RIVER MILE:

DATE: 03/22/16 SCORER: BAO/JBL COMMENTS: Interim; hh-bao-032216-05

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 5). 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 pts)	25%
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)	0%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	0%
<input type="checkbox"/> BEDROCK (16 pts)	10%	<input type="checkbox"/> FINE DETRITUS (3 pts)	0%
<input type="checkbox"/> COBBLE (63-256 mm) (12 pts)	0%	<input type="checkbox"/> CLAY or HARDPAN (0 pts)	10%
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	15%	<input type="checkbox"/> MUCK (0 pts)	0%
<input type="checkbox"/> SAND (<2 mm) (8 pts)	20%	<input type="checkbox"/> ARTIFICIAL (3 pts)	0%

Total Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 10.00% (A)

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)

TYPE	PERCENT
<input type="checkbox"/> > 30 centimeters (20 pts)	0%
<input type="checkbox"/> 22.5 - 30 cm (10 pts)	0%
<input type="checkbox"/> 10 - 22.5 cm (5 pts)	0%
<input type="checkbox"/> NO WATER OR MOIST CHANNEL (0 pts)	0%

COMMENTS: In inches MAXIMUM POOL DEPTH (centimeters): 3

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

TYPE	PERCENT
<input type="checkbox"/> > 4.0 meters (> 13') (30 pts)	0%
<input type="checkbox"/> 3.0 m - 4.0 m (> 9' 7" - 13') (25 pts)	0%
<input type="checkbox"/> 1.5 m - 3.0 m (> 4' 7" - 9' 7") (20 pts)	0%
<input type="checkbox"/> < 1.0 m (< 3' 3") (5 pts)	0%

COMMENTS: In feet AVERAGE BANKFULL WIDTH (meters): 3.00

HHEI Metric Points: 14 (A+B)

Pool Depth Max = 30

Bankfull Width Max=30

This information must also be completed

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

RIPARIAN ZONE	FLOODPLAIN QUALITY
<input type="checkbox"/> L <input type="checkbox"/> R (Per Bank)	<input type="checkbox"/> L <input type="checkbox"/> R (Most Predominant per Bank)
<input type="checkbox"/> Wide >10m	<input type="checkbox"/> Mature Forest, Wetland
<input type="checkbox"/> Moderate 5-10m	<input type="checkbox"/> Immature Forest, Shrub or Old Field
<input type="checkbox"/> Narrow <5m	<input type="checkbox"/> Residential, Park, New Field
<input type="checkbox"/> None	<input type="checkbox"/> Open Pasture, Row Crop
<input type="checkbox"/> COMMENTS	<input type="checkbox"/> Fenced Pasture
<input type="checkbox"/> FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Dry channel, no water (Ephemeral)
<input type="checkbox"/> Subsurface flow with isolated pools (Intermittent)	<input type="checkbox"/> COMMENTS: ephemeral
<input type="checkbox"/> 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 type="checkbox"/> 2.5	<input type="checkbox"/> 3.0
<input type="checkbox"/> >3	<input type="checkbox"/> >3
<input type="checkbox"/> STREAM GRADIENT ESTIMATE	<input type="checkbox"/> Flat (0 to 100 ft)
<input type="checkbox"/> Flat to Moderate	<input type="checkbox"/> Moderate (2 to 100 ft)
<input type="checkbox"/> Moderate to Severe	<input type="checkbox"/> Severe (10 to 100 ft)

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PHWH Form Page - 1

SITE NAME/LOCATION: AEP Poston-Good Hope

SITE NUMBER: RIVER BASIN: DRAINAGE AREA (mi<sup>2</sup>):

LENGTH OF STREAM REACH (ft): LAT: LONG: RIVER CODE: RIVER MILE:

DATE: 03/22/16 SCORER: BAO/JBL COMMENTS: ephemeral; hh-bao-032216-04

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 5). 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 pts)	40%
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)	0%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	10%
<input type="checkbox"/> BEDROCK (16 pts)	0%	<input type="checkbox"/> FINE DETRITUS (3 pts)	0%
<input type="checkbox"/> COBBLE (63-256 mm) (12 pts)	15%	<input type="checkbox"/> CLAY or HARDPAN (0 pts)	0%
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	0%	<input type="checkbox"/> MUCK (0 pts)	0%
<input type="checkbox"/> SAND (<2 mm) (8 pts)	30%	<input type="checkbox"/> ARTIFICIAL (3 pts)	0%

Total Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 15.00% (A)

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)

TYPE	PERCENT
<input type="checkbox"/> > 30 centimeters (20 pts)	0%
<input type="checkbox"/> 22.5 - 30 cm (10 pts)	0%
<input type="checkbox"/> 10 - 22.5 cm (5 pts)	0%
<input type="checkbox"/> NO WATER OR MOIST CHANNEL (0 pts)	0%

COMMENTS: In inches MAXIMUM POOL DEPTH (centimeters): 0

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

TYPE	PERCENT
<input type="checkbox"/> > 4.0 meters (> 13') (30 pts)	0%
<input type="checkbox"/> 3.0 m - 4.0 m (> 9' 7" - 13') (25 pts)	0%
<input type="checkbox"/> 1.5 m - 3.0 m (> 4' 7" - 9' 7") (20 pts)	0%
<input type="checkbox"/> < 1.0 m (< 3' 3") (5 pts)	0%

COMMENTS: In feet AVERAGE BANKFULL WIDTH (meters): 1.00

HHEI Metric Points: 13 (A+B)

Pool Depth Max = 30

Bankfull Width Max=30

This information must also be completed

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

RIPARIAN ZONE	FLOODPLAIN QUALITY
<input type="checkbox"/> L <input type="checkbox"/> R (Per Bank)	<input type="checkbox"/> L <input type="checkbox"/> R (Most Predominant per Bank)
<input type="checkbox"/> Wide >10m	<input type="checkbox"/> Mature Forest, Wetland
<input type="checkbox"/> Moderate 5-10m	<input type="checkbox"/> Immature Forest, Shrub or Old Field
<input type="checkbox"/> Narrow <5m	<input type="checkbox"/> Residential, Park, New Field
<input type="checkbox"/> None	<input type="checkbox"/> Open Pasture, Row Crop
<input type="checkbox"/> COMMENTS	<input type="checkbox"/> Fenced Pasture
<input type="checkbox"/> FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Stream Flowing	<input type="checkbox"/> Dry channel, no water (Ephemeral)
<input type="checkbox"/> Subsurface flow with isolated pools (Intermittent)	<input type="checkbox"/> COMMENTS: ephemeral
<input type="checkbox"/> 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 type="checkbox"/> 2.5	<input type="checkbox"/> 3.0
<input type="checkbox"/> >3	<input type="checkbox"/> >3
<input type="checkbox"/> STREAM GRADIENT ESTIMATE	<input type="checkbox"/> Flat (0 to 100 ft)
<input type="checkbox"/> Flat to Moderate	<input type="checkbox"/> Moderate (2 to 100 ft)
<input type="checkbox"/> Moderate to Severe	<input type="checkbox"/> Severe (10 to 100 ft)

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

Stream 111

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: Hocking Township / City:

## MISCELLANEOUS

Base Flow Conditions? (Y/N): V Date of last precipitation: Quantity: 0.00

Photograph Information: 2 photos

Elevated Turbidity? (Y/N): V 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): V If not, please explain:

Additional comments/description of pollution impacts:

former mining

## 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



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

Stream 112

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: Hocking Township / City:

## MISCELLANEOUS

Base Flow Conditions? (Y/N): V Date of last precipitation: Quantity: 0.00

Photograph Information: 2 photos

Elevated Turbidity? (Y/N): V 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): V If not, please explain:

Additional comments/description of pollution impacts:

former mining

## 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



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SITE NAME/LOCATION: AEP Poston-Good Hope
 SITE NUMBER: \_\_\_\_\_ RIVER BASIN: \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>): \_\_\_\_\_  
 LENGTH OF STREAM REACH (ft): \_\_\_\_\_ LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE: \_\_\_\_\_  
 DATE: 03/22/16 SCORER: BAO/UBL COMMENTS: Intermittent; hh-bao-032216-03

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 6). 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 pts]	40%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	10%
<input type="checkbox"/> BEDROCK [16 pts]	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 pts]	0%
<input type="checkbox"/> GRAVEL (2-64 mm) [8 pts]	15%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [8 pts]	30%	<input type="checkbox"/> ARTIFICIAL [3 pts]	0%

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

SCORE OF TWO MOST PREDOMINANT 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 [20 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: In inches 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 type="checkbox"/> > 1.5 m - 3.0 m (> 4' 7" - 9' 7") [20 pts]	

COMMENTS: In feet AVERAGE BANKFULL WIDTH (meters): 1.50

HHEI Metric Points  
Max = 40  
13  
A + BPool Depth  
Max = 30  
15Bankfull Width  
Max=30  
5This information must also be completed  
RIPARIAN ZONE AND FLOODPLAIN QUALITY (NOTE: River Left (L) and Right (R) as looking downstream)

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

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 (Intermittent)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS: Intermittent

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 type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

<input type="checkbox"/> Flat (0 to 100 ft)	<input type="checkbox"/> Flat to Moderate	<input checked="" type="checkbox"/> Moderate (2 to 100 ft)	<input type="checkbox"/> Moderate to Severe	<input type="checkbox"/> Severe (10 to 100 ft)
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SITE NAME/LOCATION: AEP Poston-Good Hope
 SITE NUMBER: 02 RIVER BASIN: \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>): \_\_\_\_\_  
 LENGTH OF STREAM REACH (ft): \_\_\_\_\_ LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE: \_\_\_\_\_  
 DATE: 03/22/16 SCORER: BAO/UBL COMMENTS: Intermittent; hh-bao-032216-02

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 6). 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 pts]	40%
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	5%
<input type="checkbox"/> BEDROCK [16 pts]	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 pts]	0%
<input type="checkbox"/> GRAVEL (2-64 mm) [8 pts]	15%	<input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> SAND (<2 mm) [8 pts]	30%	<input type="checkbox"/> ARTIFICIAL [3 pts]	5%

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

SCORE OF TWO MOST PREDOMINANT 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 [20 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: In inches MAXIMUM POOL DEPTH (centimeters): 1

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 (> 4' 7" - 9' 7") [20 pts]	

COMMENTS: In feet AVERAGE BANKFULL WIDTH (meters): 2.00

HHEI Metric Points  
Max = 40  
14  
A + BPool Depth  
Max = 30  
5Bankfull Width  
Max=30  
5This information must also be completed  
RIPARIAN ZONE AND FLOODPLAIN QUALITY (NOTE: River Left (L) and Right (R) as looking downstream)

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

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 (Intermittent)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS: ephemeral

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 type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

<input type="checkbox"/> Flat (0 to 100 ft)	<input type="checkbox"/> Flat to Moderate	<input checked="" type="checkbox"/> Moderate (2 to 100 ft)	<input type="checkbox"/> Moderate to Severe	<input type="checkbox"/> Severe (10 to 100 ft)
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PHWH Form Page - 1

ADDITIONAL STREAM INFORMATION (This information must also be completed):

Stream 113

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: Hocking Township / City: \_\_\_\_\_

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: \_\_\_\_\_ Quantity: 0.00Photograph information: 2 photosElevated Turbidity? (Y/N): Y 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:

former mining

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): NFrogs 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.



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PHWH Form Page - 2

ADDITIONAL STREAM INFORMATION (This information must also be completed):

Stream 114

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: Hocking Township / City: \_\_\_\_\_

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: \_\_\_\_\_ Quantity: 0.00Photograph information: 2 photosElevated Turbidity? (Y/N): Y 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:

pasture runoff, slope concerns

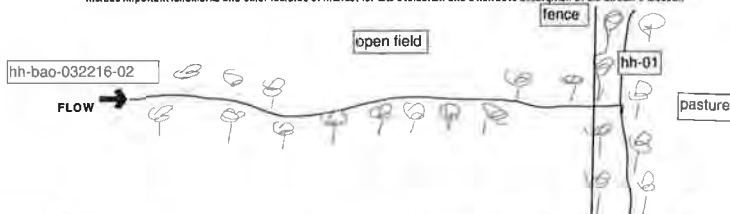
BIOTIC EVALUATION

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): NFrogs 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.



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PHWH Form Page - 2

SITE NAME/LOCATION: AEP Poston-Good Hope
 SITE NUMBER: \_\_\_\_\_ RIVER BASIN: \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>): \_\_\_\_\_  
 LENGTH OF STREAM REACH (ft): \_\_\_\_\_ LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE: \_\_\_\_\_  
 DATE: 03/22/16 SCORER: BAO/JBL COMMENTS: Intermittent:hh-bao-032216-01

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

 STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☒ RECENT OR NO RECOVERY  
 stream within pasture, cleared riparian

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 6). 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 pts)	40%
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)	0%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	5%
<input type="checkbox"/> BEDROCK (16 pts)	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 pts)	0%
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	15%	<input type="checkbox"/> MUCK (0 pts)	0%
<input type="checkbox"/> SAND (<2 mm) (6 pts)	30%	<input type="checkbox"/> ARTIFICIAL (3 pts)	5%

Total of Percentages of Bldr Slab, Boulder, Cobble, Bedrock: 0.00% (A) (B)

SCORE OF TWO MOST PREDOMINANT 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 (10 pts)	<input type="checkbox"/> > 5 cm - 10 cm (15 pts)
<input type="checkbox"/> > 22.5 - 30 cm (10 pts)	<input type="checkbox"/> < 5 cm (0 pts)
<input type="checkbox"/> > 10 - 22.5 cm (15 pts)	<input type="checkbox"/> NO WATER OR MOIST CHANNEL (0 pts)

COMMENTS: In inches 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' - 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") (0 pts)
<input type="checkbox"/> > 1.5 m - 3.0 m (> 4' 8" - 9' 7") (20 pts)	

COMMENTS: In feet AVERAGE BANKFULL WIDTH (meters): 3.00

HHEI Metric Points

Substrate

Max = 40

14

A + B

Pool Depth

Max = 30

25

Bank Full Width

Max = 30

5

This information must also be completed

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

RIPIARIAN ZONE AND FLOODPLAIN QUALITY

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

COMMENTS: Intermittent

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

<input checked="" type="checkbox"/> Flat (0.5 m/100)	<input type="checkbox"/> Flat to Moderate	<input type="checkbox"/> Moderate to Steep	<input type="checkbox"/> Moderate to Severe	<input type="checkbox"/> Severe (10 m/100)
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PWHW Form Page - 1

ADDITIONAL STREAM INFORMATION (This information must also be completed):

Stream 115

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: Hocking Township / City: \_\_\_\_\_

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: \_\_\_\_\_ Quantity: 0.00Photograph Information: 2 photosElevated Turbidity? (Y/N): Y Canopy (% open): 60%Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or kit, 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:

pasture runoff, algae concerns

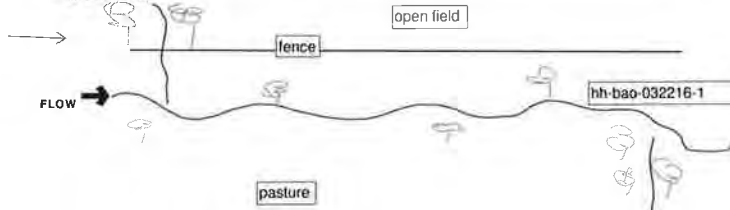
BIOTIC EVALUATION

 Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be included 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): NFrogs or Toads 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



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PWHW Form Page - 2

Field Form

 SITE NAME/LOCATION: Eastlake Highline  
 SITE NUMBER: \_\_\_\_\_ RIVER BASIN: \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>): \_\_\_\_\_  
 LENGTH OF STREAM REACH (ft): 200 ft LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE: \_\_\_\_\_  
 DATE: 03/14/16 SCORER: BAO/JBL COMMENTS: Intermittent

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

 STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☒ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY  
 stream within pasture, cleared riparian

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 6). 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 pts)	30%
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)	0%	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	0%
<input type="checkbox"/> BEDROCK (16 pts)	0%	<input type="checkbox"/> FINE DETRITUS (3 pts)	15%
<input type="checkbox"/> COBBLE (65-256 mm) (12 pts)	0%	<input type="checkbox"/> CLAY or HARDPAN (0 pts)	0%
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	40%	<input type="checkbox"/> MUCK (0 pts)	0%
<input type="checkbox"/> SAND (<2 mm) (6 pts)	40%	<input type="checkbox"/> ARTIFICIAL (3 pts)	0%

Total of Percentages of Bldr Slab, Boulder, Cobble, Bedrock: 0.00% (A) (B)

SCORE OF TWO MOST PREDOMINANT 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 (10 pts)	<input type="checkbox"/> > 5 cm - 10 cm (15 pts)
<input type="checkbox"/> > 22.5 - 30 cm (10 pts)	<input type="checkbox"/> < 5 cm (0 pts)
<input type="checkbox"/> > 10 - 22.5 cm (15 pts)	<input type="checkbox"/> NO WATER OR MOIST CHANNEL (0 pts)

COMMENTS: Inches 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' - 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") (0 pts)
<input type="checkbox"/> > 1.5 m - 3.0 m (> 4' 8" - 9' 7") (20 pts)	

COMMENTS: In feet AVERAGE BANKFULL WIDTH (meters): 3

HHEI Metric Points

Substrate

Max = 40

13

A + B

Pool Depth

Max = 30

15

Bank Full Width

Max = 30

5

This information must also be completed

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

RIPIARIAN ZONE AND FLOODPLAIN QUALITY

RIPIARIAN WIDTH (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 checked="" 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 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 (Intermittent)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS: Intermittent

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

<input checked="" type="checkbox"/> Flat (0.5 m/100)	<input type="checkbox"/> Flat to Moderate	<input type="checkbox"/> Moderate to Steep	<input type="checkbox"/> Moderate to Severe	<input type="checkbox"/> Severe (10 m/100)
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PWHW Form Page - 1

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): N Date of last precipitation: Recent snowmelt Quantity: \_\_\_\_\_Photograph Information: 1 Photo Highline - HighlineElevated Turbidity? (Y/N): N Canopy (% open): 95%Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or kit, 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: Some water runoff, possible runoff

input

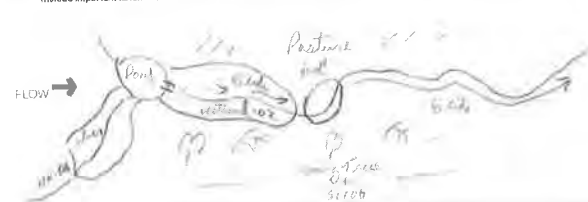
BIOTIC EVALUATION

 Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be included 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): NFrogs or Toads 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



PWHW Form Page - 2

Stream 117

Met. 1, 2, 3

11/18/16 11:41 AM

OhioEPA

## Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): 23

**SITE NAME/LOCATION:** Grange - Pk 2 **SITE NUMBER:** 05 **RIVER BASIN:** Grange **DRAINAGE AREA (mi<sup>2</sup>):** 0.5

**LENGTH OF STREAM REACH (ft):** 50 **LAT:** 40.1 **LONG:** 82.1 **RIVER CODE:** 1 **RIVER MILE:** 1.0

**DATE:** 02/24/16 **SCORER:** MA/16 **COMMENTS:** Re-sampled

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

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

**MODIFICATIONS:** Transmission Line ROW

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B)

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDG SLABS (10 pts)		<input checked="" type="checkbox"/> SILT (3 pts)	40
<input type="checkbox"/> BOULDER (>256 mm) (10 pts)		<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	10
<input type="checkbox"/> BEDROCK (10 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (63-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (3 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	10	<input type="checkbox"/> MUCK (3 pts)	
<input checked="" type="checkbox"/> SAND (<2 mm) (5 pts)	20	<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bld Slabs, Boulder, Cobble, Bedrock: 5

**SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES:** (A) 1 (B) 4 **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)

☐ > 30 centimeters (12 pts) ☐ > 5 cm - 10 cm (15 pts) ☐ > 22.5 - 30 cm (10 pts) ☐ < 5 cm (5 pts) ☐ NO WATER OR MOST 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)

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

**COMMENTS:** AVERAGE BANK FULL WIDTH (meters): 1.5

HHEI Metric Points

Substrate

Max = 40

13

A + B

Pool Depth

Max = 30

15

Bank Full Width

Max = 30

5

Total

23

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

**RIPIARIAN WIDTH** (Per Bank)

☒ L > 10m ☐ R > 10m ☐ Moderate 5-10m ☐ Narrow < 5m ☐ None

**FLOODPLAIN QUALITY** (Most Predominant per Bank)

☒ L Mature Forest, Wetland ☐ R Mature Forest, Wetland ☐ L Immature Forest, Shrub or Old Field ☐ R Immature Forest, Shrub or Old Field ☐ L Residential, Park, New Field ☐ R Residential, Park, New Field ☐ L Fenced Pasture ☐ R Fenced Pasture ☐ L Open Pasture, Row Crop ☐ R Open Pasture, Row Crop ☐ L Mining or Construction ☐ R 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 (intermittent) ☐ Dry channel: no water (Ephemeral)

**COMMENTS:**

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

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

**STREAM GRADIENT ESTIMATE**

☐ Flat to Slightly ☐ Flat to Moderate ☒ Moderate to Steep ☐ Moderate to Severe ☐ Severe to Steep

PHHW Form Page - 1

Stream 117

11/18/16 11:41 AM

## ADDITIONAL STREAM INFORMATION (This Information Must Also Be Completed)

**QHEI PERFORMED?** ☐ Yes ☒ No QHEI Score: 0 (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☐ Warm Water ☐ Cold Water ☐ Cold Water

**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) N **Date of last precipitation:** 11/18/16

**Photograph Information:** 2 Photos, Upstream + Downstream

**Elevated Turbidity?** (Y/N) N **Conductivity (µmhos/cm):** 403

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

**Field Measures:** **Temp (°C):** 10.0 **Dissolved Oxygen (mg/l):** 1.0 **pH (8 U):** 7.0 **Conductivity (µmhos/cm):** 403

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

**Additional comments/Description of pollution impacts:**

**BIOTIC EVALUATION**

**Performs?** (Y/N) N (If Yes, Record all observations. Voucher collection 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 **Salamander 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



PHHW Form Page - 2

Stream 118

Met. 1, 2, 3

11/18/16 11:41 AM

OhioEPA

## Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): 23

**SITE NAME/LOCATION:** Grange - Pk 2 **SITE NUMBER:** 05 **RIVER BASIN:** Grange **DRAINAGE AREA (mi<sup>2</sup>):** 0.5

**LENGTH OF STREAM REACH (ft):** 50 **LAT:** 40.1 **LONG:** 82.1 **RIVER CODE:** 1 **RIVER MILE:** 1.0

**DATE:** 02/24/16 **SCORER:** MA/16 **COMMENTS:** Re-sampled

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

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

**MODIFICATIONS:** Transmission Line ROW

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B)

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDG SLABS (10 pts)		<input checked="" type="checkbox"/> SILT (3 pts)	40
<input type="checkbox"/> BOULDER (>256 mm) (10 pts)		<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	10
<input type="checkbox"/> BEDROCK (10 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (63-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (3 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	10	<input type="checkbox"/> MUCK (3 pts)	
<input checked="" type="checkbox"/> SAND (<2 mm) (5 pts)	20	<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bld Slabs, Boulder, Cobble, Bedrock: 5

**SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES:** (A) 1 (B) 4 **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)

☐ > 30 centimeters (12 pts) ☐ > 5 cm - 10 cm (15 pts) ☐ > 22.5 - 30 cm (10 pts) ☐ < 5 cm (5 pts) ☐ NO WATER OR MOST 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)

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

**COMMENTS:** AVERAGE BANK FULL WIDTH (meters): 1.5

HHEI Metric Points

Substrate

Max = 40

13

A + B

Pool Depth

Max = 30

15

Bank Full Width

Max = 30

5

Total

23

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

**RIPIARIAN WIDTH** (Per Bank)

☒ L > 10m ☐ R > 10m ☐ Moderate 5-10m ☐ Narrow < 5m ☐ None

**FLOODPLAIN QUALITY** (Most Predominant per Bank)

☒ L Mature Forest, Wetland ☐ R Mature Forest, Wetland ☐ L Immature Forest, Shrub or Old Field ☐ R Immature Forest, Shrub or Old Field ☐ L Residential, Park, New Field ☐ R Residential, Park, New Field ☐ L Fenced Pasture ☐ R Fenced Pasture ☐ L Open Pasture, Row Crop ☐ R Open Pasture, Row Crop ☐ L Mining or Construction ☐ R 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 (intermittent) ☐ Dry channel: no water (Ephemeral)

**COMMENTS:**

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

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

**STREAM GRADIENT ESTIMATE**

☐ Flat to Slightly ☐ Flat to Moderate ☒ Moderate to Steep ☐ Moderate to Severe ☐ Severe to Steep

PHHW Form Page - 1

Stream 118

11/18/16 11:41 AM

## ADDITIONAL STREAM INFORMATION (This Information Must Also Be Completed)

**QHEI PERFORMED?** ☐ Yes ☒ No QHEI Score: 0 (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

☐ Warm Water ☐ Cold Water ☐ Cold Water

**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) N **Date of last precipitation:** 11/18/16

**Photograph Information:** 2 Photos, Upstream + Downstream

**Elevated Turbidity?** (Y/N) N **Conductivity (µmhos/cm):** 50

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

**Field Measures:** **Temp (°C):** 10.0 **Dissolved Oxygen (mg/l):** 1.0 **pH (8 U):** 7.0 **Conductivity (µmhos/cm):** 50

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

**Additional comments/Description of pollution impacts:** Transmission Line ROW (Re-sampled)

**BIOTIC EVALUATION**

**Performs?** (Y/N) N (If Yes, Record all observations. Voucher collection 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 **Salamander 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



PHHW Form Page - 2



PHWH Form Page - 1

BASIC EVALUATION

Performed? (Y/N) P (If Yes, Record all observations. Voucher collections optional. NOTE: at least one sample must be labeled with the site ID number. Include appropriate field data sheets from the Primary Investigator's Field Observation 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 Salmon \_\_\_\_\_

**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:

A hand-drawn sketch of a stream reach. The stream flows from left to right, indicated by an arrow labeled 'FLOW'. The stream is depicted with a central channel and several oxbow-like features. Labels include 'Trench Line Road' above the stream, 'Boulder channel' above a meander, 'Grass growth' below a meander, and 'Grass growth' below a bend. There are several circled 'P' marks along the stream. A small '111-003' is written at the bottom right. The drawing is on lined paper.

PHWH Form Page - 3

This information must also be completed

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

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

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

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

☒ Stream Flowing

☐ Subjected flow with significant pools (intermittent)

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

SINOUSITY (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

STRAIN GRADIENT ESTIMATE

☐ Flat to Slight

☐ Flat to Moderate

☐ Moderate to Slight

☐ Moderate to Severe

☐ Severe to Extreme

**BIOIC EVALUATION**

Portion(s): (Y/N) N (If Yes, record key observations. Voucher labels are optional. NOTE: All voucher entries must be labeled with the site ID number. Include appropriate field data (climate, the biophysical characteristics, and/or Vegetation Manual)

Fish Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_ Salamander Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_  
Frogs or Toads Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_ Aves: Macrochiropteres Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_

Comments: Wetland Energy

**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

A hand-drawn sketch of a stream reach. A wavy line represents the stream, with an arrow on the left pointing right labeled 'FLOW'. The stream is divided into sections by vertical lines. Labels include: 'P1' and 'P2' in circles on the left; 'P1 reach' and 'P2 reach' above the stream; 'Left side of channel' and 'Right side of channel' below the stream; 'growing growth' below the stream; 'shrub' above the stream; 'Puffin' above the stream; 'Disturbance' above the stream; 'L-1' and 'L-2' below the stream; and 'L-3' below the stream.



# Stream 121

## Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **61**

SITE NAME/LOCATION: Coultage Station  
 SITE NUMBER: 02 RIVER BASIN: \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>): \_\_\_\_\_  
 LENGTH OF STREAM REACH (ft): 200 LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE: \_\_\_\_\_  
 DATE: 1/24/18 SCORER: Mollick COMMENTS: Intermittent  
 NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions  
 STREAM CHANNEL: ☐ NONE/NATURAL CHANNEL ☒ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY  
 MODIFICATIONS: Transmission Line ROW

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDG SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>25 mm) (16 pts)		<input type="checkbox"/> LEAF PACKWOODY DEBRIS (3 pts)	10
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-250 mm) (12 pts)	10	<input type="checkbox"/> CLAY or HARDPAN (3 pts)	
<input type="checkbox"/> GRAVEL (2.64 mm) (8 pts)	30	<input type="checkbox"/> MUCK (3 pts)	
<input type="checkbox"/> SAND (<2 mm) (8 pts)	30	<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bldg Slabs, Boulder, Cobble, Bedrock: **15** (A) **15** (B) **5**  
 SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES: **15** TOTAL NUMBER OF SUBSTRATE TYPES: **5**  
 HHEI Metric Points: **21**  
 Substrate Max = 40  
 A + B = **21**

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 stormwater pipes). (Check ONLY one box)

Pool Depth	Score
> 30 centimeters (120 pts)	
> 22.5 - 30 cm (10 pts)	
< 10 - 22.5 cm (12 pts)	40

COMMENTS: \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): \_\_\_\_\_  
 HHEI Metric Points: **40**  
 Pool Depth Max = 30

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

Bank Full Width	Score
> 4.0 meters (> 13' (20 pts)	
> 3.0 m - 4.0 m (> 9' 7" - 13' (25 pts)	
> 1.5 m - 3.0 m (> 4' 8" - 9' 7" (20 pts)	15

COMMENTS: \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): **4**  
 HHEI Metric Points: **15**  
 Bankfull Width Max=30

This information must also be completed

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

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

COMMENTS: Young trees, some shrubs, old, large old growth forest

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

Flow Regime	Score
Stream Flowing	
Subsurface flow with isolated pools (Intermittent)	
Dry channel, no water (Ephemeral)	

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

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

Sinuosity	Score
None	
0.5	
1.0	
1.5	
2.0	
2.5	
3.0	
> 3	

STREAM GRADIENT ESTIMATE

Stream Gradient	Score
Flat to Moderate	
Moderate to Steep	
Moderate to Severe	
Severe	

# Stream 122

## Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION: Coultage Station  
 SITE NUMBER: 01 RIVER BASIN: \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>): \_\_\_\_\_  
 LENGTH OF STREAM REACH (ft): 200 LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE: \_\_\_\_\_  
 DATE: 2/14/18 SCORER: RAO/SJR COMMENTS: Intermittent  
 NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions  
 STREAM CHANNEL: ☐ NONE/NATURAL CHANNEL ☒ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY  
 MODIFICATIONS: Transmission ROW and ATV Trails/Drainage

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDG SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>25 mm) (16 pts)		<input type="checkbox"/> LEAF PACKWOODY DEBRIS (3 pts)	10
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-250 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (3 pts)	
<input type="checkbox"/> GRAVEL (2.64 mm) (8 pts)	40	<input type="checkbox"/> MUCK (3 pts)	
<input type="checkbox"/> SAND (<2 mm) (8 pts)	20	<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bldg Slabs, Boulder, Cobble, Bedrock: **27** (A) **12** (B) **7**  
 SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES: **12** TOTAL NUMBER OF SUBSTRATE TYPES: **7**  
 HHEI Metric Points: **16**  
 Substrate Max = 40  
 A + B = **16**

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 stormwater pipes). (Check ONLY one box)

Pool Depth	Score
> 30 centimeters (120 pts)	
> 22.5 - 30 cm (10 pts)	
< 10 - 22.5 cm (12 pts)	60

COMMENTS: \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): \_\_\_\_\_  
 HHEI Metric Points: **60**  
 Pool Depth Max = 30

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

Bank Full Width	Score
> 4.0 meters (> 13' (20 pts)	
> 3.0 m - 4.0 m (> 9' 7" - 13' (25 pts)	
> 1.5 m - 3.0 m (> 4' 8" - 9' 7" (20 pts)	15

COMMENTS: \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): **4**  
 HHEI Metric Points: **15**  
 Bankfull Width Max=30

This information must also be completed

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

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

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

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

Flow Regime	Score
Stream Flowing	
Subsurface flow with isolated pools (Intermittent)	
Dry channel, no water (Ephemeral)	

COMMENTS: some water, some dry

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

Sinuosity	Score
None	
0.5	
1.0	
1.5	
2.0	
2.5	
3.0	
> 3	

STREAM GRADIENT ESTIMATE

Stream Gradient	Score
Flat to Moderate	
Moderate to Steep	
Moderate to Severe	
Severe	

# Stream 121

## Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **61**

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)

WHA 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): N Date of last precipitation: \_\_\_\_\_ Quantity: \_\_\_\_\_  
 Photograph Information: Photos taken at stream + down stream  
 Elevated Turbidity? (Y/N): N Clarity (% open): 35  
 Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or do and attach results) Lab Number: \_\_\_\_\_  
 Field Measures: Temp (°C): \_\_\_\_\_ Dissolved Oxygen (mg/L): \_\_\_\_\_ pH (8 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: Transmission ROW at crossing point

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collection 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 narrative description of the stream's location

FLOW →

PHWH Form Page - 2

# Stream 122

## Primary Headwater Habitat Evaluation Form

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

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)

WHA 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): N Date of last precipitation: \_\_\_\_\_ Quantity: \_\_\_\_\_  
 Photograph Information: Photos taken at stream + down stream  
 Elevated Turbidity? (Y/N): N Clarity (% open): 30  
 Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or do and attach results) Lab Number: \_\_\_\_\_  
 Field Measures: Temp (°C): \_\_\_\_\_ Dissolved Oxygen (mg/L): \_\_\_\_\_ pH (8 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: Intermittent flow from ATV trail drainage

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collection 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 narrative description of the stream's location

FLOW →

PHWH Form Page - 2

Stream 123 And Class 2 11/10/2019

**Ohio EPA** Primary Headwater Habitat Evaluation Form  
HHEI Score (sum of metrics 1, 2, 3): **34**

SITE NAME/LOCATION: Acacia Springs Run  
SITE NUMBER: \_\_\_\_\_ RIVER BASIN: \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>): \_\_\_\_\_  
LENGTH OF STREAM REACH (ft): \_\_\_\_\_ LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE: \_\_\_\_\_  
DATE: 02/10/16 SCORE: 34/40 COMMENTS: Wetland  
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions  
STREAM CHANNEL: ☐ NONE / NATURAL CHANNEL ☒ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY  
MODIFICATIONS: For 2016 WMA Runway project - 100' x 200' area

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (10 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACKWOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	10	<input type="checkbox"/> CLAY or HARDPAN (0 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) [8 pts]	10	<input type="checkbox"/> MUCK (0 pts)	
<input checked="" type="checkbox"/> SAND (<2 mm) [8 pts]	20	<input type="checkbox"/> ARTIFICIAL (0 pts)	

Total of Percentages of Substrate: Boulder, Cobble, Bedrock: 10 (A) 9 (B) 5  
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):  
☐ > 30 centimeters [10 pts] ☐ > 5 cm - 10 cm [15 pts] ☒ < 5 cm [5 pts] ☐ NO WATER OR HOST CHANNEL [0 pts]  
COMMENTS: \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): 5

**3. BANK FULL WIDTH** (Measured as the average of 3-4 measurements. (Check ONLY one box):  
☐ > 4 meters (> 13' [20 pts]) ☐ > 1.0 m - 1.5 m (> 3' - 4' 8") [15 pts] ☒ < 1.0 m (< 3' 3") [5 pts]  
☐ > 3.0 m - 4.0 m (> 9' 8" - 13') [20 pts] ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 8") [20 pts]  
COMMENTS: \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): 5

This information must also be completed

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

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

**FLOW REGIME** (At Time of Evaluation) (Check ONLY one box)  
☒ Stream Flowing ☐ Moist Channel, isolated pools, no flow (Intermittent)  
☐ Subsurface flow with isolated pools (Intermittent) ☐ Dry channel, no water (Ephemeral)  
COMMENTS: \_\_\_\_\_

**SINUOSITY** (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box)  
☐ None ☐ 1.0 ☒ 2.0 ☐ 3.0  
☐ 0.5 ☐ 1.5 ☐ 2.5 ☐ >3

**STREAM GRADIENT ESTIMATE**  
☐ Flat (0-5%) ☐ Flat to Moderate ☒ Moderate to Steep ☐ Moderate to Severe ☐ Severe (>10%)

PHWH Form Page - 1

Stream 123 11/10/2019

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

GHEI PERFORMED? ☐ Yes ☒ No GHEI Score: \_\_\_\_\_ (If Yes, Attach Completed GHEI Form)

DOWNSTREAM DESIGNATED USE(S):  
☐ WWH Name: \_\_\_\_\_ Distance from Evaluated Stream: \_\_\_\_\_  
☐ CWS 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) Y Date of last precipitation: 02/09/16 Quantity: 0.1"

Photograph Information: 2 Photos

Elevated Turbidity? (Y/N) \_\_\_\_\_ Canopy (% open): 0-5

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 (5-10): \_\_\_\_\_ Conductivity (µmhos/cm): \_\_\_\_\_

Is the sampling reach representative of the stream? (Y/N) Y If no, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: \_\_\_\_\_

**BIOTIC EVALUATION**

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

Fish Observed? (Y/N) N Voucher? (Y/N) \_\_\_\_\_ Salamanders Observed? (Y/N) N Voucher? (Y/N) \_\_\_\_\_  
Frogs or Tadpoles Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_ Aquatic Macroinvertebrates Observed? (Y/N) Y Voucher? (Y/N) \_\_\_\_\_  
Comments Regarding Bioty: \_\_\_\_\_

**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 →

11/10/2019

PHWH Form Page - 2

Stream 124 Class 1 11/10/2019

**Ohio EPA** Primary Headwater Habitat Evaluation Form  
HHEI Score (sum of metrics 1, 2, 3): **24**

SITE NAME/LOCATION: Acacia Springs Run  
SITE NUMBER: \_\_\_\_\_ RIVER BASIN: \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>): \_\_\_\_\_  
LENGTH OF STREAM REACH (ft): \_\_\_\_\_ LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE: \_\_\_\_\_  
DATE: 02/10/16 SCORE: 24/40 COMMENTS: Wetland  
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions  
STREAM CHANNEL: ☒ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY  
MODIFICATIONS: For 2016 WMA Runway project - 100' x 200' area

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACKWOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	10	<input type="checkbox"/> CLAY or HARDPAN (0 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) [8 pts]	20	<input type="checkbox"/> MUCK (0 pts)	
<input checked="" type="checkbox"/> SAND (<2 mm) [8 pts]	20	<input type="checkbox"/> ARTIFICIAL (0 pts)	

Total of Percentages of Substrate: Boulder, Cobble, Bedrock: 0 (A) 9 (B) 5  
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):  
☐ > 30 centimeters [10 pts] ☐ > 5 cm - 10 cm [15 pts] ☒ < 5 cm [5 pts] ☐ NO WATER OR HOST CHANNEL [0 pts]  
COMMENTS: \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): 5

**3. BANK FULL WIDTH** (Measured as the average of 3-4 measurements. (Check ONLY one box):  
☐ > 4 meters (> 13' [20 pts]) ☐ > 1.0 m - 1.5 m (> 3' - 4' 8") [15 pts] ☒ < 1.0 m (< 3' 3") [5 pts]  
☐ > 3.0 m - 4.0 m (> 9' 8" - 13') [20 pts] ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 8") [20 pts]  
COMMENTS: \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): 5

This information must also be completed

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

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

**FLOW REGIME** (At Time of Evaluation) (Check ONLY one box)  
☒ Stream Flowing ☐ Moist Channel, isolated pools, no flow (Intermittent)  
☐ Subsurface flow with isolated pools (Intermittent) ☐ Dry channel, no water (Ephemeral)  
COMMENTS: Intermittent

**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%) ☐ Flat to Moderate ☒ Moderate to Steep ☐ Moderate to Severe ☐ Severe (>10%)

PHWH Form Page - 1

Stream 124 11/10/2019

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

GHEI PERFORMED? ☐ Yes ☒ No GHEI Score: \_\_\_\_\_ (If Yes, Attach Completed GHEI Form)

DOWNSTREAM DESIGNATED USE(S):  
☐ WWH Name: \_\_\_\_\_ Distance from Evaluated Stream: \_\_\_\_\_  
☐ CWS 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) Y Date of last precipitation: 02/09/16 Quantity: 0.1"

Photograph Information: 2 Photos

Elevated Turbidity? (Y/N) Y Canopy (% open): 0-5

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 (5-10): \_\_\_\_\_ Conductivity (µmhos/cm): \_\_\_\_\_

Is the sampling reach representative of the stream? (Y/N) Y If no, please explain: \_\_\_\_\_

Additional comments/description of pollution impacts: \_\_\_\_\_

**BIOTIC EVALUATION**

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

Fish Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_ Salamanders Observed? (Y/N) N Voucher? (Y/N) \_\_\_\_\_  
Frogs or Tadpoles Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_ Aquatic Macroinvertebrates Observed? (Y/N) Y Voucher? (Y/N) \_\_\_\_\_  
Comments Regarding Bioty: \_\_\_\_\_

**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 →

11/10/2019

PHWH Form Page - 2

STREAM CHANNEL ☒ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

MODIFICATIONS:

TYPE		PERCENT	TYPE	PERCENT	Metric Points
<input checked="" type="checkbox"/>	BILDR SLABS (16 pts)		<input checked="" type="checkbox"/>	SILT (2 pts)	Substrate Max = 40
<input checked="" type="checkbox"/>	BOULDER (>250 mm) (16 pts)		<input checked="" type="checkbox"/>	LEAF PACKWOODY DEBRIS (3 pts)	
<input checked="" type="checkbox"/>	BEDROCK (16 pts)		<input checked="" type="checkbox"/>	FINE DETRITUS (3 pts)	
<input checked="" type="checkbox"/>	COBBLE (65-250 mm) (12 pts)	10	<input checked="" type="checkbox"/>	CLAY or HARDPAN (0 pts)	
<input checked="" type="checkbox"/>	GRAVEL (2-64 mm) (8 pts)	25	<input checked="" type="checkbox"/>	MUCK (0 pts)	
<input checked="" type="checkbox"/>	WAND (<2 mm) (6 pts)		<input checked="" type="checkbox"/>	ARTIFICIAL (3 pts)	

2. **Maximum Pool Depth** (Measure the maximum point depth within the 51 meter (260 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or stormwater pipes). (Check ONLY one box)

<input type="checkbox"/> > 30 centimeters (10 pts)	<input type="checkbox"/> > 8 cm - 10 cm [10 pts]
<input type="checkbox"/> 22.5 - 30 cm (10 pts)	<input type="checkbox"/> 5 cm (5 pts)
<input type="checkbox"/> 16 - 22.5 cm (7.5 pts)	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

**Pool Depth**  
Max = 20

☐  $> 1.5 \text{ m} - 3.0 \text{ m}$  ( $> 4' 9" - 9' 7"$ ) [20 pts] 11 5

COMMENTS \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters) \_\_\_\_\_

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

COMMENTS

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

☒ Stream flowing Most Channel, isolated pools, no flow (Intermittent)  
☐ Surface flow with isolated pools (intermittent) Dry channel, no water (Ephemeral)

COMMENTS

**BIODIVERSITY** (Number of species per 61 m (200 ft) of channel) (Check ONLY one box)

Note ☐ 1.0 ☒ 2.0 ☐ 3.0  
C.S. ☐ 1.5 ☐ 2.5 ☐ >3

**STREAM GRADIENT ESTIMATE**

☐ Flat to Moderate ☐ Flat to Moderate ☐ Moderate ☒ Moderate to Severe ☐ Severe (15% or more)

**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)

☐ WYV Name \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

☐ CWR Name \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

☐ EWH Name \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

MISCELLANEOUS

Base Flow Conditions? (Y/N) Y Date of last precipitation 12-27-11 Quantity 1/2 in.

Photograph Information \_\_\_\_\_

Ground Temperature at 0.6 m 11 Distance to peak 20

BIONIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the 10-minute. Include appropriate field data sheets from the Primary Headgear In Situ Assessment Manual.)

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

SITE NAME/LOCATION NEP 1000000 - 1000000  
 SITE NUMBER \_\_\_\_\_ RIVER BASIN \_\_\_\_\_ CATCHMENT AREA (km<sup>2</sup>) \_\_\_\_\_  
 LENGTH OF STREAM REACH (ft) \_\_\_\_\_ LAT. \_\_\_\_\_ LONG. \_\_\_\_\_ RIVER CODE \_\_\_\_\_ RIVER MILE \_\_\_\_\_  
 DATE 5/20/18 BY SCOR 500 M COMMENTS TRAILING  
 (NOTE: Please refer to the "Guide to Field Evaluation Manual for Ohio's CWRM Streams" for instructions)

SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate type boxes (Max of 40) Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.		HHEI Metric Points	
TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR GLABR [10 pts]		<input type="checkbox"/> SILT [3 pts]	10
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF CARPWOODY DEBRIS [3 pts]	10
<input type="checkbox"/> BEDROCK [16 pts]		<input type="checkbox"/> FINE DETRITUS [3 pts]	
<input type="checkbox"/> COBBLE (85-256 mm) [12 pts]		<input checked="" type="checkbox"/> LEAF & HARDPAN [3 pts]	30
<input checked="" type="checkbox"/> GRAVEL (2-84 mm) [8 pts]	40	<input type="checkbox"/> MUCK [2 pts]	

Substrate Max = 40

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

<input type="checkbox"/> > 30 centimeters (12 in)	<input type="checkbox"/> > 5 cm - 10 cm (1.5 in)
<input type="checkbox"/> 22.5 - 30 cm (9 in)	<input type="checkbox"/> < 5 cm (2 in)
<input type="checkbox"/> 10 - 22.5 cm (4 in)	<input checked="" type="checkbox"/> NO WATER OR MOST CHANNEL (0 pts)

Pool Depth Max = 30

2.

COMMENTS \_\_\_\_\_ MAXIMUM POOL DEPTH (feet/meters) \_\_\_\_\_

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY One box):  
☐ > 0.9 m (~ 3') [30 pts]  
☒ > 0.6 m (~ 2') [25 pts]  
☐ > 0.3 m (< 1') [15 pts]

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

☐ FLOW REGIME (At Time of Evaluation) (Check ONLY one box)  
☐ Stream Pools  
☐ Subsurface flow with isolated pools (Intermittent)  
 COMMENTS \_\_\_\_\_

☐ MOISTURE (Number of benches per 61 m (200 ft) of channel) (Check ONLY one box)  
 None 0.5 1.0 1.5 2.0 2.5 3.0 ☒ 3.5  
 0.5 1.5 2.5 3.5

**STREAM GRADIENT ESTIMATE**  
☐ Flats to None ☐ Flat to Moderate ☐ Moderate to Severe ☒ Severe to Steep

**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) \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

☐ IWH Name \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

☐ CWH Name \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

☐ CWH Name \_\_\_\_\_ Distance from Evaluated Stream \_\_\_\_\_

MISCELLANEOUS

Sage Flow Conditions? (VA) \_\_\_\_\_ Date of last precipitation \_\_\_\_\_ Quantity \_\_\_\_\_

Precipitation information 2-9-68 PM

\_\_\_\_\_

H Collection date 102

Biotic Evaluation

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

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

A hand-drawn diagram of a river cross-section. A horizontal line at the bottom is labeled 'Mud flat RD'. Above it, a wavy line represents the riverbed. A dashed line above the riverbed indicates the water level. An arrow labeled 'FLOW' points to the right. The area above the water level is filled with small circles and dots, representing vegetation or debris. The top of the diagram is labeled 'Include inputs of plants and animals'.

# Stream 127 Class 1

## OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **18**

SITE NAME/LOCATION: ATP  
 SITE NUMBER: 07 RIVER BASIN: \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>): \_\_\_\_\_  
 LENGTH OF STREAM REACH (ft): \_\_\_\_\_ LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE: \_\_\_\_\_  
 DATE: 02/01/11 SCORER: BOB BOE COMMENTS: 1st Survey  
 NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PFWH Streams" for Instructions  
 STREAM CHANNEL: ☒ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY  
 MODIFICATIONS: \_\_\_\_\_

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDG SLABS (16 pts)		<input type="checkbox"/> SILT (3 pt)	
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACKWOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pt)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (63-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (0 pt)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)		<input type="checkbox"/> MUCK (0 pts)	
<input type="checkbox"/> SAND (<2 mm) (6 pts)		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Box Slabs, Boulder, Cobble, Bedrock: 0 (A) **9** (B) **4** A + B **13**  
 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: \_\_\_\_\_ TOTAL NUMBER OF SUBSTRATE TYPES: 4  
 2. Maximum Pool Depth (Measure the maximum pool depth within the 51 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes). (Check ONLY one box)  
☐ > 30 centimeters (12 pts) ☐ > 6 cm - 10 cm (15 pts) ☐ > 3 cm (5 pts) ☐ 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):  
☐ > 4.0 meters (> 13' 2") (20 pts) ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") (15 pts) ☐ < 1.0 m (< 3' 3") (5 pts)  
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') (20 pts) ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") (20 pts)  
 COMMENTS: \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): 1  
 HHEI Metric Points: Substrate Max = 40, Pool Depth Max = 30, Bankfull Width Max = 20

This information must also be completed  
 RIPARIAN ZONE AND FLOODPLAIN QUALITY (NOTE: River Left (L) and Right (R) as looking downstream)  
 RIPARIAN WIDTH (Per Bank) FLOODPLAIN QUALITY (Most Predominant per Bank)  
 L R L R  
☒ Wide > 10m ☒ Mature Forest, Wetland ☐ Conservation Tillage  
☐ Moderate 5-10m ☐ Invasive Forest, Shrub or Oak 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 ☐ Mud Channel, isolated pools, no flow (intermittent)  
☐ Subsurface flow with isolated pools (intermittent) ☐ Dry channel, no water (ephemeral)  
 COMMENTS: ephemeral  
 SINUOSITY (Number of bends per 61 m (200 ft) of channel). (Check ONLY one box)  
☐ None ☐ 0.5 ☐ 1.0 ☐ 1.5 ☐ 2.0 ☐ 2.5 ☐ 3.0  
 STREAM GRADIENT ESTIMATE  
☐ Flat or Slight ☐ Flat to Moderate ☐ Moderate to Steep ☒ Moderate to Severe ☐ Severe  
 PFWH Form Page - 1

# Stream 128 Class 1

## OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **24**

SITE NAME/LOCATION: ATP  
 SITE NUMBER: 07 RIVER BASIN: \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>): \_\_\_\_\_  
 LENGTH OF STREAM REACH (ft): \_\_\_\_\_ LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE: \_\_\_\_\_  
 DATE: 02/01/11 SCORER: BOB BOE COMMENTS: 1st Survey  
 NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PFWH Streams" for Instructions  
 STREAM CHANNEL: ☒ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY  
 MODIFICATIONS: None

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDG SLABS (16 pts)		<input type="checkbox"/> SILT (3 pt)	
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACKWOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pt)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (63-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (0 pt)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)		<input type="checkbox"/> MUCK (0 pts)	
<input type="checkbox"/> SAND (<2 mm) (6 pts)		<input type="checkbox"/> ARTIFICIAL (3 pts)	

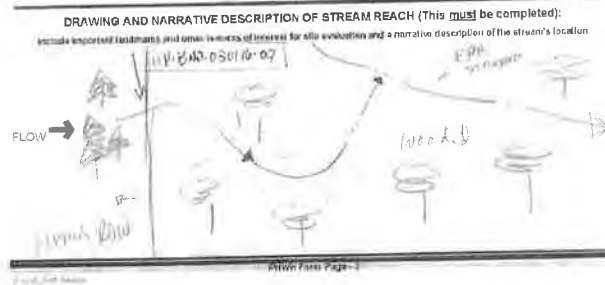
Total of Percentages of Box Slabs, Boulder, Cobble, Bedrock: 15 (A) **7** (B) **5** A + B **14**  
 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: \_\_\_\_\_ TOTAL NUMBER OF SUBSTRATE TYPES: 5  
 2. Maximum Pool Depth (Measure the maximum pool depth within the 51 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes). (Check ONLY one box)  
☐ > 30 centimeters (12 pts) ☐ > 6 cm - 10 cm (15 pts) ☐ > 3 cm (5 pts) ☐ NO WATER OR MOIST CHANNEL (0 pts)  
 COMMENTS: \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): 1  
 3. BANK FULL WIDTH (Measured as the average of 3-4 measurements). (Check ONLY one box):  
☐ > 4.0 meters (> 13' 2") (20 pts) ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") (15 pts) ☐ < 1.0 m (< 3' 3") (5 pts)  
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') (20 pts) ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") (20 pts)  
 COMMENTS: \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): 1.5  
 HHEI Metric Points: Substrate Max = 40, Pool Depth Max = 30, Bankfull Width Max = 20

This information must also be completed  
 RIPARIAN ZONE AND FLOODPLAIN QUALITY (NOTE: River Left (L) and Right (R) as looking downstream)  
 RIPARIAN WIDTH (Per Bank) FLOODPLAIN QUALITY (Most Predominant per Bank)  
 L R L R  
☒ Wide > 10m ☐ Mature Forest, Wetland ☐ Conservation Tillage  
☐ Moderate 5-10m ☐ Invasive Forest, Shrub or Oak 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 ☐ Mud Channel, isolated pools, no flow (intermittent)  
☐ Subsurface flow with isolated pools (intermittent) ☐ Dry channel, no water (ephemeral)  
 COMMENTS: ephemeral  
 SINUOSITY (Number of bends per 61 m (200 ft) of channel). (Check ONLY one box)  
☐ None ☐ 0.5 ☐ 1.0 ☐ 1.5 ☐ 2.0 ☐ 2.5 ☐ 3.0  
 STREAM GRADIENT ESTIMATE  
☐ Flat or Slight ☐ Flat to Moderate ☐ Moderate to Steep ☒ Moderate to Severe ☐ Severe  
 PFWH Form Page - 1

# Stream 127

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

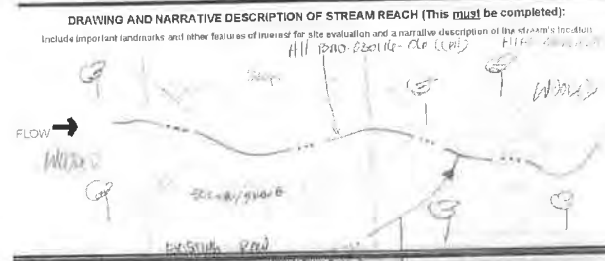
QHEI PERFORMED? - ☐ Yes ☒ No QHEI Score: \_\_\_\_\_ (If Yes, Attach Completed QHEI Form)  
 DOWNSTREAM DESIGNATED USE(S):  
☐ WWH Name: \_\_\_\_\_ Distance from Evaluated Stream: \_\_\_\_\_  
☐ CWA Name: \_\_\_\_\_ Distance from Evaluated Stream: \_\_\_\_\_  
☐ BAA Name: \_\_\_\_\_ Distance from Evaluated 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: 2/26/11 Quantity: 1/4 in  
 Photograph information: PLUG 2 DIGITS  
 Elevated Turbidity? (Y/N) 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 (8 U): \_\_\_\_\_ Conductivity (µmhos/cm): \_\_\_\_\_  
 Is the sampling reach representative of the stream (Y/N) Y If not, please explain: \_\_\_\_\_  
 Additional comments/condition of pollution threats: \_\_\_\_\_  
 BIOTIC EVALUATION  
 Performed? (Y/N) N (If Yes, Record all observations. Voucher collection 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) \_\_\_\_\_ Salamanders Observed? (Y/N) Y Voucher? (Y/N) \_\_\_\_\_  
 Frogs or Toads Observed? (Y/N) N Voucher? (Y/N) \_\_\_\_\_ Aquatic Macroinvertebrates Observed? (Y/N) Y 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  
  
 PFWH Form Page - 2

# Stream 128

## 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: \_\_\_\_\_  
☐ CWA Name: \_\_\_\_\_ Distance from Evaluated Stream: \_\_\_\_\_  
☐ BAA 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) N Date of last precipitation: 02/26/11 Quantity: 1/4 in  
 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 (8 U): \_\_\_\_\_ Conductivity (µmhos/cm): \_\_\_\_\_  
 Is the sampling reach representative of the stream (Y/N) \_\_\_\_\_ If not, please explain: \_\_\_\_\_  
 Additional comments/condition of pollution threats: \_\_\_\_\_  
 BIOTIC EVALUATION  
 Performed? (Y/N) N (If Yes, Record all observations. Voucher collection 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 Toads 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  
  
 PFWH Form Page - 2

Stream 129 Class 1

## OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): 18

SITE NAME/LOCATION: East Hope - Pool 1 SITE NUMBER: 129 RIVER BASIN: 129 DRAINAGE AREA (mi<sup>2</sup>): 129

LENGTH OF STREAM REACH (ft): 129 LAT: 129 LONG: 129 RIVER CODE: 129 RIVER MILE: 129

DATE: 02/16 SCORER: 129 COMMENTS: 129

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

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

MODIFICATIONS: 129

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)

TYPE	PERCENT	TYPE	PERCENT
<input checked="" type="checkbox"/> BLOR SLABS (16 pts)		<input checked="" type="checkbox"/> SILT (3 pts)	
<input checked="" type="checkbox"/> BOULDER >256 mm (16 pts)		<input checked="" type="checkbox"/> LEAF PACKWOODY DEBRIS (3 pts)	
<input checked="" type="checkbox"/> BEDROCK (16 pts)		<input checked="" type="checkbox"/> FINE DETRITUS (3 pts)	
<input checked="" type="checkbox"/> CORBLE (16-256 mm) (12 pts)		<input checked="" type="checkbox"/> CLAY or HARDPAN (3 pts)	
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) (8 pts)		<input checked="" type="checkbox"/> MUCK (3 pts)	
<input checked="" type="checkbox"/> SAND (<2 mm) (8 pts)		<input checked="" type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Substrate: 129 (A) 129 (B) 129 A + B 129

SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES: 129 TOTAL NUMBER OF SUBSTRATE TYPES: 129

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

☒ > 30 centimeters (20 pts) ☐ > 5 cm - 10 cm (15 pts) ☐ > 5 cm (5 pts) ☐ NO WATER OR MOST CHANNEL (0 pts)

COMMENTS: 129 MAXIMUM POOL DEPTH (centimeters): 129

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

☒ > 4.0 meters (> 13' (40 ft)) ☐ > 1.0 m - 1.5 m (> 3' - 4' 8") (15 pts) ☐ > 1.0 m (< 3' 3") (5 pts)

COMMENTS: 129 AVERAGE BANK FULL WIDTH (meters): 129

RIPIARIAN ZONE AND FLOODPLAIN QUALITY (NOTE: River Left (L) and Right (R) extending downstream & riparian width)

RIPIARIAN WIDTH (Per Bank)

☒ Wide >10m ☐ Moderate 5-10m ☐ Narrow <5m ☐ None

FLOODPLAIN QUALITY (Most Predominant per Bank)

☒ Mature Forest, Wetland ☐ Immature Forest, Shrub or Old Field ☐ Residential, Park, New Field ☐ Fenced Pasture ☐ Conservation Tillage ☐ Urban or Industrial ☐ Open Pasture, Row Crop ☐ Mining or Construction

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

☒ Stream Flowing ☐ Subsurface flow with isolated pools (intermittent) ☐ Most Channel, isolated pools, no flow (intermittent) ☐ Dry channel, no water (Ephemeral)

COMMENTS: 129

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

☒ None ☐ 0.5 ☐ 1.0 ☐ 1.5 ☐ 2.0 ☐ 2.5 ☐ 3.0 ☐ > 3.0

STREAM GRADIENT ESTIMATE

☒ Flat to Moderate ☐ Moderate to Severe ☐ Severe to Extreme

PHWH Form Page - 1

Stream 130 Class 1

## OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): 18

SITE NAME/LOCATION: East Hope - Pool 1 SITE NUMBER: 130 RIVER BASIN: 130 DRAINAGE AREA (mi<sup>2</sup>): 130

LENGTH OF STREAM REACH (ft): 130 LAT: 130 LONG: 130 RIVER CODE: 130 RIVER MILE: 130

DATE: 02/16 SCORER: 130 COMMENTS: 130

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

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

MODIFICATIONS: 130

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)

TYPE	PERCENT	TYPE	PERCENT
<input checked="" type="checkbox"/> BLOR SLABS (16 pts)		<input checked="" type="checkbox"/> SILT (3 pts)	
<input checked="" type="checkbox"/> BOULDER >256 mm (16 pts)		<input checked="" type="checkbox"/> LEAF PACKWOODY DEBRIS (3 pts)	
<input checked="" type="checkbox"/> BEDROCK (16 pts)		<input checked="" type="checkbox"/> FINE DETRITUS (3 pts)	
<input checked="" type="checkbox"/> CORBLE (16-256 mm) (12 pts)		<input checked="" type="checkbox"/> CLAY or HARDPAN (3 pts)	
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) (8 pts)		<input checked="" type="checkbox"/> MUCK (3 pts)	
<input checked="" type="checkbox"/> SAND (<2 mm) (8 pts)		<input checked="" type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Substrate: 130 (A) 130 (B) 130 A + B 130

SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES: 130 TOTAL NUMBER OF SUBSTRATE TYPES: 130

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

☒ > 30 centimeters (20 pts) ☐ > 5 cm - 10 cm (15 pts) ☐ > 5 cm (5 pts) ☐ NO WATER OR MOST CHANNEL (0 pts)

COMMENTS: 130 MAXIMUM POOL DEPTH (centimeters): 130

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

☒ > 4.0 meters (> 13' (40 ft)) ☐ > 1.0 m - 1.5 m (> 3' - 4' 8") (15 pts) ☐ > 1.0 m (< 3' 3") (5 pts)

COMMENTS: 130 AVERAGE BANK FULL WIDTH (meters): 130

RIPIARIAN ZONE AND FLOODPLAIN QUALITY (NOTE: River Left (L) and Right (R) extending downstream & riparian width)

RIPIARIAN WIDTH (Per Bank)

☒ Wide >10m ☐ Moderate 5-10m ☐ Narrow <5m ☐ None

FLOODPLAIN QUALITY (Most Predominant per Bank)

☒ Mature Forest, Wetland ☐ Immature Forest, Shrub or Old Field ☐ Residential, Park, New Field ☐ Fenced Pasture ☐ Conservation Tillage ☐ Urban or Industrial ☐ Open Pasture, Row Crop ☐ Mining or Construction

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

☒ Stream Flowing ☐ Subsurface flow with isolated pools (intermittent) ☐ Most Channel, isolated pools, no flow (intermittent) ☐ Dry channel, no water (Ephemeral)

COMMENTS: 130

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

☒ None ☐ 0.5 ☐ 1.0 ☐ 1.5 ☐ 2.0 ☐ 2.5 ☐ 3.0 ☐ > 3.0

STREAM GRADIENT ESTIMATE

☒ Flat to Moderate ☐ Moderate to Severe ☐ Severe to Extreme

PHWH Form Page - 1

Stream 129

## OhioEPA Primary Headwater Habitat Evaluation Form

ADDITIONAL STREAM INFORMATION (This information must also be completed):

QHEI PERFORMED? ☐ Yes ☒ No QHEI Score: 129 (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S):

☐ Wild Name: 129 Distance from Evaluated Stream: 129

☐ Civil Name: 129 Distance from Evaluated Stream: 129

☐ Other Name: 129 Distance from Evaluated Stream: 129

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

USGS Quadrangle Name: 129 NRCGS Soil Map Page: 129 NRCGS Soil Map Stream Order: 129

County: 129 Township: 129 City: 129

MISCELLANEOUS

Base Flow Conditions? (Y/N) 129 Date of last precipitation: 129 Quantity: 129

Photograph information: 129

Elevated Turbidity? (Y/N) 129 Canopy (% open): 129

Wet samples collected for water chemistry? (Y/N) 129 (Note lab sample no. or validation results) Lab Number: 129

Field Measures: Temp (°C) 129 Dissolved Oxygen (mg/L) 129 pH (5 U) 129 Conductivity (µmhos/cm) 129

Is the sampling reach representative of the stream? (Y/N) 129 If not, please explain: 129

Additional comments/evaluation of pollution impacts: 129

BIOTIC EVALUATION

Performed? (Y/N) 129 (If Yes, Record all observations. Voucher conditions 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) 129 Voucher? (Y/N) 129 Salamanders Observed? (Y/N) 129 Voucher? (Y/N) 129

Reptiles or Tadpoles Observed? (Y/N) 129 Voucher? (Y/N) 129 Aquatic Macroinvertebrates Observed? (Y/N) 129 Voucher? (Y/N) 129

Comments Regarding Biology: 129

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 →

129

Stream 130

## OhioEPA Primary Headwater Habitat Evaluation Form

ADDITIONAL STREAM INFORMATION (This information must also be completed):

QHEI PERFORMED? ☐ Yes ☒ No QHEI Score: 130 (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S):

☐ Wild Name: 130 Distance from Evaluated Stream: 130

☐ Civil Name: 130 Distance from Evaluated Stream: 130

☐ Other Name: 130 Distance from Evaluated Stream: 130

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

USGS Quadrangle Name: 130 NRCGS Soil Map Page: 130 NRCGS Soil Map Stream Order: 130

County: 130 Township: 130 City: 130

MISCELLANEOUS

Base Flow Conditions? (Y/N) 130 Date of last precipitation: 130 Quantity: 130

Photograph information: 130

Elevated Turbidity? (Y/N) 130 Canopy (% open): 130

Wet samples collected for water chemistry? (Y/N) 130 (Note lab sample no. or validation results) Lab Number: 130

Field Measures: Temp (°C) 130 Dissolved Oxygen (mg/L) 130 pH (5 U) 130 Conductivity (µmhos/cm) 130

Is the sampling reach representative of the stream? (Y/N) 130 If not, please explain: 130

Additional comments/evaluation of pollution impacts: 130

BIOTIC EVALUATION

Performed? (Y/N) 130 (If Yes, Record all observations. Voucher conditions 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) 130 Voucher? (Y/N) 130 Salamanders Observed? (Y/N) 130 Voucher? (Y/N) 130

Reptiles or Tadpoles Observed? (Y/N) 130 Voucher? (Y/N) 130 Aquatic Macroinvertebrates Observed? (Y/N) 130 Voucher? (Y/N) 130

Comments Regarding Biology: 130

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 →

130

PHWH Form Page - 2



Stream 131 Mod. Class 1

# Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **24**

SITE NAME/LOCATION: Shades Creek SITE NUMBER: 08 RIVER BASIN: 08 DRAINAGE AREA (mi<sup>2</sup>): 0.05

LENGTH OF STREAM REACH (ft): 100 LAT: 40° 15' N LONG: 82° 30' W RIVER CODE: 08 RIVER MILE: 0.05

DATE: 10/10/08 SCORER: 08 COMMENTS: 100 ft reach

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

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

MODIFICATIONS: None

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDG SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	25
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	25
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (63-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (0 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)		<input type="checkbox"/> MUCK (0 pts)	
<input type="checkbox"/> SAND (<2 mm) (8 pts)		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Big Slabs, Boulder, Cobble, Bedrock: 0

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 1 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 2

2. MAXIMUM POOL DEPTH (Measure the maximum pool depth within the 91 meter (299 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes). (Check ONLY one box)

☐ > 30 centimeters (20 pts) ☐ > 5 cm - 10 cm (15 pts)

☐ > 22.5 - 30 cm (10 pts) ☐ < 5 cm (5 pts)

☐ > 10 - 22.5 cm (5 pts) ☐ 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)

☐ > 4.0 m (13' 10") (20 pts) ☐ > 1.0 m - 1.5 m (3' 3" - 4' 8") (15 pts)

☐ > 3.0 m - 4.0 m (9' 7" - 13') (10 pts) ☐ < 1.0 m (3' 3") (5 pts)

☐ > 1.5 m - 3.0 m (4' 8" - 9' 7") (5 pts)

COMMENTS: AVERAGE BANKFULL WIDTH (meters): 1

4. RIPARIAN ZONE AND FLOODPLAIN QUALITY (NOTE: River Left (L) and Right (R) is looking downstream)

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

COMMENTS: Flow Regime

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

☐ Stream Flowing ☐ Main Channel, isolated pools, no flow (intermittent)

☐ Subsurface flow with isolated pools (intermittent) ☐ Dry channel, no water (ephemeral)

COMMENTS: Flow Regime

6. 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

7. STREAM GRADIENT ESTIMATE

☐ Flat to Slight ☐ Flat to Moderate ☐ Moderate to Steep ☒ Moderate to Severe ☐ Severe to Steep

Stream 131

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

GHEI PERFORMED? ☐ Yes ☒ No GHEI Score: 0 (If Yes, Attach Completed GHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ Warm Water ☐ Cold Water ☐ BSW Name

Distance from Evaluated Stream: 0 Distance from Evaluated Stream: 0 Distance from Evaluated Stream: 0

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

USGS Quad/angle Name: 08 NRCS Soil Map Page: 08 NRCS Soil Map Stream Order: 08

County: 08 Township/City: 08

MISCELLANEOUS

Base Flow Conditions? (Y/N) 08 Date of last precipitation: 08/10/08 Quantity: 08

Photograph Information: 08

Elevation (meters)? (Y/N) 08 Canopy (% open): 08

Water samples collected for water chemistry? (Y/N) 08 (Note lab sample no. or id and attach results Lab Number)

Field Measures: Temp (°C) 08 Dissolved Oxygen (mg/l) 08 pH (S.U.) 08 Conductivity (µmhos/cm) 08

Is the sampling reach representative of the stream (Y/N) 08 (If not, please explain)

Additional comments/description of pollution impacts: 08

BIOTIC EVALUATION

Polluted? (Y/N) 08 (If Yes, Record all observations. Voucher collection 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) 08 Voucher? (Y/N) 08 Salamanders Observed? (Y/N) 08 Voucher? (Y/N) 08

Frogs or Toads Observed? (Y/N) 08 Voucher? (Y/N) 08 Aquatic Macroinvertebrates Observed? (Y/N) 08 Voucher? (Y/N) 08

Comments Regarding Biology: 08

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: 08

Stream 132 Mod. Class 1

# Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **24**

SITE NAME/LOCATION: Shades Creek SITE NUMBER: 08 RIVER BASIN: 08 DRAINAGE AREA (mi<sup>2</sup>): 0.05

LENGTH OF STREAM REACH (ft): 100 LAT: 40° 15' N LONG: 82° 30' W RIVER CODE: 08 RIVER MILE: 0.05

DATE: 10/10/08 SCORER: 08 COMMENTS: 100 ft reach

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

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

MODIFICATIONS: None

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDG SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	25
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	25
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (63-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (0 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)		<input type="checkbox"/> MUCK (0 pts)	
<input type="checkbox"/> SAND (<2 mm) (8 pts)		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Big Slabs, Boulder, Cobble, Bedrock: 0

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 1 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 2

2. MAXIMUM POOL DEPTH (Measure the maximum pool depth within the 91 meter (299 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes). (Check ONLY one box)

☐ > 30 centimeters (20 pts) ☐ > 5 cm - 10 cm (15 pts)

☐ > 22.5 - 30 cm (10 pts) ☐ < 5 cm (5 pts)

☐ > 10 - 22.5 cm (5 pts) ☐ 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)

☐ > 4.0 m (13' 10") (20 pts) ☐ > 1.0 m - 1.5 m (3' 3" - 4' 8") (15 pts)

☐ > 3.0 m - 4.0 m (9' 7" - 13') (10 pts) ☐ < 1.0 m (3' 3") (5 pts)

☐ > 1.5 m - 3.0 m (4' 8" - 9' 7") (5 pts)

COMMENTS: AVERAGE BANKFULL WIDTH (meters): 1

4. RIPARIAN ZONE AND FLOODPLAIN QUALITY (NOTE: River Left (L) and Right (R) is looking downstream)

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

COMMENTS: Flow Regime

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

☐ Stream Flowing ☐ Main Channel, isolated pools, no flow (intermittent)

☐ Subsurface flow with isolated pools (intermittent) ☐ Dry channel, no water (ephemeral)

COMMENTS: Flow Regime

6. 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

7. STREAM GRADIENT ESTIMATE

☐ Flat to Slight ☐ Flat to Moderate ☐ Moderate to Steep ☒ Moderate to Severe ☐ Severe to Steep

Stream 132

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

GHEI PERFORMED? ☐ Yes ☒ No GHEI Score: 0 (If Yes, Attach Completed GHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ Warm Water ☐ Cold Water ☐ BSW Name

Distance from Evaluated Stream: 0 Distance from Evaluated Stream: 0 Distance from Evaluated Stream: 0

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

USGS Quad/angle Name: 08 NRCS Soil Map Page: 08 NRCS Soil Map Stream Order: 08

County: 08 Township/City: 08

MISCELLANEOUS

Base Flow Conditions? (Y/N) 08 Date of last precipitation: 08/10/08 Quantity: 08

Photograph Information: 08

Elevation (meters)? (Y/N) 08 Canopy (% open): 08

Water samples collected for water chemistry? (Y/N) 08 (Note lab sample no. or id and attach results Lab Number)

Field Measures: Temp (°C) 08 Dissolved Oxygen (mg/l) 08 pH (S.U.) 08 Conductivity (µmhos/cm) 08

Is the sampling reach representative of the stream (Y/N) 08 (If not, please explain)

Additional comments/description of pollution impacts: 08

BIOTIC EVALUATION

Polluted? (Y/N) 08 (If Yes, Record all observations. Voucher collection 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) 08 Voucher? (Y/N) 08 Salamanders Observed? (Y/N) 08 Voucher? (Y/N) 08

Frogs or Toads Observed? (Y/N) 08 Voucher? (Y/N) 08 Aquatic Macroinvertebrates Observed? (Y/N) 08 Voucher? (Y/N) 08

Comments Regarding Biology: 08

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: 08

Stream 133 Mod. Class 2 H# B40 03010 01

# Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **37**

SITE NAME/LOCATION: Rocky Creek DATE: 8/1/14 SCORER: B. D. Smith COMMENTS: Good

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

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

MODIFICATIONS: Channel bank erosion, debris, and silt

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B)

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pt)	
<input type="checkbox"/> BOULDER (>25 mm) (16 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pt)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (8 pt)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)		<input type="checkbox"/> MUCK (3 pts)	
<input type="checkbox"/> SAND (<2 mm) (8 pts)		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bld Slab, Boulder, Cobble, Bedrock: 10 (A) 12 (B) 5 A + 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 stormwater pipes) (Check ONLY one box):

☐ > 50 centimeters (20 pts) ☐ > 5 cm - 10 cm (15 pts) ☐ > 2.5 - 5 cm (10 pts) ☐ NO WATER OR MOIST CHANNEL (0 pts)

COMMENTS: MAXIMUM POOL DEPTH (centimeters): 1

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

☐ < 4.0 meters (< 13') (10 pts) ☐ 4.0 m - 15 m (13' - 49') (15 pts) ☐ 15 m - 30 m (49' - 98') (20 pts) ☐ > 30 m (> 98') (25 pts)

COMMENTS: AVERAGE BANKFULL WIDTH (meters): 5

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

**RIPARIAN WIDTH** (Per Bank)

L R

☐ Wide >10m ☐ Moderate 5-10m ☒ Narrow <5m ☐ None

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

☒ Stream Flowing ☐ Subsurface flow with isolated pools (intermittent) ☐ Vernal Channel, isolated pools, no flow (intermittent) ☐ Dry channel, no water (ephemeral)

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

☐ None 0-5 ☐ 5-10 1-5 ☐ 10-20 2-5 ☐ >20 >5

**STREAM GRADIENT ESTIMATE**

☐ Flat to Slight ☐ Flat to Moderate ☐ Moderate to Steep ☐ Steep to Severe ☒ Severe to Extreme

PHWH Form Page - 1

Stream 134 Mod. Class 2 H# B40 03010 01

# Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **34**

SITE NAME/LOCATION: Rocky Creek DATE: 8/1/14 SCORER: B. D. Smith COMMENTS: Good

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

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

MODIFICATIONS: Channel bank erosion, debris, and silt

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B)

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pt)	
<input type="checkbox"/> BOULDER (>25 mm) (16 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pt)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (8 pt)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)		<input type="checkbox"/> MUCK (3 pts)	
<input type="checkbox"/> SAND (<2 mm) (8 pts)		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bld Slab, Boulder, Cobble, Bedrock: 10 (A) 9 (B) 5 A + 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 stormwater pipes) (Check ONLY one box):

☐ > 50 centimeters (20 pts) ☐ > 5 cm - 10 cm (15 pts) ☐ > 2.5 - 5 cm (10 pts) ☐ NO WATER OR MOIST CHANNEL (0 pts)

COMMENTS: MAXIMUM POOL DEPTH (centimeters): 1

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

☐ < 4.0 meters (< 13') (10 pts) ☐ 4.0 m - 15 m (13' - 49') (15 pts) ☐ 15 m - 30 m (49' - 98') (20 pts) ☐ > 30 m (> 98') (25 pts)

COMMENTS: AVERAGE BANKFULL WIDTH (meters): 5

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

**RIPARIAN WIDTH** (Per Bank)

L R

☐ Wide >10m ☐ Moderate 5-10m ☒ Narrow <5m ☐ None

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

☐ Stream Flowing ☐ Subsurface flow with isolated pools (intermittent) ☐ Vernal Channel, isolated pools, no flow (intermittent) ☐ Dry channel, no water (ephemeral)

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

☐ None 0-5 ☐ 5-10 1-5 ☐ 10-20 2-5 ☐ >20 >5

**STREAM GRADIENT ESTIMATE**

☐ Flat to Slight ☐ Flat to Moderate ☐ Moderate to Steep ☐ Steep to Severe ☒ Severe to Extreme

PHWH Form Page - 1

Stream 133 Mod. Class 2 H# B40 03010 01

# 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):

Watershed Name: \_\_\_\_\_ Distance from Evaluated Stream: \_\_\_\_\_

County Name: \_\_\_\_\_ Distance from Evaluated Stream: \_\_\_\_\_

USGS Quadrangle Name: \_\_\_\_\_ NRCOS Soil Map Page: \_\_\_\_\_ NRCOS 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): 90

Were samples collected for water chemistry? (Y/N) \_\_\_\_\_ (Note lab sample no. or ID and station number) 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: Channel bank erosion, debris, and silt

**BIOTIC EVALUATION**

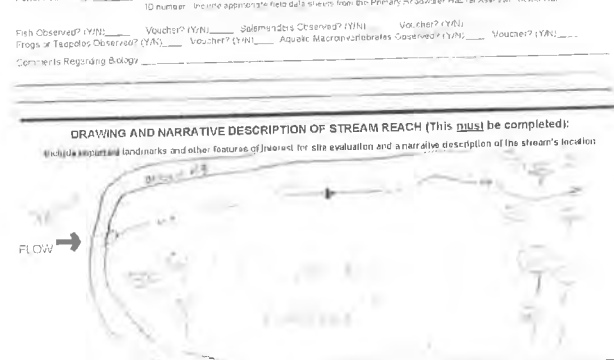
Performed? (Y/N) N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual.)

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

Frogs or Toads Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_ Aquatic Macroinvertebrates Observed? (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_

Comments Regarding Bioty: \_\_\_\_\_

**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)



PHWH Form Page - 2

Stream 134 Mod. Class 2 H# B40 03010 01

# 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):

Watershed Name: \_\_\_\_\_ Distance from Evaluated Stream: \_\_\_\_\_

County Name: \_\_\_\_\_ Distance from Evaluated Stream: \_\_\_\_\_

USGS Quadrangle Name: \_\_\_\_\_ NRCOS Soil Map Page: \_\_\_\_\_ NRCOS Soil Map Stream Order: \_\_\_\_\_

County: \_\_\_\_\_ Township: \_\_\_\_\_ City: \_\_\_\_\_

MISCELLANEOUS

Base Flow Conditions? (Y/N) Y Date of last precipitation: 8/1/14 Quantity: 1/1/14

Photograph Information: 2 Photos

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

Were samples collected for water chemistry? (Y/N) \_\_\_\_\_ (Note lab sample no. or ID and station number) 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**

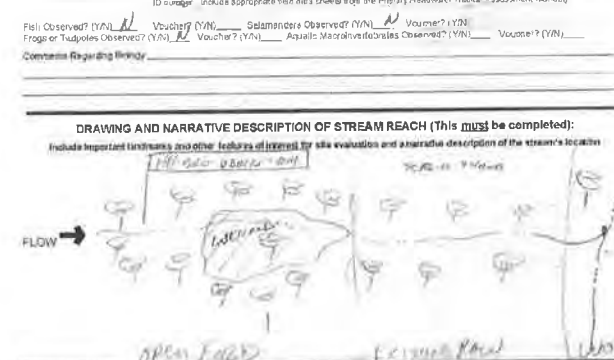
Performed? (Y/N) N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual.)

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

Frogs or Toads Observed? (Y/N) N Voucher? (Y/N) \_\_\_\_\_ Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) \_\_\_\_\_

Comments Regarding Bioty: \_\_\_\_\_

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH** (This must be completed: Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location)



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PHWH Form Page 1

**WASSIL / 00111-1000**

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12345678910111213141516171819202122232425262728293031323334353637383940414243444546474849505152535455565758596061626364656667686970717273747576777879808182838485868788899091929394959697989910010110210310410510610710810911011111211311411511611711811912012112212312412512612712812913013113213313413513613713813914014114214314414514614714814915015115215315415515615715815916016116216316416516616716816917017117217317417517617717817918018118218318418518618718818919019119219319419519619719819920020120220320420520620720820921021121221321421521621721821922022122222322422522622722822923023123223323423523623723823924024124224324424524624724824925025125225325425525625725825926026126226326426526626726826927027127227327427527627727827928028128228328428528628728828929029129229329429529629729829930030130230330430530630730830931031131231331431531631731831932032132232332432532632732832933033133233333433533633733833934034134234334434534634734834935035135235335435535635735835936036136236336436536636736836937037137237337437537637737837938038138238338438538638738838939039139239339439539639739839940040140240340440540640740840941041141241341441541641741841942042142242342442542642742842943043143243343443543643743843944044144244344444544644744844945045145245345445545645745845946046146246346446546646746846947047147247347447547647747847948048148248348448548648748848949049149249349449549649749849950050150250350450550650750850951051151251351451551651751851952052152252352452552652752852953053153253353453553653753853954054154254354454554654754854955055155255355455555655755855956056156256356456556656756856957057157257357457557657757857958058158258358458558658758858959059159259359459559659759859960060160260360460560660760860961061161261361461561661761861962062162262362462562662762862963063163263363463563663763863964064164264364464564664764864965065165265365465565665765865966066166266366466566666766866967067167267367467567667767867968068168268368468568668768868969069169269369469569669769869970070170270370470570670770870971071171271371471571671771871972072172272372472572672772872973073173273373473573673773873974074174274374474574674774874975075175275375475575675775875976076176276376476576676776876977077177277377477577677777877978078178278378478578678778878979079179279379479579679779879980080180280380480580680780880981081181281381481581681781881982082182282382482582682782882983083183283383483583683783883984084184284384484584684784884985085185285385485585685785885986086186286386486586686786886987087187287387487587687787887988088188288388488588688788888989089189289389489589689789889990090190290390490590690790890991091191291391491591691791891992092192292392492592692792892993093193293393493593693793893994094194294394494594694794894995095195295395495595695795895996096196296396496596696796896997097197297397497597697797897998098198298398498598698798898999099199299399499599699799899910001001100210031004100510061007100810091010101110121013101410151016101710181019102010211022102310241025102610271028102910301031103210331034103510361037103810391040104110421043104410451046104710481049105010511052105310541055105610571058105910601061106210631064106510661067106810691070107110721073107410751076107710781079108010811082108310841085108610871088108910901091109210931094109510961097109810991100110111021103110411051106110711081109111011111112111311141115111611171118111911201121112211231124112511261127112811291130113111321133113411351136113711381139114011411142114311441145114611471148114911501151115211531154115511561157115811591160116111621163116411651166116711681169117011711172117311741175117611771178117911801181118211831184118511861187118811891190119111921193119411951196119711981199120012011202120312041205120612071208120912101211121212131214121512161217121812191220122112221223122412251226122712281229123012311232123312341235123612371238123912401241124212431244124512461247124812491250125112521253125412551256125712581259126012611262126312641265126612671268126912701271127212731274127512761277127812791280128112821283128412851286128712881289129012911292129312941295129612971298129913001



Stream 141 Mod. Class 1 141-BAD-030216-05

# Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **23**

SITE NAME/LOCATION: Eastgate - 1st RIVER BASIN: 03 DRAINAGE AREA (mi<sup>2</sup>): 2.00

LENGTH OF STREAM REACH (ft): 200 ft LAT: 40° 16' N LONG: 82° 02' W RIVER CODE: 1 RIVER MILE: 1.0

DATE: 03/02/16 SCORER: BAO/BCR COMMENTS: Rehabilitation

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

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

MODIFICATIONS: Trans. ROW

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY 1 predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input checked="" type="checkbox"/> BLDG SLABS (16 pts)	0	<input checked="" type="checkbox"/> SILT (3 pts)	3
<input checked="" type="checkbox"/> BOULDER (>256 mm) (16 pts)	0	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	3
<input checked="" type="checkbox"/> BEDROCK (16 pts)	0	<input checked="" type="checkbox"/> FINE DETRITUS (3 pts)	3
<input checked="" type="checkbox"/> COBBLE (65-256 mm) (12 pts)	0	<input checked="" type="checkbox"/> CLAY or HARPAN (0 pts)	0
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	0	<input checked="" type="checkbox"/> MUCK (0 pts)	0
<input checked="" type="checkbox"/> SAND (<2 mm) (6 pts)	0	<input checked="" type="checkbox"/> ARTIFICIAL (3 pts)	3

Total of Percentages of Bld Slabs, Boulder, Cobble, Bedrock: 0 (A) 1 (B) 4 A + B 5

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 1 4 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 rock overfalls or storm water pipes.) (Check ONLY 1 box box.)

☒ > 30 centimeters (30 pts) ☐ > 5 cm - 10 cm (15 pts) ☐ > 2.5 - 5 cm (10 pts) ☐ > 10 - 22.5 cm (25 pts)

COMMENTS: NO WATER OR MOST CHANNEL (0 pts) MAXIMUM POOL DEPTH (centimeters): 10

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements.) (Check ONLY 1 box box.)

☒ > 4 meters (13) (30 pts) ☐ > 10 m - 15 m (3) (3) (15 pts) ☐ > 3 m - 10 m (9) (3) (25 pts) ☐ > 1.5 m - 3 m (4) (8) (20 pts)

COMMENTS: 1 AVERAGE BANKFULL WIDTH (meters): 5

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

RIPIARIAN ZONE	FLOODPLAIN QUALITY
<input checked="" type="checkbox"/> L R (Per Bank) Wide > 10m	<input checked="" type="checkbox"/> L R (Most Predominant per Bank) Mature Forest/Wetland
<input checked="" type="checkbox"/> Moderate 5-10m	<input checked="" type="checkbox"/> Urban or Industrial
<input checked="" type="checkbox"/> Narrow < 5m	<input checked="" type="checkbox"/> Residential, Park, New Field
<input checked="" type="checkbox"/> None	<input checked="" type="checkbox"/> Open Pasture, Row Crop
COMMENTS:	<input checked="" type="checkbox"/> Mining or Construction

FLOW REGIME (At Time of Evaluation) (Check ONLY 1 box box.)

☒ Stream Flowing ☐ Most Channel isolated pools, no flow (Intermittent)

☐ Subsurface flow with isolated pools (Intermittent)

☐ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY 1 box box.)

☒ None ☐ 0.5 ☐ 1.0 ☐ 2.0 ☐ 3.0

☐ 0.5 ☐ 1.5 ☐ 2.5 ☐ 3.5

STREAM GRADIENT ESTIMATE

☒ Flat to Slight ☐ Flat to Moderate ☐ Moderate to Severe ☒ Severe to Steep

PHWH Form Page - 1

Stream 142 Mod. Class 2 141-BAD-030216-06

# Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **30**

SITE NAME/LOCATION: Eastgate - 1st RIVER BASIN: 06 DRAINAGE AREA (mi<sup>2</sup>): 2.00

LENGTH OF STREAM REACH (ft): 200 ft LAT: 40° 16' N LONG: 82° 02' W RIVER CODE: 1 RIVER MILE: 1.0

DATE: 03/02/16 SCORER: BAO/BCR COMMENTS: Rehabilitation

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

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

MODIFICATIONS: Trans. ROW

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY 1 predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input checked="" type="checkbox"/> BLDG SLABS (16 pts)	0	<input checked="" type="checkbox"/> SILT (3 pts)	3
<input checked="" type="checkbox"/> BOULDER (>256 mm) (16 pts)	0	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	3
<input checked="" type="checkbox"/> BEDROCK (16 pts)	0	<input checked="" type="checkbox"/> FINE DETRITUS (3 pts)	3
<input checked="" type="checkbox"/> COBBLE (65-256 mm) (12 pts)	0	<input checked="" type="checkbox"/> CLAY or HARPAN (0 pts)	0
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	0	<input checked="" type="checkbox"/> MUCK (0 pts)	0
<input checked="" type="checkbox"/> SAND (<2 mm) (6 pts)	0	<input checked="" type="checkbox"/> ARTIFICIAL (3 pts)	3

Total of Percentages of Bld Slabs, Boulder, Cobble, Bedrock: 0 (A) 1 (B) 6 A + B 7

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 1 6 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 rock overfalls or storm water pipes.) (Check ONLY 1 box box.)

☒ > 30 centimeters (30 pts) ☐ > 5 cm - 10 cm (15 pts) ☐ > 2.5 - 5 cm (10 pts) ☐ > 10 - 22.5 cm (25 pts)

COMMENTS: NO WATER OR MOST CHANNEL (0 pts) MAXIMUM POOL DEPTH (centimeters): 10

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements.) (Check ONLY 1 box box.)

☒ > 4 meters (13) (30 pts) ☐ > 10 m - 15 m (3) (3) (15 pts) ☐ > 3 m - 10 m (9) (3) (25 pts) ☐ > 1.5 m - 3 m (4) (8) (20 pts)

COMMENTS: 1 AVERAGE BANKFULL WIDTH (meters): 5

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

RIPIARIAN ZONE	FLOODPLAIN QUALITY
<input checked="" type="checkbox"/> L R (Per Bank) Wide > 10m	<input checked="" type="checkbox"/> L R (Most Predominant per Bank) Mature Forest/Wetland
<input checked="" type="checkbox"/> Moderate 5-10m	<input checked="" type="checkbox"/> Urban or Industrial
<input checked="" type="checkbox"/> Narrow < 5m	<input checked="" type="checkbox"/> Residential, Park, New Field
<input checked="" type="checkbox"/> None	<input checked="" type="checkbox"/> Open Pasture, Row Crop
COMMENTS:	<input checked="" type="checkbox"/> Mining or Construction

FLOW REGIME (At Time of Evaluation) (Check ONLY 1 box box.)

☒ Stream Flowing ☐ Most Channel isolated pools, no flow (Intermittent)

☐ Subsurface flow with isolated pools (Intermittent)

☐ Dry channel, no water (Ephemeral)

COMMENTS:

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY 1 box box.)

☒ None ☐ 0.5 ☐ 1.0 ☐ 2.0 ☐ 3.0

☐ 0.5 ☐ 1.5 ☐ 2.5 ☐ 3.5

STREAM GRADIENT ESTIMATE

☒ Flat to Slight ☐ Flat to Moderate ☐ Moderate to Severe ☒ Severe to Steep

PHWH Form Page - 1

Stream 141 141-BAD-030216-05

# ADDITIONAL STREAM INFORMATION (This Information Must Also Be Completed)

QHEI PERFORMED? ☒ Yes ☐ No OFF Score: 10 If Yes Attach Completed QHEI Form

DOWNSTREAM DESIGNATED USE(S)

☒ Aesthetics ☐ Agriculture ☐ Aquatic Life ☐ Recreation ☐ Wildlife ☐ Other: None

☒ Aesthetics ☐ Agriculture ☐ Aquatic Life ☐ Recreation ☐ Wildlife ☐ Other: None

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

USGS Quadrangle Name: Spring Grove NRCB Soil Map Page: 1 NRCB Soil Map Stream Code: 1

County: Franklin

MISCELLANEOUS

Base Flow Characteristics? (Y/N) N (Note: If no base flow, check "No Base Flow" box.)

Photograph Information: 2 Photos Upstream Downstream

Enlarged Bankfull Width? (Y/N) N (Note: If enlarged, check "Enlarged" box.)

Water samples collected for water chemistry? (Y/N) N (Note: If collected, check "Collected" box.)

Field Measures: Temp (C) 10 Dissolved Oxygen (mg/L) 10 pH (pH) 7.5 Conductivity (µmhos/cm) 100

Is the sampling reach representative of the stream reach? ☒ Yes ☐ No (If not, please explain: Yes)

BIOTIC EVALUATION

Periphyton? (Y/N) N (If Yes: Record all observations. If no periphyton, check "No Periphyton" box.)

Macroinvertebrates? (Y/N) N (If Yes: Record all observations. If no macroinvertebrates, check "No Macroinvertebrates" box.)

Fish? (Y/N) N (If Yes: Record all observations. If no fish, check "No Fish" box.)

Algae? (Y/N) N (If Yes: Record all observations. If no algae, check "No Algae" box.)

Comments Regarding Biology: None

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 →

Sketch of stream reach with landmarks and features.

PHWH Form Page - 2

Stream 142 141-BAD-030216-06

# ADDITIONAL STREAM INFORMATION (This Information Must Also Be Completed)

QHEI PERFORMED? ☒ Yes ☐ No QHEI Score: 10 If Yes Attach Completed QHEI Form

DOWNSTREAM DESIGNATED USE(S)

☒ Aesthetics ☐ Agriculture ☐ Aquatic Life ☐ Recreation ☐ Wildlife ☐ Other: None

☒ Aesthetics ☐ Agriculture ☐ Aquatic Life ☐ Recreation ☐ Wildlife ☐ Other: None

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

USGS Quadrangle Name: Spring Grove NRCB Soil Map Page: 1 NRCB Soil Map Stream Code: 1

County: Franklin

MISCELLANEOUS

Base Flow Characteristics? (Y/N) N (Note: If no base flow, check "No Base Flow" box.)

Photograph Information: 2 Photos Upstream Downstream

Enlarged Bankfull Width? (Y/N) N (Note: If enlarged, check "Enlarged" box.)

Water samples collected for water chemistry? (Y/N) N (Note: If collected, check "Collected" box.)

Field Measures: Temp (C) 10 Dissolved Oxygen (mg/L) 10 pH (pH) 7.5 Conductivity (µmhos/cm) 100

Is the sampling reach representative of the stream reach? ☒ Yes ☐ No (If not, please explain: Yes)

BIOTIC EVALUATION

Periphyton? (Y/N) N (If Yes: Record all observations. If no periphyton, check "No Periphyton" box.)

Macroinvertebrates? (Y/N) N (If Yes: Record all observations. If no macroinvertebrates, check "No Macroinvertebrates" box.)

Fish? (Y/N) N (If Yes: Record all observations. If no fish, check "No Fish" box.)

Algae? (Y/N) N (If Yes: Record all observations. If no algae, check "No Algae" box.)

Comments Regarding Biology: None

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 →

Sketch of stream reach with landmarks and features.

PHWH Form Page - 2





Stream 147 Mod. Class 1 HHI 140-030716-017

# Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **23**

**SITE NAME/LOCATION:** Longfellow Run **SITE NUMBER:** 017 **RIVER BASIN:** 017 **DRAINAGE AREA (mi<sup>2</sup>):** 0.17

**LENGTH OF STREAM REACH (ft):** 200 **LAT:** 40° 15' N **LONG:** 82° 45' W **RIVER CODE:** 017 **RIVER MILE:** 0.17

**DATE:** 03/07/16 **SCORER:** 140/140 **COMMENTS:** Good

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

**STREAM CHANNEL** ☐ NONE/NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY

**MODIFICATIONS:** At 1 mile running through Longfellow Run

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDG SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (63-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (8 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	70	<input type="checkbox"/> MUCK (8 pts)	
<input type="checkbox"/> SAND (<2 mm) (8 pts)	30	<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bed Slabs, Boulder, Cobble, Bedrock: **0** (A) **9** (B) **4**

**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))

☐ > 30 centimeters (30 pts)

☐ > 22.5 - 30 cm (20 pts)

☒ > 10 - 22.5 cm (15 pts)

☐ NO WATER OR MOIST CHANNEL (10 pts)

**COMMENTS:** NO WATER OR MOIST CHANNEL (10 pts)

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

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

☐ > 4.0 meters (> 13) (20 pts)

☐ > 3.0 m - 4.0 m (> 9'7" - 13') (15 pts)

☐ > 1.5 m - 3.0 m (> 4'8" - 9'7") (10 pts)

☒ < 1.5 m - 3.0 m (< 4'8" - 9'7") (5 pts)

**COMMENTS:** NO WATER OR MOIST CHANNEL (10 pts)

**AVERAGE BANKFULL WIDTH (meters):** 1.5

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

RIPARIAN ZONE		FLOODPLAIN QUALITY	
L	R	L	R
<input checked="" type="checkbox"/> Wide > 10m	<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"/> 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"/> Narrow < 5m	<input type="checkbox"/> Residential, Park, River Field	<input type="checkbox"/> Open Pasture, Row Crop
<input type="checkbox"/> None	<input type="checkbox"/> None	<input type="checkbox"/> Fenced Pasture	<input type="checkbox"/> Mining or Construction

**COMMENTS:** Riparian zone on forest edge, no riparian within reach

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

☐ Stream Flowing

☐ Subsurface flow with isolated pools (Intermittent)

☐ Most Channel, isolated pools, no flow (Intermittent)

☐ Dry channel, no water (Ephemeral)

**COMMENTS:** Stream Flowing

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

☐ None

☐ 0.5

☐ 1.0

☐ 1.5

☐ 2.0

☐ 2.5

☐ 3.0

☐ > 3.0

**COMMENTS:** 0.5

**7. STREAM GRADIENT ESTIMATE**

☐ Flat to Slight

☐ Flat to Moderate

☒ Moderate to Steep

☐ Steep to Severe

Stream 147 HHI 140-030716-017

# Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **23**

**SITE NAME/LOCATION:** Longfellow Run **SITE NUMBER:** 017 **RIVER BASIN:** 017 **DRAINAGE AREA (mi<sup>2</sup>):** 0.17

**LENGTH OF STREAM REACH (ft):** 200 **LAT:** 40° 15' N **LONG:** 82° 45' W **RIVER CODE:** 017 **RIVER MILE:** 0.17

**DATE:** 03/07/16 **SCORER:** 140/140 **COMMENTS:** Good

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

**STREAM CHANNEL** ☐ NONE/NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY

**MODIFICATIONS:** At 1 mile running through Longfellow Run

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDG SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (63-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (8 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	70	<input type="checkbox"/> MUCK (8 pts)	
<input type="checkbox"/> SAND (<2 mm) (8 pts)	30	<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bed Slabs, Boulder, Cobble, Bedrock: **0** (A) **9** (B) **4**

**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))

☐ > 30 centimeters (30 pts)

☐ > 22.5 - 30 cm (20 pts)

☒ > 10 - 22.5 cm (15 pts)

☐ NO WATER OR MOIST CHANNEL (10 pts)

**COMMENTS:** NO WATER OR MOIST CHANNEL (10 pts)

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

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

☐ > 4.0 meters (> 13) (20 pts)

☐ > 3.0 m - 4.0 m (> 9'7" - 13') (15 pts)

☐ > 1.5 m - 3.0 m (> 4'8" - 9'7") (10 pts)

☒ < 1.5 m - 3.0 m (< 4'8" - 9'7") (5 pts)

**COMMENTS:** NO WATER OR MOIST CHANNEL (10 pts)

**AVERAGE BANKFULL WIDTH (meters):** 1.5

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

RIPARIAN ZONE		FLOODPLAIN QUALITY	
L	R	L	R
<input checked="" type="checkbox"/> Wide > 10m	<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"/> 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"/> Narrow < 5m	<input type="checkbox"/> Residential, Park, River Field	<input type="checkbox"/> Open Pasture, Row Crop
<input type="checkbox"/> None	<input type="checkbox"/> None	<input type="checkbox"/> Fenced Pasture	<input type="checkbox"/> Mining or Construction

**COMMENTS:** Riparian zone on forest edge, no riparian within reach

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

☐ Stream Flowing

☐ Subsurface flow with isolated pools (Intermittent)

☐ Most Channel, isolated pools, no flow (Intermittent)

☐ Dry channel, no water (Ephemeral)

**COMMENTS:** Stream Flowing

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

☐ None

☐ 0.5

☐ 1.0

☐ 1.5

☐ 2.0

☐ 2.5

☐ 3.0

☐ > 3.0

**COMMENTS:** 0.5

**7. STREAM GRADIENT ESTIMATE**

☐ Flat to Slight

☐ Flat to Moderate

☒ Moderate to Steep

☐ Steep to Severe

Stream 147 HHI 140-030716-017

# Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **23**

**SITE NAME/LOCATION:** Longfellow Run **SITE NUMBER:** 017 **RIVER BASIN:** 017 **DRAINAGE AREA (mi<sup>2</sup>):** 0.17

**LENGTH OF STREAM REACH (ft):** 200 **LAT:** 40° 15' N **LONG:** 82° 45' W **RIVER CODE:** 017 **RIVER MILE:** 0.17

**DATE:** 03/07/16 **SCORER:** 140/140 **COMMENTS:** Good

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

**STREAM CHANNEL** ☐ NONE/NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY

**MODIFICATIONS:** At 1 mile running through Longfellow Run

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDG SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (63-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (8 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	70	<input type="checkbox"/> MUCK (8 pts)	
<input type="checkbox"/> SAND (<2 mm) (8 pts)	30	<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bed Slabs, Boulder, Cobble, Bedrock: **0** (A) **9** (B) **4**

**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))

☐ > 30 centimeters (30 pts)

☐ > 22.5 - 30 cm (20 pts)

☒ > 10 - 22.5 cm (15 pts)

☐ NO WATER OR MOIST CHANNEL (10 pts)

**COMMENTS:** NO WATER OR MOIST CHANNEL (10 pts)

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

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

☐ > 4.0 meters (> 13) (20 pts)

☐ > 3.0 m - 4.0 m (> 9'7" - 13') (15 pts)

☐ > 1.5 m - 3.0 m (> 4'8" - 9'7") (10 pts)

☒ < 1.5 m - 3.0 m (< 4'8" - 9'7") (5 pts)

**COMMENTS:** NO WATER OR MOIST CHANNEL (10 pts)

**AVERAGE BANKFULL WIDTH (meters):** 1.5

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

RIPARIAN ZONE		FLOODPLAIN QUALITY	
L	R	L	R
<input checked="" type="checkbox"/> Wide > 10m	<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"/> 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"/> Narrow < 5m	<input type="checkbox"/> Residential, Park, River Field	<input type="checkbox"/> Open Pasture, Row Crop
<input type="checkbox"/> None	<input type="checkbox"/> None	<input type="checkbox"/> Fenced Pasture	<input type="checkbox"/> Mining or Construction

**COMMENTS:** Riparian zone on forest edge, no riparian within reach

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

☐ Stream Flowing

☐ Subsurface flow with isolated pools (Intermittent)

☐ Most Channel, isolated pools, no flow (Intermittent)

☐ Dry channel, no water (Ephemeral)

**COMMENTS:** Stream Flowing

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

☐ None

☐ 0.5

☐ 1.0

☐ 1.5

☐ 2.0

☐ 2.5

☐ 3.0

☐ > 3.0

**COMMENTS:** 0.5

**7. STREAM GRADIENT ESTIMATE**

☐ Flat to Slight

☐ Flat to Moderate

☒ Moderate to Steep

☐ Steep to Severe

Stream 147 HHI 140-030716-017

# Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **23**

**SITE NAME/LOCATION:** Longfellow Run **SITE NUMBER:** 017 **RIVER BASIN:** 017 **DRAINAGE AREA (mi<sup>2</sup>):** 0.17

**LENGTH OF STREAM REACH (ft):** 200 **LAT:** 40° 15' N **LONG:** 82° 45' W **RIVER CODE:** 017 **RIVER MILE:** 0.17

**DATE:** 03/07/16 **SCORER:** 140/140 **COMMENTS:** Good

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

**STREAM CHANNEL** ☐ NONE/NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY

**MODIFICATIONS:** At 1 mile running through Longfellow Run

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDG SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (63-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (8 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	70	<input type="checkbox"/> MUCK (8 pts)	
<input type="checkbox"/> SAND (<2 mm) (8 pts)	30	<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bed Slabs, Boulder, Cobble, Bedrock: **0** (A) **9** (B) **4**

**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))

☐ > 30 centimeters (30 pts)

☐ > 22.5 - 30 cm (20 pts)

☒ > 10 - 22.5 cm (15 pts)

☐ NO WATER OR MOIST CHANNEL (10 pts)

**COMMENTS:** NO WATER OR MOIST CHANNEL (10 pts)

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

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

☐ > 4.0 meters (> 13) (20 pts)

☐ > 3.0 m - 4.0 m (> 9'7" - 13') (15 pts)

☐ > 1.5 m - 3.0 m (> 4'8" - 9'7") (10 pts)

☒ < 1.5 m - 3.0 m (< 4'8" - 9'7") (5 pts)

**COMMENTS:** NO WATER OR MOIST CHANNEL (10 pts)

**AVERAGE BANKFULL WIDTH (meters):** 1.5

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

RIPARIAN ZONE		FLOODPLAIN QUALITY	
L	R	L	R
<input checked="" type="checkbox"/> Wide > 10m	<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"/> 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"/> Narrow < 5m	<input type="checkbox"/> Residential, Park, River Field	<input type="checkbox"/> Open Pasture, Row Crop
<input type="checkbox"/> None	<input type="checkbox"/> None	<input type="checkbox"/> Fenced Pasture	<input type="checkbox"/> Mining or Construction

**COMMENTS:** Riparian zone on forest edge, no riparian within reach

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

☐ Stream Flowing

☐ Subsurface flow with isolated pools (Intermittent)

☐ Most Channel, isolated pools, no flow (Intermittent)

☐ Dry channel, no water (Ephemeral)

**COMMENTS:** Stream Flowing

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

☐ None

☐ 0.5

☐ 1.0

☐ 1.5

☐ 2.0

☐ 2.5

☐ 3.0

☐ > 3.0

**COMMENTS:** 0.5

**7. STREAM GRADIENT ESTIMATE**

☐ Flat to Slight

☐ Flat to Moderate

☒ Moderate to Steep

☐ Steep to Severe

# Chiepa Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): 15

SITE NAME/LOCATION: Pool 149 - Pool 150 SITE NUMBER: 149 RIVER BASIN: CHIEPA DRAINAGE AREA (mi<sup>2</sup>): 1.5

LENGTH OF STREAM REACH (ft): 100 LAT: 40° 15' N LONG: 105° 15' W RIVER CODE: 149 RIVER MILE: 1.5

DATE: 03/02/16 SCORER: BBB/BBB COMMENTS: See manual

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

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

MODIFICATIONS:

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (2 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> CORBEL (65-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (8 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	5	<input type="checkbox"/> MUCK (8 pts)	
<input type="checkbox"/> SAND (<2 mm) (6 pts)	15	<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: (A) 6 (B) 4 A+B: 10

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 10 TOTAL NUMBER OF SUBSTRATE TYPES: 4

2. Maximum Pool Depth (Measure the maximum pool depth within the 51 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road cuttings or storm water pipes). (Check ONLY one box.)

☐ > 30 centimeters (20 pts) ☐ 5-30 cm (10 pts) ☐ < 5 cm (5 pts) ☐ NO WATER OR MOST CHANNEL (0 pts)

COMMENTS: See manual MAXIMUM POOL DEPTH (centimeters): 10

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

☐ < 4.0 meters < 13 ft (10 pts) ☐ 4.0 - 15.0 m > 13 - 49 ft (15 pts) ☐ > 15.0 m > 49 ft (20 pts)

COMMENTS: See manual AVERAGE BANKFULL WIDTH (meters): 11

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

PER BANK	PER BANK	PER BANK	PER BANK
<input checked="" type="checkbox"/> Wide > 10m	<input type="checkbox"/> Mature Forest, Wetland	<input type="checkbox"/> Conservation Tillage	<input type="checkbox"/> Urban or Industrial
<input type="checkbox"/> Moderate 5-10m	<input type="checkbox"/> Pasture	<input type="checkbox"/> Open Pasture - Row Crop	<input type="checkbox"/> Mining or Construction
<input type="checkbox"/> Narrow < 5m	<input type="checkbox"/> Residential, Park, Law Field		
<input type="checkbox"/> None	<input type="checkbox"/> Paved Surface		

COMMENTS:

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

☒ Stream Flowing ☐ Most Channel, isolated pools, no flow (Intermittent) ☐ Dry channel - no water (Ephemeral)

COMMENTS:

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

☐ None ☐ 0-5 ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ > 21

COMMENTS:

7. STREAM GRADIENT ESTIMATE

☐ Flat to Slight ☐ Flat to Moderate ☐ Moderate to Steep ☒ Steep

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

ONE PERFORMED? ☒ Yes ☐ No (If Yes, Check Score of Yes - Attach Completed O-301 Form)

DOWNSTREAM DESIGNATED USE(S):

☐ Public Water ☐ Private Water ☐ Other (Specify):

☐ Cold Water ☐ Warm Water ☐ Other (Specify):

☐ Trout Stream ☐ Other (Specify):

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

USGS 1:25000 Scale Map: 149 NAD 83 Map Sheet: 149 NAD 83 Map Sheet Order: 149

Other Maps: 149

MISCELLANEOUS

Notes: See manual

Photograph (Informal or Professional): 149

Elevation (Feet): 149

Water Samples Collected for Water Chemistry? (Y/N) 149 (Note lab sample no. or in attach results) Lab Number: 149

Field Observations: 149 Dissolved Oxygen (mg/L): 149 Conductivity (micromhos/cm): 149

Is the sampling reach representative of the stream? (Y/N) 149 If not, please explain: 149

## BIOTIC EVALUATION

Performed? (Y/N) 149 (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.)

Field Observations (Y/N) 149 Voucher? (Y/N) 149 Voucher? (Y/N) 149 Voucher? (Y/N) 149 Voucher? (Y/N) 149

Comments Regarding Biology: 149

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

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



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# Chiepa Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): 29

SITE NAME/LOCATION: Pool 150 - Pool 151 SITE NUMBER: 150 RIVER BASIN: CHIEPA DRAINAGE AREA (mi<sup>2</sup>): 1.5

LENGTH OF STREAM REACH (ft): 100 LAT: 40° 15' N LONG: 105° 15' W RIVER CODE: 150 RIVER MILE: 1.5

DATE: 03/02/16 SCORER: BBB/BBB COMMENTS: See manual

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

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

MODIFICATIONS:

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (2 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> CORBEL (65-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (8 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	5	<input type="checkbox"/> MUCK (8 pts)	
<input type="checkbox"/> SAND (<2 mm) (6 pts)	15	<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: (A) 6 (B) 4 A+B: 10

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 10 TOTAL NUMBER OF SUBSTRATE TYPES: 4

2. Maximum Pool Depth (Measure the maximum pool depth within the 51 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road cuttings or storm water pipes). (Check ONLY one box.)

☐ > 30 centimeters (20 pts) ☐ 5-30 cm (10 pts) ☐ < 5 cm (5 pts) ☐ NO WATER OR MOST CHANNEL (0 pts)

COMMENTS: See manual MAXIMUM POOL DEPTH (centimeters): 10

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

☐ < 4.0 meters < 13 ft (10 pts) ☐ 4.0 - 15.0 m > 13 - 49 ft (15 pts) ☐ > 15.0 m > 49 ft (20 pts)

COMMENTS: See manual AVERAGE BANKFULL WIDTH (meters): 11

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

PER BANK	PER BANK	PER BANK	PER BANK
<input checked="" type="checkbox"/> Wide > 10m	<input type="checkbox"/> Mature Forest, Wetland	<input type="checkbox"/> Conservation Tillage	<input type="checkbox"/> Urban or Industrial
<input type="checkbox"/> Moderate 5-10m	<input type="checkbox"/> Pasture	<input type="checkbox"/> Open Pasture - Row Crop	<input type="checkbox"/> Mining or Construction
<input type="checkbox"/> Narrow < 5m	<input type="checkbox"/> Residential, Park, Law Field		
<input type="checkbox"/> None	<input type="checkbox"/> Paved Surface		

COMMENTS:

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

☒ Stream Flowing ☐ Most Channel, isolated pools, no flow (Intermittent) ☐ Dry channel - no water (Ephemeral)

COMMENTS:

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

☐ None ☐ 0-5 ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ > 21

COMMENTS:

7. STREAM GRADIENT ESTIMATE

☐ Flat to Slight ☐ Flat to Moderate ☐ Moderate to Steep ☒ Steep

PHWH Form Page - 1

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

ONE PERFORMED? ☒ Yes ☐ No (If Yes, Check Score of Yes - Attach Completed O-301 Form)

DOWNSTREAM DESIGNATED USE(S):

☐ Public Water ☐ Private Water ☐ Other (Specify):

☐ Cold Water ☐ Warm Water ☐ Other (Specify):

☐ Trout Stream ☐ Other (Specify):

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

USGS 1:25000 Scale Map: 150 NAD 83 Map Sheet: 150 NAD 83 Map Sheet Order: 150

Other Maps: 150

MISCELLANEOUS

Notes: See manual

Photograph (Informal or Professional): 150

Elevation (Feet): 150

Water Samples Collected for Water Chemistry? (Y/N) 150 (Note lab sample no. or in attach results) Lab Number: 150

Field Observations: 150 Dissolved Oxygen (mg/L): 150 Conductivity (micromhos/cm): 150

Is the sampling reach representative of the stream? (Y/N) 150 If not, please explain: 150

## BIOTIC EVALUATION

Performed? (Y/N) 150 (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.)

Field Observations (Y/N) 150 Voucher? (Y/N) 150 Voucher? (Y/N) 150 Voucher? (Y/N) 150 Voucher? (Y/N) 150

Comments Regarding Biology: 150

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

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



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

SUBSTRATE (Estimate percent of every type of substrate present. Check <b>ONE</b> if <b>any</b> predominant substrate TYPE notes.) (Max. of 40) Add (total number of significant substrate types found. <b>Max 60</b> ). Final number is sum of boxes A & B			
<b>TYPE</b>  <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <input type="checkbox"/> BLDR SLAB (16 pts)  <input type="checkbox"/> BOUNDR (128 mm) (16 pts)  <input type="checkbox"/> BEDROCK (16 pt)  <input type="checkbox"/> COBBLE (65-255 mm) (7-2 pts)  <input type="checkbox"/> GRAVEL (2.64 mm) (8 pts)  <input type="checkbox"/> SAND (2 mm) (6 pts)                 </div> <div style="text-align: center;"> <b>PERCENT</b>   <div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto; display: flex; align-items: center; justify-content: center;">                     18                 </div> </div> </div>	<b>TYPE</b>  <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <input type="checkbox"/> SILT (3 pt)  <input type="checkbox"/> LEAF PACKAGING DEBRIS (3 pts)  <input type="checkbox"/> FINE DETRITUS (3 pts)  <input type="checkbox"/> CLAY + HARDPAN (4 pts)  <input type="checkbox"/> MUCK (0 pts)  <input type="checkbox"/> ARTIFICIAL (3 pts)                 </div> <div style="text-align: center;"> <b>PERCENT</b>   <div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto; display: flex; align-items: center; justify-content: center;">                     40                 </div> </div> </div>	<b>HHEI</b> <b>Metric Points</b>  <div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto; display: flex; align-items: center; justify-content: center;">             10           </div>	<b>Substrate</b> <b>Max = 40</b>  <b>A + B</b>
Total of Percentages of Bldr Slabs Boulder Cobble Bedrock _____ (A) <span style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;">6</span>		Total of Percentages of Substrate Types _____ (B) <span style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;">4</span>	
<b>SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES: _____ TOTAL NUMBER OF SUBSTRATE TYPES: _____</b>			
<b>3. Maximum Pool Depth (Measure the maximum pool depth within the 5m meter (200 ft) evaluation reach at the time of evaluation. Avoid plunging pools from rock overhangs or stream water pools). (Check ONLY one box.)</b> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <input type="checkbox"/> 30 centimeters (10 pts)  <input type="checkbox"/> 22.5 - 30 cm (10 pts)  <input type="checkbox"/> 10 - 22.5 cm (25 pts)                 </div> <div style="width: 45%;"> <input type="checkbox"/> &gt; 5cm - 10 cm (15 pts)  <input type="checkbox"/> &gt; 5cm (0 pts)  <input type="checkbox"/> NO WATER ON MOUNT CHANNEL (0 pts)                 </div> </div>			
<b>COMMENTS</b>  _____		<b>MAXIMUM POOL DEPTH (feet/meters):</b> <span style="border: 1px solid black; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center;">1</span>	
<b>4. Bank Full Depth (Measured as the average of 3-6 measurements). (Check ONLY one box):</b> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <input type="checkbox"/> 6 meters (15) (20 pts)  <input type="checkbox"/> 5.00 - 4.00 m (9 - 7) (15) (25 pts)  <input type="checkbox"/> 4.00 - 3.00 m (4 - 3) (10) (20 pts)                 </div> <div style="width: 45%;"> <input type="checkbox"/> &gt; 10 m 10 m - 3.75 - 4.75 (15) (25 pts)  <input type="checkbox"/> 3.75 - 3.00 m 3.00 (25) (25 pts)                 </div> </div>			
<b>COMMENTS</b>  _____		<b>AVERAGE BANKFULL WIDTH (feet/meters):</b> <span style="border: 1px solid black; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center;">1</span>	

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☒ SNCTE River E (d) Jans Repet (R) as looking downstream

RIPARIAN WIDTH FLOODPLAIN QUALITY

L	R	L	R	L	R
<input checked="" type="checkbox"/> 1	<input checked="" type="checkbox"/> 2	<input checked="" type="checkbox"/> 1	<input checked="" type="checkbox"/> 2	<input checked="" type="checkbox"/> 1	<input checked="" type="checkbox"/> 2
(Per Bank)		(Most Predominant (Per Bank)			
Wide >10m		Mature Forest, Wetland		Conservation Triage	
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)

<input checked="" type="checkbox"/> Stream Flowing	<input type="checkbox"/> Mostly Channel, isolated pools, no flow (intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (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 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"/> 3.5

STREAM GRADIENT ESTIMATE

<input checked="" type="checkbox"/> Flat to Slightly	<input type="checkbox"/> Flat to Moderate	<input type="checkbox"/> Moderate to Steep	<input type="checkbox"/> Moderate to Severe	<input type="checkbox"/> Severe
--	---	--	---	---------------------------------

[illegible]

Case: \_\_\_\_\_ Period: \_\_\_\_\_

**MISCELLANEOUS**

Notes: How conditions? N Date of last observation: Spring 1980 Duration? ?

Phytoplankton species: 2 p. *Scenedesmus* + *Chlorella*

Algal level (microscopic): N 20

Were samples collected in water chemistry? N (date lab sample no. or if no other results, if known)

Field Measures Temp./C. \_\_\_\_\_ Dissolved Oxygen (mg/L) \_\_\_\_\_ pH (SU) \_\_\_\_\_ Conductivity (µmhos/cm) \_\_\_\_\_

Is the sampling near representative of the stream? Y (date phase) 1980

Additional comments (if different from above impacts) N/A

**BIOTIC EVALUATION**

Fish Collected? (Y/N)   N   If "No" Method of observation:   Visual   Count and capture. NOTE: All waterway samples must be taken in the same manner. Include appropriate letters to describe the place. (Example: F0101 F01 F02 about 1/2 mile)

Fish Observed? (Y/N)   N   Voucher? (Y/N)   N   Specimens Collected? (Y/N)   N   Voucher? (Y/N)   N  

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

Comments Regarding Biotic: \_\_\_\_\_

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

Flow →

channel filled with leaves

young 2nd Growth

River

young growth

T Line

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

**Substrate** (Estimate percent of every type in substrate present). Check ONLY 1 Yes predominant substrate TYPE boxes (Sum of 40). Add total number of all gravel and/or subgrade types found. (Max. Of: Final metric score is sum of boxes A & B)

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BILDR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	<u>20</u>
<input type="checkbox"/> BOULDER (>25 mm) [16 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	<u>5</u>
<input type="checkbox"/> BEDROCK (16 pts)	<u>5</u>	<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (<25 mm) [12 pts]		<input type="checkbox"/> CLAY or HARDPAN (3 pts)	
<input type="checkbox"/> GRAVEL (2.64 mm) [8 pts]	<u>30</u>	<input type="checkbox"/> MUCK (0 pts)	
<input checked="" type="checkbox"/> SAND (<2 mm) [8 pts]	<u>40</u>	<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 5 (A) 15 (B) 5 A + B

**SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES** TOTAL NUMBER OF SUBSTRATE TYPES: 5

**3. Maximum Pool Depth (Measure the maximum pool depth within the 6 miter 200 (10' evaluation reach at the time of evaluation. Avoid gullies/pools from road channels or storm water pipes). (Check ONLY one box)**

<input type="checkbox"/> > 30 centimeters (20 pts)	<input type="checkbox"/> > 5m - 10m (15 pts)
<input type="checkbox"/> > 25 - 30 cm (10 pts)	<input type="checkbox"/> > 5m (5 pts)
<input type="checkbox"/> 10 - 22.5 cm (5 pts)	<input checked="" type="checkbox"/> NO WATER (the MOST COMMON) (0 pts)

COMMENTS: max depth 1m MAXIMUM POOL DEPTH (centimeters): 50

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

<input type="checkbox"/> > 4 m (15 - 12) (20 pts)	<input type="checkbox"/> > 10 m - 15 m or 32' - 48' (15 pts)
<input type="checkbox"/> > 3.6 m (12 - 10) (12 pts)	<input type="checkbox"/> 10 m - 17 m 33' (8 pts)
<input type="checkbox"/> > 15 m - 30 m 48' - 97' (20 pts)	

COMMENTS: bank full AVERAGE BANKFULL WIDTH (meters): 35

This information <u>MUST</u> also be completed									
RIPARIAN ZONE AND FLOODPLAIN QUALITY			VNOTES River Left (L) and Right (R) as looking downstream &						
RIPARIAN WIDTH			FLOODPLAIN QUALITY						
L	R	(% Per Bank)	L	R	(Most Prevalent per Bank)	L	R		
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Wide >10m	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Mature Forest, Wetland	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Conservation Trage	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Moderate 5-10m	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Immature Forest, Shrub or Old Field	<input checked="" type="checkbox"/>	<input checked="" 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"/>	Residue Particle	<input type="checkbox"/>	<input type="checkbox"/>	Mining or Construction	
<b>COMMENTS</b>									
<b>FLOW REGIME</b> (At Time of Evaluation) (Check ONLY one box)									
<input checked="" type="checkbox"/>	Stream Flowing				<input type="checkbox"/>	Most Channel, isolated pools, no flow (intermittent)			
<input type="checkbox"/>	Subsurface flow with isolated pools (intermittal)				<input type="checkbox"/>	Dry channel, no water (ephemeral)			
<b>COMMENTS</b>									
<b>SINUOSITY</b> (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box)									
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0	1	2	3	4	5	6	7	8	9
0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0
<b>STREAM GRADIENT ESTIMATE</b>									
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Flat (< 0.5%)	Flat to Moderate	Moderate	Moderate to Steep	Steep	Very Steep	Extremely Steep	Vertical	Unknown	Other

QHE/PERFORMED? ☐ Yes ☒ No QHE Score \_\_\_\_\_ If Yes, Attach Completed QHE to report.

Date: \_\_\_\_\_ Time: \_\_\_\_\_  
 MISCELLANEOUS: *spring flow + recent rain*  
 Base Flow Conditions: *N* Date of no precipitation: *Feb* Quantity: *?*  
 Photograph Information: *7 photos, 1 sketch + 1 drawing*  
 Elevator Number (N): *N* Sample Number: *256*  
 Water Samples (Number of water samples) (N): \_\_\_\_\_ per lab sample no. and attach results lab number \_\_\_\_\_  
 Field Measures Temp (C): \_\_\_\_\_ Dissolved Oxygen (mg/L): \_\_\_\_\_ pH (5/L): \_\_\_\_\_ Conductivity (microhm): \_\_\_\_\_  
 Is the following reach representative of the stream (Y/N): *Y* If not please explain \_\_\_\_\_  
 Habitat/Land Use/Type/Description of location: *up*

**BIOLOGIC EVALUATION**

Toxicant(s) (Y/N) PL (YES: Record all diseases. Voucher covered optional. NOTE: all voucher samples must be labeled B II (see ID number) include appropriate field data (see form for Fishy header and/or Assessment Matrix)

Fish Observed (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_ Salamanders Observed (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_  
Plants or Terrestrial Invertebrates (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_ Aquatic Macroinvertebrates Observed (Y/N) \_\_\_\_\_ Voucher? (Y/N) \_\_\_\_\_

Comments Regarding Bioassay \_\_\_\_\_

includes important landmarks and other features of interest for site evaluation and comparison (characteristics of the student's location).

Sketch of a river channel

Flow

Point Bar

Cut Bank

Pool

Boulders

Flow

Stream 153 Class 1 HH-BAD-030216-011

# Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : **23**

SITE NAME/LOCATION: Cood Creek - Buckeye  
SITE NUMBER: 021 RIVER BASIN: \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>): \_\_\_\_\_  
LENGTH OF STREAM REACH (ft): 100 LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE: \_\_\_\_\_  
DATE: 04/27/16 SCORER: BBB/BBB COMMENTS: Open

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

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

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY 1 box per predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (18 pts)		<input type="checkbox"/> SILT (3 pts)	<u>40</u>
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	<u>20</u>
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]		<input type="checkbox"/> CLAY or HARDPAN (0 pts)	
<input type="checkbox"/> GRAVEL (2.4-64 mm) [8 pts]	<u>10</u>	<input type="checkbox"/> MUCK (0 pts)	
<input type="checkbox"/> SAND (<2 mm) [8 pts]	<u>20</u>	<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 9 (A) TOTAL NUMBER OF SUBSTRATE TYPES: 4 (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **13** (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 1 box.)

TYPE	PERCENT
<input type="checkbox"/> > 30 centimeters [20 pts]	
<input type="checkbox"/> > 22.5 - 30 cm [10 pts]	
<input type="checkbox"/> > 10 - 22.5 cm [5 pts]	<u>10</u>

COMMENTS: \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): 10

**3. BANK FULL WIDTH** (Measured as the average of 3-4 measurements). (Check ONLY 1 box.)

TYPE	PERCENT
<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' - 13') [25 pts]	
<input type="checkbox"/> > 1.5 m - 3.0 m (> 4' - 9' - 3") [15 pts]	<u>10</u>

COMMENTS: \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): 5

This information must also be completed

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

**RIPARIAN WIDTH** (Per Bank)

L	R
<input checked="" type="checkbox"/> Wide > 10m	<input type="checkbox"/> Wide > 10m
<input type="checkbox"/> Moderate 5-10m	<input type="checkbox"/> Moderate 5-10m
<input type="checkbox"/> Narrow < 5m	<input type="checkbox"/> Narrow < 5m
<input type="checkbox"/> None	<input type="checkbox"/> None

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

**FLOODPLAIN QUALITY** (Most Predominant per Bank)

L	R
<input type="checkbox"/> Mature Forest, Wetland	<input type="checkbox"/> Mature Forest, Wetland
<input type="checkbox"/> Immature Forest, Shrub or Old Field	<input type="checkbox"/> Immature Forest, Shrub or Old Field
<input type="checkbox"/> Residential, Park, New Field	<input type="checkbox"/> Residential, Park, New Field
<input type="checkbox"/> Fenced Pasture	<input type="checkbox"/> Fenced Pasture
<input type="checkbox"/> Conservation Tillage	<input type="checkbox"/> Conservation Tillage
<input type="checkbox"/> Urban or Industrial	<input type="checkbox"/> Urban or Industrial
<input type="checkbox"/> Open Pasture, Row Crop	<input type="checkbox"/> Open Pasture, Row Crop
<input type="checkbox"/> Mining or Construction	<input type="checkbox"/> Mining or Construction

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

**FLOW REGIME** (At Time of Evaluation) (Check ONLY 1 box)

☐ Stream Flowing ☐ Most Channel, isolated pools, no flow (intermittent)

☐ Subsurface flow with isolated pools (interstitial) ☐ Dry channel: no water (ephermal)

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

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

TYPE	PERCENT
<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 type="checkbox"/> < 2.5	
<input type="checkbox"/> < 3.0	
<input type="checkbox"/> > 3.0	

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

**STREAM GRADIENT ESTIMATE**

☐ Flat to near flat ☐ Flat to Moderate ☐ Moderate to Severe ☒ Severe

Stream 153 HH-BAD-030216-012

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

OHEI PERFORMED: ☐ YES ☒ NO (If YES, OHEI Score: \_\_\_\_\_ If YES, Attach Completed OHEI Form)

DOWNSTREAM DESIGNATED USE(S):

☐ TFWAD Name: \_\_\_\_\_ Distance from Evaluated Stream: \_\_\_\_\_

☐ CWA Name: \_\_\_\_\_ Distance from Evaluated Stream: \_\_\_\_\_

☐ ESA Name: \_\_\_\_\_ Distance from Evaluated Stream: \_\_\_\_\_

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

USGS Quadrangle Name: \_\_\_\_\_ NRCGS Box Map Page: \_\_\_\_\_ NRCGS Box Map Stream Order: \_\_\_\_\_

MISCELLANEOUS: Spring pool + recent bridge

Base Flow Condition? (Y/N): N Date of last precipitation: Today Quantity: ?

Fish species information: 2 Photo, upstream: Brook Trout

Observed Turbidity? (Y/N): N Turbidity (NTU): 2.5

Water samples collected for water chemistry? (Y/N): N Date of sample no. or date of results Lab Number: \_\_\_\_\_

Field Measures: Temp (°C): \_\_\_\_\_ Dissolved Oxygen (mg/l): \_\_\_\_\_ pH (24 hr): \_\_\_\_\_ Conductivity (µmhos/cm): \_\_\_\_\_

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

Additional comments/description of pollution impacts: N/A

## BIOTIC EVALUATION

Performed? (Y/N): N (If YES, Record all observations. Voucher collection is optional. NOTE: all voucher samples must be submitted 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 Toads 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.



Stream 154 Class 1 HH-BAD-030216-012

# Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : **23**

SITE NAME/LOCATION: Cood Creek - Buckeye  
SITE NUMBER: 021 RIVER BASIN: \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>): \_\_\_\_\_  
LENGTH OF STREAM REACH (ft): 100 LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE: \_\_\_\_\_  
DATE: 04/27/16 SCORER: BBB/BBB COMMENTS: Open

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

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

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY 1 box per predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (18 pts)		<input type="checkbox"/> SILT (3 pts)	<u>40</u>
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	<u>10</u>
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]		<input type="checkbox"/> CLAY or HARDPAN (0 pts)	
<input type="checkbox"/> GRAVEL (2.4-64 mm) [8 pts]	<u>20</u>	<input type="checkbox"/> MUCK (0 pts)	
<input type="checkbox"/> SAND (<2 mm) [8 pts]	<u>20</u>	<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 9 (A) TOTAL NUMBER OF SUBSTRATE TYPES: 4 (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **13** (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 1 box.)

TYPE	PERCENT
<input type="checkbox"/> > 30 centimeters [20 pts]	
<input type="checkbox"/> > 22.5 - 30 cm [10 pts]	
<input type="checkbox"/> > 10 - 22.5 cm [5 pts]	<u>10</u>

COMMENTS: \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): 10

**3. BANK FULL WIDTH** (Measured as the average of 3-4 measurements). (Check ONLY 1 box.)

TYPE	PERCENT
<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' - 13') [25 pts]	
<input type="checkbox"/> > 1.5 m - 3.0 m (> 4' - 9' - 3") [15 pts]	<u>10</u>

COMMENTS: \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): 5

This information must also be completed

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

**RIPARIAN WIDTH** (Per Bank)

L	R
<input checked="" type="checkbox"/> Wide > 10m	<input type="checkbox"/> Wide > 10m
<input type="checkbox"/> Moderate 5-10m	<input type="checkbox"/> Moderate 5-10m
<input type="checkbox"/> Narrow < 5m	<input type="checkbox"/> Narrow < 5m
<input type="checkbox"/> None	<input type="checkbox"/> None

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

**FLOODPLAIN QUALITY** (Most Predominant per Bank)

L	R
<input type="checkbox"/> Mature Forest, Wetland	<input type="checkbox"/> Mature Forest, Wetland
<input type="checkbox"/> Immature Forest, Shrub or Old Field	<input type="checkbox"/> Immature Forest, Shrub or Old Field
<input type="checkbox"/> Residential, Park, New Field	<input type="checkbox"/> Residential, Park, New Field
<input type="checkbox"/> Fenced Pasture	<input type="checkbox"/> Fenced Pasture
<input type="checkbox"/> Conservation Tillage	<input type="checkbox"/> Conservation Tillage
<input type="checkbox"/> Urban or Industrial	<input type="checkbox"/> Urban or Industrial
<input type="checkbox"/> Open Pasture, Row Crop	<input type="checkbox"/> Open Pasture, Row Crop
<input type="checkbox"/> Mining or Construction	<input type="checkbox"/> Mining or Construction

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

**FLOW REGIME** (At Time of Evaluation) (Check ONLY 1 box)

☐ Stream Flowing ☐ Most Channel, isolated pools, no flow (intermittent)

☐ Subsurface flow with isolated pools (interstitial) ☐ Dry channel: no water (ephermal)

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

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

TYPE	PERCENT
<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 type="checkbox"/> < 2.5	
<input type="checkbox"/> < 3.0	
<input type="checkbox"/> > 3.0	

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

**STREAM GRADIENT ESTIMATE**

☐ Flat to near flat ☐ Flat to Moderate ☐ Moderate to Severe ☒ Severe

Stream 154 HH-BAD-030216-012

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

OHEI PERFORMED: ☐ YES ☒ NO (If YES, OHEI Score: \_\_\_\_\_ If YES, Attach Completed OHEI Form)

DOWNSTREAM DESIGNATED USE(S):

☐ TFWAD Name: \_\_\_\_\_ Distance from Evaluated Stream: \_\_\_\_\_

☐ CWA Name: \_\_\_\_\_ Distance from Evaluated Stream: \_\_\_\_\_

☐ ESA Name: \_\_\_\_\_ Distance from Evaluated Stream: \_\_\_\_\_

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

USGS Quadrangle Name: \_\_\_\_\_ NRCGS Box Map Page: \_\_\_\_\_ NRCGS Box Map Stream Order: \_\_\_\_\_

MISCELLANEOUS: Spring pool + recent bridge

Base Flow Condition? (Y/N): N Date of last precipitation: Today Quantity: ?

Fish species information: 2 Photo, upstream: Brook Trout

Observed Turbidity? (Y/N): N Turbidity (NTU): 2.5

Water samples collected for water chemistry? (Y/N): N Date of sample no. or date of results Lab Number: \_\_\_\_\_

Field Measures: Temp (°C): \_\_\_\_\_ Dissolved Oxygen (mg/l): \_\_\_\_\_ pH (24 hr): \_\_\_\_\_ Conductivity (µmhos/cm): \_\_\_\_\_

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

Additional comments/description of pollution impacts: N/A

## BIOTIC EVALUATION

Performed? (Y/N): N (If YES, Record all observations. Voucher collection is optional. NOTE: all voucher samples must be submitted 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 Toads 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.



Stream 155 Mod. Class 2 HH 3A0-0303-0-1

# Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **37**

SITE NAME/LOCATION: 1st Creek at the park  
 SITE NUMBER: 01 RIVER BASIN: \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>): \_\_\_\_\_  
 LENGTH OF STREAM REACH (ft): 100 LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE: \_\_\_\_\_  
 DATE: 03/03/10 SCORER: John R. H. COMMENTS: WATER IN POOL  
 NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PNH Streams" for Instructions

STREAM CHANNEL: ☒ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY  
 MODIFICATIONS: Wp. Fencing Down the S.D. on N.W. C-140

SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY the predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 5). Final metric score is sum of boxes A & B.)		HHEI Metric Points	
TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDG SLABS (16 pts)		<input type="checkbox"/> SILT (3 pt)	
<input type="checkbox"/> BOULDER (>250 mm) (16 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pt)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-254 mm) (12 pts)	<u>20</u>	<input type="checkbox"/> CLAY or HARDPAN (0 pt)	<u>50</u>
<input type="checkbox"/> GRAVEL (2.04 mm) (8 pts)	<u>10</u>	<input type="checkbox"/> MUCK (0 pts)	
<input type="checkbox"/> SAND (<2 mm) (6 pts)		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total Percentages of Substrates: Boulder, Cobble, Bedrock: (A) 30 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5  
 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 18

2. Maximum Pool Depth (Measure the maximum pool depth within the 51 meter (200 ft) evaluation reach at the time of evaluation. Record change pools from rapid currents or stormwater peaks). (Check ONLY one box.)  
☐ > 30 centimeters (20 pts) ☐ 5 cm - 10 cm (15 pts) ☐ < 5 cm (5 pts) ☐ NO WATER OR MOST CHANNEL (0 pts)  
 COMMENTS: \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): 15

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements). (Check ONLY one box.)  
☐ < 6 meters > 13 (10 pts) ☐ > 1.2 m - 1.5 m > 3' - 4' 8" (15 pts) ☐ 1.0 m > 3' 3" (15 pts)  
☐ < 3.0 m - 4.0 m > 9' 7" - 13 (25 pts) ☐ 1.5 m - 3.0 m > 4' 8" - 9' 7" (20 pts)  
 COMMENTS: \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): 1

This information must also be completed

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

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

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

FLOW REGIME (At Time of Evaluation) (Check ONLY one box)  
☒ Stream Flowing ☐ Most Channel, isolated pools, no flow (intermittent)  
☐ Substrate flow with no/infrequent (intermittent) ☐ Dry channel, no water (ephemeral)  
 COMMENTS: \_\_\_\_\_

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box)  
☐ None ☐ 1-5 ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ 21-25 ☐ 26-30 ☐ > 30  
☐ 0-5 ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ 21-25 ☐ 26-30 ☐ > 30

STREAM GRADIENT ESTIMATE  
☐ Flat ☐ Flat to Moderate ☐ Moderate ☐ Moderate to Severe ☒ Severe

PHWH Form Page - 1

Stream 156 Mod. Class 2 HH 3A0-0303-0-2

# Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **41**

SITE NAME/LOCATION: 1st Creek at the park  
 SITE NUMBER: 02 RIVER BASIN: \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>): \_\_\_\_\_  
 LENGTH OF STREAM REACH (ft): 100 LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE: \_\_\_\_\_  
 DATE: 03/03/10 SCORER: John R. H. COMMENTS: WATER IN POOL  
 NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PNH Streams" for Instructions

STREAM CHANNEL: ☒ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY  
 MODIFICATIONS: Wp. Fencing Down the S.D. on N.W. C-140

SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY the predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 5). Final metric score is sum of boxes A & B.)		HHEI Metric Points	
TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDG SLABS (16 pts)		<input type="checkbox"/> SILT (3 pt)	
<input type="checkbox"/> BOULDER (>250 mm) (16 pts)	<u>10</u>	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pt)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-254 mm) (12 pts)	<u>20</u>	<input type="checkbox"/> CLAY or HARDPAN (0 pt)	
<input type="checkbox"/> GRAVEL (2.04 mm) (8 pts)	<u>15</u>	<input type="checkbox"/> MUCK (0 pts)	
<input type="checkbox"/> SAND (<2 mm) (6 pts)	<u>5</u>	<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total Percentages of Substrates: Boulder, Cobble, Bedrock: (A) 35 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 6  
 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 21

2. Maximum Pool Depth (Measure the maximum pool depth within the 51 meter (200 ft) evaluation reach at the time of evaluation. Record change pools from rapid currents or stormwater peaks). (Check ONLY one box.)  
☐ > 30 centimeters (20 pts) ☐ 5 cm - 10 cm (15 pts) ☐ < 5 cm (5 pts) ☐ NO WATER OR MOST CHANNEL (0 pts)  
 COMMENTS: \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): 15

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements). (Check ONLY one box.)  
☐ < 6 meters > 13 (10 pts) ☐ > 1.2 m - 1.5 m > 3' - 4' 8" (15 pts) ☐ 1.0 m > 3' 3" (15 pts)  
☐ < 3.0 m - 4.0 m > 9' 7" - 13 (25 pts) ☐ 1.5 m - 3.0 m > 4' 8" - 9' 7" (20 pts)  
 COMMENTS: \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): 15

This information must also be completed

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

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

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

FLOW REGIME (At Time of Evaluation) (Check ONLY one box)  
☒ Stream Flowing ☐ Most Channel, isolated pools, no flow (intermittent)  
☐ Substrate flow with no/infrequent (intermittent) ☐ Dry channel, no water (ephemeral)  
 COMMENTS: \_\_\_\_\_

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box)  
☐ None ☐ 1-5 ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ 21-25 ☐ 26-30 ☐ > 30  
☐ 0-5 ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ 21-25 ☐ 26-30 ☐ > 30

STREAM GRADIENT ESTIMATE  
☐ Flat ☐ Flat to Moderate ☐ Moderate ☐ Moderate to Severe ☒ Severe

PHWH Form Page - 1

Stream 156 HH 3A0-0303-0-1

ADDITIONAL STREAM INFORMATION (This information must also be completed):  
 OHEI PERFORMED? ☒ Yes ☐ No OHEI Score: \_\_\_\_\_ (If Yes, Attach Completed OHEI 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 Quad name: \_\_\_\_\_ NRCS Soil Map Page: \_\_\_\_\_ NRCS Soil Map Stream Order: \_\_\_\_\_  
 County: \_\_\_\_\_ Township/City: \_\_\_\_\_

MISCELLANEOUS

Base Flow Conditions? (Y/N) Y Date of last precipitation: 03/01/10 Quantity: 0.4"  
 Photograph information: 2 photos  
 Elevated Turbidity? (Y/N) Y Canopy (% open): 30  
 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 (5 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 labels optional. NOTE: all voucher samples must be labeled with 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) Y Voucher? (Y/N) Y  
 Frogs or Toads Observed? (Y/N) Y Voucher? (Y/N) Y Aquatic Macroinvertebrates Observed? (Y/N) Y Voucher? (Y/N) Y  
 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

WATER EXPLANATION: 160W

PHWH Form Page - 2

Stream 156 HH 3A0-0303-0-2

ADDITIONAL STREAM INFORMATION (This information must also be completed):  
 OHEI PERFORMED? ☒ Yes ☐ No OHEI Score: \_\_\_\_\_ (If Yes, Attach Completed OHEI 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 Quad name: \_\_\_\_\_ NRCS Soil Map Page: \_\_\_\_\_ NRCS Soil Map Stream Order: \_\_\_\_\_  
 County: \_\_\_\_\_ Township/City: \_\_\_\_\_

MISCELLANEOUS

Base Flow Conditions? (Y/N) Y Date of last precipitation: 03/01/10 Quantity: 0.4"  
 Photograph information: 2 photos  
 Elevated Turbidity? (Y/N) Y Canopy (% open): 30  
 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 (5 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 labels 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) Y Voucher? (Y/N) Y  
 Frogs or Toads Observed? (Y/N) Y Voucher? (Y/N) Y Aquatic Macroinvertebrates Observed? (Y/N) Y Voucher? (Y/N) Y  
 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

WATER EXPLANATION: 160W

PHWH Form Page - 2



Stream 159 Class 1 HH BAO-030816-05

# Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **27**

SITE NAME/LOCATION: 1st. Thompson Pkwy  
 SITE NUMBER: 05 RIVER BASIN: \_\_\_\_\_ CWA NAGE AREA (mi<sup>2</sup>): \_\_\_\_\_  
 LENGTH OF STREAM REACH (ft): \_\_\_\_\_ LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE: \_\_\_\_\_  
 DATE: 03/01/16 SCORER: BAG, BCR COMMENTS: Ephemeral  
 NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions  
 STREAM CHANNEL: ☒ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY  
 MODIFICATIONS:

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY <u>two</u> predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 9). Final metric score is sum of boxes A & B.				HHEI Metric Points	
TYPE	PERCENT	TYPE	PERCENT	Substrate Max = 40	A + B
<input checked="" type="checkbox"/> BLR SLABS (16 pts)	10	<input checked="" type="checkbox"/> SILT (3 pts)	40		
<input checked="" type="checkbox"/> BOULDER (1-250 mm) (16 pts)	10	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	10		
<input checked="" type="checkbox"/> BEDROCK (16 pts)	10	<input type="checkbox"/> FINE DETRITUS (3 pts)	10		
<input checked="" type="checkbox"/> COBBLE (65-250 mm) (12 pts)	10	<input type="checkbox"/> CLAY or HARDPAN (0 pts)	10		
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) (9 pts)	10	<input type="checkbox"/> MUCK (0 pts)	10		
<input checked="" type="checkbox"/> SAND (<2 mm) (6 pts)	10	<input type="checkbox"/> ARTIFICIAL (3 pts)	10		

Total of Percentages of Substrates: Boulder, Cobble, Bedrock: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 5

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9

2. Maximum Pool Depth (Measure the maximum pool depth within the 51 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes). (Check ONLY one box)

☒ > 30 centimeters (12 pts)  
☐ > 25 - 30 cm (10 pts)  
☐ 10 - 25 cm (5 pts)  
☐ NO WATER OR MOST CHANNEL (0 pts)

COMMENTS: \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): 5

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

☒ < 4 meters > 13' (24 pts)  
☐ 3.6 m - 4.6 m > 9' - 13' (15 pts)  
☐ 1.5 m - 3.6 m > 4' - 9' (12 pts)

COMMENTS: \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): 15

This information must also be completed

1. RIPARIAN ZONE AND FLOODPLAIN QUALITY (NOTE: River Left (L) and Right (R) is looking downstream & FLOODPLAIN QUALITY

Left Bank	Right Bank	Floodplain
<input checked="" type="checkbox"/> Well > 10m	<input checked="" type="checkbox"/> Well > 10m	<input checked="" type="checkbox"/> Well > 10m
<input type="checkbox"/> Moderate 5-10m	<input type="checkbox"/> Moderate 5-10m	<input type="checkbox"/> Moderate 5-10m
<input type="checkbox"/> Narrow < 5m	<input type="checkbox"/> Narrow < 5m	<input type="checkbox"/> Narrow < 5m
<input type="checkbox"/> None	<input type="checkbox"/> None	<input type="checkbox"/> None

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

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

☒ Stream Flowing  
☐ Subsurface flow with isolated pools (Intermittent)  
☐ Dry channel no water (Ephemeral)

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

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

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

STREAM GRADIENT ESTIMATE: ☐ Flat ☐ Flat to Moderate ☐ Moderate ☐ Moderate to Severe ☒ Severe

PHWH Form Page - 1

Stream 160 Mod. Class 2 HH-BAO-030816-06

# Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **35**

SITE NAME/LOCATION: 1st. Thompson Pkwy  
 SITE NUMBER: 06 RIVER BASIN: \_\_\_\_\_ CWA NAGE AREA (mi<sup>2</sup>): \_\_\_\_\_  
 LENGTH OF STREAM REACH (ft): \_\_\_\_\_ LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE: \_\_\_\_\_  
 DATE: 03/01/16 SCORER: BAG, BCR COMMENTS: Ephemeral  
 NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions  
 STREAM CHANNEL: ☐ NONE / NATURAL CHANNEL ☒ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY  
 MODIFICATIONS: Channelization, bridge, riparian cut

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY <u>two</u> predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 9). Final metric score is sum of boxes A & B.				HHEI Metric Points	
TYPE	PERCENT	TYPE	PERCENT	Substrate Max = 40	A + B
<input checked="" type="checkbox"/> BLR SLABS (16 pts)	10	<input checked="" type="checkbox"/> SILT (3 pts)	40		
<input checked="" type="checkbox"/> BOULDER (1-250 mm) (16 pts)	20	<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	10		
<input checked="" type="checkbox"/> BEDROCK (16 pts)	20	<input type="checkbox"/> FINE DETRITUS (3 pts)	10		
<input checked="" type="checkbox"/> COBBLE (65-250 mm) (12 pts)	10	<input type="checkbox"/> CLAY or HARDPAN (0 pts)	10		
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) (9 pts)	20	<input type="checkbox"/> MUCK (0 pts)	10		
<input checked="" type="checkbox"/> SAND (<2 mm) (6 pts)	20	<input type="checkbox"/> ARTIFICIAL (3 pts)	10		

Total of Percentages of Substrates: Boulder, Cobble, Bedrock: 19 TOTAL NUMBER OF SUBSTRATE TYPES: 6

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 19

2. Maximum Pool Depth (Measure the maximum pool depth within the 51 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes). (Check ONLY one box)

☒ > 30 centimeters (12 pts)  
☐ > 25 - 30 cm (10 pts)  
☐ 10 - 25 cm (5 pts)  
☐ NO WATER OR MOST CHANNEL (0 pts)

COMMENTS: \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): 5

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

☒ < 4 meters > 13' (24 pts)  
☐ 3.6 m - 4.6 m > 9' - 13' (15 pts)  
☐ 1.5 m - 3.6 m > 4' - 9' (12 pts)

COMMENTS: \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): 5

This information must also be completed

1. RIPARIAN ZONE AND FLOODPLAIN QUALITY (NOTE: River Left (L) and Right (R) is looking downstream & FLOODPLAIN QUALITY

Left Bank	Right Bank	Floodplain
<input checked="" type="checkbox"/> Well > 10m	<input checked="" type="checkbox"/> Well > 10m	<input checked="" type="checkbox"/> Well > 10m
<input type="checkbox"/> Moderate 5-10m	<input type="checkbox"/> Moderate 5-10m	<input type="checkbox"/> Moderate 5-10m
<input type="checkbox"/> Narrow < 5m	<input type="checkbox"/> Narrow < 5m	<input type="checkbox"/> Narrow < 5m
<input type="checkbox"/> None	<input type="checkbox"/> None	<input type="checkbox"/> None

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

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

☒ Stream Flowing  
☐ Subsurface flow with isolated pools (Intermittent)  
☐ Dry channel no water (Ephemeral)

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

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

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

STREAM GRADIENT ESTIMATE: ☐ Flat ☐ Flat to Moderate ☐ Moderate ☐ Moderate to Severe ☒ Severe

PHWH Form Page - 1

Stream 159 HH-BAO-030816-05

# Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **27**

ADDITIONAL STREAM INFORMATION (This information must also be completed):  
 ONE PERFORMED? ☒ Yes ☐ No ONE Score: \_\_\_\_\_ If Yes: Attach Completed ONE Form  
 DOWNSTREAM DESIGNATED USE(S):  
☐ WWA Name: \_\_\_\_\_ Distance from Evaluated Stream: \_\_\_\_\_  
☐ CWA Name: \_\_\_\_\_ Distance from Evaluated Stream: \_\_\_\_\_  
☐ EWA 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 Sheet Order: \_\_\_\_\_  
 County: \_\_\_\_\_ Township/City: \_\_\_\_\_  
 MISCELLANEOUS  
 Base Flow Conditions? (Y/N) Y Date of last precipitation: 03/01/16 Quantity: 1.5 in  
 Photograph Information: 2 Photos  
 Fluvial Turbidity? (Y/N) Y Canopy (% open): 30  
 Were samples collected for water chemistry? (Y/N) \_\_\_\_\_ (Note lab sample no. or ID and attach results) Lab Number: \_\_\_\_\_  
 Field Measures: Temp (°C) \_\_\_\_\_ Dissolved Oxygen (mg/l) \_\_\_\_\_ pH (5.0) \_\_\_\_\_ 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 collections 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) \_\_\_\_\_ Salamanders Observed? (Y/N) N Voucher? (Y/N) \_\_\_\_\_  
 Frogs or Toads Observed? (Y/N) N Voucher? (Y/N) \_\_\_\_\_ Aquatic Macroinvertebrates Observed? (Y/N) 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

Flow →

Hand-drawn sketch of the stream reach showing flow direction and landmarks.

PHWH Form Page - 2

Stream 160 HH-BAO-030816-06

# Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **35**

ADDITIONAL STREAM INFORMATION (This information must also be completed):  
 ONE PERFORMED? ☒ Yes ☐ No ONE Score: \_\_\_\_\_ If Yes: Attach Completed ONE Form  
 DOWNSTREAM DESIGNATED USE(S):  
☐ WWA Name: \_\_\_\_\_ Distance from Evaluated Stream: \_\_\_\_\_  
☐ CWA Name: \_\_\_\_\_ Distance from Evaluated Stream: \_\_\_\_\_  
☐ EWA 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 Sheet Order: \_\_\_\_\_  
 County: \_\_\_\_\_ Township/City: \_\_\_\_\_  
 MISCELLANEOUS  
 Base Flow Conditions? (Y/N) Y Date of last precipitation: 03/01/16 Quantity: 1.5 in  
 Photograph Information: 2 Photos  
 Fluvial Turbidity? (Y/N) Y Canopy (% open): 30  
 Were samples collected for water chemistry? (Y/N) \_\_\_\_\_ (Note lab sample no. or ID and attach results) Lab Number: \_\_\_\_\_  
 Field Measures: Temp (°C) \_\_\_\_\_ Dissolved Oxygen (mg/l) \_\_\_\_\_ pH (5.0) \_\_\_\_\_ Conductivity (µmhos/cm) \_\_\_\_\_  
 Is the sampling reach representative of the stream? (Y/N) Y If not, please explain: \_\_\_\_\_  
 Additional comments/description of pollution impacts: None  
 Biotic Evaluation  
 Performed? (Y/N) Y (If Yes: Record all observations. Voucher collections optional. NOTE: all voucher collections 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) \_\_\_\_\_ Salamanders Observed? (Y/N) N Voucher? (Y/N) \_\_\_\_\_  
 Frogs or Toads Observed? (Y/N) N Voucher? (Y/N) \_\_\_\_\_ Aquatic Macroinvertebrates Observed? (Y/N) 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

Flow →

Hand-drawn sketch of the stream reach showing flow direction and landmarks.

PHWH Form Page - 2



Stream 161 Mod. Class 2 14-B-A-030316-9

## OH EPA Primary Headwater Habitat Evaluation Form

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

35

SITE NAME/LOCATION: 14-B-A-030316-9 PROJECT: PHHWA  
 SITE NUMBER: 01 RIVER BASIN: \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>): \_\_\_\_\_  
 LENGTH OF STREAM REACH (ft): 100 LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE: \_\_\_\_\_  
 DATE: 03/03/16 SCORER: PHHWA COMMENTS: PHHWA

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

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

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY one predominant substrate TYPE box (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)

TYPE	PERCENT	TYPE	PERCENT
BLDR SLABS (16 pts)	<u>0</u>	SILT (3 pts)	<u>10</u>
BOULDER (>256 mm) (16 pts)	<u>0</u>	LEAF PACKWOODY DEBRIS (3 pts)	<u>0</u>
BEDROCK (16 pts)	<u>0</u>	FINE DETRITUS (3 pts)	<u>5</u>
COBBLE (65-256 mm) (12 pts)	<u>0</u>	CLAY or HARDPAN (3 pts)	<u>0</u>
GRAVEL (12.5-64 mm) (8 pts)	<u>0</u>	MUCK (3 pts)	<u>0</u>
SAND (<2 mm) (8 pts)	<u>0</u>	ARTIFICIAL (3 pts)	<u>0</u>

Total of Percentages of Big Slabs, Boulder, Cobble, Bedrock: (A) 0 (B) 15  
 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 TOTAL NUMBER OF SUBSTRATE TYPES: 5

**2. Maximum Pool Depth** (Measure the maximum pool depth within the 51 meter (200 ft) evaluation reach at time of evaluation. Avoid plunge pools from road culverts or storm water pipes). (Check ONLY one box):  
☐ > 30 centimeters (20 pts) ☐ 5 cm - 10 cm (15 pts) ☐ 2.5 - 5 cm (10 pts) ☐ 10 - 22.5 cm (25 pts) ☐ 10 - 22.5 cm (25 pts)  
 COMMENTS: PHHWA MAXIMUM POOL DEPTH (centimeters): 10

**3. BANK FULL WIDTH** (Measured as the average of 3-4 measurement points). (Check ONLY one box):  
☐ > 4 meters > 13 (20 pts) ☐ 1.3 m - 1.5 m > 3' - 4' 8" (15 pts) ☐ > 3 cm - 4 cm > 9' - 10' (10 pts) ☐ 1.0 m - 2' 3" (5 pts) ☐ 1.5 m - 3 cm > 4' 8" - 9' 7" (20 pts)  
 COMMENTS: PHHWA AVERAGE BANKFULL WIDTH (meters): 1

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
(Per Bank)	(Most Predominant per Bank)
Wide > 10m	Mature Forest, Wetland
Moderate 5-10m	Immature Forest, Shrub or Old Field
Narrow < 5m	Residential, Park, New Field
None	Fenced Pasture

COMMENTS: PHHWA

**FLOW REGIME** (At Time of Evaluation) (Check ONLY one box):  
☒ Stream Flowing ☐ Most Channel isolated pools, no flow (Intermittent)  
 Subsurface flow with isolated pools (Intermittent) ☐ Dry channel, no water (Ephemeral)  
 COMMENTS: PHHWA

**SINUOSITY** (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  
☐ None ☐ 0 ☐ 2.0 ☐ 2.5 ☐ 3.0 ☐ 3.5

**STREAM GRADIENT ESTIMATE**  
☐ Flat to Slight ☒ Slight to Moderate ☐ Moderate ☐ Moderate to Severe ☐ Severe

PHHW Form Page - 1

Stream 161

## ADDITIONAL STREAM INFORMATION (This Information Must Also Be Completed)

GHEI PERFORMED? ☒ Yes ☐ No GHEI Score: \_\_\_\_\_ (If Yes, Attach Completed GHEI Form)

DOWNSTREAM DESIGNATED USE(S):

☐ WWH Name: \_\_\_\_\_ Distance from Evaluated Stream: \_\_\_\_\_  
☐ CWH Name: \_\_\_\_\_ Distance from Evaluated Stream: \_\_\_\_\_  
☐ CAH 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: 03/01/16 Quantity: 1.44  
 Photograph Information: PHHWA  
 Elevated turbidity? (Y/N) Y Category (by open): 40  
 Wire 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 (5 U) \_\_\_\_\_ Conductivity (µmhos/cm) \_\_\_\_\_  
 Is the sampling reach representative of the stream? (Y/N) Y If not, please explain: PHHWA

Additional comments/description of pollution impacts: PHHWA

## 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) Y Salamanders Observed? (Y/N) Y Voucher? (Y/N) Y  
 Frogs or Toads Observed? (Y/N) Y Voucher? (Y/N) Y Aquatic Macroinvertebrates Observed? (Y/N) Y Voucher? (Y/N) Y  
 Comments Regarding Bioty: PHHWA

## 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



PHHW Form Page - 2

Stream 162 Class 1 14-B-A-030316-08

## OH EPA Primary Headwater Habitat Evaluation Form

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

35

SITE NAME/LOCATION: 14-B-A-030316-08 PROJECT: PHHWA  
 SITE NUMBER: 02 RIVER BASIN: \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>): \_\_\_\_\_  
 LENGTH OF STREAM REACH (ft): 100 LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE: \_\_\_\_\_  
 DATE: 03/03/16 SCORER: PHHWA COMMENTS: PHHWA

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

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

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY one predominant substrate TYPE box (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)

TYPE	PERCENT	TYPE	PERCENT
BLDR SLABS (16 pts)	<u>0</u>	SILT (3 pts)	<u>10</u>
BOULDER (>256 mm) (16 pts)	<u>0</u>	LEAF PACKWOODY DEBRIS (3 pts)	<u>0</u>
BEDROCK (16 pts)	<u>0</u>	FINE DETRITUS (3 pts)	<u>5</u>
COBBLE (65-256 mm) (12 pts)	<u>0</u>	CLAY or HARDPAN (3 pts)	<u>0</u>
GRAVEL (12.5-64 mm) (8 pts)	<u>0</u>	MUCK (3 pts)	<u>0</u>
SAND (<2 mm) (8 pts)	<u>0</u>	ARTIFICIAL (3 pts)	<u>0</u>

Total of Percentages of Big Slabs, Boulder, Cobble, Bedrock: (A) 0 (B) 15  
 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 TOTAL NUMBER OF SUBSTRATE TYPES: 5

**2. Maximum Pool Depth** (Measure the maximum pool depth within the 51 meter (200 ft) evaluation reach at time of evaluation. Avoid plunge pools from road culverts or storm water pipes). (Check ONLY one box):  
☐ > 30 centimeters (20 pts) ☐ 5 cm - 10 cm (15 pts) ☐ 2.5 - 5 cm (10 pts) ☐ 10 - 22.5 cm (25 pts) ☐ 10 - 22.5 cm (25 pts)  
 COMMENTS: PHHWA MAXIMUM POOL DEPTH (centimeters): 10

**3. BANK FULL WIDTH** (Measured as the average of 3-4 measurement points). (Check ONLY one box):  
☐ > 4 meters > 13 (20 pts) ☐ 1.3 m - 1.5 m > 3' - 4' 8" (15 pts) ☐ > 3 cm - 4 cm > 9' - 10' (10 pts) ☐ 1.0 m - 2' 3" (5 pts) ☐ 1.5 m - 3 cm > 4' 8" - 9' 7" (20 pts)  
 COMMENTS: PHHWA AVERAGE BANKFULL WIDTH (meters): 1

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
(Per Bank)	(Most Predominant per Bank)
Wide > 10m	Mature Forest, Wetland
Moderate 5-10m	Immature Forest, Shrub or Old Field
Narrow < 5m	Residential, Park, New Field
None	Fenced Pasture

COMMENTS: PHHWA

**FLOW REGIME** (At Time of Evaluation) (Check ONLY one box):  
☒ Stream Flowing ☐ Most Channel isolated pools, no flow (Intermittent)  
 Subsurface flow with isolated pools (Intermittent) ☐ Dry channel, no water (Ephemeral)  
 COMMENTS: PHHWA

**SINUOSITY** (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  
☐ None ☐ 0 ☐ 2.0 ☐ 2.5 ☐ 3.0 ☐ 3.5

**STREAM GRADIENT ESTIMATE**  
☐ Flat to Slight ☐ Slight to Moderate ☒ Moderate ☐ Moderate to Severe ☐ Severe

PHHW Form Page - 1

Stream 162

## ADDITIONAL STREAM INFORMATION (This Information Must Also Be Completed)

GHEI PERFORMED? ☒ Yes ☐ No GHEI Score: \_\_\_\_\_ (If Yes, Attach Completed GHEI Form)

DOWNSTREAM DESIGNATED USE(S):

☐ WWH Name: \_\_\_\_\_ Distance from Evaluated Stream: \_\_\_\_\_  
☐ CWH Name: \_\_\_\_\_ Distance from Evaluated Stream: \_\_\_\_\_  
☐ CAH 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: 03/01/16 Quantity: 1.44  
 Photograph Information: PHHWA  
 Elevated turbidity? (Y/N) Y Category (by open): 40  
 Wire 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 (5 U) \_\_\_\_\_ Conductivity (µmhos/cm) \_\_\_\_\_  
 Is the sampling reach representative of the stream? (Y/N) Y If not, please explain: PHHWA

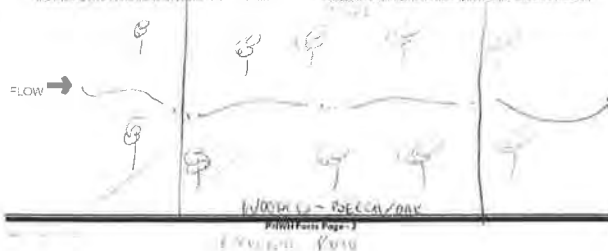
Additional comments/description of pollution impacts: PHHWA

## 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) Y Salamanders Observed? (Y/N) Y Voucher? (Y/N) Y  
 Frogs or Toads Observed? (Y/N) Y Voucher? (Y/N) Y Aquatic Macroinvertebrates Observed? (Y/N) Y Voucher? (Y/N) Y  
 Comments Regarding Bioty: PHHWA

## 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



PHHW Form Page - 2

# Stream 163 Mod. Class 1 HH BAO-030306-09 OH EPA Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3): **23**

**SITE INFORMATION:** AEP Green River, Lower

**DATE:** 03/03/16 **SCORER:** BAO, BAC **COMMENTS:** EPHW 163

**LENGTH OF STREAM REACH (ft):** 10 **RIVER BASIN:** 09 **DRAINAGE AREA (mi²):** 0.9 **RIVER CODE:** 09 **RIVER MILE:** 0.9

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

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

**MODIFICATIONS:** Junction of Riparian with Green River

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY 1 type predominant substrate TYPE below (Max of 40). Add total number of significant substrate types found (Max of 6). Final metric score is sum of boxes A & B)

TYPE	PERCENT	TYPE	PERCENT
<input checked="" type="checkbox"/> BLDR SLABS (16 pts)	10	<input checked="" type="checkbox"/> SILT (3 pts)	10
<input checked="" type="checkbox"/> BOULDER (>256 mm) (16 pts)	10	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	10
<input checked="" type="checkbox"/> BEDROCK (16 pts)	10	<input checked="" type="checkbox"/> FINE DETRITUS (3 pts)	10
<input checked="" type="checkbox"/> COBBLE (63-256 mm) (12 pts)	10	<input checked="" type="checkbox"/> CLAY or HARDPAN (3 pts)	10
<input checked="" type="checkbox"/> GRAVEL (63-256 mm) (12 pts)	10	<input checked="" type="checkbox"/> MUCK (3 pts)	10
<input checked="" type="checkbox"/> SAND (<2 mm) (6 pts)	10	<input checked="" type="checkbox"/> ARTIFICIAL (3 pts)	10

**SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES:** (A) **9** (B) **4** **A+B** **13**

**2. MAXIMUM POOL DEPTH** (Measure the maximum pool depth within the 51 meter (200 ft) evaluation reach at the time of evaluation. Record average depth from road culvert or stream water gauge). (Check ONLY one box)

☒ > 30 centimeters (20 pts) ☐ > 5 cm - 10 cm (15 pts) ☐ > 5 cm (5 pts)

**COMMENTS:** MAXIMUM POOL DEPTH (centimeters): **1.5**

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

☒ > 4.0 meters (> 131 pts) ☐ > 1.2 m - 1.5 m (> 3.3' - 4.9') (15 pts) ☐ 1.0 m - 1.2 m (3.3' - 3.9') (5 pts)

**COMMENTS:** AVERAGE BANKFULL WIDTH (meters): **1.5**

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

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

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

☒ Stream Flowing ☐ Most Channel, isolated pools, no flow (intermittent)

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

☒ None ☐ 0.5 ☐ 1.0 ☐ 1.5 ☐ 2.0 ☐ 2.5 ☐ 3.0 ☐ 3.5

**7. STREAM GRADIENT ESTIMATE**

☒ Flat to Moderate ☐ Moderate to Steep ☐ Steep

# Stream 164 Mod. Class 1 HH BAO-030310-10 OH EPA Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3): **24**

**SITE INFORMATION:** AEP Green River, Lower

**DATE:** 03/03/16 **SCORER:** BAO, BAC **COMMENTS:** EPHW 164

**LENGTH OF STREAM REACH (ft):** 10 **RIVER BASIN:** 09 **DRAINAGE AREA (mi²):** 0.9 **RIVER CODE:** 09 **RIVER MILE:** 0.9

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

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

**MODIFICATIONS:** Junction of Riparian with Green River

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY 1 type predominant substrate TYPE below (Max of 40). Add total number of significant substrate types found (Max of 6). Final metric score is sum of boxes A & B)

TYPE	PERCENT	TYPE	PERCENT
<input checked="" type="checkbox"/> BLDR SLABS (16 pts)	10	<input checked="" type="checkbox"/> SILT (3 pts)	10
<input checked="" type="checkbox"/> BOULDER (>256 mm) (16 pts)	10	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	10
<input checked="" type="checkbox"/> BEDROCK (16 pts)	10	<input checked="" type="checkbox"/> FINE DETRITUS (3 pts)	10
<input checked="" type="checkbox"/> COBBLE (63-256 mm) (12 pts)	10	<input checked="" type="checkbox"/> CLAY or HARDPAN (3 pts)	10
<input checked="" type="checkbox"/> GRAVEL (63-256 mm) (12 pts)	10	<input checked="" type="checkbox"/> MUCK (3 pts)	10
<input checked="" type="checkbox"/> SAND (<2 mm) (6 pts)	10	<input checked="" type="checkbox"/> ARTIFICIAL (3 pts)	10

**SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES:** (A) **9** (B) **5** **A+B** **14**

**2. MAXIMUM POOL DEPTH** (Measure the maximum pool depth within the 51 meter (200 ft) evaluation reach at the time of evaluation. Record average depth from road culvert or stream water gauge). (Check ONLY one box)

☒ > 30 centimeters (20 pts) ☐ > 5 cm - 10 cm (15 pts) ☐ > 5 cm (5 pts)

**COMMENTS:** MAXIMUM POOL DEPTH (centimeters): **1.5**

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

☒ > 4.0 meters (> 131 pts) ☐ > 1.2 m - 1.5 m (> 3.3' - 4.9') (15 pts) ☐ 1.0 m - 1.2 m (3.3' - 3.9') (5 pts)

**COMMENTS:** AVERAGE BANKFULL WIDTH (meters): **1.5**

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

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

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

☒ Stream Flowing ☐ Most Channel, isolated pools, no flow (intermittent)

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

☒ None ☐ 0.5 ☐ 1.0 ☐ 1.5 ☐ 2.0 ☐ 2.5 ☐ 3.0 ☐ 3.5

**7. STREAM GRADIENT ESTIMATE**

☒ Flat to Moderate ☐ Moderate to Steep ☐ Steep

# Stream 63 Mod. Class 1 HH BAO-030306-09 OH EPA Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3): **23**

**SITE INFORMATION:** AEP Green River, Lower

**DATE:** 03/03/16 **SCORER:** BAO, BAC **COMMENTS:** EPHW 63

**LENGTH OF STREAM REACH (ft):** 10 **RIVER BASIN:** 09 **DRAINAGE AREA (mi²):** 0.9 **RIVER CODE:** 09 **RIVER MILE:** 0.9

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

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

**MODIFICATIONS:** Junction of Riparian with Green River

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY 1 type predominant substrate TYPE below (Max of 40). Add total number of significant substrate types found (Max of 6). Final metric score is sum of boxes A & B)

TYPE	PERCENT	TYPE	PERCENT
<input checked="" type="checkbox"/> BLDR SLABS (16 pts)	10	<input checked="" type="checkbox"/> SILT (3 pts)	10
<input checked="" type="checkbox"/> BOULDER (>256 mm) (16 pts)	10	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	10
<input checked="" type="checkbox"/> BEDROCK (16 pts)	10	<input checked="" type="checkbox"/> FINE DETRITUS (3 pts)	10
<input checked="" type="checkbox"/> COBBLE (63-256 mm) (12 pts)	10	<input checked="" type="checkbox"/> CLAY or HARDPAN (3 pts)	10
<input checked="" type="checkbox"/> GRAVEL (63-256 mm) (12 pts)	10	<input checked="" type="checkbox"/> MUCK (3 pts)	10
<input checked="" type="checkbox"/> SAND (<2 mm) (6 pts)	10	<input checked="" type="checkbox"/> ARTIFICIAL (3 pts)	10

**SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES:** (A) **9** (B) **4** **A+B** **13**

**2. MAXIMUM POOL DEPTH** (Measure the maximum pool depth within the 51 meter (200 ft) evaluation reach at the time of evaluation. Record average depth from road culvert or stream water gauge). (Check ONLY one box)

☒ > 30 centimeters (20 pts) ☐ > 5 cm - 10 cm (15 pts) ☐ > 5 cm (5 pts)

**COMMENTS:** MAXIMUM POOL DEPTH (centimeters): **1.5**

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

☒ > 4.0 meters (> 131 pts) ☐ > 1.2 m - 1.5 m (> 3.3' - 4.9') (15 pts) ☐ 1.0 m - 1.2 m (3.3' - 3.9') (5 pts)

**COMMENTS:** AVERAGE BANKFULL WIDTH (meters): **1.5**

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

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

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

☒ Stream Flowing ☐ Most Channel, isolated pools, no flow (intermittent)

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

☒ None ☐ 0.5 ☐ 1.0 ☐ 1.5 ☐ 2.0 ☐ 2.5 ☐ 3.0 ☐ 3.5

**7. STREAM GRADIENT ESTIMATE**

☒ Flat to Moderate ☐ Moderate to Steep ☐ Steep

# Stream 164 Mod. Class 1 HH BAO-030310-10 OH EPA Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3): **24**

**SITE INFORMATION:** AEP Green River, Lower

**DATE:** 03/03/16 **SCORER:** BAO, BAC **COMMENTS:** EPHW 164

**LENGTH OF STREAM REACH (ft):** 10 **RIVER BASIN:** 09 **DRAINAGE AREA (mi²):** 0.9 **RIVER CODE:** 09 **RIVER MILE:** 0.9

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

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

**MODIFICATIONS:** Junction of Riparian with Green River

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY 1 type predominant substrate TYPE below (Max of 40). Add total number of significant substrate types found (Max of 6). Final metric score is sum of boxes A & B)

TYPE	PERCENT	TYPE	PERCENT
<input checked="" type="checkbox"/> BLDR SLABS (16 pts)	10	<input checked="" type="checkbox"/> SILT (3 pts)	10
<input checked="" type="checkbox"/> BOULDER (>256 mm) (16 pts)	10	<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	10
<input checked="" type="checkbox"/> BEDROCK (16 pts)	10	<input checked="" type="checkbox"/> FINE DETRITUS (3 pts)	10
<input checked="" type="checkbox"/> COBBLE (63-256 mm) (12 pts)	10	<input checked="" type="checkbox"/> CLAY or HARDPAN (3 pts)	10
<input checked="" type="checkbox"/> GRAVEL (63-256 mm) (12 pts)	10	<input checked="" type="checkbox"/> MUCK (3 pts)	10
<input checked="" type="checkbox"/> SAND (<2 mm) (6 pts)	10	<input checked="" type="checkbox"/> ARTIFICIAL (3 pts)	10

**SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES:** (A) **9** (B) **5** **A+B** **14**

**2. MAXIMUM POOL DEPTH** (Measure the maximum pool depth within the 51 meter (200 ft) evaluation reach at the time of evaluation. Record average depth from road culvert or stream water gauge). (Check ONLY one box)

☒ > 30 centimeters (20 pts) ☐ > 5 cm - 10 cm (15 pts) ☐ > 5 cm (5 pts)

**COMMENTS:** MAXIMUM POOL DEPTH (centimeters): **1.5**

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

☒ > 4.0 meters (> 131 pts) ☐ > 1.2 m - 1.5 m (> 3.3' - 4.9') (15 pts) ☐ 1.0 m - 1.2 m (3.3' - 3.9') (5 pts)

**COMMENTS:** AVERAGE BANKFULL WIDTH (meters): **1.5**

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

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

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

☒ Stream Flowing ☐ Most Channel, isolated pools, no flow (intermittent)

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

☒ None ☐ 0.5 ☐ 1.0 ☐ 1.5 ☐ 2.0 ☐ 2.5 ☐ 3.0 ☐ 3.5

**7. STREAM GRADIENT ESTIMATE**

☒ Flat to Moderate ☐ Moderate to Steep ☐ Steep

Stream 1165 Mod. Class 2 11/15/00 030316 11

# **Ohio EPA** Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3): **50**

SITE NAME/LOCATION: 1165-030316-11  
 SITE NUMBER: 11 RIVER BASIN: 1165-030316-11 DRAINAGE AREA (m<sup>2</sup>):  
 LENGTH OF STREAM REACH (ft): 100 LAT: 40° 15' N LONG: 83° 03' W RIVER CODE: 1165 RIVER MILE:  
 DATE: 03/03/00 SCORER: 1165-030316-11 COMMENTS: 1165-030316-11  
 NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWHV Streams" for Instructions  
 STREAM CHANNEL: ☒ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY  
 MODIFICATIONS: 1165-030316-11

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY one predominant substrate TYPE below. (Max of 40). 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)		<input checked="" type="checkbox"/> SILT (3 pts)	
<input checked="" type="checkbox"/> BOULDER (>250 mm) (16 pts)		<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input checked="" type="checkbox"/> BEDROCK (16 pts)		<input checked="" type="checkbox"/> FINE DETRITUS (3 pts)	
<input checked="" type="checkbox"/> COBBLE (65-250 mm) (12 pts)		<input checked="" type="checkbox"/> CLAY or HARDPAN (3 pts)	
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) (9 pts)		<input checked="" type="checkbox"/> MUCK (6 pts)	
<input checked="" type="checkbox"/> SAND (<2 mm) (6 pts)		<input checked="" type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Substrates: 10 (A) 15 (B) 25 (A+B)  
 SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES: 10 15 TOTAL NUMBER OF SUBSTRATE TYPES: 5

**2. Maximum Pool Depth** (Measure the maximum pool depth within the 51 meter (200 ft) evaluation reach at the time of evaluation. Round up high pools from road culverts or other man-made structures. (Check ONLY one box).  
☒ > 20 centimeters (20 pts)  
☐ 15 - 20 cm (15 pts)  
☐ 10 - 15 cm (10 pts)  
☐ 5 - 10 cm (5 pts)  
☐ 0 - 5 cm (0 pts)  
 COMMENTS: 1165-030316-11 MAXIMUM POOL DEPTH (centimeters): 10

**3. BANK FULL WIDTH** (Measured as the average of 3-4 measurements). (Check ONLY one box).  
☒ > 4 meters - 15' (20 pts)  
☐ 3.0 m - 4.0 m (9' - 13') (15 pts)  
☐ 1.5 m - 3.0 m (5' - 9') (10 pts)  
☐ 0.5 m - 1.5 m (1' - 5') (5 pts)  
 COMMENTS: 1165-030316-11 AVERAGE BANKFULL WIDTH (meters): 10

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

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

COMMENTS: 1165-030316-11

**FLOW REGIME** (At Time of Evaluation) (Check ONLY one box).  
☒ Stream Flowing  
☐ Subsurface flow with isolated pools (intermittent)  
☐ Dry channel, no water (Ephemeral)  
 COMMENTS: 1165-030316-11

**SINUOSITY** (Number of bends per 61 m (200 ft) of channel). (Check ONLY one box).  
☐ None  
☐ 0.5  
☐ 1.0  
☐ 1.5  
☐ 2.0  
☐ 2.5  
☐ 3.0  
☐ 3.5

**STREAM GRADIENT ESTIMATE**  
☐ Flat  
☐ Flat to Moderate  
☒ Moderate to Steep  
☐ Steep

PHWH Form Page - 1

Stream 1165 11/15/00 030316 11

# **Ohio EPA** Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3): **50**

SITE NAME/LOCATION: 1165-030316-11  
 SITE NUMBER: 11 RIVER BASIN: 1165-030316-11 DRAINAGE AREA (m<sup>2</sup>):  
 LENGTH OF STREAM REACH (ft): 100 LAT: 40° 15' N LONG: 83° 03' W RIVER CODE: 1165 RIVER MILE:  
 DATE: 03/03/00 SCORER: 1165-030316-11 COMMENTS: 1165-030316-11  
 NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWHV Streams" for Instructions  
 STREAM CHANNEL: ☒ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY  
 MODIFICATIONS: 1165-030316-11

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY one predominant substrate TYPE below. (Max of 40). 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)		<input checked="" type="checkbox"/> SILT (3 pts)	
<input checked="" type="checkbox"/> BOULDER (>250 mm) (16 pts)		<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input checked="" type="checkbox"/> BEDROCK (16 pts)		<input checked="" type="checkbox"/> FINE DETRITUS (3 pts)	
<input checked="" type="checkbox"/> COBBLE (65-250 mm) (12 pts)		<input checked="" type="checkbox"/> CLAY or HARDPAN (3 pts)	
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) (9 pts)		<input checked="" type="checkbox"/> MUCK (6 pts)	
<input checked="" type="checkbox"/> SAND (<2 mm) (6 pts)		<input checked="" type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Substrates: 10 (A) 15 (B) 25 (A+B)  
 SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES: 10 15 TOTAL NUMBER OF SUBSTRATE TYPES: 5

**2. Maximum Pool Depth** (Measure the maximum pool depth within the 51 meter (200 ft) evaluation reach at the time of evaluation. Round up high pools from road culverts or other man-made structures. (Check ONLY one box).  
☒ > 20 centimeters (20 pts)  
☐ 15 - 20 cm (15 pts)  
☐ 10 - 15 cm (10 pts)  
☐ 5 - 10 cm (5 pts)  
☐ 0 - 5 cm (0 pts)  
 COMMENTS: 1165-030316-11 MAXIMUM POOL DEPTH (centimeters): 10

**3. BANK FULL WIDTH** (Measured as the average of 3-4 measurements). (Check ONLY one box).  
☒ > 4 meters - 15' (20 pts)  
☐ 3.0 m - 4.0 m (9' - 13') (15 pts)  
☐ 1.5 m - 3.0 m (5' - 9') (10 pts)  
☐ 0.5 m - 1.5 m (1' - 5') (5 pts)  
 COMMENTS: 1165-030316-11 AVERAGE BANKFULL WIDTH (meters): 10

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

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

COMMENTS: 1165-030316-11

**FLOW REGIME** (At Time of Evaluation) (Check ONLY one box).  
☒ Stream Flowing  
☐ Subsurface flow with isolated pools (intermittent)  
☐ Dry channel, no water (Ephemeral)  
 COMMENTS: 1165-030316-11

**SINUOSITY** (Number of bends per 61 m (200 ft) of channel). (Check ONLY one box).  
☐ None  
☐ 0.5  
☐ 1.0  
☐ 1.5  
☐ 2.0  
☐ 2.5  
☐ 3.0  
☐ 3.5

**STREAM GRADIENT ESTIMATE**  
☐ Flat  
☐ Flat to Moderate  
☒ Moderate to Steep  
☐ Steep

PHWH Form Page - 2

Stream 1166 Class 1 11/15/00 030316 12

# **Ohio EPA** Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3): **23**

SITE NAME/LOCATION: 1166-030316-12  
 SITE NUMBER: 12 RIVER BASIN: 1166-030316-12 DRAINAGE AREA (m<sup>2</sup>):  
 LENGTH OF STREAM REACH (ft): 100 LAT: 40° 15' N LONG: 83° 03' W RIVER CODE: 1166 RIVER MILE:  
 DATE: 03/03/00 SCORER: 1166-030316-12 COMMENTS: 1166-030316-12  
 NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWHV Streams" for Instructions  
 STREAM CHANNEL: ☒ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY  
 MODIFICATIONS: 1166-030316-12

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY one predominant substrate TYPE below. (Max of 40). 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)		<input checked="" type="checkbox"/> SILT (3 pts)	
<input checked="" type="checkbox"/> BOULDER (>250 mm) (16 pts)		<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input checked="" type="checkbox"/> BEDROCK (16 pts)		<input checked="" type="checkbox"/> FINE DETRITUS (3 pts)	
<input checked="" type="checkbox"/> COBBLE (65-250 mm) (12 pts)		<input checked="" type="checkbox"/> CLAY or HARDPAN (3 pts)	
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) (9 pts)		<input checked="" type="checkbox"/> MUCK (6 pts)	
<input checked="" type="checkbox"/> SAND (<2 mm) (6 pts)		<input checked="" type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Substrates: 10 (A) 13 (B) 23 (A+B)  
 SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES: 10 13 TOTAL NUMBER OF SUBSTRATE TYPES: 5

**2. Maximum Pool Depth** (Measure the maximum pool depth within the 51 meter (200 ft) evaluation reach at the time of evaluation. Round up high pools from road culverts or other man-made structures. (Check ONLY one box).  
☒ > 20 centimeters (20 pts)  
☐ 15 - 20 cm (15 pts)  
☐ 10 - 15 cm (10 pts)  
☐ 5 - 10 cm (5 pts)  
☐ 0 - 5 cm (0 pts)  
 COMMENTS: 1166-030316-12 MAXIMUM POOL DEPTH (centimeters): 10

**3. BANK FULL WIDTH** (Measured as the average of 3-4 measurements). (Check ONLY one box).  
☒ > 4 meters - 15' (20 pts)  
☐ 3.0 m - 4.0 m (9' - 13') (15 pts)  
☐ 1.5 m - 3.0 m (5' - 9') (10 pts)  
☐ 0.5 m - 1.5 m (1' - 5') (5 pts)  
 COMMENTS: 1166-030316-12 AVERAGE BANKFULL WIDTH (meters): 10

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

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

COMMENTS: 1166-030316-12

**FLOW REGIME** (At Time of Evaluation) (Check ONLY one box).  
☒ Stream Flowing  
☐ Subsurface flow with isolated pools (intermittent)  
☐ Dry channel, no water (Ephemeral)  
 COMMENTS: 1166-030316-12

**SINUOSITY** (Number of bends per 61 m (200 ft) of channel). (Check ONLY one box).  
☐ None  
☐ 0.5  
☐ 1.0  
☐ 1.5  
☐ 2.0  
☐ 2.5  
☐ 3.0  
☐ 3.5

**STREAM GRADIENT ESTIMATE**  
☐ Flat  
☐ Flat to Moderate  
☒ Moderate to Steep  
☐ Steep

PHWH Form Page - 1

Stream 1166 11/15/00 030316 12

# **Ohio EPA** Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3): **23**

SITE NAME/LOCATION: 1166-030316-12  
 SITE NUMBER: 12 RIVER BASIN: 1166-030316-12 DRAINAGE AREA (m<sup>2</sup>):  
 LENGTH OF STREAM REACH (ft): 100 LAT: 40° 15' N LONG: 83° 03' W RIVER CODE: 1166 RIVER MILE:  
 DATE: 03/03/00 SCORER: 1166-030316-12 COMMENTS: 1166-030316-12  
 NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWHV Streams" for Instructions  
 STREAM CHANNEL: ☒ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY  
 MODIFICATIONS: 1166-030316-12

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY one predominant substrate TYPE below. (Max of 40). 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)		<input checked="" type="checkbox"/> SILT (3 pts)	
<input checked="" type="checkbox"/> BOULDER (>250 mm) (16 pts)		<input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input checked="" type="checkbox"/> BEDROCK (16 pts)		<input checked="" type="checkbox"/> FINE DETRITUS (3 pts)	
<input checked="" type="checkbox"/> COBBLE (65-250 mm) (12 pts)		<input checked="" type="checkbox"/> CLAY or HARDPAN (3 pts)	
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) (9 pts)		<input checked="" type="checkbox"/> MUCK (6 pts)	
<input checked="" type="checkbox"/> SAND (<2 mm) (6 pts)		<input checked="" type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Substrates: 10 (A) 13 (B) 23 (A+B)  
 SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES: 10 13 TOTAL NUMBER OF SUBSTRATE TYPES: 5

**2. Maximum Pool Depth** (Measure the maximum pool depth within the 51 meter (200 ft) evaluation reach at the time of evaluation. Round up high pools from road culverts or other man-made structures. (Check ONLY one box).  
☒ > 20 centimeters (20 pts)  
☐ 15 - 20 cm (15 pts)  
☐ 10 - 15 cm (10 pts)  
☐ 5 - 10 cm (5 pts)  
☐ 0 - 5 cm (0 pts)  
 COMMENTS: 1166-030316-12 MAXIMUM POOL DEPTH (centimeters): 10

**3. BANK FULL WIDTH** (Measured as the average of 3-4 measurements). (Check ONLY one box).  
☒ > 4 meters - 15' (20 pts)  
☐ 3.0 m - 4.0 m (9' - 13') (15 pts)  
☐ 1.5 m - 3.0 m (5' - 9') (10 pts)  
☐ 0.5 m - 1.5 m (1' - 5') (5 pts)  
 COMMENTS: 1166-030316-12 AVERAGE BANKFULL WIDTH (meters): 10

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

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

COMMENTS: 1166-030316-12

**FLOW REGIME** (At Time of Evaluation) (Check ONLY one box).  
☒ Stream Flowing  
☐ Subsurface flow with isolated pools (intermittent)  
☐ Dry channel, no water (Ephemeral)  
 COMMENTS: 1166-030316-12

**SINUOSITY** (Number of bends per 61 m (200 ft) of channel). (Check ONLY one box).  
☐ None  
☐ 0.5  
☐ 1.0  
☐ 1.5  
☐ 2.0  
☐ 2.5  
☐ 3.0  
☐ 3.5

**STREAM GRADIENT ESTIMATE**  
☐ Flat  
☐ Flat to Moderate  
☒ Moderate to Steep  
☐ Steep

PHWH Form Page - 2



Stream 169 Mod. Class 1 HH-BAD-03/03/15

# Ohio EPA Primary Headwater Habitat Evaluation Form

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

24

SITE NAME/LOCATION: DEP Creek (Hwy 169)  
 SITE NUMBER: 15 RIVER BASIN: CHAGRIN AREA (N)  
 LENGTH OF STREAM REACH (ft): 15 LAT: 41° 10' 00" N LONG: 83° 00' 00" W RIVER CODE: 169 RIVER MILE: 1.0  
 DATE: 03/03/15 SCORER: BAO, BOC COMMENTS: EPH/169

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions  
 STREAM CHANNEL: ☐ NONE / NATURAL CHANNEL ☐ RECOVERING ☒ RECENT OR NO RECOVERY  
 MODIFICATIONS: Stream was recently row & riparian area has been cleared

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY 1 top predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)		HHEI Metric Points	
TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLUR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pt)	
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pt)		<input type="checkbox"/> FINE DETRITUS (3 pt)	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	10	<input type="checkbox"/> CLAY or HARDPAK (9 pt)	
<input type="checkbox"/> GRAVEL (2.84 mm) [10 pts]	10	<input type="checkbox"/> MUCK (9 pts)	
<input type="checkbox"/> SAND (<2 mm) [8 pts]	30	<input type="checkbox"/> ARTIFICIAL (3 pts)	
Total of Percentages of Substrates: (A) <u>9</u>		Total of Percentages of Substrates: (B) <u>5</u>	
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: <u>9</u>		TOTAL NUMBER OF SUBSTRATE TYPES: <u>5</u>	

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes). (Check ONLY one box)  
☐ > 30 centimeters (12 pts)  
☐ 22.5 - 30 cm (10 pts)  
☐ 10 - 22.5 cm (8 pts)  
☒ NO WATER OR MOST CHANNEL (5 pts)  
 COMMENTS: NO WATER OR MOST CHANNEL (5 pts)  
 MAXIMUM POOL DEPTH (centimeters): 15

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements). (Check ONLY one box)  
☐ > 4.0 meters (> 13 ft) [20 pts]  
☐ 3.0 m - 4.0 m (> 9'7" - 13') [15 pts]  
☐ 1.5 m - 3.0 m (> 4'8" - 9'7") [10 pts]  
☒ None  
 COMMENTS: None  
 AVERAGE BANKFULL WIDTH (meters): 1.5

This information must also be completed

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

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

FLOW REGIME (At Time of Evaluation) (Check ONLY one box)  
☒ Stream Flowing  
☐ Subsurface flow with isolated pools (intermittent)  
☐ Most Channel, isolated pools, no flow (intermittent)  
☐ Dry channel, no water (ephemeral)  
 COMMENTS: EPH/169

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box)  
☐ None  
☐ 0.5  
☐ 1.0  
☐ 1.5  
☐ 2.0  
☐ 2.5  
☐ 3.0  
☐ > 3.0

STREAM GRADIENT ESTIMATE  
☐ Flat (0.00%)  
☐ Flat to Moderate  
☐ Moderate to Steep  
☒ Moderate to Severe  
☐ Severe to Extreme

PHWH Form Page 1

Stream 169 HH-BAD-03/03/15

ADDITIONAL STREAM INFORMATION (This information must also be completed)

QHEI PERFORMED: ☐ Yes ☒ No QHEI Score: 169 (If Yes, Attach Completed QHEI Form)

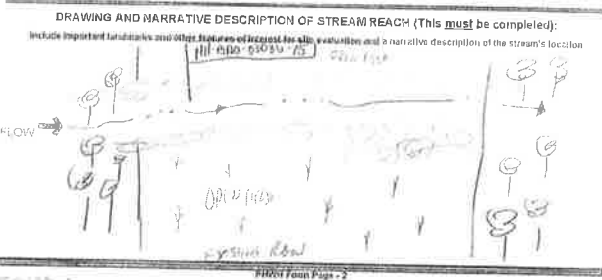
CONVEYANCE DESIGNATED USES:  
☐ WWH Name: 169 Distance from Evaluated Stream: 169  
☐ CWH Name: 169 Distance from Evaluated Stream: 169  
☐ DWH Name: 169 Distance from Evaluated Stream: 169

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.  
 USGS Quadrangle Name: 169 NRCB Soil Map Page: 169 NRCS Soil Map Sheet Code: 169  
 County: 169 Township: 169

MISCELLANEOUS  
 Base Flow Conditions? (Y/N) Y Date of last evaluation: 03/03/15 Quantity: 169  
 Photograph Information: 169  
 Elevation (Topography) (Y/N) Y Contour: 169  
 Were samples collected for water chemistry? (Y/N) Y (Note lab sample no. or id and attach results) Lab Number: 169  
 Field Measures: Temp (C) 169 Dissolved Oxygen (mg/L) 169 pH (SU) 169 Conductivity (µmhos/cm) 169  
 Is the sampling reach representative of the stream? (Y/N) Y If not, please explain: 169

ADDITIONAL COMMENTS/Description of reduction impacts: 169

BIOTIC EVALUATION  
 Performed? (Y/N) Y (If Yes, Record all observed, benthic, vascular, and other biotic data. NOTE: all vascular 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) Y Voucher? (Y/N) Y  
 Frogs or Toads Observed? (Y/N) Y Voucher? (Y/N) Y Aquatic Macroinvertebrates Observed? (Y/N) Y Voucher? (Y/N) Y  
 Comments Regarding Biotic: 169

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.  
  
 PHWH Form Page 2

Stream 170 Mod. Class 2 HH-BAD-03/03/15

# Ohio EPA Primary Headwater Habitat Evaluation Form

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

44

SITE NAME/LOCATION: DEP Creek (Hwy 170)  
 SITE NUMBER: 16 RIVER BASIN: CHAGRIN AREA (N)  
 LENGTH OF STREAM REACH (ft): 15 LAT: 41° 10' 00" N LONG: 83° 00' 00" W RIVER CODE: 170 RIVER MILE: 1.0  
 DATE: 03/03/15 SCORER: BAO, BOC COMMENTS: EPH/170

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions  
 STREAM CHANNEL: ☐ NONE / NATURAL CHANNEL ☐ RECOVERING ☒ RECENT OR NO RECOVERY  
 MODIFICATIONS: Stream has been cut & contains concrete

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY 1 top predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)		HHEI Metric Points	
TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLUR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pt)	
<input type="checkbox"/> BOULDER (>256 mm) [16 pts]		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pt)		<input type="checkbox"/> FINE DETRITUS (3 pt)	
<input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	20	<input type="checkbox"/> CLAY or HARDPAK (9 pt)	
<input type="checkbox"/> GRAVEL (2.84 mm) [10 pts]	20	<input type="checkbox"/> MUCK (9 pts)	
<input type="checkbox"/> SAND (<2 mm) [8 pts]	20	<input type="checkbox"/> ARTIFICIAL (3 pts)	
Total of Percentages of Substrates: (A) <u>10</u>		Total of Percentages of Substrates: (B) <u>5</u>	
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: <u>10</u>		TOTAL NUMBER OF SUBSTRATE TYPES: <u>5</u>	

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes). (Check ONLY one box)  
☐ > 30 centimeters (12 pts)  
☐ 22.5 - 30 cm (10 pts)  
☐ 10 - 22.5 cm (8 pts)  
☒ NO WATER OR MOST CHANNEL (5 pts)  
 COMMENTS: NO WATER OR MOST CHANNEL (5 pts)  
 MAXIMUM POOL DEPTH (centimeters): 15

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements). (Check ONLY one box)  
☐ > 4.0 meters (> 13 ft) [20 pts]  
☐ 3.0 m - 4.0 m (> 9'7" - 13') [15 pts]  
☐ 1.5 m - 3.0 m (> 4'8" - 9'7") [10 pts]  
☒ None  
 COMMENTS: None  
 AVERAGE BANKFULL WIDTH (meters): 1.5

This information must also be completed

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

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

FLOW REGIME (At Time of Evaluation) (Check ONLY one box)  
☒ Stream Flowing  
☐ Subsurface flow with isolated pools (intermittent)  
☐ Most Channel, isolated pools, no flow (intermittent)  
☐ Dry channel, no water (ephemeral)  
 COMMENTS: EPH/170

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box)  
☐ None  
☐ 0.5  
☐ 1.0  
☐ 1.5  
☐ 2.0  
☐ 2.5  
☐ 3.0  
☐ > 3.0

STREAM GRADIENT ESTIMATE  
☐ Flat (0.00%)  
☐ Flat to Moderate  
☐ Moderate to Steep  
☒ Moderate to Severe  
☐ Severe to Extreme

PHWH Form Page 1

Stream 170 HH-BAD-03/03/15

ADDITIONAL STREAM INFORMATION (This information must also be completed)

QHEI PERFORMED: ☐ Yes ☒ No QHEI Score: 170 (If Yes, Attach Completed QHEI Form)

CONVEYANCE DESIGNATED USES:  
☐ WWH Name: 170 Distance from Evaluated Stream: 170  
☐ CWH Name: 170 Distance from Evaluated Stream: 170  
☐ DWH Name: 170 Distance from Evaluated Stream: 170

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.  
 USGS Quadrangle Name: 170 NRCB Soil Map Page: 170 NRCS Soil Map Sheet Code: 170  
 County: 170 Township: 170

MISCELLANEOUS  
 Base Flow Conditions? (Y/N) Y Date of last evaluation: 03/03/15 Quantity: 170  
 Photograph Information: 170  
 Elevation (Topography) (Y/N) Y Contour: 170  
 Were samples collected for water chemistry? (Y/N) Y (Note lab sample no. or id and attach results) Lab Number: 170  
 Field Measures: Temp (C) 170 Dissolved Oxygen (mg/L) 170 pH (SU) 170 Conductivity (µmhos/cm) 170  
 Is the sampling reach representative of the stream? (Y/N) Y If not, please explain: 170

ADDITIONAL COMMENTS/Description of reduction impacts: 170

BIOTIC EVALUATION  
 Performed? (Y/N) Y (If Yes, Record all observed, benthic, vascular, and other biotic data. NOTE: all vascular 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) Y Voucher? (Y/N) Y  
 Frogs or Toads Observed? (Y/N) Y Voucher? (Y/N) Y Aquatic Macroinvertebrates Observed? (Y/N) Y Voucher? (Y/N) Y  
 Comments Regarding Biotic: 170

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.  
  
 PHWH Form Page 2





Stream 173 Mod. Class 1 HAE-03416-04

**Ohio EPA** Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **38**

SITE NAME/LOCATION: 173 SITE NUMBER: 04 RIVER BASIN: 04 DRAINAGE AREA (mi<sup>2</sup>): 04

LENGTH OF STREAM REACH (ft): 3116 LAT: 04 LONG: 04 RIVER CODE: 04 RIVER MILE: 04

DATE: 3/11/16 SCORER: 04 COMMENTS: 04

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

STREAM CHANNEL ☐ NONE / NATURAL CHANNEL ☒ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY

MODIFICATIONS:

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max. of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pt)	
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (8 pt)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)		<input type="checkbox"/> MUCK (8 pts)	
<input type="checkbox"/> SAND (<2 mm) (6 pts)		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bed Slabs, Boulder, Cobble, Bedrock: (A) 17 (B) 1 A + B 18

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 17 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 cutouts or storm water pipes). (Check ONLY one box)

☐ > 30 centimeters (20 pts) ☒ > 5 cm - 10 cm (15 pts) ☐ < 5 cm (5 pts) ☐ NO WATER OR MOIST CHANNEL (0 pts)

COMMENTS: 1 MAXIMUM POOL DEPTH (centimeters): 1

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

☐ > 4.0 meters (> 13 ft) (16 pts) ☒ > 1.0 m - 1.5 m (> 3' - 4' 8") (15 pts) ☐ < 1.0 m (< 3' 3") (5 pts)

COMMENTS: 1 AVERAGE BANKFULL WIDTH (meters): 1

This information must also be completed

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

RIPARIAN ZONE	FLOODPLAIN QUALITY	
<input checked="" type="checkbox"/> L <input checked="" type="checkbox"/> R (Per Bank) Wide >10m	<input type="checkbox"/> L <input type="checkbox"/> R (Most Predominant per Bank) Mature Forest, Wetland	<input type="checkbox"/> L <input type="checkbox"/> R 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 type="checkbox"/> Mining or Construction

COMMENTS: 1

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

☐ Stream Flowing Subsurface flow with isolated pools (intermittent) ☒ Most Channel isolated pools, no flow (intermittent) Dry channel no water (Ephemeral)

COMMENTS: 1

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

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

**STREAM GRADIENT ESTIMATE**

☐ Flat (<0.001%) ☒ Flat to Moderate (0.001-0.01%) ☐ Moderate to Severe (0.01-0.05%) ☐ Severe (>0.05%)

PHWH Form Page - 1

Stream 173

**ADDITIONAL STREAM INFORMATION** (This information must also be completed)

QHEI PERFORMED? ☐ Yes ☒ No QHEI Score: 04 (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: 04 Distance from Evaluated Stream: 04

☐ CWH Name: 04 Distance from Evaluated Stream: 04

☐ EWH Name: 04 Distance from Evaluated Stream: 04

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

USGS Quadrangle Name: 04 NRCS Soil Map Page: 04 NRCS Soil Map Stream Order: 04

County: 04

**MISCELLANEOUS**

Base Flow Condition (Y/N) 04 Date of last precipitation: 04 County: 04

Photograph Information

Elevated Turbidity (NTU) 04 Canopy (% open) 04

Were samples collected for water chemistry? (Y/N) 04 (Note lab sample no. or attach lab results, Lab Number 04)

Field Measures Temp: 04 Dissolved Oxygen (mg/L) 04 pH (5 U) 04 Conductivity (micromhos/cm) 04

Is the sampling reach representative of the stream? (Y/N) 04 (If not, please explain: 04)

Additional comments (description of pollution impacts): 04

**BIOLOGICAL EVALUATION**

Permitted (Y/N) 04 (If Yes, Record all violations. Violation citations attached. NOTE: all violations must be listed with date, ID number, statute, appropriate ID data, sample date, and sampling method. Attach copies of violations.)

Fish Observed (Y/N) 04 No. of Fish 04 Species Observed (Y/N) 04 No. of Species 04

Fish or Tadpoles Observed (Y/N) 04 Species (Y/N) 04 Aquatic Macroinvertebrates Observed (Y/N) 04 No. of Species 04

Comments Regarding Biology: 04

**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 →

PHWH Form Page - 2

Stream 174 Mod. Class 2 HAE-03416-03

**Ohio EPA** Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): **30**

SITE NAME/LOCATION: 174 SITE NUMBER: 03 RIVER BASIN: 03 DRAINAGE AREA (mi<sup>2</sup>): 03

LENGTH OF STREAM REACH (ft): 3116 LAT: 03 LONG: 03 RIVER CODE: 03 RIVER MILE: 03

DATE: 3/11/16 SCORER: 03 COMMENTS: 03

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

STREAM CHANNEL ☐ NONE / NATURAL CHANNEL ☒ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY

MODIFICATIONS: 03

**1. SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max. of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pt)	
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (8 pt)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)		<input type="checkbox"/> MUCK (8 pts)	
<input type="checkbox"/> SAND (<2 mm) (6 pts)		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bed Slabs, Boulder, Cobble, Bedrock: (A) 9 (B) 1 A + B 10

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 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 cutouts or storm water pipes). (Check ONLY one box)

☐ > 30 centimeters (20 pts) ☒ > 5 cm - 10 cm (15 pts) ☐ < 5 cm (5 pts) ☐ NO WATER OR MOIST CHANNEL (0 pts)

COMMENTS: 1 MAXIMUM POOL DEPTH (centimeters): 1

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

☐ > 4.0 meters (> 13 ft) (16 pts) ☒ > 1.0 m - 1.5 m (> 3' - 4' 8") (15 pts) ☐ < 1.0 m (< 3' 3") (5 pts)

COMMENTS: 1 AVERAGE BANKFULL WIDTH (meters): 1

This information must also be completed

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

RIPARIAN ZONE	FLOODPLAIN QUALITY	
<input checked="" type="checkbox"/> L <input checked="" type="checkbox"/> R (Per Bank) Wide >10m	<input type="checkbox"/> L <input type="checkbox"/> R (Most Predominant per Bank) Mature Forest, Wetland	<input type="checkbox"/> L <input type="checkbox"/> R 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 type="checkbox"/> Mining or Construction

COMMENTS: 1

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

☐ Stream Flowing Subsurface flow with isolated pools (intermittent) ☒ Most Channel isolated pools, no flow (intermittent) Dry channel no water (Ephemeral)

COMMENTS: 1

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

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

**STREAM GRADIENT ESTIMATE**

☐ Flat (<0.001%) ☒ Flat to Moderate (0.001-0.01%) ☐ Moderate to Severe (0.01-0.05%) ☐ Severe (>0.05%)

PHWH Form Page - 1

Stream 174

**ADDITIONAL STREAM INFORMATION** (This information must also be completed)

QHEI PERFORMED? ☐ Yes ☒ No QHEI Score: 04 (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: 04 Distance from Evaluated Stream: 04

☐ CWH Name: 04 Distance from Evaluated Stream: 04

☐ EWH Name: 04 Distance from Evaluated Stream: 04

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

USGS Quadrangle Name: 04 NRCS Soil Map Page: 04 NRCS Soil Map Stream Order: 04

County: 04

**MISCELLANEOUS**

Base Flow Condition (Y/N) 04 Date of last precipitation: 04 County: 04

Photograph Information

Elevated Turbidity (NTU) 04 Canopy (% open) 04

Were samples collected for water chemistry? (Y/N) 04 (Note lab sample no. or attach lab results, Lab Number 04)

Field Measures Temp: 04 Dissolved Oxygen (mg/L) 04 pH (5 U) 04 Conductivity (micromhos/cm) 04

Is the sampling reach representative of the stream? (Y/N) 04 (If not, please explain: 04)

Additional comments (description of pollution impacts): 04

**BIOLOGICAL EVALUATION**

Permitted (Y/N) 04 (If Yes, Record all violations. Violation citations attached. NOTE: all violations must be listed with date, ID number, statute, appropriate ID data, sample date, and sampling method. Attach copies of violations.)

Fish Observed (Y/N) 04 No. of Fish 04 Species Observed (Y/N) 04 No. of Species 04

Fish or Tadpoles Observed (Y/N) 04 Species (Y/N) 04 Aquatic Macroinvertebrates Observed (Y/N) 04 No. of Species 04

Comments Regarding Biology: 04

**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 →

PHWH Form Page - 2

Stream 175 Mod. Class 1 HHEI Score (sum of metrics 1, 2, 3): 22

# Ohio EPA Primary Headwater Habitat Evaluation Form

SITE NAME/LOCATION: \_\_\_\_\_ SITE NUMBER: \_\_\_\_\_ RIVER BASIN: \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>): \_\_\_\_\_  
 LENGTH OF STREAM REACH (ft): \_\_\_\_\_ LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE: \_\_\_\_\_  
 DATE: \_\_\_\_\_ SCORER: \_\_\_\_\_ COMMENTS: \_\_\_\_\_  
 NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for instructions  
 STREAM CHANNEL: ☒ NONE/NATURAL CHANNEL ☒ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY  
 MODIFICATIONS: \_\_\_\_\_

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (0 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)		<input type="checkbox"/> MUCK (0 pts)	
<input type="checkbox"/> SAND (<2 mm) (6 pts)		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: \_\_\_\_\_ (A) \_\_\_\_\_ (B) \_\_\_\_\_  
 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: \_\_\_\_\_ TOTAL NUMBER OF SUBSTRATE TYPES: \_\_\_\_\_

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes). (Check ONLY one box):  
☐ > 30 centimeters (120 pts) ☐ > 5 cm - 10 cm (15 pts) ☐ > 22.5 - 30 cm (10 pts) ☐ > 10 - 22.5 cm (25 pts)  
 COMMENTS: \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): \_\_\_\_\_

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements). (Check ONLY one box):  
☐ > 4.0 meters (12) (10 pts) ☐ > 1.0 m - 1.5 m (3' 3" - 4' 8") (15 pts) ☐ > 3.0 m - 4.0 m (9' 7" - 13') (20 pts) ☐ < 1.0 m (3' 3" (5 pts)  
☐ > 1.5 m - 3.0 m (4' 8" - 9' 7") (20 pts)  
 COMMENTS: \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): \_\_\_\_\_

HHEI Metric Points  
 Substrate Max = 40  
 Pool Depth Max = 15  
 Bankfull Width Max = 20  
 A + B = 22

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	CONSERVATION TILAGE
<input checked="" type="checkbox"/> L (Per Bank) Wide >10m	<input checked="" type="checkbox"/> L (Most Predominant per Bank) 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 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):  
☐ Stream Flowing ☒ Most 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 m/m) ☐ Flat to Moderate ☐ Moderate (1.5 m/m) ☐ Moderate to Severe ☒ Severe (>1.5 m/m)

PHWH Form Page - 1

Stream 175

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: \_\_\_\_\_ NRCB Soil Map Page: \_\_\_\_\_ NRCB Soil Map Stream Order: \_\_\_\_\_  
 Cont: \_\_\_\_\_ Township/City: \_\_\_\_\_

MISCELLANEOUS  
 Base Flow Conditions? (Y/N) ☒ N Date of last precipitation: \_\_\_\_\_ Can be: \_\_\_\_\_  
 Phycoplankton: \_\_\_\_\_  
 Elevated Turbidity? (Y/N) ☒ N Conductivity (µmhos/cm): \_\_\_\_\_  
 Were samples collected for water chemistry? (Y/N) ☒ N (Note lab sample no. or if and attach results, Lab Number: \_\_\_\_\_)  
 Field Measures: Temp: \_\_\_\_\_ Dissolved Oxygen (mg/l): \_\_\_\_\_ pH (5.0): \_\_\_\_\_ Conductivity (µmhos/cm): \_\_\_\_\_  
 Is the sampling reach representative of the stream? (Y/N) ☒ Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution source: \_\_\_\_\_

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 1 on 2 & Pin any macroinvertebrate lab for 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 Biotics: \_\_\_\_\_

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.

PHWH Form Page - 2

Stream 176

Stream 176 Mod. Class 2 HHEI Score (sum of metrics 1, 2, 3): 59

# Ohio EPA Primary Headwater Habitat Evaluation Form

SITE NAME/LOCATION: \_\_\_\_\_ SITE NUMBER: \_\_\_\_\_ RIVER BASIN: \_\_\_\_\_ DRAINAGE AREA (mi<sup>2</sup>): \_\_\_\_\_  
 LENGTH OF STREAM REACH (ft): \_\_\_\_\_ LAT: \_\_\_\_\_ LONG: \_\_\_\_\_ RIVER CODE: \_\_\_\_\_ RIVER MILE: \_\_\_\_\_  
 DATE: \_\_\_\_\_ SCORER: \_\_\_\_\_ COMMENTS: \_\_\_\_\_  
 NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for instructions  
 STREAM CHANNEL: ☐ NONE/NATURAL CHANNEL ☒ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY  
 MODIFICATIONS: \_\_\_\_\_

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (0 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)		<input type="checkbox"/> MUCK (0 pts)	
<input type="checkbox"/> SAND (<2 mm) (6 pts)		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: \_\_\_\_\_ (A) \_\_\_\_\_ (B) \_\_\_\_\_  
 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: \_\_\_\_\_ TOTAL NUMBER OF SUBSTRATE TYPES: \_\_\_\_\_

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes). (Check ONLY one box):  
☐ > 30 centimeters (120 pts) ☐ > 5 cm - 10 cm (15 pts) ☐ > 22.5 - 30 cm (10 pts) ☐ > 10 - 22.5 cm (25 pts)  
 COMMENTS: \_\_\_\_\_ MAXIMUM POOL DEPTH (centimeters): \_\_\_\_\_

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements). (Check ONLY one box):  
☐ > 4.0 meters (12) (10 pts) ☐ > 1.0 m - 1.5 m (3' 3" - 4' 8") (15 pts) ☐ > 3.0 m - 4.0 m (9' 7" - 13') (20 pts) ☐ < 1.0 m (3' 3" (5 pts)  
☐ > 1.5 m - 3.0 m (4' 8" - 9' 7") (20 pts)  
 COMMENTS: \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters): \_\_\_\_\_

HHEI Metric Points  
 Substrate Max = 40  
 Pool Depth Max = 15  
 Bankfull Width Max = 20  
 A + B = 59

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	CONSERVATION TILAGE
<input checked="" type="checkbox"/> L (Per Bank) Wide >10m	<input checked="" type="checkbox"/> L (Most Predominant per Bank) 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 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):  
☒ Stream Flowing ☐ Most 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 m/m) ☐ Flat to Moderate ☐ Moderate (1.5 m/m) ☐ Moderate to Severe ☐ Severe (>1.5 m/m)

PHWH Form Page - 1

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: \_\_\_\_\_ NRCB Soil Map Page: \_\_\_\_\_ NRCB Soil Map Stream Order: \_\_\_\_\_  
 County: \_\_\_\_\_ Township/City: \_\_\_\_\_

MISCELLANEOUS  
 Base Flow Conditions? (Y/N) ☒ N Date of last precipitation: \_\_\_\_\_ Can be: \_\_\_\_\_  
 Phycoplankton: \_\_\_\_\_  
 Elevated Turbidity? (Y/N) ☒ N Conductivity (µmhos/cm): \_\_\_\_\_  
 Were samples collected for water chemistry? (Y/N) ☒ N (Note lab sample no. or if and attach results, Lab Number: \_\_\_\_\_)  
 Field Measures: Temp: \_\_\_\_\_ Dissolved Oxygen (mg/l): \_\_\_\_\_ pH (5.0): \_\_\_\_\_ Conductivity (µmhos/cm): \_\_\_\_\_  
 Is the sampling reach representative of the stream? (Y/N) ☒ Y If not, please explain: \_\_\_\_\_

Additional comments/description of pollution source: \_\_\_\_\_

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 Biotics: \_\_\_\_\_

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.

PHWH Form Page - 2

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

Positive thinking, I am confident, construction

This information must also be completed.

NOTE: River Left (L) and Right (R) is looking downstream.

RIPARIAN ZONE AND FLOODPLAIN QUALITY		FLOODPLAIN QUALITY		RIPARIAN ZONE	
L	R	L	R	L	R
<input checked="" type="checkbox"/> 0	<input checked="" type="checkbox"/> 1	<input checked="" type="checkbox"/> 0	<input checked="" type="checkbox"/> 1	<input checked="" type="checkbox"/> 0	<input checked="" type="checkbox"/> 1
(Per Width)	(Per Width)	(Per Bank)	(Per Bank)	Conservation/Tillage	Conservation/Tillage
<input type="checkbox"/> Moderate >10m	<input type="checkbox"/> Moderate >10m	<input type="checkbox"/> Mature Forest/Wetland	<input type="checkbox"/> Mature Forest/Wetland	<input type="checkbox"/> Urban or Industrial	<input type="checkbox"/> Urban or Industrial
<input type="checkbox"/> Moderate 5-10m	<input type="checkbox"/> Moderate 5-10m	<input type="checkbox"/> Immature Forest/Shrub or Old Field	<input type="checkbox"/> Immature Forest/Shrub or Old Field	<input type="checkbox"/> Open Pasture/Row Crop	<input type="checkbox"/> Open Pasture/Row Crop
<input type="checkbox"/> Narrow <5m	<input type="checkbox"/> Narrow <5m	<input type="checkbox"/> Residential/Park/New Field	<input type="checkbox"/> Residential/Park/New Field	<input type="checkbox"/> Mining or Construction	<input type="checkbox"/> Mining or Construction
<input type="checkbox"/> None	<input type="checkbox"/> None	<input type="checkbox"/> Fenced Pasture	<input type="checkbox"/> Fenced Pasture		

COMMENTS:

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

☐ Stream Flowing ☒ Most Channel, isolated pools, no flow (Intermittent)

Subsurface flow with isolated pools (Intermittent) Dry channel, no water (Ephemeral)

COMMENTS:

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

☒ None ☐ 0.5 ☐ 1.0 ☐ 1.5 ☐ 2.0 ☐ 2.5 ☐ 3.0

☒ 0.5 ☐ 1.0 ☐ 1.5 ☐ 2.0 ☐ 2.5 ☐ 3.0

STREAM GRADIENT ESTIMATE

☐ Flat to Moderate ☐ Moderate to Severe ☐ Severe

☐ Flat to Moderate ☐ Moderate to Severe ☐ Severe

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

0535 (Ave. - single item), \_\_\_\_\_ 1985 (S) map page \_\_\_\_\_ 1985 (S) map other than cover \_\_\_\_\_

Base Flow (and/or cost) (Y/N). NY Date of last pre-sprint: \_\_\_\_\_ Quiz by \_\_\_\_\_

Were samples collected for water chemistry? (Y/N) N How lab sample no. (Y/N and attach results) Lab Number \_\_\_\_\_

is the simplified. They create the new identity for the person.

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(b)(7)(D) *N* If Yes, specify all categories of hazardous information excluded: (b)(7)(D) If Yes, specify all categories of hazardous information excluded:

Frogs of *Theloderma* Observed? (Y/N) \_\_\_\_ Voucher? (Y/N) \_\_\_\_ Aquatic Macroinvertebrates Observed? (Y/N) \_\_\_\_ Voucher? (Y/N) \_\_\_\_

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



DATE 7/2/93 EIGHTH 7/2/93 COUNTY COVINGTON

MODIFICATIONS: Fluorinated, hydrophobic, ion-exchanging

This information **MAY** also be completed  
 \*NOTE: River: Left (L) and Right (R) is looking downstream\*

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

**COMMENTS:**

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

☒ Stream Flowing Most Channel - isolated pools, no flow (Intermittent)  
☐ Subsurface flow with isolated pools (Intertidal) Dry channel, no water (Epifaunal)

**CHANNELS:**

SINUOSITY (Number of bends per 81 m (260 ft) of channel) (Check ONLY one box)

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

**STREAM GRADIENT ESTIMATE** (Select # 1-5 from L) (Select # 1-5 from R)

☐ Flats (1-5 from L) ☐ Flats to Moderate ☐ Moderate (2-4 from R) ☐ Moderate to Severe ☐ Severe (4-5 from R)

Distance from Evaluated Stream  
Distance from Evaluating Stream

County \_\_\_\_\_ ARCS Site Map Page \_\_\_\_\_ ARCS Site Map Stream Order \_\_\_\_\_

Stock Price: 10 Date of last purchase: 1 Quantity: 1

Were samples collected for water chemistry? N (Note lab sample no. or "N" and site #) (see Lab Number)

\_\_\_\_\_

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Performer(s) (Yadl)  Date: 8/1/2011

Comments: Reams, Ann. Entomol. Soc. Am. 1914, 7: 1-10. (Type: 1914, 7: 1-10.)

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



Stream 179 Mod. Class 2 HHEI Score (sum of metrics 1, 2, 3): 34

OH EPA Primary Headwater Habitat Evaluation Form  
HHEI Score (sum of metrics 1, 2, 3): 34

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	25
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	10
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-256 mm) (12 pts)	5	<input type="checkbox"/> CLAY or HARDPAN (8 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	20	<input type="checkbox"/> MUCK (8 pts)	
<input type="checkbox"/> SAND (<2 mm) (6 pts)	30	<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of: Blr Slabs, Boulder, Cobble, Bedrock: 5 (A) 9 (B) 14 A+B

SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES: 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 (12 pts)	<input type="checkbox"/> > 5 cm - 10 cm (15 pts)
<input type="checkbox"/> > 22.5 - 30 cm (10 pts)	<input type="checkbox"/> < 5 cm (5 pts)
<input type="checkbox"/> > 10 - 22.5 cm (7.5 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) (10 pts)	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' - 4' 6") (15 pts)
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 12) (12.5 pts)	<input type="checkbox"/> < 1.0 m (< 3' 3") (5 pts)
<input type="checkbox"/> > 1.5 m - 3.0 m (> 4' 8" - 9' 7") (10 pts)	

COMMENTS: AVERAGE BANKFULL WIDTH (meters): 2

This information must also be completed

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

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

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 type="checkbox"/> 2.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5
		<input checked="" type="checkbox"/> 3.0

STREAM GRADIENT ESTIMATE

<input type="checkbox"/> Flat (< 0.1%)	<input type="checkbox"/> Flat to Moderate	<input type="checkbox"/> Moderate (2-4%)	<input type="checkbox"/> Moderate to Severe	<input checked="" type="checkbox"/> Severe (> 4%)
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Stream 180 Mod. Class 1 HHEI Score (sum of metrics 1, 2, 3): 17

OH EPA Primary Headwater Habitat Evaluation Form  
HHEI Score (sum of metrics 1, 2, 3): 17

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	25
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	10
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (8 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	60	<input type="checkbox"/> MUCK (8 pts)	
<input type="checkbox"/> SAND (<2 mm) (6 pts)		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of: Blr Slabs, Boulder, Cobble, Bedrock: 0 (A) 9 (B) 9 A+B

SCORE OF TWO MOST PREDOMINANT SUBSTRATE TYPES: 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 (12 pts)	<input type="checkbox"/> > 5 cm - 10 cm (15 pts)
<input type="checkbox"/> > 22.5 - 30 cm (10 pts)	<input type="checkbox"/> < 5 cm (5 pts)
<input type="checkbox"/> > 10 - 22.5 cm (7.5 pts)	<input type="checkbox"/> NO WATER OR MOIST CHANNEL (0 pts)

COMMENTS: MAXIMUM POOL DEPTH (centimeters): 7

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

<input type="checkbox"/> > 4.0 meters (> 13) (10 pts)	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 6") (15 pts)
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 12) (12.5 pts)	<input type="checkbox"/> < 1.0 m (< 3' 3") (5 pts)
<input type="checkbox"/> > 1.5 m - 3.0 m (> 4' 8" - 9' 7") (10 pts)	

COMMENTS: AVERAGE BANKFULL WIDTH (meters): 1

This information must also be completed

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

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

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 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"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5
		<input type="checkbox"/> 3.0

STREAM GRADIENT ESTIMATE

<input type="checkbox"/> Flat (< 0.1%)	<input type="checkbox"/> Flat to Moderate	<input type="checkbox"/> Moderate (2-4%)	<input type="checkbox"/> Moderate to Severe	<input checked="" type="checkbox"/> Severe (> 4%)
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Stream 179 HHEI Score (sum of metrics 1, 2, 3): 34

OH EPA Primary Headwater Habitat Evaluation Form  
HHEI Score (sum of metrics 1, 2, 3): 34

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	Distance from Evaluated Stream
<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 Constant (Y/N) ☒ Date of last precipitation: Quantity:

Photograph Information

Elevated Turbidity (Y/N) ☒ Conductivity (open): 20

Were samples collected for water chemistry? (Y/N) ☒ (hide lab sample no. or attach results) Lab Number:

Field Measures: Temp (°C): Dissolved Oxygen (mg/l): pH (U): Conductivity (umho/cm):

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

Additional comments/description of pollution impacts:

BIOLOGICAL EVALUATION

Performed? (Y/N) ☒ If Yes Record all observations. Voucher collections optional. (NOTE: all voucher samples must be taken with the site ID number. Use site 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) ☐

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

Comments: Regulating Budget:

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

Row Edge

Stream 180 HHEI Score (sum of metrics 1, 2, 3): 17

OH EPA Primary Headwater Habitat Evaluation Form  
HHEI Score (sum of metrics 1, 2, 3): 17

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	Distance from Evaluated Stream
<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 Constant (Y/N) ☒ Date of last precipitation: Quantity:

Photograph Information

Elevated Turbidity (Y/N) ☒ Conductivity (open): 20

Were samples collected for water chemistry? (Y/N) ☒ (hide lab sample no. or attach results) Lab Number:

Field Measures: Temp (°C): Dissolved Oxygen (mg/l): pH (U): Conductivity (umho/cm):

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

Additional comments/description of pollution impacts:

BIOLOGICAL EVALUATION

Performed? (Y/N) ☒ If Yes Record all observations. Voucher collections optional. (NOTE: all voucher samples must be taken with the site ID number. Use site 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) ☐

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

Comments: Regulating Budget:

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

Row Edge



STREAM CHANNEL ☐ NONE / NATURAL CHANNEL ☒ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

MODIFICATIONS: *Small section removed*

BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONE of one box):  
 > 4.0 m (or > 13) [30 pts] ☒ > 1.0 m - 1.0 m (> 3' - 4' 3") [10 pts]  
 > 3.0 m - 4.0 m (> 9' 7" - 13) [25 pts] ☐ > 0.6 m or 3' 3" [5 pts]  
 > 1.6 m - 3.0 m (> 4' 6" - 9' 7") [20 pts]

COMMENTS: \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters) 4 15

**STREAM GRADIENT ESTIMATE** ☐ Flat (0.5 ft/100 ft) ☒ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (5 ft/100 ft)

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

STREAM CHANNEL ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY

MODIFICATIONS: *expanding*

COMMENTS \_\_\_\_\_ AVERAGE BANKFULL WIDTH (meters) 13 5

**STREAM GRADIENT ESTIMATE**  
☐ Flat (0.5 to 100:1)    ☐ Flat to Moderate    ☐ Moderate (2 to 10:1)    ☐ Moderate to Severe    ☒ Severe (10 to 1:1)

7	WWT Name	Distance from Evaluated Stream
7	CWH Name	Distance from Evaluated Stream
7	CWH Name	Distance from Evaluated Stream

USGS Quadrangle Name \_\_\_\_\_ NRCS So. Map Page \_\_\_\_\_ NRCS So. Map Sheet Code \_\_\_\_\_  
County \_\_\_\_\_ Township & City \_\_\_\_\_

Add your own notes below:

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EV01 Name	Distance from Evaluated Stream
EV02 Name	Distance from Evaluated Stream
EV03 Name	Distance from Evaluated Stream

1220 US. District Judge: \_\_\_\_\_ NRCS Soil Map Page: \_\_\_\_\_ NRCS Soil Map Series Code: \_\_\_\_\_  
County: \_\_\_\_\_ To: \_\_\_\_\_

Additional comments regarding the solution are provided.

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Stream 183 Mod. Class 2 HHEI Score (sum of metrics 1, 2, 3): 50

SITE NAME/LOCATION: 183 Road near 183rd SITE NUMBER: 183 RIVER BASIN: 183 DRAINAGE AREA (mi<sup>2</sup>): 183  
 LENGTH OF STREAM REACH (ft): 183 LONG: 183 RIVER CODE: 183 RIVER MILE: 183  
 DATE: 4/18/16 SCORER: 183 COMMENTS: 183  
 NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWW Streams" for Instructions  
 STREAM CHANNEL: ☐ NONE/NATURAL CHANNEL ☒ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY  
 MODIFICATIONS: Grading 1/2 ROAD

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pt)	
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pt)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARPAN (0 pt)	
<input type="checkbox"/> GRAVEL (6.4-64 mm) (8 pts)		<input type="checkbox"/> MUCK (0 pts)	
<input type="checkbox"/> SAND (<2 mm) (8 pts)		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bdr Slabs, Boulder, Cobble, Bedrock: (A) 15 (B) 5 A + B: 20  
 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 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):  
☐ > 30 centimeters (20 pts) ☐ > 3.0 m - 1.5 m (10-32' - 4' 8") (15 pts)  
☐ > 22.5 - 30 cm (10 pts) ☐ < 5 cm (5 pts)  
☐ > 10 - 22.5 cm (25 pts) ☐ NO WATER OR MOIST CHANNEL (0 pts)  
 COMMENTS: 183 MAXIMUM POOL DEPTH (centimeters): 15

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements). (Check ONLY one box):  
☐ > 4.0 meters (13' 10") (10 pts) ☐ > 1.0 m - 1.5 m (10-32' - 4' 8") (15 pts)  
☐ > 3.0 m - 4.0 m (10-32' - 13') (25 pts) ☐ < 1.0 m (< 32') (5 pts)  
☐ > 1.6 m - 3.0 m (5-9' - 9' 7") (20 pts)  
 COMMENTS: 183 AVERAGE BANKFULL WIDTH (meters): 15

This information must also be completed

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

RIPARIAN WIDTH (Per Bank): ☒ Wide >10m ☐ Moderate 5-10m ☐ Narrow <5m ☐ None

FLOODPLAIN QUALITY (Most Predominant per Bank): ☒ Mature Forest, Wetland ☐ Immature Forest, Shrub or Old Field ☐ Residential, Park, New Field ☐ Fenced Pasture

Conservation Tillage ☐ Urban or Industrial ☐ Open Pasture, Row Crop ☐ Mining or Construction

COMMENTS: 183

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  
☒ Stream Flowing ☐ Subsurface flow with isolated pools (interstitial) ☐ Most Channel, isolated pools, no flow (intermittent) ☐ Dry channel, no water (Ephemeral)  
 COMMENTS: 183

SINUOSITY (Number of bends per 61 m (200 ft) of channel). (Check ONLY one box):  
☐ None ☐ 0.5 ☐ 1.0 ☐ 1.5 ☐ 2.0 ☐ 2.5 ☒ 3.0 ☐ >3

STREAM GRADIENT ESTIMATE  
☐ Flat (0.5 m/m) ☐ Flat to Moderate ☐ Moderate (2 m/m) ☐ Moderate to Severe ☐ Severe (10 m/m)

PHWW Form Page - 1

Stream 184 Mod. Class 2 HHEI Score (sum of metrics 1, 2, 3): 23

SITE NAME/LOCATION: 184 Road near 184th SITE NUMBER: 184 RIVER BASIN: 184 DRAINAGE AREA (mi<sup>2</sup>): 184  
 LENGTH OF STREAM REACH (ft): 184 LONG: 184 RIVER CODE: 184 RIVER MILE: 184  
 DATE: 4/18/16 SCORER: 184 COMMENTS: 184  
 NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWW Streams" for Instructions  
 STREAM CHANNEL: ☐ NONE/NATURAL CHANNEL ☒ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY  
 MODIFICATIONS: Historic mining probable

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pt)	
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACK/WOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pt)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARPAN (0 pt)	
<input type="checkbox"/> GRAVEL (6.4-64 mm) (8 pts)		<input type="checkbox"/> MUCK (0 pts)	
<input type="checkbox"/> SAND (<2 mm) (8 pts)		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bdr Slabs, Boulder, Cobble, Bedrock: (A) 4 (B) 4 A + B: 8  
 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 4 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):  
☐ > 30 centimeters (20 pts) ☐ > 3.0 m - 1.5 m (10-32' - 4' 8") (15 pts)  
☐ > 22.5 - 30 cm (10 pts) ☐ < 5 cm (5 pts)  
☐ > 10 - 22.5 cm (25 pts) ☐ NO WATER OR MOIST CHANNEL (0 pts)  
 COMMENTS: 184 MAXIMUM POOL DEPTH (centimeters): 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements). (Check ONLY one box):  
☐ > 4.0 meters (13' 10") (10 pts) ☐ > 1.0 m - 1.5 m (10-32' - 4' 8") (15 pts)  
☐ > 3.0 m - 4.0 m (10-32' - 13') (25 pts) ☐ < 1.0 m (< 32') (5 pts)  
☐ > 1.6 m - 3.0 m (5-9' - 9' 7") (20 pts)  
 COMMENTS: 184 AVERAGE BANKFULL WIDTH (meters): 5

This information must also be completed

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

RIPARIAN WIDTH (Per Bank): ☒ Wide >10m ☐ Moderate 5-10m ☐ Narrow <5m ☐ None

FLOODPLAIN QUALITY (Most Predominant per Bank): ☒ Mature Forest, Wetland ☐ Immature Forest, Shrub or Old Field ☐ Residential, Park, New Field ☐ Fenced Pasture

Conservation Tillage ☐ Urban or Industrial ☐ Open Pasture, Row Crop ☐ Mining or Construction

COMMENTS: 184

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  
☒ Stream Flowing ☐ Subsurface flow with isolated pools (interstitial) ☐ Most Channel, isolated pools, no flow (intermittent) ☐ Dry channel, no water (Ephemeral)  
 COMMENTS: 184

SINUOSITY (Number of bends per 61 m (200 ft) of channel). (Check ONLY one box):  
☐ None ☐ 0.5 ☐ 1.0 ☐ 1.5 ☐ 2.0 ☐ 2.5 ☐ 3.0 ☐ >3

STREAM GRADIENT ESTIMATE  
☐ Flat (0.5 m/m) ☐ Flat to Moderate ☐ Moderate (2 m/m) ☐ Moderate to Severe ☐ Severe (10 m/m)


PHWW Form Page - 1

Stream 183

ADDITIONAL STREAM INFORMATION (This information must also be completed)  
 QHEI PERFORMED? ☐ Yes ☒ No QHEI Score: 183 (If Yes, Attach Completed QHEI Form)  
 DOWNSTREAM DESIGNATED USE(S):  
☐ WWH Name: 183 Distance from Evaluated Stream: 183  
☐ CWH Name: 183 Distance from Evaluated Stream: 183  
☐ SWH Name: 183 Distance from Evaluated Stream: 183  
 MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION  
 USGS Quad angle Name: 183 NRCSS Box Map Page: 183 NRCSS Box Map Stream Order: 183  
 County: 183 Township: 183 City: 183

MISCELLANEOUS  
 Base Flow Conditions? (Y/N) 183 Date of last precipitation: 183 Quantity: 183  
 Photograph information on: 183  
 Elevation Turbidity? (Y/N) 183 Conductivity (µmhos/cm): 183  
 Water so glass collected for water chemistry? (Y/N) 183 Field Lab Sample No. or if send attach results: Lab Number: 183  
 Field Measures: Temp (C): 183 Dissolved Oxygen (mg/l): 183 pH (5 U): 183 Conductivity (µmhos/cm): 183  
 Is the sampling reach representative of the stream? (Y/N) 183 If not, please explain: 183  
 Additional environmental description of pollution impacts: 183

BIOLOGICAL EVALUATION  
 Performed? (Y/N) 183 (If Yes, Attach observations. Voucher specimens optional. NOTE: all voucher samples to be stored with the site ID number. Voucher specimens should be held data sheets from the University of Cincinnati, Cincinnati, Ohio.)  
 Fish Observed? (Y/N) 183 Voucher? (Y/N) 183 Salamanders Observed? (Y/N) 183 Voucher? (Y/N) 183  
 Frogs or Toads Observed? (Y/N) 183 Voucher? (Y/N) 183 Aquatic Macroinvertebrates Observed? (Y/N) 183 Voucher? (Y/N) 183  
 Comments Regarding Biology: 183

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 →


PHWW Form Page - 2

Stream 184

ADDITIONAL STREAM INFORMATION (This information must also be completed)  
 QHEI PERFORMED? ☐ Yes ☒ No QHEI Score: 184 (If Yes, Attach Completed QHEI Form)  
 DOWNSTREAM DESIGNATED USE(S):  
☐ WWH Name: 184 Distance from Evaluated Stream: 184  
☐ CWH Name: 184 Distance from Evaluated Stream: 184  
☐ SWH Name: 184 Distance from Evaluated Stream: 184  
 MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION  
 USGS Quad angle Name: 184 NRCSS Box Map Page: 184 NRCSS Box Map Stream Order: 184  
 County: 184 Township: 184 City: 184

MISCELLANEOUS  
 Base Flow Conditions? (Y/N) 184 Date of last precipitation: 184 Quantity: 184  
 Photograph information on: 184  
 Elevation Turbidity? (Y/N) 184 Conductivity (µmhos/cm): 184  
 Water so glass collected for water chemistry? (Y/N) 184 Field Lab Sample No. or if send attach results: Lab Number: 184  
 Field Measures: Temp (C): 184 Dissolved Oxygen (mg/l): 184 pH (5 U): 184 Conductivity (µmhos/cm): 184  
 Is the sampling reach representative of the stream? (Y/N) 184 If not, please explain: 184  
 Additional environmental description of pollution impacts: 184

BIOLOGICAL EVALUATION  
 Performed? (Y/N) 184 (If Yes, Attach observations. Voucher specimens optional. NOTE: all voucher samples to be stored with the site ID number. Voucher specimens should be held data sheets from the University of Cincinnati, Cincinnati, Ohio.)  
 Fish Observed? (Y/N) 184 Voucher? (Y/N) 184 Salamanders Observed? (Y/N) 184 Voucher? (Y/N) 184  
 Frogs or Toads Observed? (Y/N) 184 Voucher? (Y/N) 184 Aquatic Macroinvertebrates Observed? (Y/N) 184 Voucher? (Y/N) 184  
 Comments Regarding Biology: 184

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 →

PHWW Form Page - 2



# Stream 187 Mod. Class 2 HHE Score (sum of metrics 1, 2, 3): 57 OH EPA Primary Headwater Habitat Evaluation Form

SITE NAME/LOCATION: Northside Station SITE NUMBER: 187 RIVER BASIN: 187 DRAINAGE AREA (mi<sup>2</sup>): 187

LENGTH OF STREAM REACH (ft): 200 LAT: 40° 15' N LONG: 82° 15' W RIVER CODE: 187 RIVER MILE: 187

DATE: 2/20/16 SCORER: WJH/BCR COMMENTS: 2-20-16

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

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

MODIFICATIONS: Nature varying periodically

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACKWOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (9 pts)	
<input checked="" type="checkbox"/> GRAVEL (2-64 mm) (8 pts)	40	<input type="checkbox"/> MUCK (6 pts)	
<input checked="" type="checkbox"/> SAND (<2 mm) (6 pts)	40	<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 15 (A) TOTAL NUMBER OF SUBSTRATE TYPES: 4 (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 A + B = 19

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 (12 pts)	<input type="checkbox"/> > 5 cm - 10 cm (15 pts)
<input type="checkbox"/> > 22.5 - 30 cm (10 pts)	<input type="checkbox"/> < 5 cm (5 pts)
<input type="checkbox"/> > 16 - 22.5 cm (15 pts)	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL (0 pts)

COMMENTS: NO WATER OR MOIST CHANNEL (0 pts) 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') (10 pts)	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' - 4' 8") (15 pts)
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') (10 pts)	<input type="checkbox"/> < 1.0 m (< 3' 3") (5 pts)
<input type="checkbox"/> > 1.6 m - 3.0 m (> 4' 8" - 9' 7") (10 pts)	

COMMENTS: NO WATER OR MOIST CHANNEL (0 pts) AVERAGE BANKFULL WIDTH (meters): 0

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

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

COMMENTS: NO WATER OR MOIST CHANNEL (0 pts)

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

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

COMMENTS: NO WATER OR MOIST CHANNEL (0 pts)

6. 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"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5

COMMENTS: NO WATER OR MOIST CHANNEL (0 pts)

7. STREAM GRADIENT ESTIMATE

<input type="checkbox"/> Flat (< 0.5 m/m)	<input type="checkbox"/> Flat to Moderate	<input type="checkbox"/> Moderate (> 0.5 m/m)	<input type="checkbox"/> Moderate to Severe	<input type="checkbox"/> Severe (> 0.5 m/m)
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Stream 187 HHE Score (sum of metrics 1, 2, 3): 14

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed)

OH E PERFORMED? ☐ Yes ☒ No OH E Score: \_\_\_\_\_ (If Yes, Attach Completed OH E Form)

DOWNSTREAM DESIGNATED USE(S):

WVH Name: \_\_\_\_\_ Distance from Evaluated Stream: \_\_\_\_\_

CWH Name: \_\_\_\_\_ Distance from Evaluated Stream: \_\_\_\_\_

SVH 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: \_\_\_\_\_

MISCELLANEOUS

Best Flow Conditions? (Y/N) N Date of last precipitation: Spring 2015 County: 2

Photograph Information: 2 Photos taken on 2/20/16

Observed Turbidity? (Y/N) N Conductivity (µmhos/cm): 2.5

Water samples collected for water chemistry? (Y/N) N (If not, list sample no. or if and attach results Lab Number: \_\_\_\_\_)

Field Measures: Temp (C): \_\_\_\_\_ Dissolved Oxygen (mg/L): \_\_\_\_\_ pH (pH U): \_\_\_\_\_ Conductivity (µmhos/cm): \_\_\_\_\_

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

Additional comments regarding stream: NO

BIOTIC EVALUATION

Performed? (Y/N) N (If Yes, Record all observations. Voucher collection 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 Toadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments regarding biotic: \_\_\_\_\_

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 →

# Stream 188 Mod. Class 2 HHE Score (sum of metrics 1, 2, 3): 14 OH EPA Primary Headwater Habitat Evaluation Form

SITE NAME/LOCATION: 188 SITE NUMBER: 188 RIVER BASIN: 188 DRAINAGE AREA (mi<sup>2</sup>): 188

LENGTH OF STREAM REACH (ft): 200 LAT: 40° 15' N LONG: 82° 15' W RIVER CODE: 188 RIVER MILE: 188

DATE: 2/20/16 SCORER: WJH/BCR COMMENTS: 2-20-16

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

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

MODIFICATIONS: Grading, flooding

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> BLDR SLABS (16 pts)		<input type="checkbox"/> SILT (3 pts)	
<input type="checkbox"/> BOULDER (>256 mm) (16 pts)		<input type="checkbox"/> LEAF PACKWOODY DEBRIS (3 pts)	
<input type="checkbox"/> BEDROCK (16 pts)		<input type="checkbox"/> FINE DETRITUS (3 pts)	
<input type="checkbox"/> COBBLE (65-256 mm) (12 pts)		<input type="checkbox"/> CLAY or HARDPAN (9 pts)	
<input type="checkbox"/> GRAVEL (2-64 mm) (8 pts)		<input type="checkbox"/> MUCK (6 pts)	
<input type="checkbox"/> SAND (<2 mm) (6 pts)		<input type="checkbox"/> ARTIFICIAL (3 pts)	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0 (A) TOTAL NUMBER OF SUBSTRATE TYPES: 0 (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 0 A + B = 0

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 (12 pts)	<input type="checkbox"/> > 5 cm - 10 cm (15 pts)
<input type="checkbox"/> > 22.5 - 30 cm (10 pts)	<input type="checkbox"/> < 5 cm (5 pts)
<input type="checkbox"/> > 16 - 22.5 cm (15 pts)	<input checked="" type="checkbox"/> NO WATER OR MOIST CHANNEL (0 pts)

COMMENTS: NO WATER OR MOIST CHANNEL (0 pts) 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') (10 pts)	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' - 4' 8") (15 pts)
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') (10 pts)	<input type="checkbox"/> < 1.0 m (< 3' 3") (5 pts)
<input type="checkbox"/> > 1.6 m - 3.0 m (> 4' 8" - 9' 7") (10 pts)	

COMMENTS: NO WATER OR MOIST CHANNEL (0 pts) AVERAGE BANKFULL WIDTH (meters): 0

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

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

COMMENTS: NO WATER OR MOIST CHANNEL (0 pts)

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

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

COMMENTS: NO WATER OR MOIST CHANNEL (0 pts)

6. 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"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5

COMMENTS: NO WATER OR MOIST CHANNEL (0 pts)

7. STREAM GRADIENT ESTIMATE

<input type="checkbox"/> Flat (< 0.5 m/m)	<input type="checkbox"/> Flat to Moderate	<input type="checkbox"/> Moderate (> 0.5 m/m)	<input type="checkbox"/> Moderate to Severe	<input checked="" type="checkbox"/> Severe (> 0.5 m/m)
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Stream 188 HHE Score (sum of metrics 1, 2, 3): 14

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed)

OH E PERFORMED? ☐ Yes ☒ No OH E Score: \_\_\_\_\_ (If Yes, Attach Completed OH E Form)

DOWNSTREAM DESIGNATED USE(S):

WVH Name: \_\_\_\_\_ Distance from Evaluated Stream: \_\_\_\_\_

CWH Name: \_\_\_\_\_ Distance from Evaluated Stream: \_\_\_\_\_

SVH 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: \_\_\_\_\_

MISCELLANEOUS

Best Flow Conditions? (Y/N) Y Date of last precipitation: \_\_\_\_\_ County: \_\_\_\_\_

Photograph Information: \_\_\_\_\_

Observed Turbidity? (Y/N) N Conductivity (µmhos/cm): 2.5

Water samples collected for water chemistry? (Y/N) N (If not, list sample no. or if and attach results Lab Number: \_\_\_\_\_)

Field Measures: Temp (C): \_\_\_\_\_ Dissolved Oxygen (mg/L): \_\_\_\_\_ pH (pH U): \_\_\_\_\_ Conductivity (µmhos/cm): \_\_\_\_\_

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

Additional comments regarding stream: NO

BIOTIC EVALUATION

Performed? (Y/N) N (If Yes, Record all observations. Voucher collection 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 Toadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N

Comments regarding biotic: \_\_\_\_\_

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 →





# OTMERA Primary Headwater Habitat Evaluation Form

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

17

STREAM LOCATION: Stream 191 SITE NUMBER: 02 RIVER BASIN: DRUMMOND AREA (M)  
 LENGTH OF STREAM REACH (ft): 100 LAT: 41° 15' N LONG: 87° 15' W RIVER CODE: 100 RIVER MILE: 1.0  
 DATE: 3/21/02 SCORER: AW COMMENTS: AW  
 NOTE: Complete all items on this form - Refer to "Field Evaluation Manual for Ohio's PNHM Streams" for instructions  
 STREAM CHANNEL: ☒ CHOICE NATURAL CHANNEL ☒ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY  
 MODIFICATIONS: TLR000 000000

1. SUBSTRATE (Indicate percent of every type of substrate present. Check ONLY "Yes" present; substrate TYPE boxes (check of 40). Add total number of significant substrate types found (check of 40). Final metric score is sum of boxes A & B.

TYPE	PERCENT	TYPE	PERCENT	TYPE	PERCENT	TYPE	PERCENT
BIG LEAF (16 pt)		BLD (16 pt)		LEAF LITTER (16 pt)		LEAF LITTER (16 pt)	
ROCK (16 pt)		LEAF LITTER (16 pt)		LEAF LITTER (16 pt)		LEAF LITTER (16 pt)	
COBBLE (65-25 mm) (16 pt)		CLAY & SILT (16 pt)		CLAY & SILT (16 pt)		CLAY & SILT (16 pt)	
GRAVEL (25-60 mm) (16 pt)		MUCK (16 pt)		MUCK (16 pt)		MUCK (16 pt)	
SLUDG (25-60 mm) (16 pt)		ARTIFICIAL (16 pt)		ARTIFICIAL (16 pt)		ARTIFICIAL (16 pt)	

2. Maximum Flood Depth (Measure the maximum pool depth within the 40 meter pool depth evaluation reach at the time of evaluation. Avoid single pools. Item not checked if not within reach. ELEVATION ONLY on box.)

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

4. AVERAGE BANKFULL WIDTH (meters)

5. AVERAGE BANKFULL WIDTH (meters)

6. FLOW REGIME (At time of Evaluation) (Check ONLY one box)

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19. Stream 191

Mod. Class 1

W-000-0000

OTMERA Primary Headwater Habitat Evaluation Form

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

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1. SUBSTRATE (Indicate percent of every type of substrate present. Check ONLY "Yes" present; substrate TYPE boxes (check of 40). Add total number of significant substrate types found (check of 40). Final metric score is sum of boxes A & B.

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19. Stream 191

Mod. Class 1

W-000-0000

OTMERA Primary Headwater Habitat Evaluation Form

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

17

# ADDITIONAL STREAM INFORMATION (This information should be completed)

DATE PERFORMED: 3/21/02 DATE SCORE: 3/21/02 (If Yes, Attach completed Data Form)

DOWNSTREAM DESIGNATED USES:

☐ WMA Name: Drummond State Park Distance from Evaluated Stream: 1.0 miles

☐ CWA Name: Drummond State Park Distance from Evaluated Stream: 1.0 miles

☐ FFW Name: Drummond State Park Distance from Evaluated Stream: 1.0 miles

☐ FFW Name: Drummond State Park Distance from Evaluated Stream: 1.0 miles

UPSTREAM ATTACH COPIES OF WMA, INCLUDING THE ENTIRE WMA BOUNDARY AREA, CLEARY MARK THE SITE LOCATION

USGS Quadrangle Name: 100000 NCS 500 Map Page: 100000 NCS 500 Map Sheet Code: 100000

County: Franklin Township: Franklin

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Mod. Class 1

W-000-0000

OTMERA Primary Headwater Habitat Evaluation Form

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**This foregoing document was electronically filed with the Public Utilities**

**Commission of Ohio Docketing Information System on**

**10/20/2016 4:52:42 PM**

**in**

**Case No(s). 16-1770-EL-BLN**

Summary: Letter of Notification (4) electronically filed by Mr. Hector Garcia on behalf of AEP Ohio Transmission Company