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

Ohio EPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION Good Hope - Paxton

SITE NUMBER 03 RIVER BASIN ____ DRAINAGE AREA (mi²) ____

LENGTH OF STREAM REACH (ft) 700 ft LAT. ____ LONG ____ RIVER CODE ____ RIVER MILE ____

DATE 03/23/16 SCORER MDT/BCR COMMENTS Ephemeral

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 [X] RECOVERING [ ] RECENT OR NO RECOVERY

Historic grading, current trash 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
[ ][ ]	BLDR SLABS [16 pts]		[ ][X]	SILT [3 pt]	30
[ ][ ]	BOULDER (>256 mm) [16 pts]		[ ][ ]	LEAF PACK/WOODY DEBRIS [3 pts]	10
[ ][ ]	BEDROCK [16 pt]		[ ][ ]	FINE DETRITUS [3 pts]	
[ ][ ]	COBBLE (65-256 mm) [12 pts]		[ ][ ]	CLAY or HARDPAN [0 pt]	
[ ][ ]	GRAVEL (2-64 mm) [9 pts]	20	[ ][ ]	MUCK [0 pts]	
[X][ ]	SAND (<2 mm) [6 pts]	40	[ ][ ]	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock ____

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points — Substrate Max = 40: 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* one box)

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

COMMENTS ____ MAXIMUM POOL DEPTH (centimeters): ____

Pool Depth Max = 30: 5

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

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

COMMENTS ____ AVERAGE BANKFULL WIDTH (meters) 2.5'

Bankfull Width Max=30: 5

This information must also be completed

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

RIPARIAN WIDTH (Per Bank):
- L [X] R [X] Wide >10m
- L [ ] R [ ] Moderate 5-10m
- L [ ] R [ ] Narrow <5m
- L [ ] R [ ] None

FLOODPLAIN QUALITY (Most Predominant per Bank):
- L [ ] R [ ] Mature Forest, Wetland
- L [X] R [X] Immature Forest, Shrub or Old Field
- L [ ] R [ ] Residential, Park, New Field
- L [ ] R [ ] Fenced Pasture
- L [ ] R [ ] Conservation Tillage
- L [ ] R [ ] Urban or Industrial
- L [ ] R [ ] Open Pasture, Row Crop
- L [ ] R [ ] Mining or Construction

COMMENTS ____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box)
- [X] Stream Flowing
- [ ] Subsurface flow with isolated pools (Interstitial)
- [ ] Moist Channel, isolated pools, no flow (Intermittent)
- [ ] Dry channel, no water (Ephemeral)

COMMENTS ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box)
- [ ] None [ ] 0.5 [ ] 1.0 [ ] 1.5 [ ] 2.0 [ ] 2.5 [ ] 3.0 [X] >3

STREAM GRADIENT ESTIMATE
- [ ] Flat (0.5 ft/100 ft) [ ] Flat to Moderate [X] Moderate (2 ft/100 ft) [ ] Moderate to Severe [ ] Severe (10 ft/100 ft)

Stream 33 HH-MDT 032316-03

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

QHEI PERFORMED? - [ ] Yes [X] No QHEI Score ____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)
- [ ] WWH Name ____ Distance from Evaluated Stream ____
- [ ] CWH Name ____ Distance from Evaluated Stream ____
- [ ] EWH Name ____ Distance from Evaluated Stream ____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE 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 Thaw Quantity ?

Photograph Information 2 Photos, Upstream + Downstream

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

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

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

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

Additional comments/description of pollution impacts: 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)

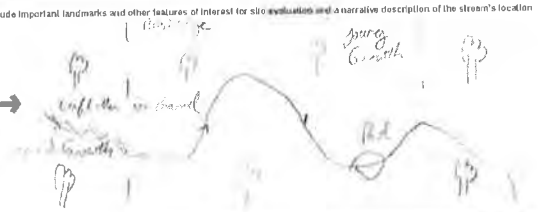
Fish Observed? (Y/N) ____ Voucher? (Y/N) ____ Salamanders Observed? (Y/N) ____ Voucher? (Y/N) ____
Frogs or Tadpoles Observed? (Y/N) ____ Voucher? (Y/N) ____ Aquatic Macroinvertebrates Observed? (Y/N) ____ Voucher? (Y/N) ____

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 ➜



Stream 34 Mod. Class 1 HH-MDT-032316-02

Ohio EPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION Good Hope - Paxton

SITE NUMBER 02 RIVER BASIN ____ DRAINAGE AREA (mi²) ____

LENGTH OF STREAM REACH (ft) 70 ft LAT. ____ LONG ____ RIVER CODE ____ RIVER MILE ____

DATE 03/23/16 SCORER MDT/BCR COMMENTS Ephemeral

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 [X] RECOVERING [ ] RECENT OR NO RECOVERY

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 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
[ ][ ]	BLDR SLABS [16 pts]		[X][ ]	SILT [3 pt]	60
[ ][ ]	BOULDER (>256 mm) [16 pts]		[ ][ ]	LEAF PACK/WOODY DEBRIS [3 pts]	10
[ ][ ]	BEDROCK [16 pt]		[ ][ ]	FINE DETRITUS [3 pts]	
[ ][ ]	COBBLE (65-256 mm) [12 pts]		[ ][ ]	CLAY or HARDPAN [0 pt]	
[ ][ ]	GRAVEL (2-64 mm) [9 pts]	10	[ ][ ]	MUCK [0 pts]	
[ ][X]	SAND (<2 mm) [6 pts]	20	[ ][ ]	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock ____

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points — Substrate Max = 40: 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* one box)

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

COMMENTS ____ MAXIMUM POOL DEPTH (centimeters): 2"

Pool Depth Max = 30: 5

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

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

COMMENTS ____ AVERAGE BANKFULL WIDTH (meters) feet 1.5'

Bankfull Width Max=30: 5

This information must also be completed

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

RIPARIAN WIDTH (Per Bank):
- L [ ] R [X] Wide >10m
- L [ ] R [ ] Moderate 5-10m
- L [ ] R [ ] Narrow <5m
- L [X] R [ ] None

FLOODPLAIN QUALITY (Most Predominant per Bank):
- L [ ] R [ ] Mature Forest, Wetland
- L [ ] R [X] Immature Forest, Shrub or Old Field
- L [ ] R [ ] Residential, Park, New Field
- L [ ] R [ ] Fenced Pasture
- L [ ] R [ ] Conservation Tillage
- L [X] R [ ] Urban or Industrial
- L [ ] R [ ] Open Pasture, Row Crop
- L [ ] R [ ] Mining or Construction

COMMENTS ____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box)
- [X] Stream Flowing
- [ ] Subsurface flow with isolated pools (Interstitial)
- [ ] Moist Channel, isolated pools, no flow (Intermittent)
- [ ] Dry channel, no water (Ephemeral)

COMMENTS ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box)
- [X] None [ ] 0.5 [ ] 1.0 [ ] 1.5 [ ] 2.0 [ ] 2.5 [ ] 3.0 [ ] >3

STREAM GRADIENT ESTIMATE
- [ ] Flat (0.5 ft/100 ft) [ ] Flat to Moderate [X] Moderate (2 ft/100 ft) [ ] Moderate to Severe [ ] Severe (10 ft/100 ft)

Stream 34 HH-MDT-032316-02

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

QHEI PERFORMED? - [ ] Yes [X] No QHEI Score ____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)
- [ ] WWH Name ____ Distance from Evaluated Stream ____
- [ ] CWH Name ____ Distance from Evaluated Stream ____
- [ ] EWH Name ____ Distance from Evaluated Stream ____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE 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 Thaw Quantity ?

Photograph Information 2 Photos, Upstream + Downstream

Elevated Turbidity? (Y/N) N Canopy (% open) 20

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

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

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

Additional comments/description of pollution impacts: 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)

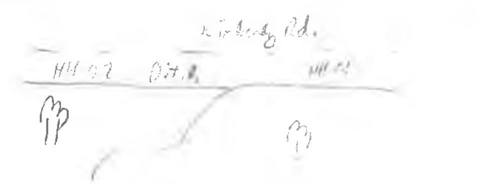
Fish Observed? (Y/N) ____ Voucher? (Y/N) ____ Salamanders Observed? (Y/N) ____ Voucher? (Y/N) ____
Frogs or Tadpoles Observed? (Y/N) ____ Voucher? (Y/N) ____ Aquatic Macroinvertebrates Observed? (Y/N) ____ Voucher? (Y/N) ____

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 ➜



Stream 35 Mod. Class 2 OH-MDT-032316-01

OhioEPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION ____
SITE NUMBER 01 RIVER BASIN ____ DRAINAGE AREA (mi²) ____
LENGTH OF STREAM REACH (ft) ____ LAT ____ LONG ____ RIVER CODE ____ RIVER MILE ____
DATE 03/23/16 SCORER ____ COMMENTS Ephemeral

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
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 8). Final metric score is sum of boxes A & B

TYPE		PERCENT	TYPE		PERCENT
☐☐	BLDR SLABS [16 pts]		☐☒	SILT [3 pt]	30
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	10
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	20	☐☐	MUCK [0 pts]	
☒☐	SAND (<2 mm) [6 pts]	40	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points — Substrate Max = 40: 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 one box):
☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts]
☐ < 5 cm [5 pts]
☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ____ MAXIMUM POOL DEPTH (centimeters): 4"

Pool Depth Max = 30: 15

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):
☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☒ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS ____ AVERAGE BANKFULL WIDTH (meters) 2' feet

Bankfull Width Max=30: 5

This information must also be completed

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

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

COMMENTS ____

FLOW REGIME (At Time of Evaluation) (Check ONLY one box)
☒ Stream Flowing
☐ Subsurface flow with isolated pools (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)
COMMENTS Spring flow, intermittent, 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 ft/100 ft) ☐ Flat to Moderate ☒ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

Stream 35 OH-MDT-032316-01

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)
☐ 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: 2 Photos upstream, downstream
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) N If not, please explain: Stream section is within roadside ditch in this section.
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 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 →

Stream 36 Good Warmwater OH-MDT-032216-01

OhioEPA Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 60

Stream & Location: ____ RM: ____ Date: 03/22/16
Scorers Full Name & Affiliation: AECOM
River Code: ____ STORET #: ____ Lat./Long.: ____ Office verified location ☐

1] SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

BEST TYPES	POOL	RIFFLE	OTHER TYPES	POOL	RIFFLE
☐☐ BLDR /SLABS [10]			☐☐ HARDPAN [4]		
☐☐ BOULDER [9]			☐☐ DETRITUS [3]		
☐☐ COBBLE [8]			☐☐ MUCK [2]		
☐☐ GRAVEL [7]	20	60	☐☐ SILT [2]	10	
☒☐ SAND [6]	70	40	☐☐ ARTIFICIAL [0]		
☐☐ BEDROCK [5]			(Score natural substrates; ignore sludge from point-sources)		

NUMBER OF BEST TYPES: ☐ 4 or more [2] ☒ 3 or less [0]
Comments 13

Check ONE (Or 2 & average)
ORIGIN: ☐ LIMESTONE [1] ☐ TILLS [1] ☐ WETLANDS [0] ☐ HARDPAN [0] ☒ SANDSTONE [0] ☐ RIP/RAP [0] ☐ LACUSTURINE [0] ☐ SHALE [-1] ☐ COAL FINES [-2] — 0
QUALITY: SILT ☐ HEAVY [-2] ☐ MODERATE [-1] ☒ NORMAL [0] ☐ FREE [1]; EMBEDDEDNESS ☐ EXTENSIVE [-2] ☐ MODERATE [-1] ☒ NORMAL [0] ☐ NONE [1] — 0

Substrate Maximum 20: 13

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

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

AMOUNT Check ONE (Or 2 & average): ☐ EXTENSIVE >75% [11] ☒ MODERATE 25-75% [7] ☒ SPARSE 5-<25% [3] ☐ NEARLY ABSENT <5% [1]
Comments 5

Cover Maximum 20: 10

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

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

Channel Maximum 20: 14

4] BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average)
River right looking downstream

EROSION (L R)	RIPARIAN WIDTH (L R)	FLOOD PLAIN QUALITY (L R)	(L R)
☐☐ NONE / LITTLE [3]	☐☐ WIDE > 50m [4]	☒☐ FOREST, SWAMP [3]	☐☐ CONSERVATION TILLAGE [1]
☐☐ MODERATE [2]	☒☒ MODERATE 10-50m [3]	☐☐ SHRUB OR OLD FIELD [2]	☐☐ URBAN OR INDUSTRIAL [0]
☒☒ HEAVY / SEVERE [1]	☐☐ NARROW 5-10m [2]	☐☒ RESIDENTIAL, PARK, NEW FIELD [1]	☐☐ MINING / CONSTRUCTION [0]
	☐☐ VERY NARROW < 5m [1]	☐☐ FENCED PASTURE [1]	Indicate predominant land use(s) past 100m riparian.
	☐☐ NONE [0]	☐☐ OPEN PASTURE, ROWCROP [0]	
1	3	2	

Riparian Maximum 10: 6

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

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

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

Pool / Current Maximum 12: 4

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

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

Riffle / Run Maximum 8: 3

6] GRADIENT (24 ft/mi) ☐ VERY LOW - LOW [2-4] ☐ MODERATE [6-10] ☐ HIGH - VERY HIGH [10-6]
DRAINAGE AREA (1.57 mi²)
%POOL: 20 %GLIDE: 10 %RUN: 50 %RIFFLE: 20

Gradient Maximum 10: 10

A] SAMPLED REACH Check ALL that apply
METHOD: ☐ BOAT ☐ WADE ☐ L. LINE ☐ OTHER
STAGE (1st-sample pass-2nd): ☐ HIGH ☐ ☐ UP ☐ ☐ NORMAL ☐ ☐ LOW ☐ ☐ DRY ☐
DISTANCE: ☐ 0.5 Km ☐ 0.2 Km ☐ 0.15 Km ☐ 0.12 Km ☐ OTHER ____ meters
CLARITY (1st-sample pass-2nd): ☐ < 20 cm ☐ ☐ 20-<40 cm ☐ ☐ 40-70 cm ☐ ☐ > 70 cm/ CTB ☐ ☐ SECCHI DEPTH ☐
CANOPY: ☐ > 85%- OPEN ☐ 55%-<85% ☐ 30%-<55% ☐ 10%-<30% ☐ <10%- CLOSED
1st ____ cm 2nd ____ cm
C] RECREATION AREA DEPTH POOL: ☐ >100ft² ☐ >3ft

Comment RE: Reach consistency/ Is reach typical of steam? Recreation/ Observed - Inferred, Other/ Sampling observations, Concerns, Access directions, etc.
Perennial
HHD = 10

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

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

Circle some & COMMENT

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

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

Stream Drawing:

Stream 37 Mod. Class 1 HH-MDT-032216-01

Ohio EPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION [illegible]
SITE NUMBER 01 RIVER BASIN ____ DRAINAGE AREA (mi^2) ____
LENGTH OF STREAM REACH (ft) 150ft LAT ____ LONG ____ RIVER CODE ____ RIVER MILE ____
DATE 03/22/16 SCORER MDT/PLR COMMENTS Ephemeral

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
Transmission 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
☐☐	BLDR SLABS [16 pts]		☒☐	SILT [3 pt]	55
☐☐	BOULDER (>256 mm) [16 pts]		☐☒	LEAF PACK/WOODY DEBRIS [3 pts]	30
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]		☐☐	MUCK [0 pts]	5
☐☐	SAND (<2 mm) [6 pts]	10	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 6
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4
HHEI Metric Points — Substrate Max = 40: 10 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box)
☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts]
☒ < 5 cm [5 pts]
☐ NO WATER OR MOIST CHANNEL [0 pts]
COMMENTS ____ MAXIMUM POOL DEPTH (centimeters): 1 inches
Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box)
☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☒ ≤ 1.0 m (≤ 3' 3") [5 pts]
COMMENTS ____ AVERAGE BANKFULL WIDTH (meters) 1.5 feet
Bankfull Width Max=30: 5

This information must also be completed

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

RIPARIAN WIDTH (Per Bank), L R:
☒☒ 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 Trans. ROW

FLOW REGIME (At Time of Evaluation) (Check ONLY one box)
☐ Stream Flowing
☐ Subsurface flow with isolated pools (interstitial)
☒ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)
COMMENTS

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

STREAM GRADIENT ESTIMATE
☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☒ Severe (10 ft/100 ft)

Stream 37 HH-MDT-032216-01

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)
☐ 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 [illegible] Quantity ?
Photograph Information: [illegible], Upstream, Downstream
Elevated Turbidity? (Y/N) N Canopy (% open) [illegible]
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 N/A

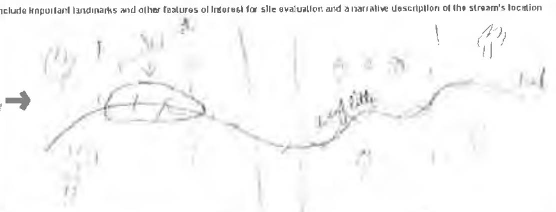
BIOTIC EVALUATION

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 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 ➔



Stream 38 Mod. Class 1 HH-MDT-032216-02

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 19

SITE NAME/LOCATION [illegible]
SITE NUMBER 02 RIVER BASIN ____ DRAINAGE AREA (mi^2) ____
LENGTH OF STREAM REACH (ft) 150ft LAT ____ LONG ____ RIVER CODE ____ RIVER MILE ____
DATE 03/22/16 SCORER MDT/PCR COMMENTS Ephemeral

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

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) [illegible]
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 3
HHEI Metric Points — Substrate Max = 40: 9 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box)
☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts]
☐ < 5 cm [5 pts]
☒ NO WATER OR MOIST CHANNEL [0 pts]
COMMENTS ____ MAXIMUM POOL DEPTH (centimeters): 0" inches
Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):
☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☒ ≤ 1.0 m (≤ 3' 3") [5 pts]
COMMENTS ____ AVERAGE BANKFULL WIDTH (meters) 1.5 feet
Bankfull Width Max=30: 5

This information must also be completed

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

RIPARIAN WIDTH (Per Bank), L R:
☒☒ 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 Trans. ROW

FLOW REGIME (At Time of Evaluation) (Check ONLY one box)
☐ Stream Flowing
☐ Subsurface flow with isolated pools (interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☒ Dry channel, no water (Ephemeral)
COMMENTS

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

STREAM GRADIENT ESTIMATE
☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☒ Severe (10 ft/100 ft)

Stream 38 HH-MDT-032216-02

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: 2 Photos, Upstream, Downstream
Elevated Turbidity? (Y/N) N Canopy (% open) 60
Were samples collected for water chemistry? (Y/N) N (Note lab sample no. or id. and attach results) Lab Number ____
Field Measures Temp (°C) ____ Dissolved Oxygen (mg/l) ____ pH (S.U.) ____ Conductivity (µmhos/cm) ____
Is the sampling reach representative of the stream (Y/N) Y If not, please explain ____

Additional comments/description of pollution impacts N/A

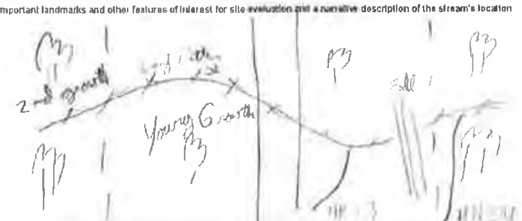
BIOTIC EVALUATION

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 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 ➔



Stream 39 Class 1

OhioEPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION BCR [illegible]
hh-mdt-3/... -3 SITE NUMBER 03 RIVER BASIN ______ DRAINAGE AREA (mi²) ______
LENGTH OF STREAM REACH (ft) ______ LAT ______ LONG ______ RIVER CODE ______ RIVER MILE ______
DATE 22 Mar 2016 SCORER MDT, BCR COMMENTS [illegible]

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 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]		☐☒	SILT [3 pt]	25
☐☐	BOULDER (>256 mm) [16 pts]		☒☐	LEAF PACK/WOODY DEBRIS [3 pts]	50
☐☐	BEDROCK [16 pt]	5	☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]	5	☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	10	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]	5	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 10
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 6
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 6

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

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box)
☐ > 30 centimeters [20 pts] ☐ > 22.5 - 30 cm [30 pts] ☐ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts] ☐ < 5 cm [5 pts] ☒ NO WATER OR MOIST CHANNEL [0 pts]
COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): 0"

Pool Depth Max = 30: 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):
☐ > 4.0 meters (> 13') [30 pts] ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ☒ ≤ 1.0 m (≤ 3' 3") [5 pts]
COMMENTS ______ AVERAGE BANKFULL WIDTH (meters) feet 2

Bankfull Width Max=30: 5

This information must also be completed

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

RIPARIAN WIDTH (Per Bank), L R: ☒☒ 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 (Interstitial) ☐ Moist Channel, isolated pools, no flow (Intermittent) ☒ Dry channel, no water (Ephemeral)
COMMENTS ______

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

STREAM GRADIENT ESTIMATE
☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☒ Severe

Stream 39

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

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

DOWNSTREAM DESIGNATED USE(S)
☐ WWH Name ______ Distance from Evaluated Stream ______
☐ CWH Name ______ Distance from Evaluated Stream ______
☐ EWH Name ______ Distance from Evaluated Stream ______

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

USGS Quadrangle Name ______ NRCS Soil Map Page ______ NRCS Soil Map Stream Order ______
County ______ Township / City ______

MISCELLANEOUS

Base Flow Conditions? (Y/N) ______ Date of last precipitation ______ Quantity Unknown
Photograph Information ______
Elevated Turbidity? (Y/N) N Canopy (% open) 5
Were samples collected for water chemistry? (Y/N) N/A (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 ______

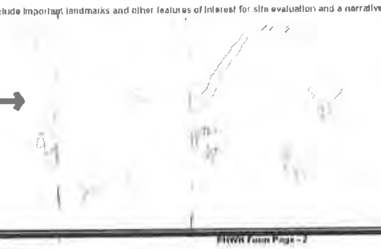
BIOTIC EVALUATION

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) ______ Salamanders Observed? (Y/N) N Voucher? (Y/N) ______
Frogs or Tadpoles 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 ➡



Stream 40 Mod. Class 2 HH-MDT-032216-04

OhioEPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION [illegible]
______ SITE NUMBER 04 RIVER BASIN ______ DRAINAGE AREA (mi²) ______
LENGTH OF STREAM REACH (ft) 200ft LAT ______ LONG ______ RIVER CODE ______ RIVER MILE ______
DATE 03/22/16 SCORER MDT/BCR COMMENTS Intermittent

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
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

TYPE		PERCENT	TYPE		PERCENT
☐☐	BLDR SLABS [16 pts]		☐☐	SILT [3 pt]	5
☐☐	BOULDER (>256 mm) [16 pts]	5	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	10
☒☐	BEDROCK [16 pt]	30	☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]	10	☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	15	☐☐	MUCK [0 pts]	
☐☒	SAND (<2 mm) [6 pts]	25	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 35
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 22
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 7

HHEI Metric Points — Substrate Max = 40: 29 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box)
☐ > 30 centimeters [20 pts] ☐ > 22.5 - 30 cm [30 pts] ☐ > 10 - 22.5 cm [25 pts]
☒ > 5 cm - 10 cm [15 pts] ☐ < 5 cm [5 pts] ☐ NO WATER OR MOIST CHANNEL [0 pts]
COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): 3"

Pool Depth Max = 30: 15

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):
☐ > 4.0 meters (> 13') [30 pts] ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☒ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ☐ ≤ 1.0 m (≤ 3' 3") [5 pts]
COMMENTS ______ AVERAGE BANKFULL WIDTH (meters) 3.5'

Bankfull Width Max=30: 15

This information must also be completed

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

RIPARIAN WIDTH (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 Trans. ROW crosses, with access roads

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):
☒ Stream Flowing ☐ Subsurface flow with isolated pools (Interstitial) ☐ Moist Channel, isolated pools, no flow (Intermittent) ☐ Dry channel, no water (Ephemeral)
COMMENTS ______

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

STREAM GRADIENT ESTIMATE
☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☒ Moderate to Severe ☐ Severe

Stream 40 HH-MDT-032216-04

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 Spring Thaw Quantity ?
Photograph Information 2 Photos, Upstream + Downstream
Elevated Turbidity? (Y/N) N Canopy (% open) 20
Were samples collected for water chemistry? (Y/N) N (Note lab sample no. or id. and attach results) Lab Number ______
Field Measures Temp (°C) ______ Dissolved Oxygen (mg/l) ______ pH (S.U.) ______ Conductivity (µmhos/cm) ______
Is the sampling reach representative of the stream (Y/N) Y If not, please explain ______

Additional comments/description of pollution impacts NA

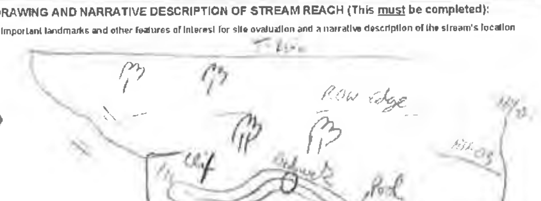
BIOTIC EVALUATION

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 ➡



Stream 41 Class 1

OhioEPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION: [illegible] SITE NUMBER _____ RIVER BASIN _____ DRAINAGE AREA (mi²) _____

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

DATE 22 Nov 2016 SCORER MDT, RCE COMMENTS Ephemeral

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 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
☐☐	BLDR SLABS [16 pts]		☒☐	SILT [3 pts]	20
☐☐	BOULDER (>256 mm) [16 pts]		☒☐	LEAF PACK/WOODY DEBRIS [3 pts]	65
☐☐	BEDROCK [16 pts]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pts]	
☐☐	GRAVEL (2-64 mm) [9 pts]		☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]	5	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0 (A) 6 (B) 3 A + B

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

HHEI Metric Points — Substrate Max = 40: 9

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

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

COMMENTS _____ MAXIMUM POOL DEPTH (centimeters): 1"

Pool Depth Max = 30: 5

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

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

COMMENTS _____ AVERAGE BANKFULL WIDTH (~~meters~~) feet 1.5'

Bankfull Width Max=30: 5

This information must also be completed

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

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

COMMENTS _____

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

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

COMMENTS 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 m/100 m) ☐ Flat to Moderate ☐ Moderate (0.5-1.0 m/100 m) ☒ Moderate to Severe ☐ Severe (> 1.0 m/100 m)

Stream 41

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 [illegible] Quantity Unknown

Photograph Information 1

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 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 →

Stream 42 Class 2 HH-MDT-032216-06

OhioEPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION: Crawford Type - Western

SITE NUMBER 06 RIVER BASIN _____ DRAINAGE AREA (mi²) _____

LENGTH OF STREAM REACH (ft) 200ft LAT _____ LONG _____ RIVER CODE _____ RIVER MILE _____

DATE 03/22/16 SCORER MDT/RCE COMMENTS Intermittent

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 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
☐☐	BLDR SLABS [16 pts]		☐☐	SILT [3 pts]	5
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	5
☒☐	BEDROCK [16 pts]	40	☐☐	FINE DETRITUS [3 pts]	
☐☒	COBBLE (65-256 mm) [12 pts]	35	☐☐	CLAY or HARDPAN [0 pts]	
☐☐	GRAVEL (2-64 mm) [9 pts]	10	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]	10	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock _____ (A) 28 (B) 6 A + B

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

HHEI Metric Points — Substrate Max = 40: 34

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

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

COMMENTS _____ MAXIMUM POOL DEPTH (centimeters): 8" (inches)

Pool Depth Max = 30: 15

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

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

COMMENTS _____ AVERAGE BANKFULL WIDTH (~~meters~~) feet 3.5'

Bankfull Width Max=30: 15

This information must also be completed

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

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

COMMENTS _____

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

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

COMMENTS _____

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 m) ☐ Flat to Moderate ☐ Moderate (0.5-1.0 m/100 m) ☐ Moderate to Severe ☒ Severe (> 1.0 m/100 m)

Stream 42

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 Spring Thaw Quantity ?

Photograph Information 2 (Pools, Upstream, Downstream)

Elevated Turbidity? (Y/N) N Canopy (% open) 20

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

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

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

Additional comments/description of pollution impacts 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)

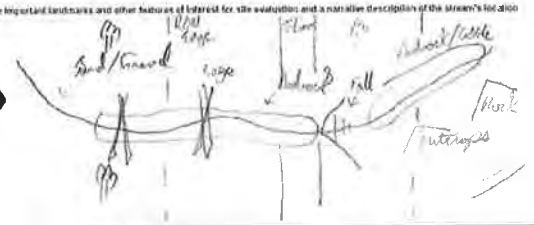
Fish Observed? (Y/N)____ Voucher? (Y/N)____ Salamanders Observed? (Y/N)____ Voucher? (Y/N)____

Frogs or 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



Stream 43 HH-MDT-032216-07

OhioEPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION [illegible] SITE NUMBER 06 RIVER BASIN _____ DRAINAGE AREA (mi²) _____
LENGTH OF STREAM REACH (ft) [illegible] LAT _____ LONG _____ RIVER CODE _____ RIVER MILE _____
DATE 03/22/16 SCORER MDT/BCR COMMENTS Ephemeral

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
Stream filled with access road, 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
☐☐ BLDR SLABS [16 pts]		☐☒ SILT [3 pts]	25
☐☐ BOULDER (>256 mm) [16 pts]		☐☐ LEAF PACK/WOODY DEBRIS [3 pts]	10
☐☐ BEDROCK [16 pts]	15	☐☐ FINE DETRITUS [3 pts]	
☐☐ COBBLE (65-256 mm) [12 pts]		☐☐ CLAY or HARDPAN [0 pts]	
☐☐ GRAVEL (2-64 mm) [8 pts]	10	☐☐ MUCK [0 pts]	
☒☐ SAND (<2 mm) [6 pts]	40	☐☐ ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 15 (A) 9 (B) 5

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

HHEI Metric Points — Substrate Max = 40: 14 (A + B)

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

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

COMMENTS _____ MAXIMUM POOL DEPTH (centimeters): 2"

Pool Depth Max = 30: 5

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

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

COMMENTS _____ AVERAGE BANKFULL WIDTH (meters): 2.5

Bankfull Width Max=30: 5

This information must also be completed

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

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

COMMENTS [illegible]

FLOW REGIME (*At Time of Evaluation*) (Check *ONLY* one box):
☒ Stream Flowing
☐ Subsurface flow with isolated pools (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)
COMMENTS _____

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

STREAM GRADIENT ESTIMATE
☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☒ Severe (10 ft/100 ft)

Stream 43 HH-MDT-03 [illegible]

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 _____

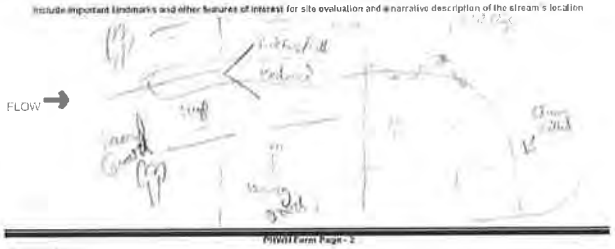
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

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 Spring Thaw Quantity _____
Photograph Information 4 Photos, Upstream & Downstream
Elevated Turbidity? (Y/N) N Canopy (% open) 15
Were samples collected for water chemistry? (Y/N) N (Note lab sample no. or id. and attach results) Lab Number _____
Field Measures Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____
Is the sampling reach representative of the stream (Y/N) Y If not, please explain _____
Additional comments/description of pollution impacts See narrative

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



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 (mi²) _____
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 PHWH Streams" for Instructions

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

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

TYPE	PERCENT	TYPE	PERCENT
☐☐ BLDR SLABS [16 pts]	0%	☐☒ SILT [3 pts]	20%
☐☐ BOULDER (>256 mm) [16 pts]	0%	☐☐ LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐☐ BEDROCK [16 pts]	0%	☐☐ FINE DETRITUS [3 pts]	0%
☐☐ COBBLE (65-256 mm) [12 pts]	0%	☐☐ CLAY or HARDPAN [0 pts]	0%
☒☐ GRAVEL (2-64 mm) [8 pts]	70%	☐☐ MUCK [0 pts]	0%
☐☐ SAND (<2 mm) [6 pts]	10%	☐☐ ARTIFICIAL [3 pts]	0%

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

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 TOTAL NUMBER OF SUBSTRATE TYPES: 3

HHEI Metric Points — Substrate Max = 40: 15 (A + B)

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

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

COMMENTS _____ MAXIMUM POOL DEPTH Inches 10

Pool Depth Max = 30: 30

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

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

COMMENTS _____ AVERAGE BANKFULL WIDTH (Feet) 4.00

Bankfull Width Max=30: 15

This information must also be completed

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

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

COMMENTS _____

FLOW REGIME (*At Time of Evaluation*) (Check ONLY one box):
☒ Stream Flowing
☐ Subsurface flow with isolated pools (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)
COMMENTS _____

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

STREAM GRADIENT ESTIMATE
☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☒ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

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 _____
☐ 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) N Date of last precipitation _____ Quantity 0.00
Photograph Information 2 Photos, Upstream and Downstream
Elevated 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 anthopogenic 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) N
Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N
Comments Regarding Biology _____

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

Stream 45 Mod. Class 1 HH-ADT-[illegible]-08

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 14

SITE NAME/LOCATION [illegible]
SITE NUMBER [illegible] RIVER BASIN ______ DRAINAGE AREA (mi^2) ______
LENGTH OF STREAM REACH (ft) 150 ft LAT. ______ LONG. ______ RIVER CODE ______ RIVER MILE ______
DATE 03/22/16 SCORER MT/BCR COMMENTS Ephemeral

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 [X] RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY
Trans. Line 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
☐☐	BLDR SLABS [16 pts]		☐☐	SILT [3 pt]	60
☐☐	BOULDER (>256 mm) [16 pts]		☐ [X]	LEAF PACK/WOODY DEBRIS [3 pts]	30
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	10
☐☐	GRAVEL (2-64 mm) [9 pts]		☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]		☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 6
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 3

HHEI Metric Points — Substrate Max = 40: 9 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box)
☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts]
☐ < 5 cm [5 pts]
[X] NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ______ MAXIMUM POOL DEPTH (inches): 0"

Pool Depth Max = 30: 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):
☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
[X] ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS ______ AVERAGE BANKFULL WIDTH (feet) 1.5'

Bankfull Width Max = 30: 5

This information must also be completed

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

RIPARIAN WIDTH (Per Bank)
[X][X] Wide >10m
☐☐ Moderate 5-10m
☐☐ Narrow <5m
☐☐ None

FLOODPLAIN QUALITY (Most Predominant per Bank)
☐☐ Mature Forest, Wetland
[X][X] 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)
☐ Moist Channel, isolated pools, no flow (Intermittent)
[X] Dry channel, no water (Ephemeral)
COMMENTS ______

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

STREAM GRADIENT ESTIMATE
☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) [X] Moderate to Severe ☐ Severe (10 ft/100 ft)

Stream 45 HH-ADT-[illegible]-08

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

QHEI PERFORMED? - ☐ Yes [X] No QHEI Score ______ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)
☐ WWH Name ______ Distance from Evaluated Stream ______
☐ CWH Name ______ Distance from Evaluated Stream ______
☐ EWH Name ______ Distance from Evaluated Stream ______

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

USGS Quadrangle Name ______ NRCS Soil Map Page ______ NRCS Soil Map Stream Order ______
County ______ Township / City ______

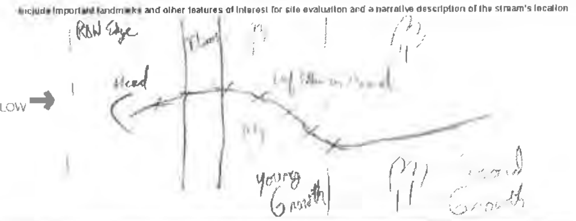
MISCELLANEOUS
Base Flow Conditions? (Y/N) Y Date of last precipitation ? Quantity ?
Photograph Information 2 Photos, Upstream + Downstream
Elevated Turbidity? (Y/N) N Canopy (% open) ______
Were samples collected for water chemistry? (Y/N) N (Note lab sample no. or id. and attach results) Lab Number ______
Field Measures Temp (°C) ______ Dissolved Oxygen (mg/l) ______ pH (S.U.) ______ Conductivity (µmhos/cm) ______
Is the sampling reach representative of the stream (Y/N) Y If not, please explain ______

Additional comments/description of pollution impacts 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 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 ➡



Stream 46 Mod. Class 1 HH-ADT-032216-09

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 13

SITE NAME/LOCATION [illegible]
SITE NUMBER [illegible] RIVER BASIN ______ DRAINAGE AREA (mi^2) ______
LENGTH OF STREAM REACH (ft) 100 ft LAT. ______ LONG. ______ RIVER CODE ______ RIVER MILE ______
DATE 03/22/16 SCORER MT/BCR COMMENTS Ephemeral

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 [X] RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY
ATV trails at stream head

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

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 6
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 2

HHEI Metric Points — Substrate Max = 40: 8 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box)
☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts]
☐ < 5 cm [5 pts]
[X] NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ______ MAXIMUM POOL DEPTH (inches): 0"

Pool Depth Max = 30: 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):
☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
[X] ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS ______ AVERAGE BANKFULL WIDTH (feet) 1'

Bankfull Width Max = 30: 5

This information must also be completed

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

RIPARIAN WIDTH (Per Bank)
[X][X] Wide >10m
☐☐ Moderate 5-10m
☐☐ Narrow <5m
☐☐ None

FLOODPLAIN QUALITY (Most Predominant per Bank)
☐☐ Mature Forest, Wetland
[X][X] 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)
☐ Moist Channel, isolated pools, no flow (Intermittent)
[X] Dry channel, no water (Ephemeral)
COMMENTS ______

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

STREAM GRADIENT ESTIMATE
☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe [X] Severe (10 ft/100 ft)

Stream 46 HH-ADT-032216-09

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

QHEI PERFORMED? ☐ Yes [X] No QHEI Score ______ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)
☐ WWH Name ______ Distance from Evaluated Stream ______
☐ CWH Name ______ Distance from Evaluated Stream ______
☐ EWH Name ______ Distance from Evaluated Stream ______

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

USGS Quadrangle Name: ______ NRCS Soil Map Page ______ NRCS Soil Map Stream Order ______
County ______ Township / City ______

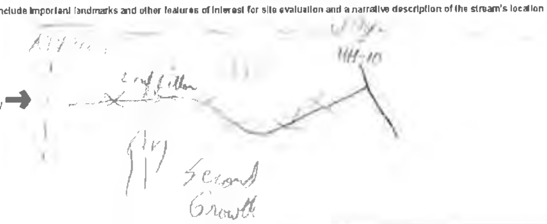
MISCELLANEOUS
Base Flow Conditions? (Y/N) Y Date of last precipitation ? Quantity ?
Photograph Information 2 Photos, Upstream + Downstream
Elevated Turbidity? (Y/N) N Canopy (% open) ______
Were samples collected for water chemistry? (Y/N) N (Note lab sample no. or id. and attach results) Lab Number ______
Field Measures Temp (°C) ______ Dissolved Oxygen (mg/l) ______ pH (S.U.) ______ Conductivity (µmhos/cm) ______
Is the sampling reach representative of the stream (Y/N) Y If not, please explain ______

Additional comments/description of pollution impacts 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 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 ➡



Stream 47 Class 1

OhioEPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION ______ SITE NUMBER ______ RIVER BASIN ______ DRAINAGE AREA (mi²) ______

LENGTH OF STREAM REACH (ft) 200' LAT. ______ LONG ______ RIVER CODE ______ RIVER MILE ______

DATE 22 Mar 2016 SCORERS MDT, PCF COMMENTS Ephemeral

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 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]		☐☐	SILT [3 pt]	10
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	15
☐☐	BEDROCK [16 pt]	15	☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☒☐	CLAY or HARDPAN [0 pt]	20
☒☐	GRAVEL (2-64 mm) [9 pts]	40	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]		☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 15

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points — Substrate Max = 40: 14 (A + B)

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

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

COMMENTS ______ MAXIMUM POOL DEPTH (inches): 1"

Pool Depth Max = 30: 5

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

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

COMMENTS ______ AVERAGE BANKFULL WIDTH (feet) 3'

Bankfull Width Max=30: 5

This information must also be completed

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

RIPARIAN WIDTH (Per Bank): ☒☒ 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) ☐ 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 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☒ Moderate to Severe ☐ Severe (10 ft/100 ft)

Stream 47

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 Unknown Quantity Unknown

Photograph Information: 4 ______

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

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

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

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

Additional comments/description of pollution impacts ______

BIOTIC EVALUATION

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

Fish Observed? (Y/N) ______ 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 ➜

Stream 48 Class 2

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 35

SITE NAME/LOCATION ______ SITE NUMBER ______ RIVER BASIN ______ DRAINAGE AREA (mi²) ______

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

DATE 22 Mar 2016 SCORERS MDT, PCF COMMENTS Intermittent

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

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 12 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 3

HHEI Metric Points — Substrate Max = 40: 15 (A + B)

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

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

COMMENTS ______ MAXIMUM POOL DEPTH (inches): 3"

Pool Depth Max = 30: 15

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

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

COMMENTS ______ AVERAGE BANKFULL WIDTH (feet) 2'

Bankfull Width Max=30: 5

This information must also be completed

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

RIPARIAN WIDTH (Per Bank): ☒☒ 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) ☐ Moist 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* one box): ☐ None ☐ 0.5 ☒ 1.0 ☐ 1.5 ☐ 2.0 ☐ 2.5 ☐ 3.0 ☐ >3

STREAM GRADIENT ESTIMATE: ☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☒ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

Stream 48

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 Unknown Quantity ______

Photograph Information 2 ______

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)

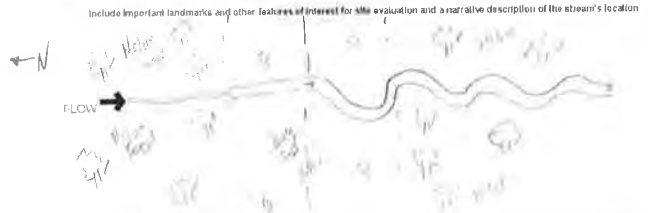
Fish Observed? (Y/N) N Voucher? (Y/N) ______ Salamanders Observed? (Y/N) N Voucher? (Y/N) ______
Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) ______ Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) ______

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 ➜



Stream 49 Class 1

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 13

SITE NAME/LOCATION: [illegible] SITE NUMBER: _____ RIVER BASIN: _____ DRAINAGE AREA (mi²): _____

LENGTH OF STREAM REACH (ft): _____ LAT: _____ LONG: _____ RIVER CODE: _____ RIVER MILE: _____

DATE: 22 Mar 2006 SCORER: MDT, BCR COMMENTS: _____

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

STREAM CHANNEL MODIFICATIONS: [X] 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 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]		[ ] SILT [3 pts]	20
[ ] BOULDER (>256 mm) [18 pts]		[X] LEAF PACK/WOODY DEBRIS [3 pts]	70
[ ] BEDROCK [16 pt]		[ ] FINE DETRITUS [3 pts]	
[ ] COBBLE (65-256 mm) [12 pts]		[ ] CLAY or HARDPAN [0 pt]	
[ ] GRAVEL (2-64 mm) [9 pts]		[ ] MUCK [0 pts]	
[ ] SAND (<2 mm) [6 pts]		[ ] ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0 (A) 6 (B) 2

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

HHEI Metric Points — Substrate Max = 40: 8; A + B

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

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

COMMENTS: _____ MAXIMUM POOL DEPTH (centimeters): 0

Pool Depth Max = 30: 0

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

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

COMMENTS: _____ AVERAGE BANKFULL WIDTH (feet): 1'

Bankfull Width Max=30: 5

This information must also be completed

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

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

COMMENTS: _____

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

[ ] Stream Flowing
[ ] Subsurface flow with isolated pools (interstitial)
[X] 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)

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

STREAM GRADIENT ESTIMATE

[ ] Flat (0.5 ft/100 ft)
[ ] Flat to Moderate
[ ] Moderate (0.5 ft/100 ft)
[ ] Moderate to Severe
[X] Severe (15 ft/100 ft)

PHWH Form Page - 1

Stream 49

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

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

DOWNSTREAM DESIGNATED USE(S)

[ ] WWH Name _____ Distance from Evaluated Stream _____
[ ] CWH Name _____ Distance from Evaluated Stream _____
[ ] EWH Name _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE 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 [illegible] Quantity [illegible]

Photograph Information _____

Elevated Turbidity? (Y/N) N Canopy (% open) 5

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

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

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

Additional comments/description of pollution impacts _____

BIOTIC EVALUATION

Performed? (Y/N) 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

Stream 50 Class 2

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 35

SITE NAME/LOCATION: [illegible] SITE NUMBER: _____ RIVER BASIN: _____ DRAINAGE AREA (mi²): _____

LENGTH OF STREAM REACH (ft): 200' LAT: _____ LONG: _____ RIVER CODE: _____ RIVER MILE: _____

DATE: 22 Mar 2006 SCORER: MDT, BCR COMMENTS: Intermittent

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

STREAM CHANNEL MODIFICATIONS: [X] 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 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]		[X] SILT [3 pts]	20
[ ] BOULDER (>256 mm) [18 pts]		[ ] LEAF PACK/WOODY DEBRIS [3 pts]	
[ ] BEDROCK [16 pt]		[ ] FINE DETRITUS [3 pts]	
[ ] COBBLE (65-256 mm) [12 pts]		[ ] CLAY or HARDPAN [0 pt]	
[X] GRAVEL (2-64 mm) [9 pts]	70	[ ] MUCK [0 pts]	
[ ] SAND (<2 mm) [6 pts]	10	[ ] ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0 (A) 12 (B) 3

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

HHEI Metric Points — Substrate Max = 40: 15; A + B

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

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

COMMENTS: _____ MAXIMUM POOL DEPTH (centimeters): 0"

Pool Depth Max = 30: 0

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

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

COMMENTS: _____ AVERAGE BANKFULL WIDTH (feet): 3'

Bankfull Width Max=30: 5

This information must also be completed

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

RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R		L	R	
Wide >10m	X	X	Mature Forest, Wetland	X	X		[ ]	[ ]	Conservation Tillage
Moderate 5-10m	[ ]	[ ]	Immature Forest, Shrub or Old Field	X	X		[ ]	[ ]	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)

[X] Stream Flowing
[X] Subsurface flow with isolated pools (interstitial)
[ ] Moist 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* one box)

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

STREAM GRADIENT ESTIMATE

[ ] Flat (0.5 ft/100 ft)
[ ] Flat to Moderate
[X] Moderate (0.5 ft/100 ft)
[ ] Moderate to Severe
[ ] Severe (15 ft/100 ft)

PHWH Form Page - 1

Stream 50

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

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

DOWNSTREAM DESIGNATED USE(S)

[ ] WWH Name _____ Distance from Evaluated Stream _____
[ ] CWH Name _____ Distance from Evaluated Stream _____
[ ] EWH Name _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE 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 Unknown Quantity Unknown

Photograph Information _____

Elevated Turbidity? (Y/N) N Canopy (% open) 5

Were samples collected for water chemistry? (Y/N) N (Note lat. 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) ____ Salamanders Observed? (Y/N) N Voucher? (Y/N) ____
Frogs or Tadpoles 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

PHWH Form Page - 2

Stream 51 Class 1

OhioEPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION: Good Hope - Poston
SITE NUMBER: 14 RIVER BASIN: _____ DRAINAGE AREA (mi²): _____
LENGTH OF STREAM REACH (ft): 22 LAT: _____ LONG: _____ RIVER CODE: _____ RIVER MILE: _____
DATE: 22 Mar 2016 SCORER: MDT, BCR COMMENTS: Ephemeral

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

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 5 (A) 6 (B) 1 A + B

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

HHEI Metric Points — Substrate Max = 40: 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):
- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☒ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: _____ MAXIMUM POOL DEPTH (centimeters): 5

Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):
- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☒ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS: _____ AVERAGE BANKFULL WIDTH (meters): 1.5

Bankfull Width Max=30: 5

This information must also be completed

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

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

COMMENTS: _____

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):
- ☐ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☒ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS: 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 ft/100 ft)
- ☐ Flat to Moderate
- ☐ Moderate (2 ft/100 ft)
- ☒ Moderate to Severe
- ☐ Severe (10 ft/100 ft)

Stream 51

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: Unknown Quantity: Unknown
Photograph information: _____
Elevated Turbidity? (Y/N): N Canopy (% open): 15
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id and attach results) Lab Number: _____
Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____
Is the sampling reach representative of the stream (Y/N): Y If not, please explain: _____
Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

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

Stream 52 Mod. Class 2

OhioEPA 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
SITE NUMBER: 17 RIVER BASIN: _____ DRAINAGE AREA (mi²): _____
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 PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☒ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY
Channel mostly undisturbed, yet evidence of historic transmission ROW construction evident.

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

TYPE	PERCENT	TYPE	PERCENT
☐☐ BLDR SLABS [16 pts]	0%	☐☐ SILT [3 pt]	10%
☐☐ BOULDER (>256 mm) [16 pts]	0%	☐☐ LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐☐ BEDROCK [16 pt]	0%	☐☐ FINE DETRITUS [3 pts]	0%
☐☐ COBBLE (65-256 mm) [12 pts]	5%	☐☐ CLAY or HARDPAN [0 pt]	0%
☐☒ GRAVEL (2-64 mm) [9 pts]	20%	☐☐ MUCK [0 pts]	0%
☒☐ SAND (<2 mm) [6 pts]	65%	☐☐ ARTIFICIAL [3 pts]	0%

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

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 TOTAL NUMBER OF SUBSTRATE TYPES: 4

HHEI Metric Points — Substrate Max = 40: 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):
- ☐ > 30 centimeters [20 pts]
- ☒ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: _____ MAXIMUM POOL DEPTH Inches: 12

Pool Depth Max = 30: 30

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):
- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☒ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ ≤ 1.0 m (<=3' 3") [5 pts]

COMMENTS: _____ AVERAGE BANKFULL WIDTH Feet: 6.00

Bankfull Width Max=30: 20

This information must also be completed

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

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

COMMENTS: _____

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):
- ☒ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS: _____

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

STREAM GRADIENT ESTIMATE
- ☐ Flat (0.5 ft/100 ft)
- ☐ Flat to Moderate
- ☒ Moderate (2 ft/100 ft)
- ☐ Moderate to Severe
- ☐ Severe (10 ft/100 ft)

Stream 52

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

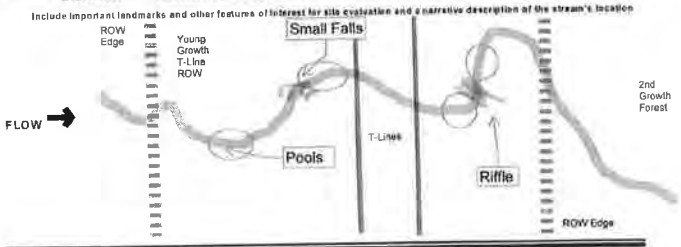
Base Flow Conditions? (Y/N): N Date of last precipitation: _____ Quantity: 0.00
Photograph Information: 2 Photos, Upstream and Downstream
Elevated Turbidity? (Y/N): N Canopy (% open): 25%
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id and attach results) Lab Number: _____
Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____
Is the sampling reach representative of the stream (Y/N): Y If not, please explain: _____
Additional comments/description of pollution impacts: Transmission ROW crosses channel, past clearing activies evident

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



Stream 53 Mod. Class 1

HH-MDT-032216-015

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 15

SITE NAME/LOCATION Gest Hope Potter

SITE NUMBER 015 RIVER BASIN ______ DRAINAGE AREA (mi²) ______

LENGTH OF STREAM REACH (ft) 200ft LAT. ______ LONG. ______ RIVER CODE ______ RIVER MILE ______

DATE 3/22/16 SCORER MDT/BCR COMMENTS Intermittent

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

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
☐☐	BLDR SLABS [16 pts]		☐☐	SILT [3 pt]	
☐☐	BOULDER (>256 mm) [16 pts]		☐☒	LEAF PACK/WOODY DEBRIS [3 pts]	35
☐☐	BEDROCK [16 pt]	5	☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]		☒☐	MUCK [0 pts]	60
☐☐	SAND (<2 mm) [6 pts]		☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 5

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 3

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 3

HHEI Metric Points — Substrate Max = 40: 6 (A + B)

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

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

COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): 2" inches

Pool Depth Max = 30: 5

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

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

COMMENTS ______ AVERAGE BANKFULL WIDTH (meters) 2' feet

Bankfull Width Max=30: 5

This information must also be completed

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

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

COMMENTS ______

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

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

COMMENTS ______

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

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

STREAM GRADIENT ESTIMATE

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

Stream 53 HH-MDT-032216-15

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: Spring Thaw Quantity: ?

Photograph Information: 2 Photos, Upstream + Downstream

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

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

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

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

Additional comments/description of pollution impacts: 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)

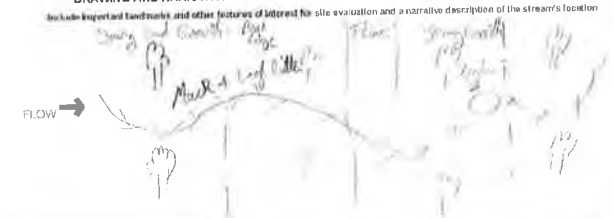
Fish Observed? (Y/N) ______ Voucher? (Y/N) ______ Salamanders Observed? (Y/N) ______ Voucher? (Y/N) ______
Frogs or Tadpoles Observed? (Y/N) ______ Voucher? (Y/N) ______ Aquatic Macroinvertebrates Observed? (Y/N) ______ Voucher? (Y/N) ______

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 →



HH-BAE-032216-05 Class 1 Stream 54

OhioEPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION GH-Potter

hh-bae-032216-05 SITE NUMBER 05 RIVER BASIN ______ DRAINAGE AREA (mi²) ______

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

DATE 3/22/16 SCORER BAE/CMS COMMENTS ephemeral

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

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock ______

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 3

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

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

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

COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): 1"

Pool Depth Max = 30: 5

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

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

COMMENTS ______ AVERAGE BANKFULL WIDTH (meters) 2'

Bankfull Width Max=30: 5

This information must also be completed

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

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

COMMENTS ______

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

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

COMMENTS ______

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

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

STREAM GRADIENT ESTIMATE

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

Stream 54

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 ______

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

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

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

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

Additional comments/description of pollution impacts ______

BIOTIC EVALUATION

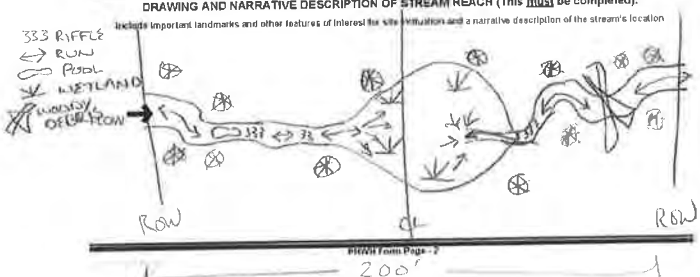
Performed? (Y/N) N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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



HH-BAE-032216-04 Class 1 Stream 55

Ohio EPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION HH-BAE 032216-04
SITE NUMBER 04 RIVER BASIN ______ DRAINAGE AREA (mi²) ______
LENGTH OF STREAM REACH (ft) ______ LAT ______ LONG ______ RIVER CODE ______ RIVER MILE ______
DATE 3/22/16 SCORER BAE/CMS COMMENTS ephemeral

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

STREAM CHANNEL MODIFICATIONS: [x] 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 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]		[ ] [ ]	SILT [3 pt]	
[ ] [ ]	BOULDER (>256 mm) [16 pts]		[ ] [ ]	LEAF PACK/WOODY DEBRIS [3 pts]	
[ ] [ ]	BEDROCK [16 pt]		[ ] [ ]	FINE DETRITUS [3 pts]	
[ ] [ ]	COBBLE (65-256 mm) [12 pts]		[ ] [ ]	CLAY or HARDPAN [0 pt]	
[x] [ ]	GRAVEL (2-64 mm) [9 pts]	60	[ ] [ ]	MUCK [0 pts]	
[ ] [x]	SAND (<2 mm) [6 pts]	40	[ ] [ ]	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock ______
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 15
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 2

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

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

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

COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): 1"

Pool Depth Max = 30: 5

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

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

COMMENTS ______ AVERAGE BANKFULL WIDTH (meters) 2'

Bankfull Width Max=30: 5

This information **must** also be completed

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

RIPARIAN WIDTH (Per Bank): L [x] R [x] Wide >10m; [ ] [ ] Moderate 5-10m; [ ] [ ] Narrow <5m; [ ] [ ] None

FLOODPLAIN QUALITY (Most Predominant per Bank): L [x] R [x] 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)
- [x] Stream Flowing
- [ ] Subsurface flow with isolated pools (interstitial)
- [ ] Moist Channel, isolated pools, no flow (intermittent)
- [ ] Dry channel, no water (Ephemeral)

COMMENTS ______

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

STREAM GRADIENT ESTIMATE
[ ] Flat (0.5 ft/100 ft) [ ] Flat to Moderate [ ] Moderate (2 ft/100 ft) [x] Moderate to Severe [ ] Severe (10 ft/100 ft)

Stream 55

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

QHEI PERFORMED? - [ ] Yes [x] No QHEI Score ______ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)
[ ] WWH Name ______ Distance from Evaluated Stream ______
[ ] CWH Name ______ Distance from Evaluated Stream ______
[ ] EWH Name ______ Distance from Evaluated Stream ______

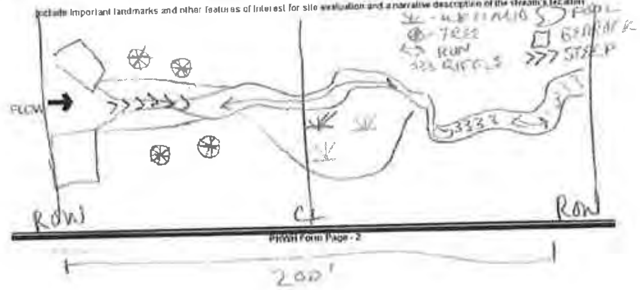
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

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) 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 (S.U.) ______ Conductivity (µmhos/cm) ______
Is the sampling reach representative of the stream (Y/N) ______ If not, please explain ______
Additional comments/description of pollution impacts: ______

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

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



HH-BAE-032216-03 Class 2 Stream 56

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 42

SITE NAME/LOCATION DASTON - GOODHOPE
______ SITE NUMBER ______ RIVER BASIN ______ DRAINAGE AREA (mi²) ______
LENGTH OF STREAM REACH (ft) ______ LAT ______ LONG. ______ RIVER CODE ______ RIVER MILE ______
DATE 3/22/16 SCORER BAE/CMS COMMENTS Intermittent

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

STREAM CHANNEL MODIFICATIONS: [x] 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 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]		[ ] [x]	SILT [3 pt]	20
[ ] [ ]	BOULDER (>256 mm) [16 pts]		[ ] [ ]	LEAF PACK/WOODY DEBRIS [3 pts]	
[ ] [ ]	BEDROCK [16 pt]		[ ] [ ]	FINE DETRITUS [3 pts]	
[ ] [ ]	COBBLE (65-256 mm) [12 pts]	10	[ ] [ ]	CLAY or HARDPAN [0 pt]	
[ ] [ ]	GRAVEL (2-64 mm) [9 pts]		[ ] [ ]	MUCK [0 pts]	
[x] [ ]	SAND (<2 mm) [6 pts]	70	[ ] [ ]	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock ______
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 3

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

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

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

COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): 3"

Pool Depth Max = 30: 15

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

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

COMMENTS ______ AVERAGE BANKFULL WIDTH (meters) 4'

Bankfull Width Max=30: 15

This information **must** also be completed

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

RIPARIAN WIDTH (Per Bank): L [x] R [x] Wide >10m; [ ] [ ] Moderate 5-10m; [ ] [ ] Narrow <5m; [ ] [ ] None

FLOODPLAIN QUALITY (Most Predominant per Bank): L [x] R [x] 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):
- [x] Stream Flowing
- [ ] Subsurface flow with isolated pools (interstitial)
- [ ] Moist Channel, isolated pools, no flow (intermittent)
- [ ] Dry channel, no water (Ephemeral)

COMMENTS ______

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

STREAM GRADIENT ESTIMATE
[x] Flat (0.5 ft/100 ft) [ ] Flat to Moderate [ ] Moderate (2 ft/100 ft) [ ] Moderate to Severe [ ] Severe (10 ft/100 ft)

Stream 56

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

QHEI PERFORMED? [ ] Yes [x] No QHEI Score ______ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)
[ ] WWH Name ______ Distance from Evaluated Stream ______
[ ] CWH Name ______ Distance from Evaluated Stream ______
[ ] EWH Name ______ Distance from Evaluated Stream ______

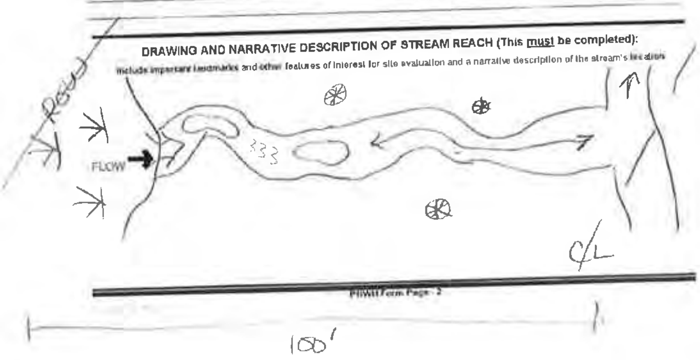
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

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 ______
Elevated Turbidity? (Y/N) ______ Canopy (% open) ______
Were samples collected for water chemistry? (Y/N) ______ (Note lab sample no. or id. and attach results) Lab Number ______
Field Measures Temp (°C) ______ Dissolved Oxygen (mg/l) ______ pH (S.U.) ______ Conductivity (µmhos/cm) ______
Is the sampling reach representative of the stream (Y/N) ______ If not, please explain ______
Additional comments/description of pollution impacts ______

BIOTIC EVALUATION
Performed? (Y/N) 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



GH-BAE-032216-01 Stream 57

Fair Warmwater

OhioEPA **Qualitative Habitat Evaluation Index and Use Assessment Field Sheet** QHEI Score: 53.5

Stream & Location: ______ RM: ____ Date: __/__/06

Scorers Full Name & Affiliation: BAE, CMS, AECOM

River Code: __-___-____ STORET #: ______ Lat/Long.: ______ /8_.____ Office verified location ☐

1] SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present. Check ONE (Or 2 & average)

BEST TYPES	POOL	RIFFLE	OTHER TYPES	POOL	RIFFLE	ORIGIN	QUALITY
☐☐ BLDR/SLABS [10]			☐☐ HARDPAN [4]			☐ LIMESTONE [1]	☐ HEAVY [-2]
☐☐ BOULDER [9]			☐☐ DETRITUS [3]			☐ TILLS [1]	☐ MODERATE [-1]
☐☐ COBBLE [8]			☐☐ MUCK [2]			☐ WETLANDS [0]	■ NORMAL [0]
☐☐ GRAVEL [7]			☒☐ SILT [2]	40	40	■ HARDPAN [0]	☐ FREE [1]
☐■ SAND [6]	10	10	☐☐ ARTIFICIAL [0]			☐ SANDSTONE [0]	☐ EXTENSIVE [-2]
☐☐ BEDROCK [5]			(Score natural substrates; ignore sludge from point-sources)			☐ RIP/RAP [0]	■ MODERATE [-1]
						☐ LACUSTURINE [0]	☐ NORMAL [0]
						☐ SHALE [-1]	☐ NONE [1]
						☐ COAL FINES [-2]	

SILT / EMBEDDEDNESS

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

Comments — Substrate Maximum 20: **7**

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

AMOUNT — Check ONE (Or 2 & average)

- 1 UNDERCUT BANKS [1] — 2 POOLS > 70cm [2] — 1 OXBOWS, BACKWATERS [1] — ☐ EXTENSIVE >75% [11]
- 2 OVERHANGING VEGETATION [1] — 1 ROOTWADS [1] — 1 AQUATIC MACROPHYTES [1] — ■ MODERATE 25-75% [7]
- 2 SHALLOWS (IN SLOW WATER) [1] — Ø BOULDERS [1] — 2 LOGS OR WOODY DEBRIS [1] — ☐ SPARSE 5-<25% [3]
- 2 ROOTMATS [1] — ☐ NEARLY ABSENT <5% [1]

Comments 4 3 3 7 — Cover Maximum 20: **17**

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

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

Comments: A BEAVER'S IMPACTING DEVELOPMENT — Channel Maximum 20: **9**

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

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

Indicate predominant land use(s) past 100m riparian. Comments — Riparian Maximum 10: **9.5**

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

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

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

Comments — Pool / Current Maximum 12: **7**

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

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

Comments — Riffle / Run Maximum 8: **0**

6] GRADIENT (62 ft/mi) ☐ VERY LOW - LOW [2-4] ☐ MODERATE [6-10] ☐ HIGH - VERY HIGH [10-6]

DRAINAGE AREA (1.01 mi²)

%POOL: 40 %GLIDE: Ø %RUN: 60 %RIFFLE: Ø — Gradient Maximum 10: **4**

Stream 57

A] SAMPLED REACH — Check ALL that apply

METHOD: ☐ BOAT ■ WADE ☐ L. LINE ☐ OTHER — STAGE: ☐ 1st ☐ HIGH ☐ UP ■ NORMAL ☐ LOW ☐ DRY

DISTANCE: ☐ 0.5 Km ☐ 0.2 Km ☐ 0.15 Km ☐ 0.12 Km ■ OTHER 300' meters

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

CANOPY: ☐ > 85%- OPEN ■ 55%-<85% ☐ 30%-<55% ☐ 10%-<30% ☐ <10% - CLOSED

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

C] REC — ION: AREA DEPTH; POOL: ☐ >100ft² ☐ >3ft

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

E] ISSUES: WWTP / CSO / NPDES / INDUSTRY; HARDENED / URBAN / DIRT&GRIME; CONTAMINATED / LANDFILL; BMPs-CONSTRUCTION-SEDIMENT; LOGGING / IRRIGATION / COOLING; BANK / EROSION / SURFACE; FALSE BANK / MANURE / LAGOON; WASH H₂O / TILE / H₂O TABLE; ACID / MINE / QUARRY / FLOW; NATURAL / WETLAND / STAGNANT; PARK / GOLF / LAWN / HOME; ATMOSPHERE / DATA PAUCITY

F] MEASUREMENTS: x̄ width 5'; x̄ depth 2.5'; max. depth 5'; x̄ bankfull width 20'; bankfull x̄ depth 5; W/D ratio; bankfull max. depth 6; floodprone x² width; entrench. ratio; Legacy Tree:

Comment RE: Reach consistency / Is reach typical of steam?, Recreation / Observed - Inferred, Other / Sampling observations, Concerns, Access directions, etc. MULTIPLE BEAVER DAMS ALONG REACH

Stream Drawing:

Stream 58

Modified Class 1 hh-bae-032216-02

OhioEPA **Primary Headwater Habitat Evaluation Form**

HHEI Score (sum of metrics 1, 2, 3) : 28

SITE NAME/LOCATION GH-BSE-?

hh-bae-032216-02 SITE NUMBER 02 RIVER BASIN ______ DRAINAGE AREA (mi²) ______

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

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

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 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]		☐☐	SILT [3 pt]	
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	
☐☐	BEDROCK [16 pt]	20	☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	
☒☐	GRAVEL (2-64 mm) [9 pts]	50	☐☐	MUCK [0 pts]	
☐☒	SAND (<2 mm) [6 pts]	30	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock ______ (A) 15 (B) 3

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

HHEI Metric Points — Substrate Max = 40: **18** (A + B)

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

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

COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): 2" — Pool Depth Max = 30: **5**

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

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

COMMENTS ______ AVERAGE BANKFULL WIDTH (meters): 3' — Bankfull Width Max = 30: **5**

This information must also be completed

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

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

COMMENTS ______

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

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

COMMENTS ______

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

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

STREAM GRADIENT ESTIMATE

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

Stream 58 hh-bae-032216-02

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: ______

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

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

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

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

Additional comments/description of pollution impacts: ______

BIOTIC EVALUATION

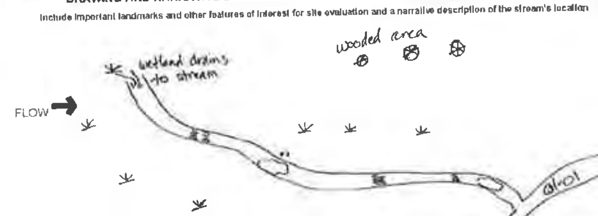
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) ___ 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



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 HH-BAE-03
hh-bae-032316-01 SITE NUMBER 01 RIVER BASIN ______ DRAINAGE AREA (mi²) ______
LENGTH OF STREAM REACH (ft) ______ LAT. ______ LONG. ______ RIVER CODE ______ RIVER MILE ______
DATE 3/23/16 SCORER BAE/CMS COMMENTS Intermittent

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

Total of Percentages of Bldr Slabs Boulder Cobble Bedrock ______
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 15
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 2

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

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

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

COMMENTS ______ MAXIMUM POOL DEPTH (~~centimeters~~ in.): 2"

Pool Depth Max = 30: 5

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

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

COMMENTS ______ AVERAGE BANKFULL WIDTH (~~meters~~ ft.): 2'

Bankfull Width Max=30: 5

This information must also be completed

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

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

COMMENTS ______

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

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

COMMENTS ______

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

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

STREAM GRADIENT ESTIMATE

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

Stream 59

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 ______
Elevated 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 (S.U.) ______ Conductivity (µmhos/cm) ______
Is the sampling reach representative of the stream (Y/N) ______ If not, please explain ______

Additional comments/description of pollution impacts ______

BIOTIC EVALUATION

Performed? (Y/N) 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) ___ 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

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 Poston-Goodhope
______ SITE NUMBER ______ RIVER BASIN ______ DRAINAGE AREA (mi²) ______
LENGTH OF STREAM REACH (ft) ______ LAT ______ LONG. ______ RIVER CODE ______ RIVER MILE ______
DATE 3/22/16 SCORER BAE/CMS COMMENTS Intermittent

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 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]		☐☐	SILT [3 pt]	
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	
■☐	GRAVEL (2-64 mm) [9 pts]	50	☐☐	MUCK [0 pts]	
☐■	SAND (<2 mm) [6 pts]	50	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 15
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 2

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

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

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

COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): 2"

Pool Depth Max = 30: 5

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

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

COMMENTS ______ AVERAGE BANKFULL WIDTH (meters): 3'

Bankfull Width Max=30: 5

This information must also be completed

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

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

COMMENTS ______

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

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

COMMENTS ______

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

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

STREAM GRADIENT ESTIMATE

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

Stream 60

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 ______
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) ______ 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) ___ 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

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

OhioEPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION Golf Perlar

SITE NUMBER HH-32216-12 RIVER BASIN Hocking DRAINAGE AREA (mi²) ____

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 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 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]		☑☐	SILT [3 pt]	60
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	10
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]	5	☐☐	CLAY or HARDPAN [0 pt]	
☐☑	GRAVEL (2-64 mm) [9 pts]	25	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]		☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 5

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 12

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points — Substrate Max = 40: 16 (A + B)

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

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

COMMENTS ____ MAXIMUM POOL DEPTH (centimeters / in.): 3

Pool Depth Max = 30: 15

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

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

COMMENTS ____ AVERAGE BANKFULL WIDTH (meters / ft.) 09

Bankfull Width Max=30: 5

This information must also be completed

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

RIPARIAN WIDTH (Per Bank) L R
☑☑ 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 (interstitial)
☑ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)

COMMENTS ____

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

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

Stream 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)
☐ 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) 95

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

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

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

Additional comments/description of pollution impacts ____

BIOTIC EVALUATION

Performed? (Y/N): 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 ➜

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

OhioEPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION Golf Perlar

SITE NUMBER HH-32216-13 RIVER BASIN Hocking DRAINAGE AREA (mi²) ____

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 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 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]		☑☐	SILT [3 pt]	75
☐☐	BOULDER (>256 mm) [16 pts]		☐☑	LEAF PACK/WOODY DEBRIS [3 pts]	
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]	3	☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	7	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]		☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 3

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 6

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points — Substrate Max = 40: 10 (A + B)

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

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

COMMENTS ____ MAXIMUM POOL DEPTH (centimeters / in.): 1

Pool Depth Max = 30: 5

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

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

COMMENTS ____ AVERAGE BANKFULL WIDTH (meters / ft) 1.0

Bankfull Width Max=30: 5

This information must also be completed

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

RIPARIAN WIDTH (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 (interstitial)
☑ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)

COMMENTS ____

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

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

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 ____
☐ 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 (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 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 ➜

IH-PJR-032216-14 Mod. Class 1 Stream 63

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 14

SITE NAME/LOCATION ______
SITE NUMBER IH-Stream 14 RIVER BASIN Hocking DRAINAGE AREA (mi²) ______
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 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 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]		☐☑	SILT [3 pt]	30
☐☐	BOULDER (>256 mm) [16 pts]		☑☐	LEAF PACK/WOODY DEBRIS [3 pts]	65
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	5	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]		☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 6
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 3

HHEI Metric Points — Substrate Max = 40: 9 (A + B)

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

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

COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): 0

Pool Depth Max = 30: 0

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

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

COMMENTS ______ AVERAGE BANKFULL WIDTH (~~meters~~ ft) 1.2'

Bankfull Width Max = 30: 5

This information must also be completed

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

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

COMMENTS ______

FLOW REGIME (*At Time of Evaluation*) (Check *ONLY* one box):
☐ Stream Flowing
☐ Subsurface flow with isolated pools (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☑ Dry channel, no water (Ephemeral)
COMMENTS ______

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

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 (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: ______

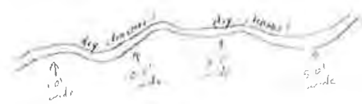
BIOTIC EVALUATION

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 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 →



IH-PJR-032216-15 Mod. Class 2 Stream 64

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 61

SITE NAME/LOCATION ______
SITE NUMBER IH-Stream 15 RIVER BASIN ______ DRAINAGE AREA (mi²) ______
LENGTH OF STREAM REACH (ft) ______ LAT ______ LONG ______ RIVER CODE ______ RIVER MILE ______
DATE 3/22/16 SCORER PJR COMMENTS Perennial Stream

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 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]		☐☐	SILT [3 pt]	5
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	5
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]	5	☐☐	CLAY or HARDPAN [0 pt]	5
☐☑	GRAVEL (2-64 mm) [9 pts]	35	☐☐	MUCK [0 pts]	
☑☐	SAND (<2 mm) [6 pts]	45	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 5
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 15
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 6

HHEI Metric Points — Substrate Max = 40: 21 (A + B)

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

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

COMMENTS ______ MAXIMUM POOL DEPTH (~~centimeters~~ in): 18"

Pool Depth Max = 30: 20

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

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

COMMENTS ______ AVERAGE BANKFULL WIDTH (~~meters~~ ft) 5.5

Bankfull Width Max = 30: 20

This information must also be completed

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

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

COMMENTS ______

FLOW REGIME (*At Time of Evaluation*) (Check *ONLY* one box):
☑ Stream Flowing
☐ Subsurface flow with isolated pools (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)
COMMENTS ______

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

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: ______ 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 (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: ______

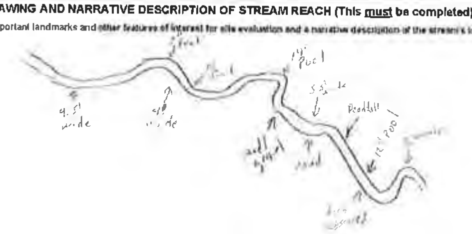
BIOTIC EVALUATION

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 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 →



HH-PJR-032216-16 Mod. Class 1 Stream 65

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 15

SITE NAME/LOCATION CH-Pk-Perkins

SITE NUMBER HH-3/22/16 - 16 RIVER BASIN Hocking DRAINAGE AREA (mi²) ______

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

DATE 3/22/16 SCORER PJR COMMENTS Ephemeral

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 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]		☑☐	SILT [3 pt]	75
☐☐	BOULDER (>256 mm) [16 pts]		☐☑	LEAF PACK/WOODY DEBRIS [3 pts]	15
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	5
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	5	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]		☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 6

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points — Substrate Max = 40: 10 (A + B)

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

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

COMMENTS ______ MAXIMUM POOL DEPTH (centimeters) (in.): 0

Pool Depth Max = 30: 0

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

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

COMMENTS ______ AVERAGE BANKFULL WIDTH (meters) (ft.): 0.6

Bankfull Width Max=30: 5

This information must also be completed

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

RIPARIAN WIDTH (Per Bank), L R:
☑☑ 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 (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☑ Dry channel, no water (Ephemeral)

COMMENTS ______

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

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

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) 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)

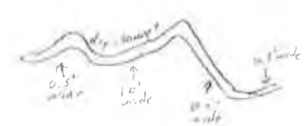
Fish Observed? (Y/N) ____ Voucher? (Y/N) ____ Salamanders Observed? (Y/N) ____ Voucher? (Y/N) ____
Frogs or Tadpoles Observed? (Y/N) ____ Voucher? (Y/N) ____ Aquatic Macroinvertebrates Observed? (Y/N) ____ Voucher? (Y/N) ____

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 ➜



HH-PJR 032216-01 Mod. Class 1 Stream 66

OhioEPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION CH-Perkins

SITE NUMBER HH-3/22/16 - 1 RIVER BASIN Hocking DRAINAGE AREA (mi²) ______

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 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 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]		☐☐	SILT [3 pt]	10
☐☐	BOULDER (>256 mm) [16 pts]		☑☐	LEAF PACK/WOODY DEBRIS [3 pts]	65
☐☐	BEDROCK [16 pt]		☐☑	FINE DETRITUS [3 pts]	13
☐☐	COBBLE (65-256 mm) [12 pts]	2	☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	10	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]		☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 2

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 6

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

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

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

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

COMMENTS ______ MAXIMUM POOL DEPTH (centimeters) (in.): 0

Pool Depth Max = 30: 0

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

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

COMMENTS ______ AVERAGE BANKFULL WIDTH (meters) (ft.): 1.0

Bankfull Width Max=30: 5

This information must also be completed

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

RIPARIAN WIDTH (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 (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☑ Dry channel, no water (Ephemeral)

COMMENTS ______

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

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

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) 25

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

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

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

Additional comments/description of pollution impacts ______

BIOTIC EVALUATION

Performed? (Y/N): 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)

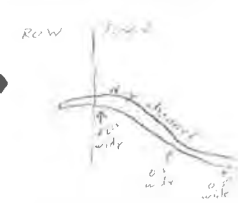
Fish Observed? (Y/N) ____ Voucher? (Y/N) ____ Salamanders Observed? (Y/N) ____ Voucher? (Y/N) ____
Frogs or Tadpoles Observed? (Y/N) ____ Voucher? (Y/N) ____ Aquatic Macroinvertebrates Observed? (Y/N) ____ Voucher? (Y/N) ____

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 ➜



HH-PJR-032216-02 Mod. Class 1 Stream 67

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): 28

SITE NAME/LOCATION: Gill-Perkins
SITE NUMBER: HH-032216-2 RIVER BASIN: Hocking DRAINAGE AREA (mi²): ____
LENGTH OF STREAM REACH (ft) ____ LAT. ____ LONG. ____ RIVER CODE ____ RIVER MILE ____
DATE: 3/22/16 SCORER: PSK COMMENTS: ____

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

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

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 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]		☑☐	SILT [3 pt]	25
☐☐	BOULDER (>256 mm) [16 pts]	15	☐☑	LEAF PACK/WOODY DEBRIS [3 pts]	25
☐☐	BEDROCK [16 pt]	5	☐☐	FINE DETRITUS [3 pts]	10
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	20	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]		☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 20
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 6
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 6
HHEI Metric Points — Substrate Max = 40: 12 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):
☐ > 30 centimeters [20 pts] ☐ > 22.5 - 30 cm [30 pts] ☐ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts] ☑ < 5 cm [5 pts] ☐ NO WATER OR MOIST CHANNEL [0 pts]
COMMENTS ____ MAXIMUM POOL DEPTH (~~centimeters~~ in.): 1
Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):
☐ > 4.0 meters (> 13') [30 pts] ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ☑ ≤ 1.0 m (≤ 3' 3") [5 pts]
COMMENTS ____ AVERAGE BANKFULL WIDTH (~~meters~~ Ft.): 1.5
Bankfull Width Max=30: 5

This information must also be completed

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

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

COMMENTS ____

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):
☐ Stream Flowing ☐ Subsurface flow with isolated pools (Interstitial) ☑ Moist Channel, isolated pools, no flow (Intermittent) ☐ Dry channel, no water (Ephemeral)
COMMENTS ____

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

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

Stream 67

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 (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: ____

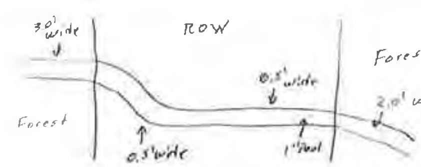
BIOTIC EVALUATION

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 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 →



HH-PJR-032216-03 Mod. Class 2 Stream 68

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): 57

SITE NAME/LOCATION: Gill-Perkins
SITE NUMBER: HH-3216-3 RIVER BASIN: Hocking DRAINAGE AREA (mi²): ____
LENGTH OF STREAM REACH (ft) ____ LAT. ____ LONG. ____ RIVER CODE ____ RIVER MILE ____
DATE: 3/22/16 SCORER: PSK COMMENTS: Intermittent

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 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]		☐☑	SILT [3 pt]	30
☐☐	BOULDER (>256 mm) [16 pts]	3	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	10
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]	10	☐☐	CLAY or HARDPAN [0 pt]	
☑☐	GRAVEL (2-64 mm) [9 pts]	47	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]		☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 13
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 12
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5
HHEI Metric Points — Substrate Max = 40: 17 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):
☐ > 30 centimeters [20 pts] ☐ > 22.5 - 30 cm [30 pts] ☑ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts] ☐ < 5 cm [5 pts] ☐ NO WATER OR MOIST CHANNEL [0 pts]
COMMENTS ____ MAXIMUM POOL DEPTH (~~centimeters~~ in.): 5
Pool Depth Max = 30: 25

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):
☐ > 4.0 meters (> 13') [30 pts] ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☑ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ☐ ≤ 1.0 m (≤ 3' 3") [5 pts]
COMMENTS ____ AVERAGE BANKFULL WIDTH (~~meters~~ ft.): 4.2
Bankfull Width Max=30: 15

This information must also be completed

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

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

COMMENTS ____

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):
☐ Stream Flowing ☐ Subsurface flow with isolated pools (Interstitial) ☑ Moist Channel, isolated pools, no flow (Intermittent) ☐ Dry channel, no water (Ephemeral)
COMMENTS ____

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

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

Stream 68

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. 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: ____

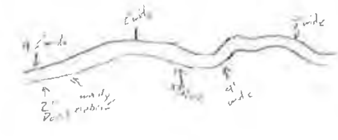
BIOTIC EVALUATION

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 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 →



HH PJR 032216-04 Class 1 Stream 69

Ohio EPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION Gil-Paxton

SITE NUMBER HH-032216-4 RIVER BASIN Hocking DRAINAGE AREA (mi²) ________

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

DATE 3/22/16 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 MODIFICATIONS: [x] 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 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]		[x][ ]	SILT [3 pt]	40
[ ][ ]	BOULDER (>256 mm) [16 pts]		[ ][ ]	LEAF PACK/WOODY DEBRIS [3 pts]	15
[ ][ ]	BEDROCK [16 pt]		[ ][ ]	FINE DETRITUS [3 pts]	10
[ ][ ]	COBBLE (65-256 mm) [12 pts]	5	[ ][ ]	CLAY or HARDPAN [0 pt]	
[ ][x]	GRAVEL (2-64 mm) [9 pts]	30	[ ][ ]	MUCK [0 pts]	
[ ][ ]	SAND (<2 mm) [6 pts]		[ ][ ]	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 5

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 12

TOTAL NUMBER OF SUBSTRATE TYPES: (B) ____

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

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

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

COMMENTS ________ MAXIMUM POOL DEPTH (centimeters): in. 2

Pool Depth Max = 30: 5

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

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

COMMENTS ________ AVERAGE BANKFULL WIDTH (meters) ft. 2.8

Bankfull Width Max=30: 5

This information **must** also be completed

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

RIPARIAN WIDTH L R	(Per Bank)	FLOODPLAIN QUALITY L R	(Most Predominant per Bank)	L R	
[x][x]	Wide >10m	[ ][ ]	Mature Forest, Wetland	[ ][ ]	Conservation Tillage
[ ][ ]	Moderate 5-10m	[x][x]	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 [x] Moist Channel, isolated pools, no flow (Intermittent)
[ ] Subsurface flow with isolated pools (Interstitial) [ ] Dry channel, no water (Ephemeral)

COMMENTS ________

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

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

STREAM GRADIENT ESTIMATE

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

Stream 69

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

QHEI PERFORMED? - [ ] Yes [x] No QHEI Score ________ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

[ ] WWH Name ________ Distance from Evaluated Stream ________
[ ] CWH Name ________ Distance from Evaluated Stream ________
[ ] EWH Name ________ Distance from Evaluated Stream ________

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE 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. 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)

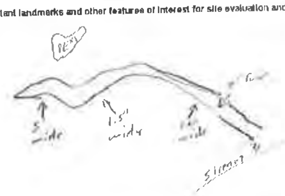
Fish Observed? (Y/N) ____ Voucher? (Y/N) ____ Salamanders Observed? (Y/N) ____ Voucher? (Y/N) ____
Frogs or Tadpoles Observed? (Y/N) ____ Voucher? (Y/N) ____ Aquatic Macroinvertebrates Observed? (Y/N) ____ Voucher? (Y/N) ____

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 ➜



HH PJR-032216-05 Class 1 Stream 70

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 26

SITE NAME/LOCATION Gil-Yerke

SITE NUMBER HH-032216-5 RIVER BASIN Hocking DRAINAGE AREA (mi²) ________

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 PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: [x] 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 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]		[ ][ ]	SILT [3 pt]	15
[ ][ ]	BOULDER (>256 mm) [16 pts]		[ ][x]	LEAF PACK/WOODY DEBRIS [3 pts]	20
[ ][ ]	BEDROCK [16 pt]		[ ][ ]	FINE DETRITUS [3 pts]	5
[ ][ ]	COBBLE (65-256 mm) [12 pts]		[ ][ ]	CLAY or HARDPAN [0 pt]	
[x][ ]	GRAVEL (2-64 mm) [9 pts]	60	[ ][ ]	MUCK [0 pts]	
[ ][ ]	SAND (<2 mm) [6 pts]		[ ][ ]	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 12

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points — Substrate Max = 40: 16 (A + B)

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

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

COMMENTS ________ MAXIMUM POOL DEPTH (centimeters): in. 1.5

Pool Depth Max = 30: 5

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

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

COMMENTS ________ AVERAGE BANKFULL WIDTH (meters) ft. 2.0

Bankfull Width Max=30: 5

This information **must** also be completed

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

RIPARIAN WIDTH L R	(Per Bank)	FLOODPLAIN QUALITY L R	(Most Predominant per Bank)	L R	
[x][x]	Wide >10m	[ ][ ]	Mature Forest, Wetland	[ ][ ]	Conservation Tillage
[ ][ ]	Moderate 5-10m	[x][x]	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 [x] Moist Channel, isolated pools, no flow (Intermittent)
[ ] Subsurface flow with isolated pools (Interstitial) [ ] Dry channel, no water (Ephemeral)

COMMENTS ________

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

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

STREAM GRADIENT ESTIMATE

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

Stream 70

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

QHEI PERFORMED? - [ ] Yes [x] No QHEI Score ________ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

[ ] WWH Name ________ Distance from Evaluated Stream ________
[ ] CWH Name ________ Distance from Evaluated Stream ________
[ ] EWH Name ________ Distance from Evaluated Stream ________

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE 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 (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)

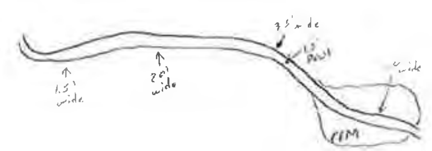
Fish Observed? (Y/N) ____ Voucher? (Y/N) ____ Salamanders Observed? (Y/N) ____ Voucher? (Y/N) ____
Frogs or Tadpoles Observed? (Y/N) ____ Voucher? (Y/N) ____ Aquatic Macroinvertebrates Observed? (Y/N) ____ Voucher? (Y/N) ____

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 ➜



HH-PSR-032216-06 Class 1 Stream 71

Ohio EPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION CH-[illegible]

SITE NUMBER HH-3/22/16-6 RIVER BASIN Hocking DRAINAGE AREA (mi²) ____

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

DATE 3/22/16 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 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 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]		☑☐	SILT [3 pt]	15
☐☐	BOULDER (>256 mm) [16 pts]		☐☑	LEAF PACK/WOODY DEBRIS [3 pts]	70
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	5
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	5	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]		☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 6

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points — Substrate Max = 40: 10 (A + B)

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

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

COMMENTS ____ MAXIMUM POOL DEPTH (centimeters): 1

Pool Depth Max = 30: 5

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

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

COMMENTS ____ AVERAGE BANKFULL WIDTH (meters feet) 1.5

Bankfull Width Max=30: 5

This information must also be completed

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

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

COMMENTS ____

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

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

COMMENTS ____

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

Stream 71

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. 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)

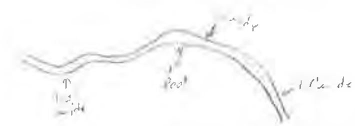
Fish Observed? (Y/N) ____ Voucher? (Y/N) ____ Salamanders Observed? (Y/N) ____ Voucher? (Y/N) ____
Frogs or Tadpoles Observed? (Y/N) ____ Voucher? (Y/N) ____ Aquatic Macroinvertebrates Observed? (Y/N) ____ Voucher? (Y/N) ____

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 ➡



HH-PSR-032216-07 Modified Class 2 Stream 72

Ohio EPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION CH-[illegible]

SITE NUMBER HH-3/22/16-7 RIVER BASIN Hocking DRAINAGE AREA (mi²) ____

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

DATE 3/22/16 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 MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY — 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
☐☐	BLDR SLABS [16 pts]		☐☐	SILT [3 pt]	10
☐☐	BOULDER (>256 mm) [16 pts]	2	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	5
☐☐	BEDROCK [16 pt]	3	☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]	10	☐☐	CLAY or HARDPAN [0 pt]	
☑☐	GRAVEL (2-64 mm) [9 pts]	50	☐☐	MUCK [0 pts]	
☐☑	SAND (<2 mm) [6 pts]	20	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 15

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 15

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 7

HHEI Metric Points — Substrate Max = 40: 22 (A + B)

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

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

COMMENTS high seasonal flow MAXIMUM POOL DEPTH (centimeters inches): 6

Pool Depth Max = 30: 25

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

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

COMMENTS ____ AVERAGE BANKFULL WIDTH (meters feet) 4.4

Bankfull Width Max=30: 15

This information must also be completed

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

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

COMMENTS ____

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

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

COMMENTS ____

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

Stream 72

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. 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)

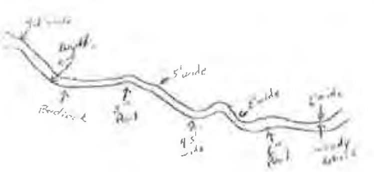
Fish Observed? (Y/N) ____ Voucher? (Y/N) ____ Salamanders Observed? (Y/N) ____ Voucher? (Y/N) ____
Frogs or Tadpoles Observed? (Y/N) ____ Voucher? (Y/N) ____ Aquatic Macroinvertebrates Observed? (Y/N) ____ Voucher? (Y/N) ____

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 ➡



HH-PJR-032216-08 Mod. Class 2 Stream 73

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 50 55

SITE NAME/LOCATION C-H-Portal

SITE NUMBER HH-3/22/16-8 RIVER BASIN Hocking DRAINAGE AREA (mi²) ______

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 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 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]		☐☐	SILT [3 pt]	
☐☐	BOULDER (>256 mm) [16 pts]	15	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	10
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☑☐	COBBLE (65-256 mm) [12 pts]	45	☐☐	CLAY or HARDPAN [0 pt]	
☐☑	GRAVEL (2-64 mm) [9 pts]	30	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]		☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 60

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 21

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points — Substrate Max = 40: 25 (A + B)

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

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

COMMENTS ______ MAXIMUM POOL DEPTH (in.): 4

Pool Depth Max = 30: 20 25

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

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

COMMENTS ______ AVERAGE BANKFULL WIDTH (ft.): 1.75

Bankfull Width Max=30: 5

This information must also be completed

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

RIPARIAN WIDTH (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 (interstitial)
☑ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)

COMMENTS ______

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

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

Stream 73

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 (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)

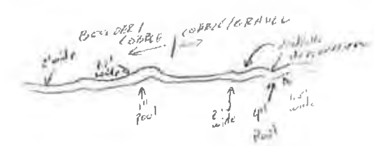
Fish Observed? (Y/N) ____ Voucher? (Y/N) ____ Salamanders Observed? (Y/N) ____ Voucher? (Y/N) ____
Frogs or Tadpoles Observed? (Y/N) ____ Voucher? (Y/N) ____ Aquatic Macroinvertebrates Observed? (Y/N) ____ Voucher? (Y/N) ____

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 →



HH-PJR-032216-09 Mod. Class 1 Stream 74

Ohio EPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION C-H-Portal

SITE NUMBER HH-3/22/16-9 RIVER BASIN Hocking DRAINAGE AREA (mi²) ______

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 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 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]		☐☑	SILT [3 pt]	10
☐☐	BOULDER (>256 mm) [16 pts]		☑☐	LEAF PACK/WOODY DEBRIS [3 pts]	75
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]	8	☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	7	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]		☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 8

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 6

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points — Substrate Max = 40: 10 (A + B)

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

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

COMMENTS ______ MAXIMUM POOL DEPTH (in.): 1

Pool Depth Max = 30: 5

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

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

COMMENTS ______ AVERAGE BANKFULL WIDTH (ft.): 1.0

Bankfull Width Max=30: 5

This information must also be completed

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

RIPARIAN WIDTH (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 (interstitial)
☑ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)

COMMENTS ______

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

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

Stream 74

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) 95

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

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

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

Additional comments/description of pollution impacts ______

BIOTIC EVALUATION

Performed? (Y/N): 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)

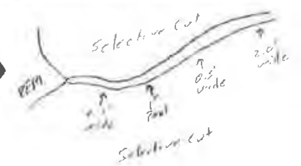
Fish Observed? (Y/N) ____ Voucher? (Y/N) ____ Salamanders Observed? (Y/N) ____ Voucher? (Y/N) ____
Frogs or Tadpoles Observed? (Y/N) ____ Voucher? (Y/N) ____ Aquatic Macroinvertebrates Observed? (Y/N) ____ Voucher? (Y/N) ____

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 →



HH PJR 032216-10 Mod. Class 2 Stream 75

Ohio EPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION GH-Foster

SITE NUMBER HH-PJR-032216-10 RIVER BASIN ______ DRAINAGE AREA (mi²) ______

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 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 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]		☐☐	SILT [3 pt]	15
☐☑	BOULDER (>256 mm) [16 pts]	20	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	10
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]	10	☐☐	CLAY or HARDPAN [0 pt]	
☑☐	GRAVEL (2-64 mm) [9 pts]	45	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]		☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 30

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 25 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points — Substrate Max = 40: 30 (A + B)

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

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

COMMENTS ______ MAXIMUM POOL DEPTH (~~centimeters~~ in.): 5

Pool Depth Max = 30: 25

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

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

COMMENTS ______ AVERAGE BANKFULL WIDTH (~~meters~~ ft.) 0.9

Bankfull Width Max=30: 5

This information must also be completed

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

RIPARIAN WIDTH (Per Bank), L R:
☐☐ 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 (Interstitial)
☑ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)

COMMENTS ______

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

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

Stream 75

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 (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)

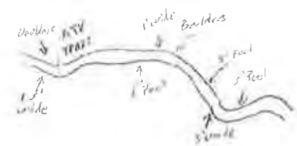
Fish Observed? (Y/N) ______ Voucher? (Y/N) ______ Salamanders Observed? (Y/N) ______ Voucher? (Y/N) ______
Frogs or Tadpoles Observed? (Y/N) ______ Voucher? (Y/N) ______ Aquatic Macroinvertebrates Observed? (Y/N) ______ Voucher? (Y/N) ______

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 ➜



HH-PJR-032216-11 Mod. Class 2 Stream 76

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 37

SITE NAME/LOCATION GH-Foster

SITE NUMBER HH-PJR-032216-11 RIVER BASIN ______ DRAINAGE AREA (mi²) ______

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 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 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]		☑☐	SILT [3 pt]	45
☐☐	BOULDER (>256 mm) [16 pts]	5	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	10
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]	10	☐☐	CLAY or HARDPAN [0 pt]	
☐☑	GRAVEL (2-64 mm) [9 pts]	30	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]		☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 15

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 12 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

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

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

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

COMMENTS ______ MAXIMUM POOL DEPTH (~~centimeters~~ in.): 2

Pool Depth Max = 30: 15

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

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

COMMENTS ______ AVERAGE BANKFULL WIDTH (~~meters~~ ft.) [illegible]

Bankfull Width Max=30: 5

This information must also be completed

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

RIPARIAN WIDTH (Per Bank), L R:
☐☐ 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 (Interstitial)
☑ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)

COMMENTS ______

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

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

Stream 76

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/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 ➜

HH-PJR-032116-09 Mod Class 1 Stream 77

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 14

SITE NAME/LOCATION E-N-Foster

SITE NUMBER HH-3/21/16 -2 RIVER BASIN Hocking DRAINAGE AREA (mi²) ______

LENGTH OF STREAM REACH (ft) 3 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 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 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]		☑☐	SILT [3 pt]	85
☐☐	BOULDER (>256 mm) [16 pts]		☐☑	LEAF PACK/WOODY DEBRIS [3 pts]	10
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	5	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]		☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 6

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 3

HHEI Metric Points — Substrate Max = 40: 7 (A + B)

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

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

COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): 0

Pool Depth Max = 30: 0

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

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

COMMENTS ______ AVERAGE BANKFULL WIDTH (meters → ft) 1

Bankfull Width Max=30: 5

This information **must** also be completed

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

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

COMMENTS ______

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

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

COMMENTS ______

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

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

STREAM GRADIENT ESTIMATE

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

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 ______ 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) 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 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 ➜

HH-PJR-032116-08 Class 2 Stream 78

OhioEPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION E-N-Foster

SITE NUMBER HH-3/21/16-2 RIVER BASIN Hocking DRAINAGE AREA (mi²) ______

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 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 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]		☐☑	SILT [3 pt]	30
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	10
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	10
☐☐	COBBLE (65-256 mm) [12 pts]	5	☐☐	CLAY or HARDPAN [0 pt]	
☑☐	GRAVEL (2-64 mm) [9 pts]	45	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]		☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 5

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 12

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

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

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

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

COMMENTS ______ MAXIMUM POOL DEPTH (centimeters → in.): 3

Pool Depth Max = 30: 15

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

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

COMMENTS ______ AVERAGE BANKFULL WIDTH (meters → ft.) 4.25

Bankfull Width Max=30: 15

This information **must** also be completed

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

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

COMMENTS ______

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

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

COMMENTS ______

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

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

STREAM GRADIENT ESTIMATE

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

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 ______ 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) 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)

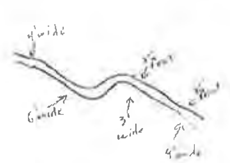
Fish Observed? (Y/N) ____ Voucher? (Y/N) ____ Salamanders Observed? (Y/N) ____ Voucher? (Y/N) ____
Frogs or Tadpoles Observed? (Y/N) ____ Voucher? (Y/N) ____ Aquatic Macroinvertebrates Observed? (Y/N) ____ Voucher? (Y/N) ____

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 ➜



HH-PJR-032116-07 Modified Class 2 Stream 79

OhioEPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION C-H-Perlev
SITE NUMBER HH-3/21/16-7 RIVER BASIN Hocking DRAINAGE AREA (mi²) ______
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 PHWH Streams" for Instructions

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

Within existing ROW, historic modification

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
☐☐	BLDR SLABS [16 pts]	5	☐☐	SILT [3 pt]	5
☐☐	BOULDER (>256 mm) [16 pts]	3	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	
☐☐	BEDROCK [16 pt]	2	☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]	7	☐☐	CLAY or HARDPAN [0 pt]	
☑☐	GRAVEL (2-64 mm) [9 pts]	60	☐☐	MUCK [0 pts]	
☐☑	SAND (<2 mm) [6 pts]	20	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 15
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 15
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 7

HHEI Metric Points — Substrate Max = 40: 22 (A + B)

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

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

COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): in. 13

Pool Depth Max = 30: 20

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

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

COMMENTS ______ AVERAGE BANKFULL WIDTH (meters) ft. 7.4

Bankfull Width Max=30: 20

This information must also be completed

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

RIPARIAN WIDTH (Per Bank) L R
☑☑ 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 (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)

COMMENTS ______

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

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

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 ______
☐ 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 (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

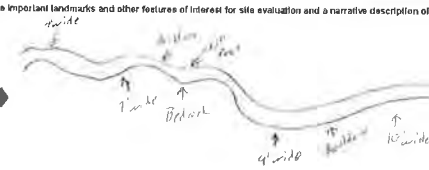
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) ____ Voucher? (Y/N) ____ Salamanders Observed? (Y/N) ____ Voucher? (Y/N) ____
Frogs or 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 ➡



HH-PJR-032116-06 Mod. Class 2 Stream 80

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 43

SITE NAME/LOCATION C-H-Perlev
SITE NUMBER HH-3/21/16-6 RIVER BASIN Hocking DRAINAGE AREA (mi²) ______
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 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 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]		☑☐	SILT [3 pt]	45
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	
☐☑	BEDROCK [16 pt]	40	☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]	5	☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	10	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]		☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 45
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 19
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points — Substrate Max = 40: 23 (A + B)

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

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

COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): in. 2

Pool Depth Max = 30: 15

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

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

COMMENTS ______ AVERAGE BANKFULL WIDTH (meters) ft. 2.5

Bankfull Width Max=30: 5

This information must also be completed

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

RIPARIAN WIDTH (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 (Interstitial)
☑ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)

COMMENTS ______

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

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

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 ______
☐ 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) 60
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: ______
Field Measures Temp (°C) ______ Dissolved Oxygen (mg/l) ______ pH (S.U.) ______ Conductivity (µmhos/cm) ______
Is the sampling reach representative of the stream (Y/N) Y If not, please explain ______

Additional comments/description of pollution impacts ______

BIOTIC EVALUATION

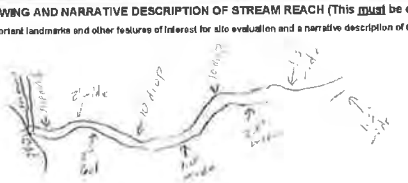
Performed? (Y/N) N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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 ➡



HH PJR-032116-05 Mod Class 1 Stream 81

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 25

SITE NAME/LOCATION C-H-Perkes
SITE NUMBER HH-3/21/16-5 RIVER BASIN Hocking DRAINAGE AREA (mi²) ____
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 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 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]		☑☐	SILT [3 pt]	70
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]	5	☐☐	CLAY or HARDPAN [0 pt]	
☐☑	GRAVEL (2-64 mm) [9 pts]	25	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]		☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 5
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 12
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 3
HHEI Metric Points — Substrate Max = 40: 15 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):
☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts]
☑ < 5 cm [5 pts]
☐ NO WATER OR MOIST CHANNEL [0 pts]
COMMENTS ____ MAXIMUM POOL DEPTH (centimeters → in.): 1.5
Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):
☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☑ ≤ 1.0 m (≤ 3' 3") [5 pts]
COMMENTS ____ AVERAGE BANKFULL WIDTH (meters → ft.): 0.5
Bankfull Width Max=30: 5

This information **must** also be completed

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

RIPARIAN WIDTH (Per Bank)
- L R ☑☑ 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)
☑ 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

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

Stream 81

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 (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: ____

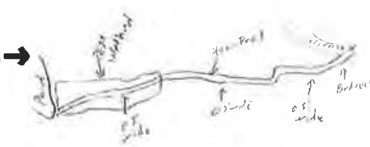
BIOTIC EVALUATION

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 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 ➜



HH-PJR 032116-04 Class 1 Stream 82

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 14

SITE NAME/LOCATION C-H-Perkes
SITE NUMBER HH-3/21/16-4 RIVER BASIN Hocking DRAINAGE AREA (mi²) ____
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 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 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]		☑☐	SILT [3 pt]	60
☐☐	BOULDER (>256 mm) [16 pts]		☐☑	LEAF PACK/WOODY DEBRIS [3 pts]	10
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	10	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]		☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 6
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 3
HHEI Metric Points — Substrate Max = 40: 9 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):
☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts]
☐ < 5 cm [5 pts]
☑ NO WATER OR MOIST CHANNEL [0 pts]
COMMENTS ____ MAXIMUM POOL DEPTH (centimeters): 0
Pool Depth Max = 30: 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):
☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☑ ≤ 1.0 m (≤ 3' 3") [5 pts]
COMMENTS ____ AVERAGE BANKFULL WIDTH (meters → ft.): 0.8
Bankfull Width Max=30: 5

This information **must** also be completed

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

RIPARIAN WIDTH (Per Bank)
- L R ☑☑ 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)
☐ 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

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

Stream 82

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) 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: ____

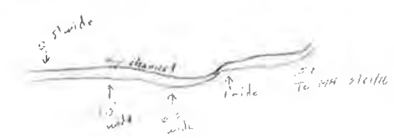
BIOTIC EVALUATION

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 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 ➜



HH PJR-032116-03 Modified Class 2 Stream 83

Ohio EPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION CH-Foster
SITE NUMBER HH 3/21/16-3 RIVER BASIN Hocking DRAINAGE AREA (mi²) ____
LENGTH OF STREAM REACH (ft) ____ LAT ____ LONG ____ RIVER CODE ____ RIVER MILE ____
DATE 3/21/2016 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 MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY
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
☐☐	BLDR SLABS [16 pts]	1	☐☑	SILT [3 pt]	20
☐☐	BOULDER (>256 mm) [16 pts]	4	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	
☐☐	BEDROCK [16 pt]	10	☐☐	FINE DETRITUS [3 pts]	
☐☑	COBBLE (65-256 mm) [12 pts]	5	☐☐	CLAY or HARDPAN [0 pt]	
☑☐	GRAVEL (2-64 mm) [9 pts]	45	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]	15	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 20
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 12
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 7

HHEI Metric Points — Substrate Max = 40: 19 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):
☐ > 30 centimeters [20 pts]
☑ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts]
☐ < 5 cm [5 pts]
☐ NO WATER OR MOIST CHANNEL [0 pts]
COMMENTS high seasonal flow MAXIMUM POOL DEPTH (centimeters) in. 11
Pool Depth Max = 30: 30

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):
☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☑ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ ≤ 1.0 m (≤ 3' 3") [5 pts]
COMMENTS ____ AVERAGE BANKFULL WIDTH (ft.) 4.75
Bankfull Width Max=30: 15

This information must also be completed

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

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

COMMENTS ____

FLOW REGIME (At Time of Evaluation) (Check ONLY one box)
☑ Stream Flowing
☐ Subsurface flow with isolated pools (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)
COMMENTS ____

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

Stream 83

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) 25
Were samples collected for water chemistry? (Y/N) N (Note lab sample no. or id. and attach results) Lab Number ____
Field Measures: Temp (°C) ____ Dissolved Oxygen (mg/l) ____ pH (S.U.) ____ Conductivity (µmhos/cm) ____
Is the sampling reach representative of the stream (Y/N) Y If not, please explain ____

Additional comments/description of pollution impacts ____

BIOTIC EVALUATION

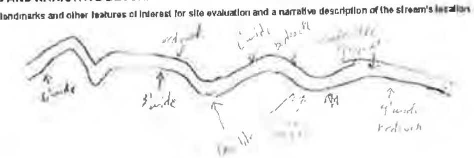
Performed? (Y/N) N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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 ➡



HH PJR-032116-02 Mod. Class 1 Stream 84

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 26

SITE NAME/LOCATION CH-Foster
SITE NUMBER HH 3/21/16-2 RIVER BASIN Hocking DRAINAGE AREA (mi²) ____
LENGTH OF STREAM REACH (ft) ____ LAT ____ LONG ____ RIVER CODE ____ RIVER MILE ____
DATE 3/21/16 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 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 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]		☐☐	SILT [3 pt]	10
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]	5	☐☐	CLAY or HARDPAN [0 pt]	
☑☐	GRAVEL (2-64 mm) [9 pts]	40	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]		☐☑	ARTIFICIAL [3 pts]	45

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 5
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 12
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points — Substrate Max = 40: 16 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):
☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts]
☑ < 5 cm [5 pts]
☐ NO WATER OR MOIST CHANNEL [0 pts]
COMMENTS ____ MAXIMUM POOL DEPTH (centimeters) in. 2
Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):
☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☑ ≤ 1.0 m (≤ 3' 3") [5 pts]
COMMENTS ____ AVERAGE BANKFULL WIDTH (ft.) 2.1
Bankfull Width Max=30: 5

This information must also be completed

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

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

COMMENTS ____

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):
☑ Stream Flowing
☐ Subsurface flow with isolated pools (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)
COMMENTS ____

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

Stream 84

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) 100
Were samples collected for water chemistry? (Y/N) N (Note lab sample no. or id. and attach results) Lab Number ____
Field Measures: Temp (°C) ____ Dissolved Oxygen (mg/l) ____ pH (S.U.) ____ Conductivity (µmhos/cm) ____
Is the sampling reach representative of the stream (Y/N) Y If not, please explain ____

Additional comments/description of pollution impacts ____

BIOTIC EVALUATION

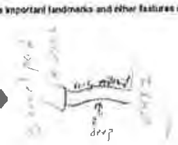
Performed? (Y/N) N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) ____ 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 ➡



OH PJR-032116 01 Fair Warmwater Stream 85

OhioEPA Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 50.5

Stream & Location: [redacted] C-H-Poston C2H-3/21/16-1 **RM:** ___ **Date:** 03/21/16

Scorers Full Name & Affiliation: Philip Renner, AECOM

River Code: __ **STORET #:** __ **Lat./Long.:** __ /8 __ Office verified location ☐

1] SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

BEST TYPES	POOL	RIFFLE	OTHER TYPES	POOL	RIFFLE
☐☐ BLDR/SLABS [10]			☐☐ HARDPAN [4]		
☐☐ BOULDER [9]		5	☐☐ DETRITUS [3]	3	0
☐☐ COBBLE [8]	2	30	☐☐ MUCK [2]		
☐☑ GRAVEL [7]	35	60	☑☐ SILT [2]	40	0
☐☐ SAND [6]	20	5	☐☐ ARTIFICIAL [0]		
☐☐ BEDROCK [5]			(Score natural substrates; ignore sludge from point-sources)		

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

Comments

Check ONE (Or 2 & average)

ORIGIN: ☐ LIMESTONE [1] ☐ TILLS [1] ☐ WETLANDS [0] ☐ HARDPAN [0] ☑ SANDSTONE [0] ☐ RIP/RAP [0] ☐ LACUSTURINE [0] ☐ SHALE [-1] ☐ COAL FINES [-2]

QUALITY — SILT: ☐ HEAVY [-2] ☐ MODERATE [-1] ☑ NORMAL [0] ☐ FREE [1]; EMBEDDEDNESS: ☐ EXTENSIVE [-2] ☐ MODERATE [-1] ☑ NORMAL [0] ☐ NONE [1]

Substrate Maximum 20: **11**

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

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

AMOUNT — Check ONE (Or 2 & average): ☐ EXTENSIVE >75% [11] ☑ MODERATE 25-75% [7] ☑ SPARSE 5-<25% [3] ☐ NEARLY ABSENT <5% [1]

Comments — Cover Maximum 20: **9**

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

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

Comments — Channel Maximum 20: **13**

4] BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average) — River right looking downstream

EROSION (L R): ☑☐ NONE / LITTLE [3]; ☑☑ MODERATE [2]; ☐☐ HEAVY / SEVERE [1]

RIPARIAN WIDTH (L R): ☐☐ WIDE > 50m [4]; ☐☐ MODERATE 10-50m [3]; ☐☐ NARROW 5-10m [2]; ☑☑ VERY NARROW < 5m [1]; ☐☐ NONE [0]

FLOOD PLAIN QUALITY (L R): ☐☐ FOREST, SWAMP [3]; ☐☐ SHRUB OR OLD FIELD [2]; ☑☑ RESIDENTIAL, PARK, NEW FIELD [1]; ☐☐ FENCED PASTURE [1]; ☐☐ OPEN PASTURE, ROWCROP [0]; ☐☐ CONSERVATION TILLAGE [1]; ☐☐ URBAN OR INDUSTRIAL [0]; ☐☐ MINING / CONSTRUCTION [0]

Indicate predominant land use(s) past 100m riparian

Comments — Riparian Maximum 10: **4.5**

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH — Check ONE (ONLY!): ☐ > 1m [6] ☐ 0.7-<1m [4] ☑ 0.4-<0.7m [2] ☐ 0.2-<0.4m [1] ☐ < 0.2m [0]

CHANNEL WIDTH — Check ONE (Or 2 & average): ☐ POOL WIDTH > RIFFLE WIDTH [2] ☐ POOL WIDTH = RIFFLE WIDTH [1] ☑ POOL WIDTH < RIFFLE WIDTH [0]

CURRENT VELOCITY — Check ALL that apply: ☐ TORRENTIAL [-1] ☐ VERY FAST [1] ☑ FAST [1] ☑ MODERATE [1] ☐ SLOW [1] ☐ INTERSTITIAL [-1] ☐ INTERMITTENT [-2] ☐ EDDIES [1] — Indicate for reach - pools and riffles.

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

Comments — Pool / Current Maximum 12: **9**

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

RIFFLE DEPTH: ☐ BEST AREAS > 10cm [2] ☑ BEST AREAS 5-10cm [1] ☐ BEST AREAS < 5cm [metric=0]

RUN DEPTH: ☐ MAXIMUM > 50cm [2] ☑ MAXIMUM < 50cm [1]

RIFFLE / RUN SUBSTRATE: ☐ STABLE (e.g., Cobble, Boulder) [2] ☑ MOD. STABLE (e.g., Large Gravel) [1] ☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]

RIFFLE / RUN EMBEDDEDNESS: ☐ NONE [2] ☑ LOW [1] ☐ MODERATE [0] ☐ EXTENSIVE [-1]

Comments — Riffle / Run Maximum 8: **5**

6] GRADIENT (85 ft/mi) ☐ VERY LOW - LOW [2-4] ☐ MODERATE [6-10] ☐ HIGH - VERY HIGH [10-6]
DRAINAGE AREA (1.03 mi²)

%POOL: 15 %GLIDE: 65 %RUN: 10 %RIFFLE: 10 — Gradient Maximum 10: **4**

EPA 4520 06/16/06

Stream 85

A] SAMPLED REACH Check ALL that apply

METHOD: ☐ BOAT ☑ WADE ☐ L. LINE ☐ OTHER

STAGE (1st sample pass, 2nd): ☐ HIGH ☐ UP ☑ NORMAL ☐ LOW ☐ DRY

DISTANCE: ☐ 0.5 Km ☐ 0.2 Km ☑ 0.15 Km ☐ 0.12 Km ☐ OTHER ___ meters

CLARITY: ☐ < 20 cm ☐ 20-<40 cm ☑ 40-70 cm ☐ > 70 cm/ CTB ☐ SECCHI DEPTH

CANOPY: ☐ > 85%- OPEN ☑ 55%-<85% ☐ 30%-<55% ☐ 10%-<30% ☐ <10%- CLOSED

C] REC

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

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

Circle some & COMMENT

E] ISSUES: WWTP / CSO / NPDES / INDUSTRY; HARDENED / URBAN / DIRT&GRIME; CONTAMINATED / LANDFILL; BMPs-CONSTRUCTION-SEDIMENT; LOGGING / IRRIGATION / COOLING; BANK / EROSION / SURFACE; FALSE BANK / MANURE / LAGOON; WASH H₂O / TILE / H₂O TABLE; ACID / MINE / QUARRY / FLOW; NATURAL / WETLAND / STAGNANT; PARK / GOLF / LAWN / HOME; ATMOSPHERE / DATA PAUCITY

F] MEASUREMENTS: x̄ width; x̄ depth; max. depth 17"; x̄ bankfull width 7.5'; bankfull x̄ depth; W/D ratio; bankfull max. depth; floodprone x² width; entrench ratio; Le Tree:

ION — POOL: ☐ >100ft² ☐ >3ft

Comment RE: Reach consistency/ Is reach typical of steam? Recreation/ Observed - Inferred, Other/ Sampling observations, Concerns, Access directions, etc.

Stream Drawing:

HH-PJR 032116-01 Mod Class 2 Stream 86

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): 58

SITE NAME/LOCATION C-H-Poston

SITE NUMBER HH-32116R 1 RIVER BASIN Hocking DRAINAGE AREA (mi²) ______

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 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 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]	3	☐☑	SILT [3 pt]	25
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	2
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]	15	☐☐	CLAY or HARDPAN [0 pt]	
☑☐	GRAVEL (2-64 mm) [9 pts]	45	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]	10	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 18 (A) 12 — SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES

(B) 6 — TOTAL NUMBER OF SUBSTRATE TYPES

HHEI Metric Points — Substrate Max = 40: **18** (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):
☑ > 30 centimeters [20 pts] ☐ > 22.5 - 30 cm [30 pts] ☐ > 10 - 22.5 cm [25 pts] ☐ > 5 cm - 10 cm [15 pts] ☐ < 5 cm [5 pts] ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ____ MAXIMUM POOL DEPTH (centimeters): 13 (in.)

Pool Depth Max = 30: **20**

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):
☐ > 4.0 meters (> 13') [30 pts] ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ☑ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS [illegible] AVERAGE BANKFULL WIDTH (ft.): 6.8

Bankfull Width Max=30: **20**

This information must also be completed

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

RIPARIAN WIDTH (Per Bank) (L R): ☐☐ 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 (interstitial) ☐ Moist Channel, isolated pools, no flow (intermittent) ☐ Dry channel, no water (Ephemeral)

COMMENTS ______

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

STREAM GRADIENT ESTIMATE: ☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☑ Moderate to Severe ☐ Severe (10 ft/100 ft)

Stream 86

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/description of pollution impacts: ______

BIOTIC EVALUATION

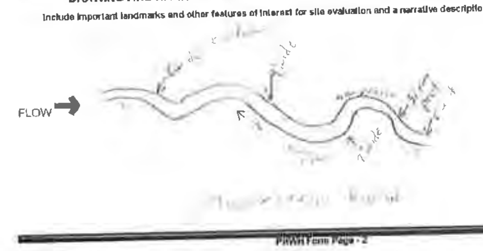
Performed? (Y/N) N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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



Mod. Class 2 Stream 87 HH-BAD-032116-10

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 57

SITE NAME/LOCATION [illegible] SITE NUMBER 10 RIVER BASIN _____ DRAINAGE AREA (mi²) _____

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

DATE 03/21/16 SCORER BAD, JBL COMMENTS INTERMITTENT

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
PORTION W/IN 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
☐☐ BLDR SLABS [18 pts]		☐☐ SILT [3 pts]	10
☐☒ BOULDER (>256 mm) [16 pts]	35	☐☐ LEAF PACK/WOODY DEBRIS [3 pts]	
☐☐ BEDROCK [16 pts]		☐☐ FINE DETRITUS [3 pts]	
☐☐ COBBLE (65-256 mm) [12 pts]	15	☐☐ CLAY or HARDPAN [0 pts]	
☐☐ GRAVEL (2-64 mm) [9 pts]	15	☐☐ MUCK [0 pts]	
☐☒ SAND (<2 mm) [6 pts]	25	☐☐ ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock _____ (A) 22 (B) 5

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

HHEI Metric Points — Substrate Max = 40: 27 — A + B

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

COMMENTS _____ MAXIMUM POOL DEPTH (centimeters): 6"

Pool Depth Max = 30: 25

3. **BANK FULL WIDTH** (Measured as the average of 3-4 measurements) (Check *ONLY* one box):
- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9'7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4'8" - 9'7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3'3" - 4'8") [16 pts]
- ☒ ≤ 1.0 m (≤ 3'3") [5 pts]

COMMENTS _____ AVERAGE BANKFULL WIDTH (meters) 5'

Bankfull Width Max=30: 5

This Information must also be completed

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

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

COMMENTS _____

FLOW REGIME (*At Time of Evaluation*) (Check *ONLY* one box):
- ☒ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist 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* one box)
- ☐ None
- ☐ 0.5
- ☐ 1.0
- ☐ 1.5
- ☐ 2.0
- ☒ 2.5
- ☐ 3.0
- ☐ >3

STREAM GRADIENT ESTIMATE
- ☐ Flat (0.5 ft/100 ft)
- ☐ Flat to Moderate
- ☐ Moderate (2 ft/100 ft)
- ☐ Moderate to Severe
- ☒ Severe (10 ft/100 ft)

PHWH Form Page - 1

Stream 87 HH-BAD-032116-10

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 UKN Quality UKN

Photograph Information 3 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

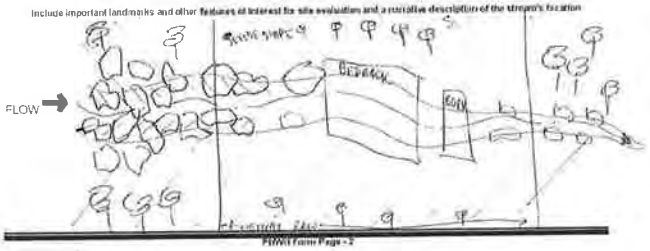
Performed? (Y/N) N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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



PHWH Form Page - 2

Mod. Class 1 Stream 88 HH-BAD-032116-09

OhioEPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION [illegible] SITE NUMBER _____ RIVER BASIN _____ DRAINAGE AREA (mi²) _____

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

DATE 03/21/16 SCORER BAD, JBL COMMENTS EPHEMERAL

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
W/IN 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
☐☐ BLDR SLABS [18 pts]		☐☒ SILT [3 pts]	10
☐☐ BOULDER (>256 mm) [16 pts]		☐☐ LEAF PACK/WOODY DEBRIS [3 pts]	25
☐☐ BEDROCK [16 pts]		☐☐ FINE DETRITUS [3 pts]	
☐☐ COBBLE (65-256 mm) [12 pts]		☐☐ CLAY or HARDPAN [0 pts]	
☐☐ GRAVEL (2-64 mm) [9 pts]	15	☐☐ MUCK [0 pts]	
☐☒ SAND (<2 mm) [6 pts]	30	☐☐ ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock _____ (A) 9 (B) 4

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

HHEI Metric Points — Substrate Max = 40: 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* one box)
- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [10 pts]
- ☐ > 10 - 22.5 cm [15 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☒ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS _____ MAXIMUM POOL DEPTH (centimeters): 0

Pool Depth Max = 30: 0

3. **BANK FULL WIDTH** (Measured as the average of 3-4 measurements) (Check *ONLY* one box):
- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9'7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4'8" - 9'7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3'3" - 4'8") [15 pts]
- ☒ ≤ 1.0 m (≤ 3'3") [5 pts]

COMMENTS _____ AVERAGE BANKFULL WIDTH (meters) 1

Bankfull Width Max=30: 5

This Information must also be completed

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

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

COMMENTS _____

FLOW REGIME (*At Time of Evaluation*) (Check *ONLY* one box):
- ☐ Stream Flowing
- ☐ 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 ft/100 ft)
- ☐ Flat to Moderate
- ☒ Moderate (2 ft/100 ft)
- ☐ Moderate to Severe
- ☐ Severe (10 ft/100 ft)

PHWH Form Page - 1

Stream 88 HH-BAD-032116-09

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 UKN Quality UKN

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

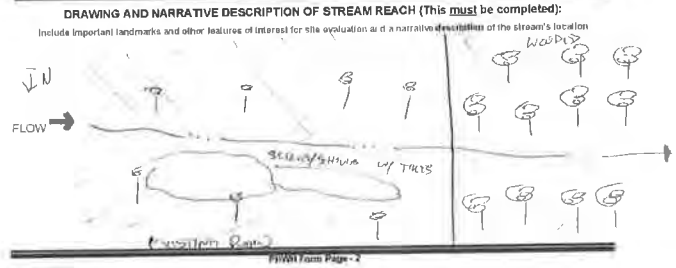
Performed? (Y/N) N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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



PHWH Form Page - 2

Stream 89 Mod. Class 1 HF-BAD-032116-08

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): 12

SITE NAME/LOCATION: ALT Pigeon Creek Hope
SITE NUMBER ____ RIVER BASIN ____ DRAINAGE AREA (mi²) ____
LENGTH OF STREAM REACH (ft) ____ LAT ____ LONG ____ RIVER CODE ____ RIVER MILE ____
DATE 03/21/16 SCORER BAD, JBL COMMENTS Ephemeral

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
W/IN 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
☐☐	BLDR SLABS [16 pts]		☐☒	SILT [3 pt]	30
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	20
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☒	CLAY or HARDPAN [0 pt]	40
☐☐	GRAVEL (2-64 mm) [9 pts]		☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]	10	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock ____
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 3
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points — Substrate Max = 40: 7 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box)
☐ > 30 centimeters [20 pts] ☐ > 22.5 - 30 cm [30 pts] ☐ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts] ☐ < 5 cm [5 pts] ☒ NO WATER OR MOIST CHANNEL [0 pts]
COMMENTS ____ MAXIMUM POOL DEPTH (centimeters): 0
Pool Depth Max = 30: 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):
☐ > 4.0 meters (> 13') [30 pts] ☐ > 3.0 m - 4.0 m (> 9'7" - 13') [25 pts] ☐ > 1.5 m - 3.0 m (> 4'8" - 9'7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3'3" - 4'8") [15 pts] ☒ ≤ 1.0 m (≤ 3'3") [5 pts]
COMMENTS ____ AVERAGE BANKFULL WIDTH (ft.): 1'
Bankfull Width Max=30: 5

This information must also be completed

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

RIPARIAN WIDTH (Per Bank): ☒☒ 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) ☐ 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 ft/100 ft) ☐ Flat to Moderate ☒ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

Stream 89 HF BAD 032116 - 08

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 UKN Quantity UKN
Photograph Information 2 PHOTOS
Elevated Turbidity? (Y/N) 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 (S.U.) ____ Conductivity (µmhos/cm) ____
Is the sampling reach representative of the stream (Y/N) Y If not, please explain ____

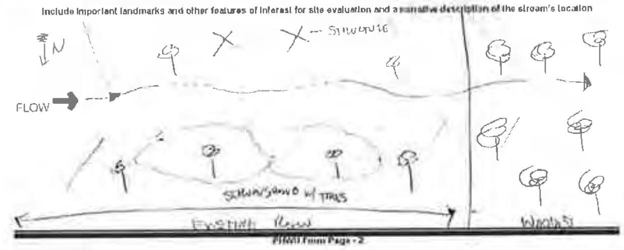
Additional comments/description of pollution impacts ____

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 Tadpoles Observed? (Y/N) 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 90 Class 1 HF BAD - 032116 07

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): 25

SITE NAME/LOCATION: ALT Good Hope - Poston
SITE NUMBER 07 RIVER BASIN ____ DRAINAGE AREA (mi²) ____
LENGTH OF STREAM REACH (ft) ____ LAT ____ LONG ____ RIVER CODE ____ RIVER MILE ____
DATE 03/21/16 SCORER BAD, JBL COMMENTS Ephemeral

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 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
☐☐	BLDR SLABS [16 pts]		☐☒	SILT [3 pt]	30
☐☐	BOULDER (>256 mm) [16 pts]	5	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	15
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	5
☐☐	GRAVEL (2-64 mm) [9 pts]	20	☐☐	MUCK [0 pts]	
☐☒	SAND (<2 mm) [6 pts]	25	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 25
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 6

HHEI Metric Points — Substrate Max = 40: 15 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box)
☐ > 30 centimeters [20 pts] ☐ > 22.5 - 30 cm [30 pts] ☐ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts] ☒ < 5 cm [5 pts] ☐ NO WATER OR MOIST CHANNEL [0 pts]
COMMENTS ____ MAXIMUM POOL DEPTH (centimeters): 2"
Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):
☐ > 4.0 meters (> 13') [30 pts] ☐ > 3.0 m - 4.0 m (> 9'7" - 13') [25 pts] ☐ > 1.5 m - 3.0 m (> 4'8" - 9'7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3'3" - 4'8") [15 pts] ☒ ≤ 1.0 m (≤ 3'3") [5 pts]
COMMENTS ____ AVERAGE BANKFULL WIDTH (meters): 2'
Bankfull Width Max=30: 5

This information must also be completed

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

RIPARIAN WIDTH (Per Bank): ☒☒ 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) ☐ 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 ☐ Flat to Moderate ☒ Moderate ☐ Moderate to Severe ☐ Severe

Stream 90 HF BAD 032116 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 ____
☐ 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 UKN Quantity UKN
Photograph Information ____
Elevated Turbidity? (Y/N) Y Canopy (% open) 90
Were samples collected for water chemistry? (Y/N) ____ (Note lab sample no. or id. and attach results) Lab Number ____
Field Measures Temp (°C) ____ Dissolved Oxygen (mg/l) ____ pH (S.U.) ____ Conductivity (µmhos/cm) ____
Is the sampling reach representative of the stream (Y/N) Y If not, please explain ____

Additional comments/description of pollution impacts ____

BIOTIC EVALUATION

Performed? (Y/N) 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 Tadpoles Observed? (Y/N) 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 91 Class 2 HH BBO-032116-06

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): 34

SITE NAME/LOCATION [illegible]

SITE NUMBER 06 RIVER BASIN ____ DRAINAGE AREA (mi²) ____

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

DATE 03/21/16 SCORER BBO, JBL COMMENTS [illegible]

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 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]		☐☒	SILT [3 pt]	35
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	5
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]	10	☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	20	☐☐	MUCK [0 pts]	
☐☒	SAND (<2 mm) [6 pts]	30	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 10

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points — Substrate Max = 40: 14 (A + B)

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

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

COMMENTS ____ MAXIMUM POOL DEPTH (inches): 3"

Pool Depth Max = 30: 15

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

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

COMMENTS ____ AVERAGE BANKFULL WIDTH (feet): 2'

Bankfull Width Max = 30: 5

This information must also be completed

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

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

COMMENTS ____

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

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

COMMENTS 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 ft/100 ft) ☐ Flat to Moderate ☒ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

Stream 91 HH BBO-032116-06

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: 2 Photos

Elevated Turbidity? (Y/N): Y Canopy (% open): 20

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

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

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

Additional comments/description of pollution impacts: Trees & other plants, silty bottom [illegible]

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 Tadpoles Observed? (Y/N) ____ Voucher? (Y/N) 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 92 Mod. Class 1 HH BBO-032116-05

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): 18

SITE NAME/LOCATION [illegible]

SITE NUMBER 05 RIVER BASIN ____ DRAINAGE AREA (mi²) ____

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

DATE 03-21-16 SCORER BBO, JBL COMMENTS Ephemeral

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

Drain pipes throughout area, 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
☐☐	BLDR SLABS [16 pts]		☐☒	SILT [3 pt]	30
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]	10	☐☒	CLAY or HARDPAN [0 pt]	40
☐☐	GRAVEL (2-64 mm) [9 pts]	10	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]	10	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 10

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 3 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points — Substrate Max = 40: 8 (A + B)

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

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

COMMENTS ____ MAXIMUM POOL DEPTH (inches): 2"

Pool Depth Max = 30: 5

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

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

COMMENTS ____ AVERAGE BANKFULL WIDTH (feet): 2'

Bankfull Width Max = 30: 5

This information must also be completed

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

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

COMMENTS ____

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

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

COMMENTS ____

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

Stream 92 HH BBO-032116-05

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: 3/16/16 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) ____ If not, please explain: ____

Additional comments/description of pollution impacts: Drain pipes on road, possibly from former [illegible]

BIOTIC EVALUATION

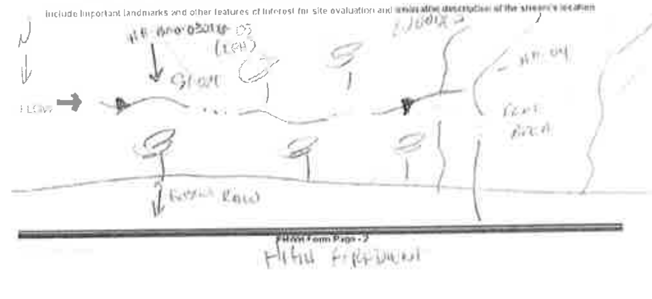
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) N Voucher? (Y/N) ____ Salamanders Observed? (Y/N) N Voucher? (Y/N) ____
Frogs or Tadpoles Observed? (Y/N) 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 93 Mod. Class 1 HH-BAO-032116-04

Ohio EPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION [illegible]

SITE NUMBER 04 RIVER BASIN ____ DRAINAGE AREA (mi²) ____

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

DATE 032116 SCORER BAO, JBL COMMENTS [illegible]

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

Drainage pipes, former disturbance, w/in 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
☐☐	BLDR SLABS [16 pts]		☐☐	SILT [3 pt]	40
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]	5	☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	20	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]	30	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 5

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points — Substrate Max = 40: 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 one box):

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

COMMENTS ____ MAXIMUM POOL DEPTH (inches): 2"

Pool Depth Max = 30: 5

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

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

COMMENTS ____ AVERAGE BANKFULL WIDTH (ft): 2'

Bankfull Width Max=30: 5

This information must also be completed

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

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

COMMENTS ____

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

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

COMMENTS [illegible]

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

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

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☒ Moderate ☐ Moderate to Severe ☐ Severe

Stream 93 HH-BAO-032116-04

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: UNK Quantity: UNK

Photograph Information: 2 Photo Points

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

Were samples collected for water chemistry? (Y/N): ____

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

Is the sampling reach representative of the stream? (Y/N) N If not, please explain: Very disturbed stream by drainage pipes everywhere

Additional comments/description of pollution impacts: ____

BIOTIC EVALUATION

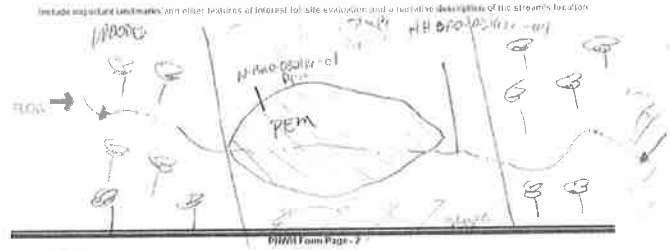
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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



Stream 94 Mod. Class 1 HH-BAO-032116-03

Ohio EPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION [illegible]

SITE NUMBER 03 RIVER BASIN ____ DRAINAGE AREA (mi²) ____

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

DATE 03/21/16 SCORER BAO, JBL COMMENTS [illegible]

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

W/in existing ROW, riparian recovering

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
☐☐	BLDR SLABS [16 pts]		☐☒	SILT [3 pt]	30
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	10
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	10
☐☐	GRAVEL (2-64 mm) [9 pts]	20	☐☐	MUCK [0 pts]	
☐☒	SAND (<2 mm) [6 pts]	30	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock ____

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points — Substrate Max = 40: 14 (A + B)

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

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

COMMENTS ____ MAXIMUM POOL DEPTH (inches): 1"

Pool Depth Max = 30: 5

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

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

COMMENTS ____ AVERAGE BANKFULL WIDTH (ft): 1'

Bankfull Width Max=30: 5

This information must also be completed

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

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

COMMENTS ____

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

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

COMMENTS ____

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

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

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☒ Moderate ☐ Moderate to Severe ☐ Severe

Stream 94 HH-BAO-032116-03

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: UNK Quantity: UNK

Photograph Information: 2 Photos

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

Were samples collected for water chemistry? (Y/N): N

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: Riparian [illegible]

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 Tadpoles Observed? (Y/N) ____ Voucher? (Y/N) ____ Aquatic Macroinvertebrates Observed? (Y/N) ____ Voucher? (Y/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

Stream 95 Mod. Class 1 HH-BAO 032116-02

OhioEPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION Proposed Cook Hgh
SITE NUMBER 02 RIVER BASIN ______ DRAINAGE AREA (mi²) ______
LENGTH OF STREAM REACH (ft) ______ LAT ______ LONG ______ RIVER CODE ______ RIVER MILE ______
DATE 03/21/16 SCORER BAO, JBL COMMENTS ______

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

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY
W/IN 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
☐☐	BLDR SLABS [16 pts]		☐☒	SILT [3 pt]	35
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]	10	☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	25	☐☐	MUCK [0 pts]	
☐☒	SAND (<2 mm) [6 pts]	30	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 10

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points — Substrate Max = 40: 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 one box):
☐ > 30 centimeters [20 pts] ☐ > 22.5 - 30 cm [30 pts] ☐ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts] ☒ < 5 cm [5 pts] ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): 2"

Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):
☐ > 4.0 meters (> 13') [30 pts] ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ☒ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS ______ AVERAGE BANKFULL WIDTH (ft.) 2'

Bankfull Width Max=30: 5

This information must also be completed

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

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

COMMENTS ______

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):
☒ Stream Flowing ☐ Subsurface flow with isolated pools (Interstitial) ☐ Moist Channel, isolated pools, no flow (Intermittent) ☐ Dry channel, no water (Ephemeral)
COMMENTS 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 ☐ Flat to Moderate ☐ Moderate ☐ Moderate to Severe ☒ Severe

Stream 95 HH-BAO-032116-02

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: UNK Quantity: UNK
Photograph Information: 2 photos
Elevated Turbidity? (Y/N): Y 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: ______

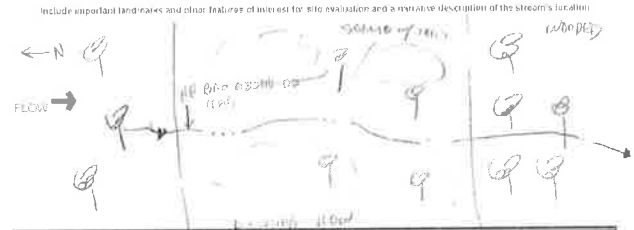
BIOTIC EVALUATION

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) ___ Salamanders Observed? (Y/N) 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



Stream 96 Mod. Class 1 HH-BAO-032116-01

OhioEPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION Proposed ______
SITE NUMBER ______ RIVER BASIN ______ DRAINAGE AREA (mi²) ______
LENGTH OF STREAM REACH (ft) ______ LAT ______ LONG ______ RIVER CODE ______ RIVER MILE ______
DATE 03/21/16 SCORER BAO, JBL COMMENTS ______

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

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY
Riparian w/in 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
☐☐	BLDR SLABS [16 pts]		☐☒	SILT [3 pt]	40
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]	10	☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	20	☐☐	MUCK [0 pts]	
☐☒	SAND (<2 mm) [6 pts]	30	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 10

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points — Substrate Max = 40: 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 one box):
☐ > 30 centimeters [20 pts] ☐ > 22.5 - 30 cm [30 pts] ☐ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts] ☒ < 5 cm [5 pts] ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ______ MAXIMUM POOL DEPTH (inches): 3"

Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):
☐ > 4.0 meters (> 13') [30 pts] ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ☒ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS ______ AVERAGE BANKFULL WIDTH (ft) 1'

Bankfull Width Max=30: 5

This information must also be completed

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

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

COMMENTS ______

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):
☒ Stream Flowing ☐ Subsurface flow with isolated pools (Interstitial) ☐ Moist Channel, isolated pools, no flow (Intermittent) ☐ Dry channel, no water (Ephemeral)
COMMENTS 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 ☐ Flat to Moderate ☐ Moderate ☒ Moderate to Severe ☐ Severe

Stream 96 HH-BAO-032116-01

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)
☐ 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: ______
Photograph Information: 2 photos
Elevated Turbidity? (Y/N): Y Canopy (% open): 60
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: ______
Field Measures: Temp (°C) ______ Dissolved Oxygen (mg/l) ______ pH (S.U.) ______ Conductivity (µmhos/cm) ______
Is the sampling reach representative of the stream (Y/N) ______ 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 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

High Grass

Mod. Class 1 | Stream 97

OhioEPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION: AEP Poston-Good Hope

SITE NUMBER: ____ RIVER BASIN: ____ DRAINAGE AREA (mi²): ____

LENGTH OF STREAM REACH (ft): ____ LAT: ____ LONG: ____ RIVER CODE: ____ RIVER MILE: ____

DATE: 03/23/16 SCORER: BAO/JBL COMMENTS: Ephemeral; hh-bao-032316-01

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

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

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

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

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

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 4

HHEI Metric Points — Substrate Max = 40: 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* one box):

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

COMMENTS: In inches MAXIMUM POOL DEPTH (centimeters): 1

Pool Depth Max = 30: 5

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

☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 5' 0" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☑ < 1.0 m (<=3' 3") [5 pts]

COMMENTS: In feet AVERAGE BANKFULL WIDTH (meters): 1.00

Bankfull Width Max=30: 5

This information must also be completed

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

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

COMMENTS

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):
☑ Stream Flowing
☐ Subsurface flow with isolated pools (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)
COMMENTS: 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 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☑ Moderate to Severe ☐ Severe (10 ft/100 ft)

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ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed): Stream 97

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): 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, algea concerns

BIOTIC EVALUATION

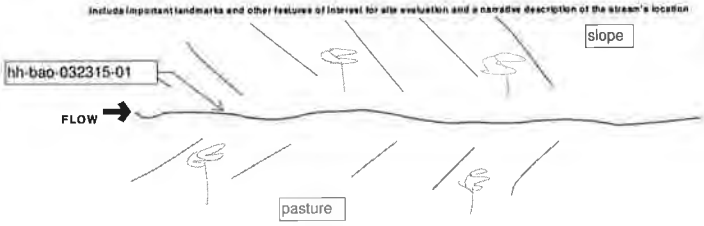
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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: ____

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 98

OhioEPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION: AEP Poston-Good Hope

SITE NUMBER: ____ RIVER BASIN: ____ DRAINAGE AREA (mi²): ____

LENGTH OF STREAM REACH (ft): ____ LAT: ____ LONG: ____ RIVER CODE: ____ RIVER MILE: ____

DATE: 03/23/16 SCORER: BAO/JBL COMMENTS: Ephemeral; hh-bao-032316-02

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 within pasture

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

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☑	SILT [3 pt]	40%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	10%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	45%	☐	ARTIFICIAL [3 pts]	0%

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

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 4

HHEI Metric Points — Substrate Max = 40: 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* one box)

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

COMMENTS: In inches MAXIMUM POOL DEPTH (centimeters): 1

Pool Depth Max = 30: 5

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

☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 5' 0" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☑ < 1.0 m (<=3' 3") [5 pts]

COMMENTS: In feet AVERAGE BANKFULL WIDTH (meters): 1.00

Bankfull Width Max=30: 5

This information must also be completed

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

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

COMMENTS

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):
☑ Stream Flowing
☐ Subsurface flow with isolated pools (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)
COMMENTS: 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 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☑ Moderate to Severe ☐ Severe (10 ft/100 ft)

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ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed): Stream 98

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, algea concerns

BIOTIC EVALUATION

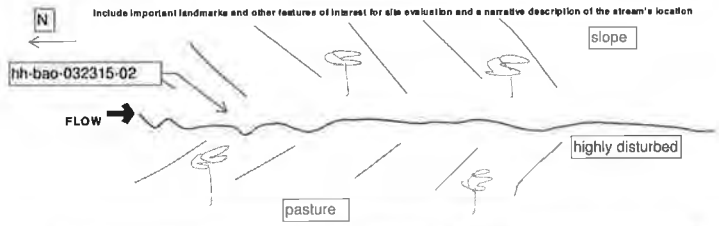
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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: ____

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 2 | Stream 99

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 49

SITE NAME/LOCATION: AEP Poston-Good Hope

SITE NUMBER: ____ RIVER BASIN: ____ DRAINAGE AREA (mi²): ____

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 8). Final metric score is sum of boxes A & B

TYPE		PERCENT	TYPE		PERCENT
☐☐	BLDR SLABS [16 pts]	0%	☑☐	SILT [3 pt]	30%
☐☐	BOULDER (>256 mm) [16 pts]	0%	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	0%
☐☑	BEDROCK [16 pt]	50%	☐☐	FINE DETRITUS [3 pts]	0%
☐☐	COBBLE (65-256 mm) [12 pts]	0%	☐☐	CLAY or HARDPAN [0 pt]	5%
☐☐	GRAVEL (2-64 mm) [9 pts]	10%	☐☐	MUCK [0 pts]	0%
☐☐	SAND (<2 mm) [6 pts]	5%	☐☐	ARTIFICIAL [3 pts]	0%

Total of 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

HHEI Metric Points — Substrate Max = 40: 24 (A + B)

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

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

COMMENTS: in inches MAXIMUM POOL DEPTH (centimeters): 16

Pool Depth Max = 30: 20

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

COMMENTS: in feet AVERAGE BANKFULL WIDTH (meters): 3.00

Bankfull Width Max=30: 5

This information must also be completed

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

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

COMMENTS

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

☑ Stream Flowing ☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ 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 ☐ 1.0 ☐ 2.0 ☐ 3.0
☐ 0.5 ☐ 1.5 ☑ 2.5 ☐ >3

STREAM GRADIENT ESTIMATE

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

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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: 0.00

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 (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

BIOTIC EVALUATION

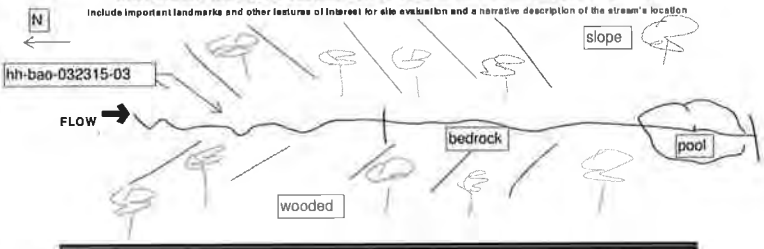
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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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Mod. Class 2 | Stream 100

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 34

SITE NAME/LOCATION: AEP Poston-Good Hope

SITE NUMBER: ____ RIVER BASIN: ____ DRAINAGE AREA (mi²): ____

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 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐☐	BLDR SLABS [16 pts]	0%	☑☐	SILT [3 pt]	30%
☐☐	BOULDER (>256 mm) [16 pts]	0%	☑☐	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐☐	BEDROCK [16 pt]	0%	☐☐	FINE DETRITUS [3 pts]	0%
☐☐	COBBLE (65-256 mm) [12 pts]	5%	☐☐	CLAY or HARDPAN [0 pts]	0%
☐☐	GRAVEL (2-64 mm) [9 pts]	20%	☐☐	MUCK [0 pts]	0%
☐☑	SAND (<2 mm) [6 pts]	35%	☐☐	ARTIFICIAL [3 pts]	0%

Total of 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

HHEI Metric Points — Substrate Max = 40: 14 (A + B)

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

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

COMMENTS: in inches MAXIMUM POOL DEPTH (centimeters): 3

Pool Depth Max = 30: 15

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

COMMENTS: in feet AVERAGE BANKFULL WIDTH (meters): 2.00

Bankfull Width Max=30: 5

This information must also be completed

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

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

COMMENTS

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

☐ Stream Flowing ☑ Moist Channel, isolated pools, no flow (Intermittent)
☐ 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 ☐ 1.0 ☐ 2.0 ☐ 3.0
☐ 0.5 ☐ 1.5 ☑ 2.5 ☐ >3

STREAM GRADIENT ESTIMATE

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

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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: 0.00

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 (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

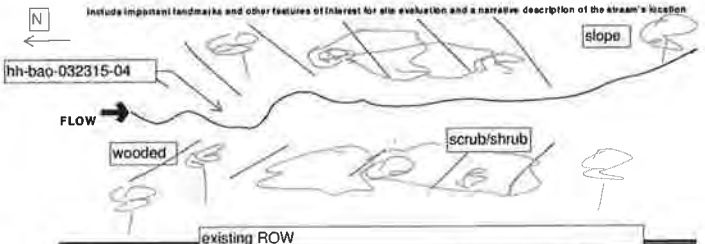
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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



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Mod. Class 1 | Stream 101

OhioEPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION: AEP Poston-Good Hope

SITE NUMBER ____ RIVER BASIN ____ DRAINAGE AREA (mi²) ____

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 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 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☑	SILT [3 pt]	40%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	15%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	10%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	35%	☐	ARTIFICIAL [3 pts]	0%

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

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 4

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

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

COMMENTS in inches 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') [30 pts] ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ☑ < 1.0 m (<=3' 3") [5 pts]
☐ > 1.5 m - 3.0 m (> 6' 7" - 4' 8") [20 pts]

COMMENTS in feet AVERAGE BANKFULL WIDTH (meters): 1.00

HHEI Metric Points

	Max	Score
Substrate (A + B)	40	13
Pool Depth	30	5
Bankfull Width	30	5

This information must also be completed

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

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

COMMENTS

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):
☐ Stream Flowing ☑ Moist Channel, isolated pools, no flow (Intermittent)
☐ 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 ☐ 1.0 ☑ 2.0 ☐ 3.0
☐ 0.5 ☐ 1.5 ☐ 2.5 ☐ >3

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

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Stream 101

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: ____

BIOTIC EVALUATION

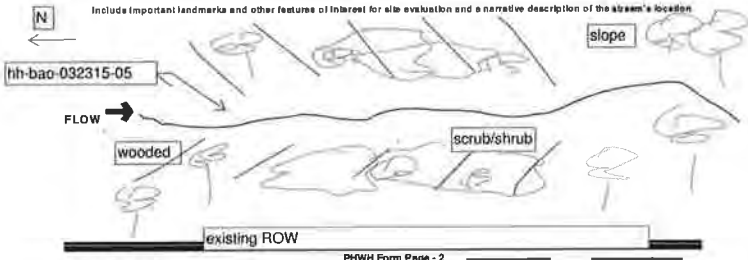
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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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Mod. Class 1 | Stream 102

OhioEPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION: AEP Poston-Good Hope

SITE NUMBER ____ RIVER BASIN ____ DRAINAGE AREA (mi²) ____

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 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 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☑	SILT [3 pt]	40%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	15%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	10%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	35%	☐	ARTIFICIAL [3 pts]	0%

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

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 4

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

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

COMMENTS in inches 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') [30 pts] ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ☑ < 1.0 m (<=3' 3") [5 pts]
☐ > 1.5 m - 3.0 m (> 6' 7" - 4' 8") [20 pts]

COMMENTS in feet AVERAGE BANKFULL WIDTH (meters): 1.00

HHEI Metric Points

	Max	Score
Substrate (A + B)	40	13
Pool Depth	30	5
Bankfull Width	30	5

This information must also be completed

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

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

COMMENTS

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):
☐ Stream Flowing ☑ Moist Channel, isolated pools, no flow (Intermittent)
☐ 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 ☐ 1.0 ☑ 2.0 ☐ 3.0
☐ 0.5 ☐ 1.5 ☐ 2.5 ☐ >3

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

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Stream 102

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: ____

BIOTIC EVALUATION

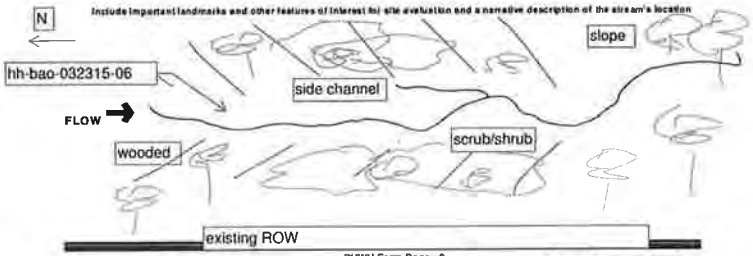
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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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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 (mi²): ____
LENGTH OF STREAM REACH (ft): ____ LAT.: ____ LONG.: ____ RIVER CODE: ____ RIVER MILE: ____
DATE: 03/23/16 SCORER: BAO/JBL COMMENTS: Ephemeral; hh-bao-032316-07

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 8). Final metric score is sum of boxes A & B

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☑ ☐	SILT [3 pts]	35%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☑	LEAF PACK/WOODY DEBRIS [3 pts]	15%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	10%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	10%	☐ ☐	MUCK [0 pts]	0%
☐ ☑	SAND (<2 mm) [6 pts]	30%	☐ ☐	ARTIFICIAL [3 pts]	0%

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

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

HHEI Metric Points — Substrate Max = 40: 14 (A + B)

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

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

COMMENTS: In inches MAXIMUM POOL DEPTH (centimeters): 2

Pool Depth Max = 30: 5

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

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

COMMENTS: In feet AVERAGE BANKFULL WIDTH (meters): 1.00

Bankfull Width Max=30: 5

This information must also be completed

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

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

COMMENTS

FLOW REGIME (At Time of Evaluation) (Check ONLY one box)
☐ Stream Flowing
☐ Subsurface flow with isolated pools (Interstitial)
☑ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)
COMMENTS: 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 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☑ Moderate to Severe ☐ Severe (10 ft/100 ft)

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ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed): Stream 103

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: ____

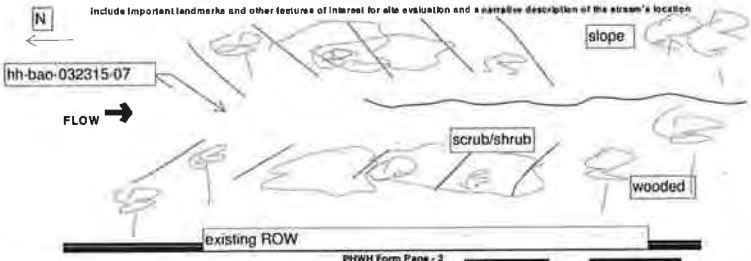
MISCELLANEOUS

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: ____

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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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 (mi²): ____
LENGTH OF STREAM REACH (ft): ____ LAT.: ____ LONG.: ____ RIVER CODE: ____ RIVER MILE: ____
DATE: 03/23/16 SCORER: BAO/JBL COMMENTS: Ephemeral; hh-bao-032316-08

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 8). Final metric score is sum of boxes A & B

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☑ ☐	SILT [3 pts]	35%
☐ ☐	BOULDER (>256 mm) [16 pts]	5%	☑ ☑	LEAF PACK/WOODY DEBRIS [3 pts]	35%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	0%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☐	GRAVEL (2-64 mm) [9 pts]	10%	☐ ☐	MUCK [0 pts]	0%
☐ ☐	SAND (<2 mm) [6 pts]	15%	☐ ☐	ARTIFICIAL [3 pts]	0%

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

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 TOTAL NUMBER OF SUBSTRATE TYPES: 5

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

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

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

COMMENTS: In inches MAXIMUM POOL DEPTH (centimeters): 0

Pool Depth Max = 30: 0

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

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

COMMENTS: In feet AVERAGE BANKFULL WIDTH (meters): 1.00

Bankfull Width Max=30: 5

This information must also be completed

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

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

COMMENTS

FLOW REGIME (At Time of Evaluation) (Check ONLY one box)
☐ Stream Flowing
☐ Subsurface flow with isolated pools (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☑ Dry channel, no water (Ephemeral)
COMMENTS: 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 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☑ Severe (10 ft/100 ft)

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ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed): Stream 104

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): 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): 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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Mod. Class 1 | Stream 105

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 25

SITE NAME/LOCATION: AEP Poston-Good Hope

SITE NUMBER: ____ RIVER BASIN: ____ DRAINAGE AREA (mi²): ____

LENGTH OF STREAM REACH (ft): ____ LAT: ____ LONG: ____ RIVER CODE: ____ RIVER MILE: ____

DATE: 03/23/16 SCORER: BAO/JBL COMMENTS: Intermittent; hh-bao-032315-09

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

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

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

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 6

HHEI Metric Points — Substrate Max = 40: 15 (A + B)

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

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

COMMENTS: in inches MAXIMUM POOL DEPTH (centimeters): 2

Pool Depth Max = 30: 5

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

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

COMMENTS: in feet AVERAGE BANKFULL WIDTH (meters): 2.00

Bankfull Width Max=30: 5

This information must also be completed

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

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

COMMENTS

FLOW REGIME (*At Time of Evaluation*) (Check *ONLY* one box):
☑ Stream Flowing ☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ 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 ☐ 1.0 ☐ 2.0 ☐ 3.0
☐ 0.5 ☐ 1.5 ☐ 2.5 ☑ >3

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

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ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed): Stream 105

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): 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) 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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[redacted] [redacted]

Stream 106 Mod. Class 1 HH-BAO-032316-09

OhioEPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION: AEP Poston-Good Hope

SITE NUMBER: 105 RIVER BASIN: ____ DRAINAGE AREA (mi²): ____

LENGTH OF STREAM REACH (ft): ____ LAT: ____ LONG: ____ RIVER CODE: ____ RIVER MILE: ____

DATE: 03/23/16 SCORER: BAO JBL COMMENTS: INTERMITTENT

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

RIPARIAN AREA CLEARED

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
☐☐ BLDR SLABS [16 pts]		☐☒ SILT [3 pts]	40
☐☐ BOULDER (>256 mm) [16 pts]		☐☐ LEAF PACK/WOODY DEBRIS [3 pts]	10
☐☐ BEDROCK [16 pts]		☐☐ FINE DETRITUS [3 pts]	
☐☐ COBBLE (65-256 mm) [12 pts]		☐☐ CLAY or HARDPAN [0 pts]	
☐☐ GRAVEL (2-64 mm) [9 pts]		☐☒ MUCK [0 pts]	30
☐☐ SAND (<2 mm) [6 pts]	20	☐☐ ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: ____ (A) 3 (B) 4

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

HHEI Metric Points — Substrate Max = 40: 7 (A + B)

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

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

COMMENTS: MAXIMUM POOL DEPTH (centimeters): 3"

Pool Depth Max = 30: 15

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

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

COMMENTS: AVERAGE BANKFULL WIDTH (meters): 2'

Bankfull Width Max=30: 5

This information must also be completed

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

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

COMMENTS

FLOW REGIME (*At Time of Evaluation*) (Check *ONLY* one box):
☒ Stream Flowing ☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Subsurface flow with isolated pools (Interstitial) ☐ Dry channel, no water (Ephemeral)
COMMENTS

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

STREAM GRADIENT ESTIMATE
☒ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

PHWH Form Page - 1

Stream 106 HH-BAO-032315-09

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: UKN Quantity: UKN

Photograph Information: 2 photos

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

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

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

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

Additional comments/description of pollution impacts: ____

BIOTIC EVALUATION

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

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

PHWH Form Page - 2

Stream 107 Mod. Class 2 HH Bio 0302 14 08

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 44

SITE NAME/LOCATION ACP Preston - Good Hope

SITE NUMBER 14 RIVER BASIN ______ DRAINAGE AREA (mi²) ______

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

DATE 03/22/16 SCORER CA; JBL COMMENTS INTERMITTENT

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

former RR BED LOCATED ADJ.

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
☐☐	BLDR SLABS [16 pts]		☐☐	SILT [3 pt]	20
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]	10	☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	40	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]	30	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 10

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 15

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points — Substrate Max = 40: 19 (A + B)

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

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

COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): 16

Pool Depth Max = 30: 25

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

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

COMMENTS ______ AVERAGE BANKFULL WIDTH (meters) 3

Bankfull Width Max = 30: 5

This information must also be completed

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

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

COMMENTS ______

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 Springs Observed

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/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe

Stream 107 HH Bio 0302 14 08

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 UNK Quantity UNK

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) 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) ___ Salamanders Observed? (Y/N) N Voucher? (Y/N) ___
Frogs or Tadpoles 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

Stream 108 Good Warmwater QH Bio 0302 14 01

OhioEPA Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 61

Stream & Location: ACP Preston - Good Hope RM: ___ Date: 03/22/16

Scorers Full Name & Affiliation: Bio; AECOM

River Code: ___ STORET #: ___ Lat./Long.: ___ 18 ___ Office verified location ☐

1] SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

BEST TYPES	POOL	RIFFLE	OTHER TYPES	POOL	RIFFLE
☐☐ BLDR /SLABS [10]			☐☐ HARDPAN [4]	10	10
☐☐ BOULDER [9]		5	☐☐ DETRITUS [3]	10	
☐☐ COBBLE [8]	10	20	☐☐ MUCK [2]		
☐☒ GRAVEL [7]		45	☐☒ SILT [2]	40	10
☐☐ SAND [6]	30	10	☐☐ ARTIFICIAL [0]		
☐☐ BEDROCK [5]					

(Score natural substrates; ignore sludge from point-sources)

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

ORIGIN: ☐ LIMESTONE [1] ☐ TILLS [1] ☐ WETLANDS [0] ☐ HARDPAN [0] ☒ SANDSTONE [0] ☐ RIPRAP [0] ☐ LACUSTURINE [0] ☒ SHALE [-1] ☐ COAL FINES [-2]

QUALITY (Check ONE (Or 2 & average)): SILT: ☐ HEAVY [-2] ☒ MODERATE [-1] ☐ NORMAL [0] ☐ FREE [1]; EMBEDDEDNESS: ☐ EXTENSIVE [-2] ☐ MODERATE [-1] ☒ NORMAL [0] ☐ NONE [1]

Substrate Maximum 20: 7

Comments 2 4 -1

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

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

AMOUNT Check ONE (Or 2 & average): ☐ EXTENSIVE >75% [11] ☒ MODERATE 25-75% [7] ☐ SPARSE 5-<25% [3] ☐ NEARLY ABSENT <5% [1]

Comments 7 Cover Maximum 20: 11

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

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

Comments 3 5 4 2 Channel Maximum 20: 14

4] BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average) River right looking downstream

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

Indicate predominant land use(s) past 100m riparian

Comments 2 4 2 Riparian Maximum 10: 8

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

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

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

Comments 4 2 1 Pool / Current Maximum 12: 7

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

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

Comments 2 1 1 0 Riffle / Run Maximum 8: 4

6] GRADIENT (15 ft/mi) DRAINAGE AREA (11.7 mi²) ☐ VERY LOW - LOW [2-4] ☐ MODERATE [6-10] ☐ HIGH - VERY HIGH [10-6]

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

Gradient Maximum 10: 10

Stream 108

A] SAMPLED REACH Check ALL that apply

METHOD: ☐ BOAT ☐ WADE ☐ L. LINE ☐ OTHER
DISTANCE: ☐ 0.5 Km ☐ 0.2 Km ☐ 0.15 Km ☐ 0.12 Km ☐ OTHER ___ meters
STAGE (1st sample pass - 2nd): ☐ HIGH ☐ UP ☐ NORMAL ☐ LOW ☐ DRY
CLARITY (1st sample pass - 2nd): ☐ < 20 cm ☐ 20-<40 cm ☐ 40-70 cm ☐ > 70 cm/ CTB ☐ SECCHI DEPTH 1st ___ cm 2nd ___ cm
CANOPY: ☐ > 85%- OPEN ☐ 55%-<85% ☐ 30%-<55% ☐ 10%-<30% ☐ <10%- CLOSED

C] REC

Comment RE: Reach consistency/ Is reach typical of steam? Recreation/ Observed - Inferred, Other/ Sampling observations, Concerns, Access directions, etc.

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

ION AREA DEPTH POOL: ☐ >100ft² ☐ >3ft

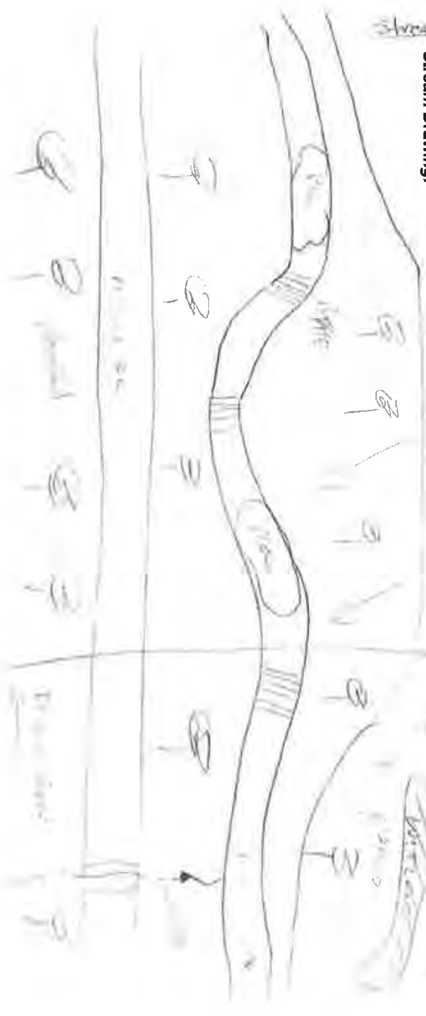
D] MAINTENANCE: PUBLIC / PRIVATE / BOTH / NA; ACTIVE / HISTORIC / BOTH / NA; YOUNG-SUCCESSION-OLD; SPRAY / SNAG / REMOVED; MODIFIED / DIPPED OUT / NA; LEVEED / ONE SIDED; RELOCATED / CUTOFFS; MOVING-BEDLOAD-STABLE; ARMOURED / SLUMPS; ISLANDS / SCOURED; IMPOUNDED / DESICCATED; FLOOD CONTROL / DRAINAGE

Circle some & COMMENT

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

F] MEASUREMENTS: x̄ width 20 Ft.; x̄ depth; max. depth 24 Ft; x̄ bankfull width; bankfull x̄ depth; W/D ratio; bankfull max. depth; floodprone x² width; entrench. ratio; Le Tree:

Stream Drawing:



Stream 109 Mod. Class 1 HH BAO 032216 07

OhioEPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION Good Hope [illegible]

SITE NUMBER 07 RIVER BASIN ____ DRAINAGE AREA (mi²) ____

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

DATE 03/22/16 SCORER BAO/JBL COMMENTS EPHEMERAL

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

W/IN EXISTING ROW, Riparian Cut

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
☐☐	BLDR SLABS [16 pts]		☐☐	SILT [3 pt]	40
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	20
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	10	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]	30	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock ____

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points — Substrate Max = 40: 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 one box)

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

COMMENTS ____ MAXIMUM POOL DEPTH (centimeters) in: 1"

Pool Depth Max = 30: 5

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

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

COMMENTS ____ AVERAGE BANKFULL WIDTH (meters) ft: 1'

Bankfull Width Max=30: 5

This information must also be completed

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

RIPARIAN WIDTH (Per Bank) L R: ☐☐ 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 (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)

COMMENTS ____

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

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

STREAM GRADIENT ESTIMATE

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

Stream 109 HH BAO 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 ____
☐ 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: UKN Quantity UKN

Photograph information: 2 photos

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

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

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

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

Additional comments/description of pollution impacts ____

BIOTIC EVALUATION

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

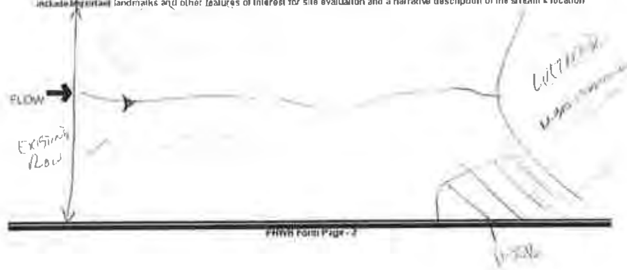
Fish Observed? (Y/N) N Voucher? (Y/N) ____ Salamanders Observed? (Y/N) N Voucher? (Y/N) ____
Frogs or Tadpoles Observed? (Y/N) ____ Voucher? (Y/N) ____ Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) ____

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 ➜



Mod. Class 2 Stream 110

OhioEPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION **AEP Poston-Good Hope**

SITE NUMBER ____ RIVER BASIN ____ DRAINAGE AREA (mi²) ____

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

DATE **03/22/16** SCORER **BAO/JBL** 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 MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

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

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

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 10.00%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 15

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points — Substrate Max = 40: 20 (A + B)

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

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

COMMENTS In inches MAXIMUM POOL DEPTH (centimeters): 6

Pool Depth Max = 30: 25

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

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

COMMENTS In feet AVERAGE BANKFULL WIDTH (meters): 4.00

Bankfull Width Max=30: 15

This information must also be completed

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

RIPARIAN WIDTH (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 (Interstitial)
☐ Moist 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 one box):

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

STREAM GRADIENT ESTIMATE

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

Stream 110

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): 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:

former mining

BIOTIC EVALUATION

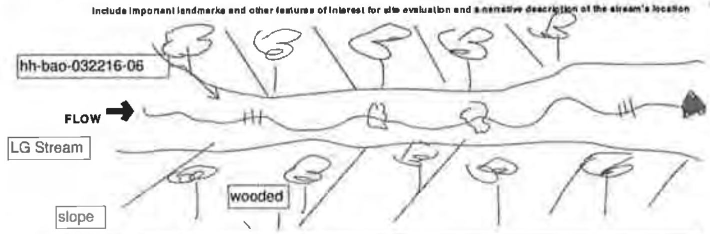
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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



Reset Form

Class 2 | Stream 111

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 34

SITE NAME/LOCATION: AEP Poston-Good Hope
SITE NUMBER: ____ RIVER BASIN: ____ DRAINAGE AREA (mi²): ____
LENGTH OF STREAM REACH (ft): ____ LAT: ____ LONG: ____ RIVER CODE: ____ RIVER MILE: ____
DATE: 03/22/16 SCORER: BAO/JBL COMMENTS: Intermittent; 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 6). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
[ ]	BLDR SLABS [16 pts]	0%	[✓]	SILT [3 pt]	35%
[ ]	BOULDER (>256 mm) [16 pts]	0%	[ ]	LEAF PACK/WOODY DEBRIS [3 pts]	0%
[ ]	BEDROCK [16 pt]	10%	[ ]	FINE DETRITUS [3 pts]	0%
[ ]	COBBLE (65-256 mm) [12 pts]	0%	[ ]	CLAY or HARDPAN [0 pt]	10%
[ ]	GRAVEL (2-64 mm) [9 pts]	15%	[ ]	MUCK [0 pts]	0%
[✓]	SAND (<2 mm) [6 pts]	30%	[ ]	ARTIFICIAL [3 pts]	0%

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

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

HHEI Metric Points: Substrate Max = 40: 14; A + B

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

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

COMMENTS: in inches MAXIMUM POOL DEPTH (centimeters): 3

Pool Depth Max = 30: 15

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 (> 5' 7" - 9' 7") [20 pts]
- [ ] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- [✓] < 1.0 m (<=3' 3") [5 pts]

COMMENTS: in feet AVERAGE BANKFULL WIDTH (meters): 3.00

Bankfull Width Max=30: 5

This information must also be completed

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

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

COMMENTS:

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

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

COMMENTS: ephemeral

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

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

STREAM GRADIENT ESTIMATE

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

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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

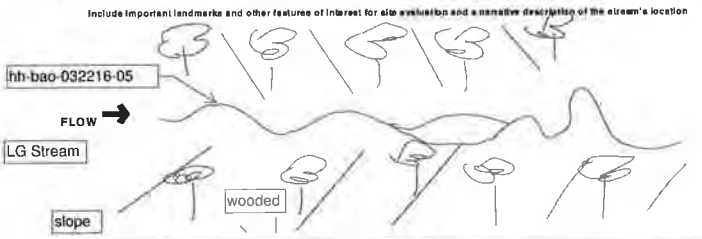
Base Flow Conditions? (Y/N): Y Date of last precipitation: ____ Quantity: 0.00
Photograph Information: 2 photos
Elevated Turbidity? (Y/N): Y Canopy (% open): 40%
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: ____
Field Measures: Temp (°C) ____ Dissolved Oxygen (mg/l) ____ pH (S.U.) ____ Conductivity (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): 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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Class 1 | Stream 112

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 18

SITE NAME/LOCATION: AEP Poston-Good Hope
SITE NUMBER: ____ RIVER BASIN: ____ DRAINAGE AREA (mi²): ____
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 6). Final metric score is sum of boxes A & B.

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

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

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 4

HHEI Metric Points: Substrate Max = 40: 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* one box)

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

COMMENTS: in inches MAXIMUM POOL DEPTH (centimeters): 0

Pool Depth Max = 30: 0

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

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

COMMENTS: in feet AVERAGE BANKFULL WIDTH (meters): 1.00

Bankfull Width Max=30: 5

This information must also be completed

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

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

COMMENTS:

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

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

COMMENTS: ephemeral

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

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

STREAM GRADIENT ESTIMATE

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

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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

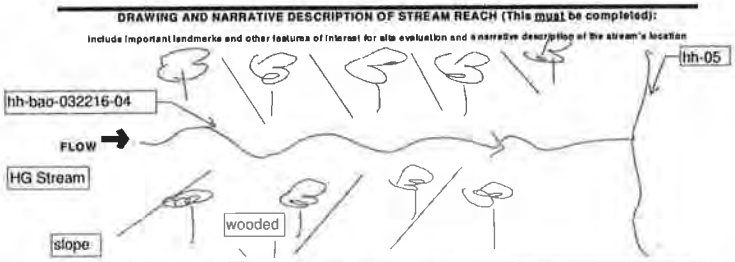
Base Flow Conditions? (Y/N): Y Date of last precipitation: ____ Quantity: 0.00
Photograph Information: 2 photos
Elevated Turbidity? (Y/N): Y Canopy (% open): 20%
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: ____
Field Measures: Temp (°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: ____
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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Class 2 | Stream 113

OhioEPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION: AEP Poston-Good Hope

SITE NUMBER: ____ RIVER BASIN: ____ DRAINAGE AREA (mi²): ____

LENGTH OF STREAM REACH (ft): ____ LAT: ____ LONG: ____ RIVER CODE: ____ RIVER MILE: ____

DATE: 03/22/16 SCORER: BAO/JBL 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
☐	BLDR SLABS [16 pts]	0%	☑	SILT [3 pt]	40%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	15%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	30%	☐	ARTIFICIAL [3 pts]	0%

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

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 4

HHEI Metric Points — Substrate Max = 40: 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* one box)
- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☑ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: in inches MAXIMUM POOL DEPTH (centimeters): 3

Pool Depth Max = 30: 15

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):
- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ < 1.0 m (<=3' 3") [5 pts]

COMMENTS: in feet AVERAGE BANKFULL WIDTH (meters): 1.50

Bankfull Width Max=30: 5

This information must also be completed

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

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

COMMENTS:

FLOW REGIME (*At Time of Evaluation*) (Check *ONLY* one box):
- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

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

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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: 0.00

Photograph Information: 2 photos

Elevated 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)

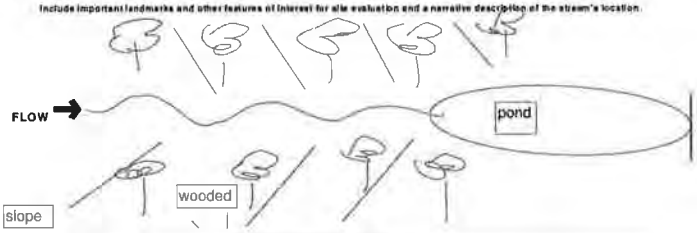
Fish Observed? (Y/N): N Voucher? (Y/N): N Salamanders Observed? (Y/N): N Voucher? (Y/N): N

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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Mod. Class 1 | Stream 114

OhioEPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION: AEP Poston-Good Hope

SITE NUMBER: 02 RIVER BASIN: ____ DRAINAGE AREA (mi²): ____

LENGTH OF STREAM REACH (ft): ____ LAT: ____ LONG: ____ RIVER CODE: ____ RIVER MILE: ____

DATE: 03/22/16 SCORER: BAO/JBL 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
☐	BLDR SLABS [16 pts]	0%	☑	SILT [3 pt]	40%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	5%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☐	GRAVEL (2-64 mm) [9 pts]	15%	☐	MUCK [0 pts]	0%
☑	SAND (<2 mm) [6 pts]	30%	☐	ARTIFICIAL [3 pts]	5%

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

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

HHEI Metric Points — Substrate Max = 40: 14 (A + B)

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes*) (Check *ONLY* one box)
- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: in inches MAXIMUM POOL DEPTH (centimeters): 1

Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):
- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☑ < 1.0 m (<=3' 3") [5 pts]

COMMENTS: in feet AVERAGE BANKFULL WIDTH (meters): 2.00

Bankfull Width Max=30: 5

This information must also be completed

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

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

COMMENTS:

FLOW REGIME (*At Time of Evaluation*) (Check *ONLY* one box):
- ☑ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

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

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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: 0.00

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 (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, algea 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)

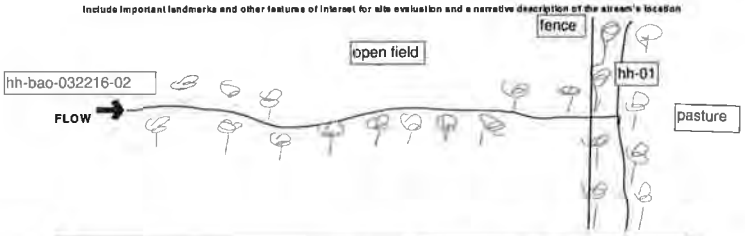
Fish Observed? (Y/N): N Voucher? (Y/N): N Salamanders Observed? (Y/N): N Voucher? (Y/N): N

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

Comments Regarding Biology: ____

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 — PHWH Form Page - 2 [redacted]

Mod. Class 2 | Stream 115

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 44

SITE NAME/LOCATION: AEP Poston-Good Hope

SITE NUMBER ______ RIVER BASIN ______ DRAINAGE AREA (mi²) ______

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 PHWH 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 8). Final metric score is sum of boxes A & B

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

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0.00%

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points — Substrate Max = 40: 14 (A + B)

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

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

COMMENTS in inches MAXIMUM POOL DEPTH (centimeters): 6

Pool Depth Max = 30: 25

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

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

COMMENTS in feet AVERAGE BANKFULL WIDTH (meters): 3.00

Bankfull Width Max=30: 5

This information must also be completed

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

RIPARIAN WIDTH (Per Bank), L R:
☐☐ 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 (Interstitial)
☐ Moist 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* one box):
☐ None ☐ 0.5 ☐ 1.0 ☐ 1.5 ☐ 2.0 ☐ 2.5 ☐ 3.0 ☑ >3

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

Stream 115

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): 60%

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

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

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

Additional comments/description of pollution impacts: pasture runoff, algea concerns

BIOTIC EVALUATION

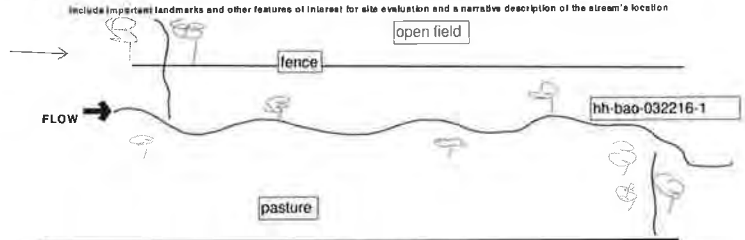
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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: ______

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



Reset Form

Stream 116 Mod. Class 2

OhioEPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION Good Hope - Poston

SITE NUMBER ______ RIVER BASIN ______ DRAINAGE AREA (mi²) ______

LENGTH OF STREAM REACH (ft) 200 ft LAT. ______ LONG. ______ RIVER CODE ______ RIVER MILE ______

DATE 03/24/16 SCORER BAO/BCB COMMENTS Intermittent

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

[illegible] transmission line and partially within pasture

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
☐☐	BLDR SLABS [16 pts]		☒☐	SILT [3 pt]	30
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	15
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	15	☐☐	MUCK [0 pts]	
☐☒	SAND (<2 mm) [6 pts]	40	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock ______

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points — Substrate Max = 40: 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* one box):

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

COMMENTS ______ MAXIMUM POOL DEPTH (~~centimeters~~ inches): 3"

Pool Depth Max = 30: 15

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

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

COMMENTS ______ AVERAGE BANKFULL WIDTH (~~meters~~ feet): 2'

Bankfull Width Max=30: 5

This information must also be completed

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

RIPARIAN WIDTH (Per Bank), L R:
☐☐ 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 (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)

COMMENTS

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

STREAM GRADIENT ESTIMATE
☐ Flat (0.5 ft/100 ft) ☒ Flat to Moderate ☐ Moderate ☐ Moderate to Severe ☐ Severe

Stream 116

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 Recent snowmelt

Base Flow Conditions? (Y/N) N Date of last precipitation ______ Quantity ______

Photograph Information [illegible]

Elevated Turbidity? (Y/N) N Canopy (% open) 95%

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

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

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

Additional comments/description of pollution impacts [illegible] nutrient input.

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

Stream 117

Mod. Class 2

Ohio EPA Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION [illegible]
SITE NUMBER [illegible] RIVER BASIN ____ DRAINAGE AREA (mi²) ____
LENGTH OF STREAM REACH (ft) 50 ft LAT ____ LONG ____ RIVER CODE ____ RIVER MILE ____
DATE 02/24/16 SCORER [illegible] COMMENTS [illegible]

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
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
☐☐	BLDR SLABS [16 pts]		☒☐	SILT [3 pt]	60
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	10
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	10	☐☐	MUCK [0 pts]	
☐☒	SAND (<2 mm) [6 pts]	20	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock ____
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4
HHEI Metric Points — Substrate Max = 40: 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* one box):
☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☒ > 5 cm - 10 cm [15 pts]
☐ < 5 cm [5 pts]
☐ NO WATER OR MOIST CHANNEL [0 pts]
COMMENTS ____ MAXIMUM POOL DEPTH (centimeters): 3"
Pool Depth Max = 30: 15

3\. **BANK FULL WIDTH** (Measured as the average of 3-4 measurements) (Check *ONLY* one box):
☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☒ ≤ 1.0 m (≤ 3' 3") [5 pts]
COMMENTS ____ AVERAGE BANKFULL WIDTH (meters) 1.5 ft
Bankfull Width Max = 30: 5

This information must also be completed

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

RIPARIAN WIDTH (Per Bank), L R: ☒☐ 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 (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)
COMMENTS ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):
☐ None ☐ 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

Stream 117

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 — Recent snowmelt contributes to flow
Base Flow Conditions? (Y/N) N Date of last precipitation ____ Quantity ____
Photograph Information: 2 Photos, Upstream + Downstream
Elevated Turbidity? (Y/N) N Canopy (% open) 40%
Were samples collected for water chemistry? (Y/N) N (Note lab sample no. or id. and attach results) Lab Number ____
Field Measures: Temp (°C) ____ Dissolved Oxygen (mg/l) ____ pH (S.U.) ____ Conductivity (µmhos/cm) ____
Is the sampling reach representative of the stream (Y/N) Y If not, please explain ____

Additional comments/description of pollution impacts ____

BIOTIC EVALUATION
Performed? (Y/N) 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 →

Stream 118

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 35

SITE NAME/LOCATION [illegible]
SITE NUMBER [illegible] RIVER BASIN ____ DRAINAGE AREA (mi²) ____
LENGTH OF STREAM REACH (ft) [illegible] LAT ____ LONG ____ RIVER CODE ____ RIVER MILE ____
DATE [illegible] SCORER [illegible] COMMENTS Intermittent?

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
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
☐☐	BLDR SLABS [16 pts]		☐☒	SILT [3 pt]	35?
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	[illegible]
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]	5	☐☐	CLAY or HARDPAN [0 pt]	5
☐☐	GRAVEL (2-64 mm) [9 pts]	15	☐☐	MUCK [0 pts]	
☒☐	SAND (<2 mm) [6 pts]	30	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 5
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 6
HHEI Metric Points — Substrate Max = 40: 15 (A + B)

2\. **Maximum Pool Depth** (*Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes*) (Check *ONLY* one box):
☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☒ > 5 cm - 10 cm [15 pts]
☐ < 5 cm [5 pts]
☐ NO WATER OR MOIST CHANNEL [0 pts]
COMMENTS ____ MAXIMUM POOL DEPTH (centimeters): 3"
Pool Depth Max = 30: 15

3\. **BANK FULL WIDTH** (Measured as the average of 3-4 measurements) (Check *ONLY* one box):
☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☒ ≤ 1.0 m (≤ 3' 3") [5 pts]
COMMENTS ____ AVERAGE BANKFULL WIDTH (meters) 1.5 ft
Bankfull Width Max = 30: 5

This information must also be completed

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

RIPARIAN WIDTH (Per Bank), L R: ☒☒ 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 (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)
COMMENTS ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):
☐ None ☐ 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

Stream 118

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 — Recent snowmelt contributes to flow
Base Flow Conditions? (Y/N) N Date of last precipitation ____ Quantity ____
Photograph Information: 2 Photos, Upstream + Downstream
Elevated Turbidity? (Y/N) N Canopy (% open) 50
Were samples collected for water chemistry? (Y/N) N (Note lab sample no. or id. and attach results) Lab Number ____
Field Measures: Temp (°C) ____ Dissolved Oxygen (mg/l) ____ pH (S.U.) ____ Conductivity (µmhos/cm) ____
Is the sampling reach representative of the stream (Y/N) Y If not, please explain ____

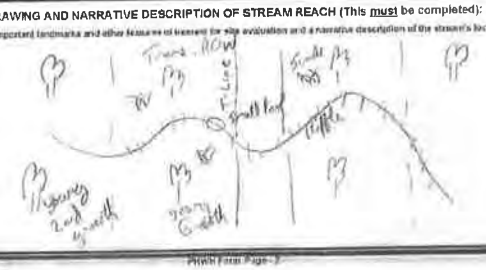
Additional comments/description of pollution impacts Transmission Line ROW (Maintained)

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 →



Stream 119 Mod Class 1

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): 18

SITE NAME/LOCATION [illegible]
SITE NUMBER 04 RIVER BASIN ______ DRAINAGE AREA (mi²) ______
LENGTH OF STREAM REACH (ft) [illegible] LAT ______ LONG ______ RIVER CODE ______ RIVER MILE ______
DATE [illegible] SCORER [illegible] COMMENTS [illegible]

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
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
☐☐	BLDR SLABS [16 pts]		☐☐	SILT [3 pt]	30
☐☐	BOULDER (>256 mm) [16 pts]		☐☒	LEAF PACK/WOODY DEBRIS [3 pts]	30
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	20	☐☐	MUCK [0 pts]	
☒☐	SAND (<2 mm) [6 pts]	40	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points — Substrate Max = 40: 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 one box)
☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts]
☐ < 5 cm [5 pts]
☒ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): 0" inches

Pool Depth Max = 30: 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):
☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☒ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS ______ AVERAGE BANKFULL WIDTH (meters) 1' feet

Bankfull Width Max=30: 5

This information must also be completed

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

RIPARIAN WIDTH (Per Bank): ☒☒ 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)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☒ Dry channel, no water (Ephemeral)
COMMENTS [illegible]

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

Stream 119

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 [illegible]
Elevated Turbidity? (Y/N) N Canopy (% open) 35
Were samples collected for water chemistry? (Y/N) N (Note lab sample no. or id. and attach results) Lab Number ______
Field Measures Temp (°C) ______ Dissolved Oxygen (mg/l) ______ pH (S.U.) ______ Conductivity (µmhos/cm) ______
Is the sampling reach representative of the stream (Y/N) Y If not, please explain ______

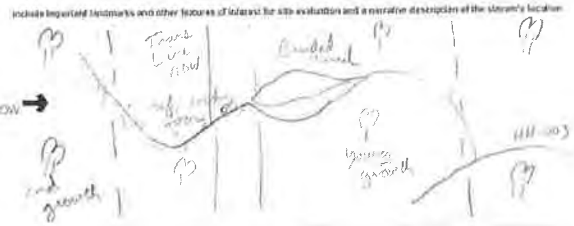
Additional comments/description of pollution impacts n/a

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 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 →



Stream 120 Mod. Class 2

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): 39

SITE NAME/LOCATION [illegible]
SITE NUMBER 3 RIVER BASIN ______ DRAINAGE AREA (mi²) ______
LENGTH OF STREAM REACH (ft) [illegible] LAT ______ LONG ______ RIVER CODE ______ RIVER MILE ______
DATE [illegible] SCORER [illegible] COMMENTS [illegible]

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
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
☐☐	BLDR SLABS [16 pts]		☐☐	SILT [3 pt]	[illegible]
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	10
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	
☒☐	GRAVEL (2-64 mm) [9 pts]	30	☐☐	MUCK [0 pts]	
☐☒	SAND (<2 mm) [6 pts]	50	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) [illegible]
TOTAL NUMBER OF SUBSTRATE TYPES: (B) [illegible]

HHEI Metric Points — Substrate Max = 40: 19 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box)
☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☒ > 5 cm - 10 cm [15 pts]
☐ < 5 cm [5 pts]
☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): 2" inches

Pool Depth Max = 30: 15

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):
☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☒ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS ______ AVERAGE BANKFULL WIDTH (meters) 2.5 feet

Bankfull Width Max=30: 5

This information must also be completed

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

RIPARIAN WIDTH (Per Bank): ☒☒ 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)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)
COMMENTS Transitions from ephemeral to intermittent [illegible]

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

Stream 120

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 [illegible]
Base Flow Conditions? (Y/N) N Date of last precipitation ______ Quantity ______
Photograph Information 2 Photos, upstream + downstream
Elevated Turbidity? (Y/N) N Canopy (% open) 25
Were samples collected for water chemistry? (Y/N) N (Note lab sample no. or id. and attach results) Lab Number ______
Field Measures Temp (°C) ______ Dissolved Oxygen (mg/l) ______ pH (S.U.) ______ Conductivity (µmhos/cm) ______
Is the sampling reach representative of the stream (Y/N) Y If not, please explain ______

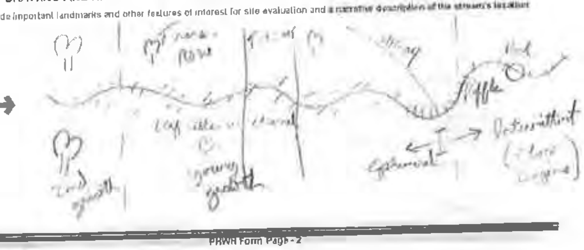
Additional comments/description of pollution impacts 30 gallon drum in channel

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 →



Stream 121

Primary Headwater Habitat Evaluation Form

OhioEPA

HHEI Score (sum of metrics 1, 2, 3): 61

SITE NAME/LOCATION Goodhope - Poston

SITE NUMBER 02 RIVER BASIN ______ DRAINAGE AREA (mi^2) ______

LENGTH OF STREAM REACH (ft) 200ft LAT ______ LONG ______ RIVER CODE ______ RIVER MILE ______

DATE [illegible] SCORER MO/RCR COMMENTS Intermittent

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 — 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
☐☐	BLDR SLABS [16 pts]	5	☐☐	SILT [3 pt]	15
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	10
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]	10	☐☐	CLAY or HARDPAN [0 pt]	
☒☐	GRAVEL (2-64 mm) [9 pts]	30	☐☐	MUCK [0 pts]	
☐☒	SAND (<2 mm) [6 pts]	30	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 15

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 15

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points — Substrate Max = 40: 21 (A + B)

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

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

COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): 4"

Pool Depth Max = 30: 25

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

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

COMMENTS ______ AVERAGE BANKFULL WIDTH (meters) feet 4'

Bankfull Width Max=30: 15

This information must also be completed

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

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

COMMENTS [illegible]

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

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

COMMENTS ______

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

☐ None ☐ 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

Stream 121 HH-CAD-[illegible]-02

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 — Snow melt / saturation contributing to flow — Date of last precipitation ______ Quantity ?

Photograph Information: Photos upstream + downstream

Elevated Turbidity? (Y/N) N Canopy (% open) 35

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

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

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

Additional comments/description of pollution impacts: Transmission ROW at survey point

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)

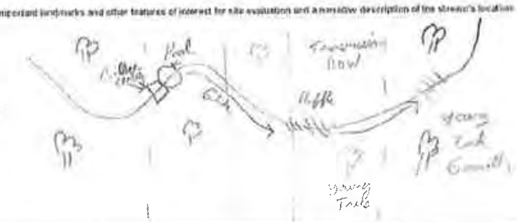
Frogs or Tadpoles Observed? (Y/N) ______ Voucher? (Y/N) ______ Aquatic Macroinvertebrates Observed? (Y/N) ______ Voucher? (Y/N) ______

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 ➡



Stream 122

Primary Headwater Habitat Evaluation Form

OhioEPA

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

SITE NAME/LOCATION Goodhope - Poston

SITE NUMBER 01 RIVER BASIN ______ DRAINAGE AREA (mi^2) ______

LENGTH OF STREAM REACH (ft) 200 LAT ______ LONG ______ RIVER CODE ______ RIVER MILE ______

DATE 02/24/16 SCORER BAO/RCR COMMENTS Intermittent

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 — Transmission ROW and ATV Trails / Crossing

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
☐☐	BLDR SLABS [16 pts]		☐☒	SILT [3 pt]	30
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	10
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	
☒☐	GRAVEL (2-64 mm) [9 pts]	40	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]	20	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 12

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points — Substrate Max = 40: 16 (A + B)

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

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

COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): 6"

Pool Depth Max = 30: 25

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

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

COMMENTS ______ AVERAGE BANKFULL WIDTH (meters) feet 4'

Bankfull Width Max=30: 15

This information must also be completed

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

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

COMMENTS ______

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

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

COMMENTS Snow melt / saturation contribute to flow

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

Stream 122 HH-CAD-[illegible]-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)

- ☐ 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 — Winter melt / ground saturation — Date of last precipitation ______ Quantity ?

Photograph Information: 2 Photos, Upstream + Downstream

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: Sedimentation from ATV trail drainage

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)

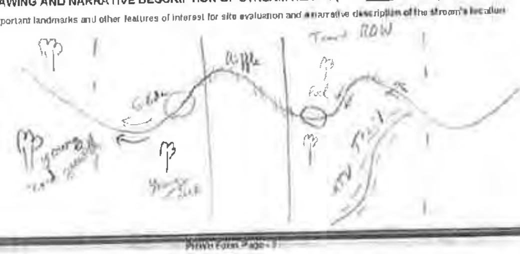
Frogs or Tadpoles Observed? (Y/N) ______ Voucher? (Y/N) ______ Aquatic Macroinvertebrates Observed? (Y/N) ______ Voucher? (Y/N) ______

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 ➡



Stream 123 Mod Class 2

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 37

SITE NAME/LOCATION: [illegible]

SITE NUMBER _____ RIVER BASIN _____ DRAINAGE AREA (mi²) _____

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

DATE 03/09/16 SCORER [illegible] COMMENTS [illegible]

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 [illegible]

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
☐☐ BLDR SLABS [18 pts]		☐☒ SILT [3 pts]	40
☐☐ BOULDER (>256 mm) [16 pts]		☐☐ LEAF PACK/WOODY DEBRIS [3 pts]	10
☐☐ BEDROCK [18 pts]		☐☐ FINE DETRITUS [3 pts]	
☐☐ COBBLE (65-256 mm) [12 pts]	10	☐☐ CLAY or HARDPAN [0 pt]	
☐☐ GRAVEL (2-64 mm) [8 pts]	10	☐☐ MUCK [0 pts]	
☐☒ SAND (<2 mm) [6 pts]	20	☐☐ ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 10 (A) 7 (B) 5

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

HHEI Metric Points: Substrate Max = 40: 14; A + B

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):
☐ > 50 centimeters [20 pts]
☐ 25.5 - 50 cm [10 pts]
☐ >10 - 25.5 cm [25 pts]
☒ > 5 cm - 10 cm [15 pts]
☐ < 5 cm [5 pts]
☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS _____ MAXIMUM POOL DEPTH (centimeters): 8

Pool Depth Max = 30: 15

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):
☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☒ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS _____ AVERAGE BANKFULL WIDTH (meters) 2

Bankfull Width Max = 30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank)	L	R
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 (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)

COMMENTS _____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box)
☐ None ☐ 0.5 ☐ 1.0 ☐ 1.5 ☒ 2.0 ☐ 2.5 ☐ 3.0 ☐ >3

STREAM GRADIENT ESTIMATE
☐ Flat to Moderate ☒ Moderate ☐ Moderate to Severe ☒ Severe

PHWH Form Page - 1

Stream 123

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 [illegible] Quantity [illegible]

Photograph Information _____

Elevated Turbidity? (Y/N) _____ Canopy (% open) _____

Were samples collected for water chemistry? (Y/N) _____ (Note lab sample number and attach results) Lab Number _____

Field Measures Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) _____ If not, please explain _____

Additional comments/description of pollution impacts _____

BIOTIC EVALUATION

Performed? (Y/N) 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 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

Stream 124 Class 1

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 24

SITE NAME/LOCATION: [illegible]

SITE NUMBER _____ RIVER BASIN _____ DRAINAGE AREA (mi²) _____

LENGTH OF STREAM REACH (ft) _____ LAT _____ LONG _____ RIVER CODE _____ RIVER MILE _____

DATE 03/09/16 SCORER [illegible] COMMENTS [illegible]

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 [illegible]

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
☐☐ BLDR SLABS [18 pts]		☐☒ SILT [3 pts]	20
☐☐ BOULDER (>256 mm) [16 pts]		☐☐ LEAF PACK/WOODY DEBRIS [3 pts]	10
☐☐ BEDROCK [18 pts]		☐☐ FINE DETRITUS [3 pts]	
☐☐ COBBLE (65-256 mm) [12 pts]		☐☐ CLAY or HARDPAN [0 pt]	20
☐☐ GRAVEL (2-64 mm) [8 pts]	10	☐☐ MUCK [0 pts]	
☐☒ SAND (<2 mm) [6 pts]	30	☐☐ ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0 (A) 9 (B) 5

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI Metric Points: Substrate Max = 40: 14; A + B

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):
☐ > 50 centimeters [20 pts]
☐ 25.5 - 50 cm [10 pts]
☐ >10 - 25.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts]
☒ < 5 cm [5 pts]
☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS _____ MAXIMUM POOL DEPTH (centimeters): 1

Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):
☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☒ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS _____ AVERAGE BANKFULL WIDTH (meters) 2

Bankfull Width Max = 30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank)	L	R
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 (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 to Moderate ☐ Moderate ☐ Moderate to Severe ☒ Severe

PHWH Form Page - 1

Stream 124

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 [illegible] Quantity [illegible]

Photograph Information _____

Elevated Turbidity? (Y/N) Y Canopy (% open) [illegible]

Were samples collected for water chemistry? (Y/N) _____ (Note lab sample number 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

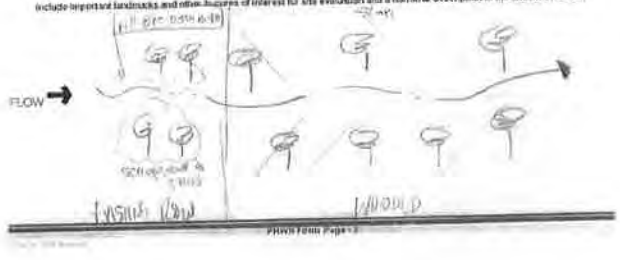
Performed? (Y/N) N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) ____ Voucher? (Y/N) ____ Salamanders Observed? (Y/N) 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

Stream 125 Class 1

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 18

SITE NAME/LOCATION ______
SITE NUMBER 09 RIVER BASIN ______ DRAINAGE AREA (mi²) ______
LENGTH OF STREAM REACH (ft) ______ LAT ______ LONG ______ RIVER CODE ______ RIVER MILE ______
DATE 03/09/16 SCORER BAO, BCM COMMENTS ______

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☒ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 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]		☐☒	SILT [3 pt]	50
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	10
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	10	☐☐	MUCK [0 pts]	
☐☒	SAND (<2 mm) [6 pts]	30	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points — Substrate Max = 40: 15 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):
☐ > 30 centimeters [20 pts] ☐ > 22.5 - 30 cm [30 pts] ☐ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts] ☐ < 5 cm [5 pts] ☒ NO WATER OR MOIST CHANNEL [0 pts]
COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): 0
Pool Depth Max = 30: 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):
☐ > 4.0 meters (> 13') [30 pts] ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ☒ ≤ 1.0 m (≤ 3' 3") [5 pts]
COMMENTS ______ AVERAGE BANKFULL WIDTH (meters) 1'
Bankfull Width Max=30: 5

This information must also be completed
RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank): L R ☒☒ 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 (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 ☐ Flat to Moderate ☐ Moderate ☐ Moderate to Severe ☒ Severe

Stream 125

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 ______

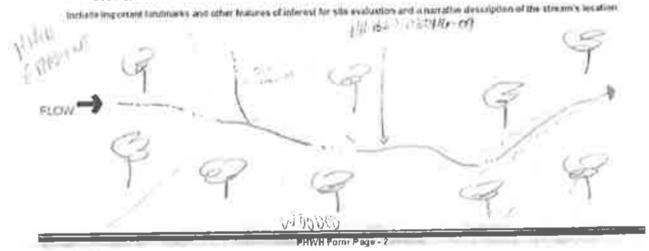
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

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 UKN
Photograph Information 1 photos
Elevated Turbidity? (Y/N) N Canopy (% open) 20
Were samples collected for water chemistry? (Y/N) ______ (Note lab sample no. or id. and attach results) Lab Number ______
Field Measures Temp (°C) ______ Dissolved Oxygen (mg/l) ______ pH (S.U.) ______ Conductivity (µmhos/cm) ______
Is the sampling reach representative of the stream (Y/N) Y If not, please explain ______
Additional comments/description of pollution impacts 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) ______ Salamanders Observed? (Y/N) 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



Stream 126 Mod. Class 2

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 49

SITE NAME/LOCATION ______
SITE NUMBER ______ RIVER BASIN ______ DRAINAGE AREA (mi²) ______
LENGTH OF STREAM REACH (ft) ______ LAT. ______ LONG ______ RIVER CODE ______ RIVER MILE ______
DATE 03/01/16 SCORER BAO, BCM COMMENTS ______

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☒ RECENT OR NO RECOVERY
CHANNELIZED DUE TO ROAD, RIPARIAN CUT FREQUENTLY

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
☐☐	BLDR SLABS [16 pts]		☐☐	SILT [3 pt]	10
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	10
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☒	CLAY or HARDPAN [0 pt]	30
☐☒	GRAVEL (2-64 mm) [9 pts]	40	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]	10	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points — Substrate Max = 40: 14 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):
☒ > 30 centimeters [20 pts] ☐ > 22.5 - 30 cm [30 pts] ☐ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts] ☐ < 5 cm [5 pts] ☐ NO WATER OR MOIST CHANNEL [0 pts]
COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): 14"
Pool Depth Max = 30: 20

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):
☐ > 4.0 meters (> 13') [30 pts] ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☒ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ☐ ≤ 1.0 m (≤ 3' 3") [5 pts]
COMMENTS ______ AVERAGE BANKFULL WIDTH (meters) 3.5
Bankfull Width Max=30: 15

This information must also be completed
RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (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 (Interstitial) ☐ Moist Channel, isolated pools, no flow (Intermittent) ☐ Dry channel, no water (Ephemeral)
COMMENTS ______

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):
☐ None ☐ 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

Stream 126

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☒ No QHEI Score ______ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)
☐ WWH Name ______ Distance from Evaluated Stream ______
☐ CWH Name ______ Distance from Evaluated Stream ______
☐ EWH Name ______ Distance from Evaluated Stream ______

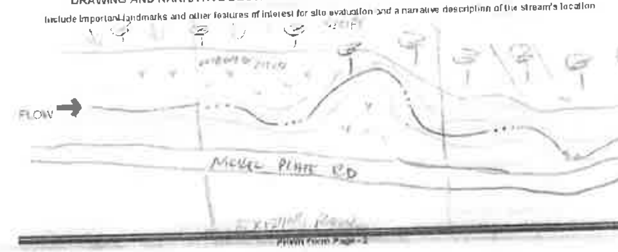
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name ______ NRCS Soil Map Page ______ NRCS Soil Map Stream Order ______
County ______ Township / City ______

MISCELLANEOUS
Base Flow Conditions? (Y/N) ______ Date of last precipitation ______ Quantity ______
Photograph Information 3 photos
Elevated Turbidity? (Y/N) N Canopy (% open) 100
Were samples collected for water chemistry? (Y/N) ______ (Note lab sample no. or id. and attach results) Lab Number ______
Field Measures Temp (°C) ______ Dissolved Oxygen (mg/l) ______ pH (S.U.) ______ Conductivity (µmhos/cm) ______
Is the sampling reach representative of the stream (Y/N) Y If not, please explain ______
Additional comments/description of pollution impacts Road 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) Y 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) ______ 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 127 Class 1

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 18

SITE NAME/LOCATION ___
SITE NUMBER 07 RIVER BASIN ___ DRAINAGE AREA (mi²) ___
LENGTH OF STREAM REACH (ft) ___ LAT. ___ LONG ___ RIVER CODE ___ RIVER MILE ___
DATE 0201(16 SCORER ___ COMMENTS ___

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☒ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 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]		☐☒	SILT [3 pt]	50
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	10
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	10	☐☐	MUCK [0 pts]	
☐☒	SAND (<2 mm) [6 pts]	30	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points — Substrate Max = 40: 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* one box)

☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts]
☐ < 5 cm [5 pts]
☒ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ___ MAXIMUM POOL DEPTH (centimeters): 0

Pool Depth Max = 30: 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS ___ AVERAGE BANKFULL WIDTH (meters) 1' ft

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank): L R
☒☒ 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 (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 ☐ Flat to Moderate ☐ Moderate ☐ Moderate to Severe ☒ Severe

Stream 127 HII-Bio-0201(6-07

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 ___
☐ 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 2/26/16 Quantity UKN
Photograph Information = P1000 ...
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 (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 ___

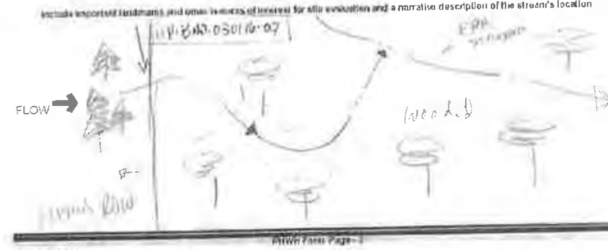
BIOTIC EVALUATION

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 Tadpoles Observed? (Y/N) 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 128 Class 1 HII-BIO-0201(6-06

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 24

SITE NAME/LOCATION ___
SITE NUMBER 06 RIVER BASIN ___ DRAINAGE AREA (mi²) ___
LENGTH OF STREAM REACH (ft) ___ LAT. ___ LONG ___ RIVER CODE ___ RIVER MILE ___
DATE 02/01/16 SCORER ___ COMMENTS ___

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☒ NONE / NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 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]		☐☒	SILT [3 pt]	40
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	5
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]	15	☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	20	☐☐	MUCK [0 pts]	
☐☒	SAND (<2 mm) [6 pts]	20	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 15

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points — Substrate Max = 40: 14 (A + B)

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes*) (Check *ONLY* one box)

☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts]
☒ < 5 cm [5 pts]
☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ___ MAXIMUM POOL DEPTH (centimeters): 1"

Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☒ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS ___ AVERAGE BANKFULL WIDTH (meters) 1.5

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (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 (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 ☐ Flat to Moderate ☐ Moderate ☐ Moderate to Severe ☒ Severe

Stream 128 HII-BIO-0201(6-06

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 022616 Quantity UKN
Photograph Information ___
Elevated Turbidity? (Y/N) ___ Canopy (% open) ___
Were samples collected for water chemistry? (Y/N) ___ (Note lab sample no. or id. and attach results) Lab Number ___
Field Measures Temp (°C) ___ Dissolved Oxygen (mg/l) ___ pH (S.U.) ___ Conductivity (µmhos/cm) ___
Is the sampling reach representative of the stream (Y/N) ___ If not, please explain ___

Additional comments/description of pollution impacts ___

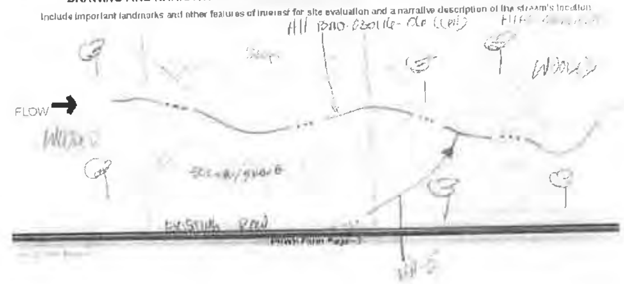
BIOTIC EVALUATION

Performed? (Y/N) 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



Stream 129 Class 1

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 18

SITE NAME/LOCATION ______
SITE NUMBER ______ RIVER BASIN ______ DRAINAGE AREA (mi²) ______
LENGTH OF STREAM REACH (ft) ______ LAT. ______ LONG ______ RIVER CODE ______ RIVER MILE ______
DATE 0_/21/16 SCORER ______ COMMENTS ______

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☒ NONE / NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY

1. **SUBSTRATE** (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 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]		☒☐	SILT [3 pt]	50
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	15
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]	5	☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]		☐☐	MUCK [0 pts]	
☐☒	SAND (<2 mm) [6 pts]	30	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 5

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points — Substrate Max = 40: 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 one box)

☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts]
☐ < 5 cm [5 pts]
☒ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): 0

Pool Depth Max = 30: 0

3. **BANK FULL WIDTH** (Measured as the average of 3-4 measurements) (Check ONLY one box):

☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☒ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS ______ AVERAGE BANKFULL WIDTH (meters) 1'

Bankfull Width Max=30: 5

This information **must** also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ⇩NOTE: River Left (L) and Right (R) as looking downstream⇩

RIPARIAN WIDTH (Per Bank) L R		FLOODPLAIN QUALITY (Most Predominant per Bank) L R		L R	
☐☐	Wide >10m	☐☐	Mature Forest, Wetland	☐☐	Conservation Tillage
☒☒	Moderate 5-10m	☒☒	Immature Forest, Shrub or Old Field	☐☐	Urban or Industrial
☐☐	Narrow <5m	☐☐	Residential, Park, New Field	☐☐	Open Pasture, Row Crop
☐☐	None	☐☐	Fenced Pasture	☐☐	Mining or Construction

COMMENTS ______

FLOW REGIME (At Time of Evaluation) (Check ONLY one box)
☐ Stream Flowing
☐ Subsurface flow with isolated pools (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)
COMMENTS 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 ft/100 ft) ☐ Flat to Moderate ☐ Moderate ☐ Moderate to Severe ☒ Severe

Stream 129

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) ______
Were samples collected for water chemistry? (Y/N) ______ (Note lab sample no. or id. and attach results) Lab Number ______
Field Measures Temp (°C) ______ Dissolved Oxygen (mg/l) ______ pH (S.U.) ______ Conductivity (µmhos/cm) ______
Is the sampling reach representative of the stream (Y/N) ______ If not, please explain ______

Additional comments/description of pollution impacts ______

BIOTIC EVALUATION

Performed? (Y/N) 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 ➔

Stream 130 Class 1

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 18

SITE NAME/LOCATION ______
SITE NUMBER ______ RIVER BASIN ______ DRAINAGE AREA (mi²) ______
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 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 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]		☒☐	SILT [3 pt]	50
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	10
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	10	☐☐	MUCK [0 pts]	
☐☒	SAND (<2 mm) [6 pts]	30	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points — Substrate Max = 40: 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 one box)

☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts]
☐ < 5 cm [5 pts]
☒ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): 0

Pool Depth Max = 30: 0

3. **BANK FULL WIDTH** (Measured as the average of 3-4 measurements) (Check ONLY one box):

☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☒ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS ______ AVERAGE BANKFULL WIDTH (meters) 1'

Bankfull Width Max=30: 5

This information **must** also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ⇩NOTE: River Left (L) and Right (R) as looking downstream⇩

RIPARIAN WIDTH (Per Bank) L R		FLOODPLAIN QUALITY (Most Predominant per Bank) L R		L R	
☐☒	Wide >10m	☒☒	Mature Forest, Wetland	☐☐	Conservation Tillage
☒☐	Moderate 5-10m	☐☐	Immature Forest, Shrub or Old Field	☐☐	Urban or Industrial
☐☐	Narrow <5m	☐☐	Residential, Park, New Field	☐☐	Open Pasture, Row Crop
☐☐	None	☐☐	Fenced Pasture	☐☐	Mining or Construction

COMMENTS ______

FLOW REGIME (At Time of Evaluation) (Check ONLY one box)
☐ Stream Flowing
☐ Subsurface flow with isolated pools (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☒ Dry channel, no water (Ephemeral)
COMMENTS ______

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

Stream 130

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) ______ Canopy (% open) ______
Were samples collected for water chemistry? (Y/N) ______ (Note lab sample no. or id. and attach results) Lab Number ______
Field Measures Temp (°C) ______ Dissolved Oxygen (mg/l) ______ pH (S.U.) ______ Conductivity (µmhos/cm) ______
Is the sampling reach representative of the stream (Y/N) ______ If not, please explain ______

Additional comments/description of pollution impacts ______

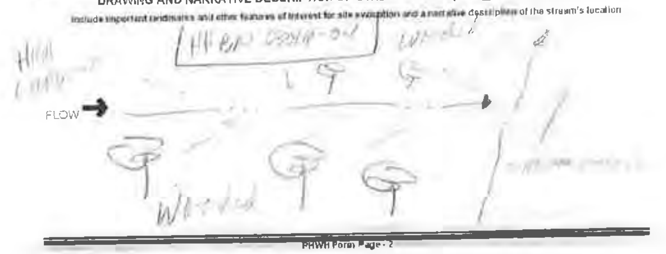
BIOTIC EVALUATION

Performed? (Y/N) 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 ➔



Stream 131 Mod. Class 1

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 24

SITE NAME/LOCATION ____ SITE NUMBER 05 RIVER BASIN ____ DRAINAGE AREA (mi^2) ____

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 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 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]		☐☒	SILT [3 pt]	35
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	15
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	10
☐☐	GRAVEL (2-64 mm) [9 pts]	5	☐☐	MUCK [0 pts]	
☐☒	SAND (<2 mm) [6 pts]	35	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points — Substrate Max = 40: 14 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):

☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts]
☒ < 5 cm [5 pts]
☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ____ MAXIMUM POOL DEPTH (centimeters): 3"

Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):

☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS ____ AVERAGE BANKFULL WIDTH (meters) 1'

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH L R (Per Bank)		FLOODPLAIN QUALITY L R (Most Predominant per Bank)		L R	
☐☐	Wide >10m	☐☐	Mature Forest, Wetland	☐☐	Conservation Tillage
☒☒	Moderate 5-10m	☒☒	Immature Forest, Shrub or Old Field	☐☐	Urban or Industrial
☐☐	Narrow <5m	☒☒	Residential, Park, New Field	☐☐	Open Pasture, Row Crop
☐☐	None	☐☐	Fenced Pasture	☐☐	Mining or Construction

COMMENTS ____

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):
☐ Stream Flowing
☐ Subsurface flow with isolated pools (Interstitial)
☒ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)
COMMENTS ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):
☐ None ☐ 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

Stream 131

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) Y Canopy (% open) ____

Were samples collected for water chemistry? (Y/N) ____ (Note lab sample no. or id. and attach results) Lab Number ____

Field Measures Temp (°C) ____ Dissolved Oxygen (mg/l) ____ pH (S.U.) ____ Conductivity (µmhos/cm) ____

Is the sampling reach representative of the stream (Y/N) ____ If not, please explain ____

Additional comments/description of pollution impacts ____

BIOTIC EVALUATION

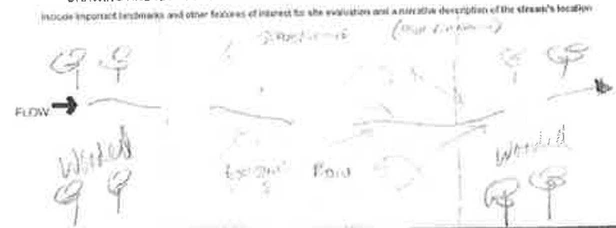
Performed? (Y/N) N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) N Voucher? (Y/N) ____ Salamanders Observed? (Y/N) N Voucher? (Y/N)
Frogs or 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



Stream 132 Mod. Class 1

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 24

SITE NAME/LOCATION ____ SITE NUMBER ____ RIVER BASIN ____ DRAINAGE AREA (mi^2) ____

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 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 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]		☐☒	SILT [3 pt]	35
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	10
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]	5	☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	10	☐☐	MUCK [0 pts]	
☐☒	SAND (<2 mm) [6 pts]	40	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 5

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points — Substrate Max = 40: 14 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):

☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts]
☒ < 5 cm [5 pts]
☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ____ MAXIMUM POOL DEPTH (inches): 2"

Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):

☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☒ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS ____ AVERAGE BANKFULL WIDTH (ft) 1'

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH L R (Per Bank)		FLOODPLAIN QUALITY L R (Most Predominant per Bank)		L R	
☐☐	Wide >10m	☐☐	Mature Forest, Wetland	☐☐	Conservation Tillage
☒☒	Moderate 5-10m	☒☒	Immature Forest, Shrub or Old Field	☐☐	Urban or Industrial
☐☐	Narrow <5m	☒☒	Residential, Park, New Field	☐☐	Open Pasture, Row Crop
☐☐	None	☐☐	Fenced Pasture	☐☐	Mining or Construction

COMMENTS ____

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):
☒ Stream Flowing
☐ Subsurface flow with isolated pools (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)
COMMENTS ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):
☐ None ☐ 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

Stream 132

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) Y Canopy (% open) 60

Were samples collected for water chemistry? (Y/N) ____ (Note lab sample no. or id. and attach results) Lab Number ____

Field Measures Temp (°C) ____ Dissolved Oxygen (mg/l) ____ pH (S.U.) ____ Conductivity (µmhos/cm) ____

Is the sampling reach representative of the stream (Y/N) ____ If not, please explain ____

Additional comments/description of pollution impacts ____

BIOTIC EVALUATION

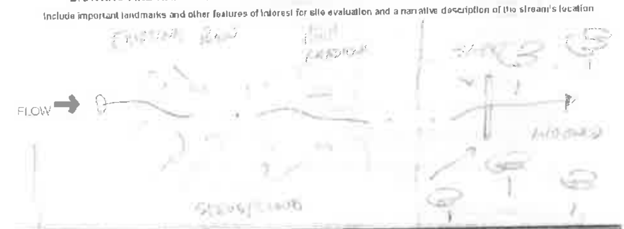
Performed? (Y/N) N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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



Stream 133 Mod. Class 2 HP BAO 030416 01

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 37

SITE NAME/LOCATION [illegible]
SITE NUMBER ______ RIVER BASIN ______ DRAINAGE AREA (mi²) ______
LENGTH OF STREAM REACH (ft) ______ LAT ______ LONG ______ RIVER CODE ______ RIVER MILE ______
DATE [illegible] SCORER BAO, BOP COMMENTS [illegible]

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
[illegible]

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
☐☐	BLDR SLABS [16 pts]		☐☒	SILT [3 pt]	40
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	10
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]	10	☐☐	CLAY or HARDPAN [0 pt]	
☐☒	GRAVEL (2-64 mm) [9 pts]	30	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]	10	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 10
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 12
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points — Substrate Max = 40: 17 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):
☐ > 30 centimeters [20 pts] ☐ > 22.5 - 30 cm [30 pts] ☐ > 10 - 22.5 cm [25 pts] ☒ > 5 cm - 10 cm [15 pts] ☐ < 5 cm [5 pts] ☐ NO WATER OR MOIST CHANNEL [0 pts]
COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): 7

Pool Depth Max = 30: 15

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):
☐ > 4.0 meters (> 13') [30 pts] ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ☒ ≤ 1.0 m (≤ 3' 3") [5 pts]
COMMENTS ______ AVERAGE BANKFULL WIDTH (meters) 1

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank): ☐☐ 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) ☐ 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 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☒ Moderate to Severe ☐ Severe (10 ft/100 ft)

Stream 133 HP BAO 030416 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)
☐ WWH Name ______ Distance from Evaluated Stream ______
☐ CWH Name ______ Distance from Evaluated Stream ______
☐ EWH Name ______ Distance from Evaluated Stream ______

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name ______ NRCS Soil Map Page ______ NRCS Soil Map Stream Order ______
County ______ Township / City ______

MISCELLANEOUS
Base Flow Conditions? (Y/N) ______ Date of last precipitation ______ Quantity ______
Photograph Information 2 Photos
Elevated 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 (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 [illegible]

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 →

Stream 134 Mod. Class 1 HP BAO 030416 [illegible]

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 34

SITE NAME/LOCATION [illegible]
SITE NUMBER [illegible] RIVER BASIN ______ DRAINAGE AREA (mi²) ______
LENGTH OF STREAM REACH (ft) ______ LAT ______ LONG ______ RIVER CODE ______ RIVER MILE ______
DATE 03/01/16 SCORER BAO, BOP COMMENTS [illegible]

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
[illegible]

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
☐☐	BLDR SLABS [16 pts]		☐☒	SILT [3 pt]	[illegible]
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	[illegible]
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]	10	☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	10	☐☐	MUCK [0 pts]	
☐☒	SAND (<2 mm) [6 pts]	5	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 10
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points — Substrate Max = 40: 14 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):
☐ > 30 centimeters [20 pts] ☐ > 22.5 - 30 cm [30 pts] ☐ > 10 - 22.5 cm [25 pts] ☒ > 5 cm - 10 cm [15 pts] ☐ < 5 cm [5 pts] ☐ NO WATER OR MOIST CHANNEL [0 pts]
COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): 3

Pool Depth Max = 30: 15

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):
☐ > 4.0 meters (> 13') [30 pts] ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ☒ ≤ 1.0 m (≤ 3' 3") [5 pts]
COMMENTS ______ AVERAGE BANKFULL WIDTH (meters) [illegible]

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank): ☐☐ 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) ☐ Moist Channel, isolated pools, no flow (Intermittent) ☐ Dry channel, no water (Ephemeral)
COMMENTS [illegible]

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/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☒ Severe (10 ft/100 ft)

Stream 134 HP BAO 030416 [illegible]

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 03/01/16 Quantity UNK
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 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) ______ Salamanders Observed? (Y/N) N Voucher? (Y/N) ______
Frogs or Tadpoles Observed? (Y/N) 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 →

Stream 135 Mod. Class 2

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 44

SITE NAME/LOCATION _____ SITE NUMBER 135 RIVER BASIN _____ DRAINAGE AREA (mi²) _____

LENGTH OF STREAM REACH (ft) _____ LAT _____ LONG _____ RIVER CODE _____ RIVER MILE _____

DATE 8/31/16 SCORER _____ COMMENTS _____

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☒ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY

1 SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 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]		☐☐ SILT [3 pts]	30
☐☐ BOULDER (>256 mm) [16 pts]		☐☐ LEAF PACK/WOODY DEBRIS [3 pts]	10
☐☐ BEDROCK [16 pts]		☐☐ FINE DETRITUS [3 pts]	
☐☐ COBBLE (65-256 mm) [12 pts]		☐☐ CLAY or HARDPAN [0 pts]	30
☐☐ GRAVEL (2-64 mm) [8 pts]	10	☐☐ MUCK [0 pts]	
☐☒ SAND (<2 mm) [6 pts]	50	☐☐ ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0 (A) 7 (B) 4 A + B

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI Metric Points: Substrate Max = 40 — 11

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]
☐ > 5 cm - 10 cm [15 pts]
☐ < 5 cm [3 pts]
☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS _____ MAXIMUM POOL DEPTH (centimeters): 15

Pool Depth Max = 30 — 25

3 BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):

☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9'7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4'8" - 9'7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3'3" - 4'8") [15 pts]
☒ ≤ 1.0 m (≤ 3'3") [5 pts]

COMMENTS _____ AVERAGE BANKFULL WIDTH (meters) .45

Bankfull Width Max=30 — 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☐ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☒	☒ Moderate 5-10m	☒	☒ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☒	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS _____

FLOW REGIME (At Time of Evaluation) (Check ONLY one box)

☒ Stream Flowing
☐ Subsurface flow with isolated pools (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)

COMMENTS _____

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 (0.0-0.1) ☐ Flat to Moderate ☒ Moderate (0.2-0.4) ☐ Moderate to Severe ☐ Severe (>0.4)

PHWH Form Page - 1

Stream 135

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 _____ NRCS Soil Map Page _____ NRCS Soil Map Stream Order _____

County _____ Township / City _____

MISCELLANEOUS

Base Flow Conditions? (Y/N) Y Date of last precipitation 08/22/16 Quantity Unk

Photograph Information _____

Elevated Turbidity? (Y/N) Y Canopy (% open) 40

Were samples collected for water chemistry? (Y/N) _____ (Note lab sample no. or id. and attach results Lab Number _____

Field Measures Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not please explain _____

Additional comments/description of pollution impacts _____

BIOTIC EVALUATION

Performed? (Y/N) 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 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

Stream 136 Mod. Class 1

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 25

SITE NAME/LOCATION _____ SITE NUMBER 136 RIVER BASIN _____ DRAINAGE AREA (mi²) _____

LENGTH OF STREAM REACH (ft) _____ LAT _____ LONG _____ RIVER CODE _____ RIVER MILE _____

DATE 8/31/16 SCORER _____ COMMENTS _____

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 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]		☐☐ SILT [3 pts]	30
☐☐ BOULDER (>256 mm) [16 pts]		☐☐ LEAF PACK/WOODY DEBRIS [3 pts]	10
☐☐ BEDROCK [16 pts]		☐☐ FINE DETRITUS [3 pts]	
☐☐ COBBLE (65-256 mm) [12 pts]		☐☐ CLAY or HARDPAN [0 pts]	
☐☐ GRAVEL (2-64 mm) [8 pts]	10	☐☐ MUCK [0 pts]	
☐☒ SAND (<2 mm) [6 pts]	50	☐☐ ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0 (A) 7 (B) 4 A + B

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI Metric Points: Substrate Max = 40 — 11

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]
☐ > 5 cm - 10 cm [15 pts]
☒ < 5 cm [3 pts]
☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS _____ MAXIMUM POOL DEPTH (centimeters): 3

Pool Depth Max = 30 — 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):

☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9'7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4'8" - 9'7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3'3" - 4'8") [15 pts]
☒ ≤ 1.0 m (≤ 3'3") [5 pts]

COMMENTS _____ AVERAGE BANKFULL WIDTH (meters) .6

Bankfull Width Max=30 — 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☐	☐ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☒	☒ Moderate 5-10m	☒	☒ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS _____

FLOW REGIME (At Time of Evaluation) (Check ONLY one box)

☒ Stream Flowing
☐ Subsurface flow with isolated pools (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)

COMMENTS 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 (0.0-0.1) ☐ Flat to Moderate ☒ Moderate (0.2-0.4) ☐ Moderate to Severe ☐ Severe (>0.4)

PHWH Form Page - 1

Stream 136

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 _____ NRCS Soil Map Page _____ NRCS Soil Map Stream Order _____

County _____ Township / City _____

MISCELLANEOUS

Base Flow Conditions? (Y/N) Y Date of last precipitation 08/22/16 Quantity Unk

Photograph Information _____

Elevated Turbidity? (Y/N) Y Canopy (% open) 40

Were samples collected for water chemistry? (Y/N) _____ (Note lab sample no. or id. and attach results Lab Number _____

Field Measures Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not please explain _____

Additional comments/description of pollution impacts _____

BIOTIC EVALUATION

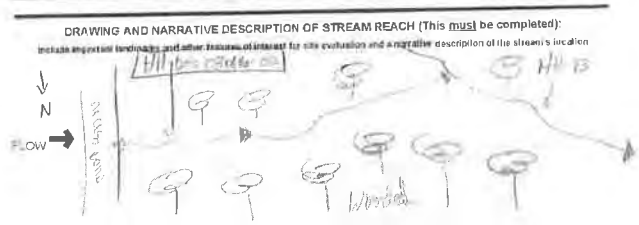
Performed? (Y/N) _____ (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____
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

Stream 137 Mod. Class 1 [illegible]

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 18

SITE NAME/LOCATION [illegible]
SITE NUMBER 01 RIVER BASIN ______ DRAINAGE AREA (mi²) ______
LENGTH OF STREAM REACH (ft) 100 ft LAT. ______ LONG. ______ RIVER CODE ______ RIVER MILE ______
DATE [illegible] SCORER [illegible] COMMENTS Ephemeral

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 — Trans. ROW + underground piping

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
☐☐	BLDR SLABS [16 pts]		☒☐	SILT [3 pt]	60
☐☐	BOULDER (>256 mm) [16 pts]	5	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	10
☐☐	BEDROCK [16 pt]	5	☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☒	CLAY or HARDPAN [0 pt]	20
☐☐	GRAVEL (2-64 mm) [9 pts]		☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]		☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 10
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 3
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points — Substrate Max = 40: 8 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):
☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts]
☒ < 5 cm [5 pts]
☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): 1" inches

Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):
☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☒ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS ______ AVERAGE BANKFULL WIDTH (meters) 1' feet

Bankfull Width Max=30: 5

This information **must** also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH L R	(Per Bank)	FLOODPLAIN QUALITY L R	(Most Predominant per Bank)	L R	
☐☒	Wide >10m	☐☐	Mature Forest, Wetland	☐☐	Conservation Tillage
☒☐	Moderate 5-10m	☒☒	Immature Forest, Shrub or Old Field	☐☐	Urban or Industrial
☐☐	Narrow <5m	☒☒	Residential, Park, New Field	☐☐	Open Pasture, Row Crop
☐☐	None	☐☐	Fenced Pasture	☐☐	Mining or Construction

COMMENTS ______

FLOW REGIME *(At Time of Evaluation)* (Check ONLY one box):
☒ Stream Flowing
☐ Subsurface flow with isolated pools (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)
COMMENTS ______

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):
☐ None ☐ 0.5 ☐ 1.0 ☒ 1.5 ☐ 2.0 ☐ 2.5 ☐ 3.0 ☐ >3

STREAM GRADIENT ESTIMATE
☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☒ Moderate to Severe ☐ Severe (10 ft/100 ft)

Stream 137 [illegible]

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: Spring melt in progress / Snowing Quantity: ?
Photograph Information: 2 Photos, upstream + downstream
Elevated Turbidity? (Y/N): N Canopy (% open): 40
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number ______
Field Measures Temp (°C) ______ Dissolved Oxygen (mg/l) ______ pH (S.U.) ______ Conductivity (µmhos/cm) ______
Is the sampling reach representative of the stream (Y/N) Y If not, please explain ______

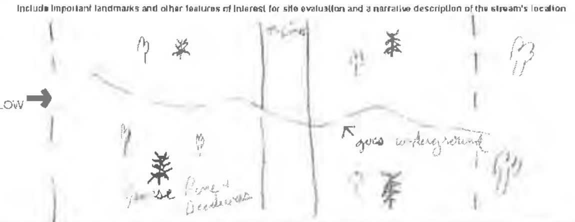
Additional comments/description of pollution impacts: Pipe within channel (unknown use)

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 ➔



Stream 138 Mod. Class 2 HH BAO 030716-02

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 50

SITE NAME/LOCATION [illegible]
SITE NUMBER 02 RIVER BASIN ______ DRAINAGE AREA (mi²) ______
LENGTH OF STREAM REACH (ft) 200 ft LAT. ______ LONG. ______ RIVER CODE ______ RIVER MILE ______
DATE 03/07/16 SCORER [illegible] COMMENTS Intermittent

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 — Trans. 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
☐☐	BLDR SLABS [16 pts]		☐☐	SILT [3 pt]	5
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	5
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	20
☐☒	GRAVEL (2-64 mm) [9 pts]	30	☐☐	MUCK [0 pts]	
☒☐	SAND (<2 mm) [6 pts]	40	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock ______
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) [illegible]
TOTAL NUMBER OF SUBSTRATE TYPES: (B) [illegible]

HHEI Metric Points — Substrate Max = 40: 20 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):
☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☒ > 5 cm - 10 cm [15 pts]
☐ < 5 cm [5 pts]
☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): 4" inches

Pool Depth Max = 30: 15

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):
☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☒ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS ______ AVERAGE BANKFULL WIDTH (meters) 3.5' feet

Bankfull Width Max=30: 15

This information **must** also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH L R	(Per Bank)	FLOODPLAIN QUALITY L R	(Most Predominant per Bank)	L R	
☒☒	Wide >10m	☐☐	Mature Forest, Wetland	☐☐	Conservation Tillage
☐☐	Moderate 5-10m	☒☒	Immature Forest, Shrub or Old Field	☐☐	Urban or Industrial
☐☐	Narrow <5m	☐☐	Residential, Park, New Field	☐☐	Open Pasture, Row Crop
☐☐	None	☐☐	Fenced Pasture	☐☐	Mining or Construction

COMMENTS ______

FLOW REGIME *(At Time of Evaluation)* (Check ONLY one box):
☒ Stream Flowing
☐ Subsurface flow with isolated pools (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)
COMMENTS ______

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):
☐ None ☐ 0.5 ☐ 1.0 ☐ 1.5 ☐ 2.0 ☐ 2.5 ☐ 3.0 ☒ >3

STREAM GRADIENT ESTIMATE
☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☒ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

Stream 138 HH BAO-030716-02

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: Spring Thaw + recent precip. / Today Quantity: ?
Photograph Information: 2 Photos, upstream + downstream
Elevated Turbidity? (Y/N): N Canopy (% open): 35%
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number ______
Field Measures Temp (°C) ______ Dissolved Oxygen (mg/l) ______ pH (S.U.) ______ Conductivity (µmhos/cm) ______
Is the sampling reach representative of the stream (Y/N) Y If not, please explain ______

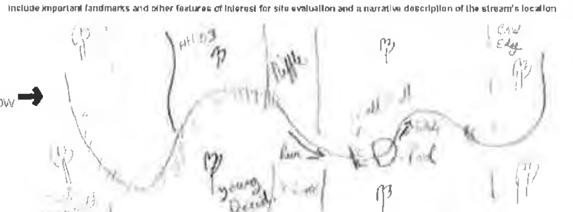
Additional comments/description of pollution impacts: N/A

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 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 ➔



Stream 139 Class 1 HH-BAO-030216-3

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 23

SITE NAME/LOCATION Goodhope-Poston
SITE NUMBER ____ RIVER BASIN ____ DRAINAGE AREA (mi²) ____
LENGTH OF STREAM REACH (ft) 100 ft LAT ____ LONG ____ RIVER CODE ____ RIVER MILE ____
DATE 03/02/16 SCORER MO/BCR COMMENTS Ephemeral

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 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]		☐☒	SILT [3 pt]	35
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	15
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	20	☐☐	MUCK [0 pts]	
☒☐	SAND (<2 mm) [6 pts]	50	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0 (A) 9 (B) 4
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI Metric Points — Substrate Max = 40: 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 one box):
☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts]
☒ < 5 cm [5 pts]
☐ NO WATER OR MOIST CHANNEL [0 pts]
COMMENTS ____ MAXIMUM POOL DEPTH (centimeters): 2"

Pool Depth Max = 30: 5

3. **BANK FULL WIDTH** (Measured as the average of 3-4 measurements) (Check ONLY one box):
☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☒ ≤ 1.0 m (≤ 3' 3") [5 pts]
COMMENTS ____ AVERAGE BANKFULL WIDTH (meters) feet 1'

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank)
L R
☒☒ 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 (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)
COMMENTS ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):
☐ None ☐ 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

Stream 139 HH-BAO-030216-3

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 ____

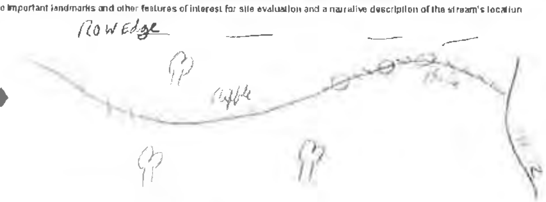
MISCELLANEOUS
Spring Thaw + Recent Precip.
Base Flow Conditions? (Y/N) N Date of last precipitation Today Quantity ?
Photograph Information 2 Photos, Upstream, Downstream
Elevated Turbidity? (Y/N) N Canopy (% open) 20
Were samples collected for water chemistry? (Y/N) N (Note lab sample no. or id. and attach results) Lab Number ____
Field Measures Temp (°C) ____ Dissolved Oxygen (mg/l) ____ pH (S.U.) ____ Conductivity (µmhos/cm) ____
Is the sampling reach representative of the stream (Y/N) Y If not, please explain ____

Additional comments/description of pollution impacts: 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 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 ➜



Stream 140 Mod. Class 2 HH-BAO-030216-4

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 35

SITE NAME/LOCATION Goodhope-Poston
SITE NUMBER 04 RIVER BASIN ____ DRAINAGE AREA (mi²) ____
LENGTH OF STREAM REACH (ft) 200 ft LAT ____ LONG ____ RIVER CODE ____ RIVER MILE ____
DATE 03/02/16 SCORER BAO/BCR COMMENTS Ephemeral

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
Metal waste covers 30 feet of stream channel, Trans. 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
☐☐	BLDR SLABS [16 pts]		☐☒	SILT [3 pt]	30
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	10
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	20	☐☐	MUCK [0 pts]	
☒☐	SAND (<2 mm) [6 pts]	40	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0 (A) 9 (B) 4
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI Metric Points — Substrate Max = 40: 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 one box):
☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☒ > 5 cm - 10 cm [15 pts]
☐ < 5 cm [5 pts]
☐ NO WATER OR MOIST CHANNEL [0 pts]
COMMENTS ____ MAXIMUM POOL DEPTH (centimeters): 3"

Pool Depth Max = 30: 15

3. **BANK FULL WIDTH** (Measured as the average of 3-4 measurements) (Check ONLY one box):
☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☒ ≤ 1.0 m (≤ 3' 3") [5 pts]
COMMENTS ____ AVERAGE BANKFULL WIDTH (meters) 1.5'

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (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 (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)
COMMENTS ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):
☐ None ☐ 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

Stream 140 HH-BAO-030216-04

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
Spring Thaw + recent precip.
Base Flow Conditions? (Y/N) N Date of last precipitation Today Quantity ?
Photograph Information 2 Photos, Upstream, Downstream
Elevated Turbidity? (Y/N) N Canopy (% open) 25
Were samples collected for water chemistry? (Y/N) N (Note lab sample no. or id. and attach results) Lab Number ____
Field Measures Temp (°C) ____ Dissolved Oxygen (mg/l) ____ pH (S.U.) ____ Conductivity (µmhos/cm) ____
Is the sampling reach representative of the stream (Y/N) Y If not, please explain ____

Additional comments/description of pollution impacts: Metal waste (Tires), possibly toxic waste [illegible]

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 ➜

Stream 141 Mod. Class 1 HH-BAO-[illegible]23[illegible] 15

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 23

SITE NAME/LOCATION: Barnett - [illegible]
SITE NUMBER: 05 RIVER BASIN ______ DRAINAGE AREA (mi²) ______
LENGTH OF STREAM REACH (ft): 200 ft LAT. ______ LONG. ______ RIVER CODE ______ RIVER MILE ______
DATE: 03/02/16 SCORER: BAO/BCR COMMENTS: Ephemeral

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 — Trans. 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
☐☐	BLDR SLABS [16 pts]		☐☒	SILT [3 pt]	30
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	[illegible]
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	30	☐☐	MUCK [0 pts]	
☒☐	SAND (<2 mm) [6 pts]	40	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 1
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4
HHEI Metric Points — Substrate Max = 40: 15 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):
☐ > 30 centimeters [20 pts] ☐ > 22.5 - 30 cm [30 pts] ☐ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts] ☒ < 5 cm [5 pts] ☐ NO WATER OR MOIST CHANNEL [0 pts]
COMMENTS ______ MAXIMUM POOL DEPTH (~~centimeters~~ inches): 1"
Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):
☐ > 4.0 meters (> 13') [30 pts] ☐ > 3.0 m - 4.0 m (> 9'7" - 13') [25 pts] ☐ > 1.5 m - 3.0 m (> 4'8" - 9'7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3'3" - 4'8") [15 pts] ☒ < 1.0 m (< 3'3") [5 pts]
COMMENTS ______ AVERAGE BANKFULL WIDTH (~~meters~~ feet): 1'
Bankfull Width Max = 30: 5

This information **must** also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank): L R ☒☒ 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 (Interstitial) ☐ Moist Channel, isolated pools, no flow (Intermittent) ☐ Dry channel, no water (Ephemeral)
COMMENTS ______

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): ☐ None ☐ 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

Stream 141 HH-BAO-[illegible] 05

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 — Spring Thaw / [illegible]
Base Flow Conditions? (Y/N): N Date of last precipitation: Today Quantity: [illegible]
Photograph Information: 2 Photos, Upstream, Downstream
Elevated Turbidity? (Y/N): N Canopy (% open): [illegible]
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 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

Stream 142 Mod. Class 2 HH-BAO-030216-06

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 30

SITE NAME/LOCATION: Barnett - [illegible]
SITE NUMBER: 06 RIVER BASIN ______ DRAINAGE AREA (mi²) ______
LENGTH OF STREAM REACH (ft): 200 ft LAT. ______ LONG. ______ RIVER CODE ______ RIVER MILE ______
DATE: 03/02/16 SCORER: BAO/BCR COMMENTS: Ephemeral

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 — Trans. 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
☐☐	BLDR SLABS [16 pts]		☐☒	SILT [3 pt]	30
☐☐	BOULDER (>256 mm) [16 pts]	5	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	10
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]	5	☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	20	☐☐	MUCK [0 pts]	
☒☐	SAND (<2 mm) [6 pts]	30	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 1
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 6
HHEI Metric Points — Substrate Max = 40: 15 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):
☐ > 30 centimeters [20 pts] ☐ > 22.5 - 30 cm [30 pts] ☐ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts] ☒ < 5 cm [5 pts] ☐ NO WATER OR MOIST CHANNEL [0 pts]
COMMENTS ______ MAXIMUM POOL DEPTH (~~centimeters~~ inches): 1"
Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):
☐ > 4.0 meters (> 13') [30 pts] ☐ > 3.0 m - 4.0 m (> 9'7" - 13') [25 pts] ☐ > 1.5 m - 3.0 m (> 4'8" - 9'7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3'3" - 4'8") [15 pts] ☒ < 1.0 m (< 3'3") [5 pts]
COMMENTS ______ AVERAGE BANKFULL WIDTH (~~meters~~ Feet): 1'
Bankfull Width Max = 30: 5

This information **must** also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank): L R ☒☒ 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 (Interstitial) ☐ Moist Channel, isolated pools, no flow (Intermittent) ☐ Dry channel, no water (Ephemeral)
COMMENTS ______

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): ☐ None ☐ 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

Stream 142 [illegible]

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 — Spring Thaw + Recent Precip
Base Flow Conditions? (Y/N): N Date of last precipitation: Today Quantity: [illegible]
Photograph Information: 2 Photos, Upstream + Downstream
Elevated Turbidity? (Y/N): N Canopy (% open): 40
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number ______
Field Measures: Temp (°C) ______ Dissolved Oxygen (mg/l) ______ pH (S.U.) ______ Conductivity (µmhos/cm) ______
Is the sampling reach representative of the stream? (Y/N): Y If not, please explain ______

Additional comments/description of pollution impacts: 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 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

Stream 143 Mod. Class 2 HHBAD-030216-07

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): 34

SITE NAME/LOCATION: [illegible]

SITE NUMBER: 07 RIVER BASIN: ______ DRAINAGE AREA (mi²): ______

LENGTH OF STREAM REACH (ft): 200ft LAT: ______ LONG: ______ RIVER CODE: ______ RIVER MILE: ______

DATE: 03/02/16 SCORER: [illegible] COMMENTS: Ephemeral

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

T-line, Channel filled within ROW, stream runs under

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
☐☐	BLDR SLABS [16 pts]		☐☒	SILT [3 pt]	40
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	5
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]	5	☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	10	☐☐	MUCK [0 pts]	
☒☐	SAND (<2 mm) [6 pts]	40	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock ______

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points — Substrate Max = 40: 14 (A + B)

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes*) (Check ONLY one box):

☐ > 30 centimeters [20 pts] ☐ > 22.5 - 30 cm [30 pts] ☐ > 10 - 22.5 cm [25 pts] ☒ > 5 cm - 10 cm [15 pts] ☐ < 5 cm [5 pts] ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): 4"

Pool Depth Max = 30: 15

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):

☐ > 4.0 meters (> 13') [30 pts] ☐ > 3.0 m - 4.0 m (> 9'7" - 13') [25 pts] ☐ > 1.5 m - 3.0 m (> 4'8" - 9'7") [20 pts] ☐ > 1.0 m - 1.5 m (> 3'3" - 4'8") [15 pts] ☒ ≤ 1.0 m (≤ 3'3") [5 pts]

COMMENTS ______ AVERAGE BANKFULL WIDTH (~~meters~~ feet): 1.5'

Bankfull Width Max = 30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L R		FLOODPLAIN QUALITY (Most Predominant per Bank) L R		L R	
☒☒	Wide > 10m	☐☐	Mature Forest, Wetland	☐☐	Conservation Tillage
☐☐	Moderate 5-10m	☒☒	Immature Forest, Shrub or Old Field	☐☐	Urban or Industrial
☐☐	Narrow < 5m	☐☐	Residential, Park, New Field	☐☐	Open Pasture, Row Crop
☐☐	None	☐☐	Fenced Pasture	☐☐	Mining or Construction

COMMENTS ______

FLOW REGIME (*At Time of Evaluation*) (Check ONLY one box)

☒ Stream Flowing ☐ Subsurface flow with isolated pools (Interstitial) ☐ Moist Channel, isolated pools, no flow (Intermittent) ☐ Dry channel, no water (Ephemeral)

COMMENTS ______

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/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☒ Moderate to Severe ☐ Severe (10 ft/100 ft)

Stream 143 HHBAD-030216-07

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 ______

☐ 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: Today (Spring Thaw + Recent Precip) Quantity: ?

Photograph Information: 2 Photos, Upstream + Downstream

Elevated Turbidity? (Y/N): N Canopy (% open): 45

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number ______

Field Measures: Temp (°C) ______ Dissolved Oxygen (mg/l) ______ pH (S.U.) ______ Conductivity (µmhos/cm) ______

Is the sampling reach representative of the stream (Y/N) Y If not, please explain ______

Additional comments/description of pollution impacts: Filled channel within ROW

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) ______

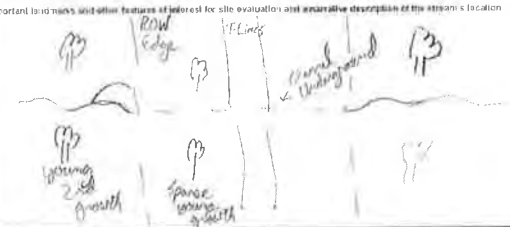
Frogs or Tadpoles Observed? (Y/N) ______ Voucher? (Y/N) ______ Aquatic Macroinvertebrates Observed? (Y/N) ______ Voucher? (Y/N) ______

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 →



Stream 144 Mod. Class 1 HHBAD-030216-08

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): 29

SITE NAME/LOCATION: [illegible]

SITE NUMBER: 08 RIVER BASIN: ______ DRAINAGE AREA (mi²): ______

LENGTH OF STREAM REACH (ft): 200ft LAT: ______ LONG: ______ RIVER CODE: ______ RIVER MILE: ______

DATE: 03/02/16 SCORER: [illegible] COMMENTS: Ephemeral

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

Trans. ROW, Channel filled within part of ROW, Rutted

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
☐☐	BLDR SLABS [16 pts]		☐☐	SILT [3 pt]	20
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]	10	☐☐	CLAY or HARDPAN [0 pt]	
☒☐	GRAVEL (2-64 mm) [9 pts]	30	☐☐	MUCK [0 pts]	
☐☒	SAND (<2 mm) [6 pts]	40	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 10

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 15

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points — Substrate Max = 40: 19 (A + B)

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes*) (Check ONLY one box):

☐ > 30 centimeters [20 pts] ☐ > 22.5 - 30 cm [30 pts] ☐ > 10 - 22.5 cm [25 pts] ☐ > 5 cm - 10 cm [15 pts] ☒ < 5 cm [5 pts] ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ______ MAXIMUM POOL DEPTH (~~centimeters~~ inches): 2"

Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):

☐ > 4.0 meters (> 13') [30 pts] ☐ > 3.0 m - 4.0 m (> 9'7" - 13') [25 pts] ☐ > 1.5 m - 3.0 m (> 4'8" - 9'7") [20 pts] ☐ > 1.0 m - 1.5 m (> 3'3" - 4'8") [15 pts] ☒ ≤ 1.0 m (≤ 3'3") [5 pts]

COMMENTS ______ AVERAGE BANKFULL WIDTH (~~meters~~ feet): 1'

Bankfull Width Max = 30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L R		FLOODPLAIN QUALITY (Most Predominant per Bank) L R		L R	
☒☒	Wide > 10m	☐☐	Mature Forest, Wetland	☐☐	Conservation Tillage
☐☐	Moderate 5-10m	☐☐	Immature Forest, Shrub or Old Field	☐☐	Urban or Industrial
☐☐	Narrow < 5m	☐☐	Residential, Park, New Field	☐☐	Open Pasture, Row Crop
☒☒	None	☐☐	Fenced Pasture	☐☐	Mining or Construction

COMMENTS: Mowed grass within ROW, Forested outside

FLOW REGIME (*At Time of Evaluation*) (Check ONLY one box)

☒ Stream Flowing ☐ Subsurface flow with isolated pools (Interstitial) ☐ Moist Channel, isolated pools, no flow (Intermittent) ☐ Dry channel, no water (Ephemeral)

COMMENTS ______

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box)

☐ None ☐ 0.5 ☒ 1.0 ☐ 1.5 ☐ 2.0 ☐ 2.5 ☐ 3.0 ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☒ Moderate to Severe ☐ Severe (10 ft/100 ft)

Stream 144 HHBAD-030216-08

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: Today (Spring Thaw + Recent Precip) Quantity: ?

Photograph Information: 2 Photos, Upstream + Downstream

Elevated Turbidity? (Y/N): N Canopy (% open): 80

Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number ______

Field Measures: Temp (°C) ______ Dissolved Oxygen (mg/l) ______ pH (S.U.) ______ Conductivity (µmhos/cm) ______

Is the sampling reach representative of the stream (Y/N) Y If not, please explain ______

Additional comments/description of pollution impacts: Trash dumping at edge of ROW

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) ______

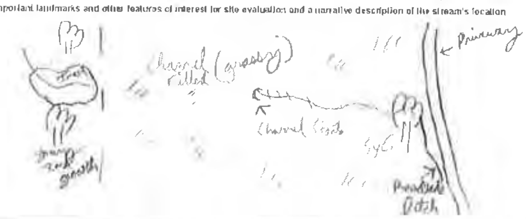
Frogs or Tadpoles Observed? (Y/N) ______ Voucher? (Y/N) ______ Aquatic Macroinvertebrates Observed? (Y/N) ______ Voucher? (Y/N) ______

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 →



Stream 145   Class 2   HC BAD-030216-09

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): 55

SITE NAME/LOCATION: Gantlope Paton
SITE NUMBER: 09   RIVER BASIN ______   DRAINAGE AREA (mi²) ______
LENGTH OF STREAM REACH (ft): ~Will   LAT ______   LONG ______   RIVER CODE ______   RIVER MILE ______
DATE: 03/02/16   SCORER: ______   COMMENTS: Intermitted

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 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]		☐☐	SILT [3 pt]	20
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	5
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]	5	☐☐	CLAY or HARDPAN [0 pt]	
☒☐	GRAVEL (2-64 mm) [9 pts]	30	☐☐	MUCK [0 pts]	
☐☒	SAND (<2 mm) [6 pts]	40	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 5   (A) 15   (B) 5

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI Metric Points — Substrate Max = 40: 20

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):
☒ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts]
☐ < 5 cm [5 pts]
☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): 14 Inches

Pool Depth Max = 30: 20

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):
☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☒ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ < 1.0 m (< 3' 3") [5 pts]

COMMENTS ______ AVERAGE BANKFULL WIDTH ~~(meters)~~ Feet: 3

Bankfull Width Max = 30: 15

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE: River Left (L) and Right (R) as looking downstream

RIPARIAN WIDTH (Per Bank) L R		FLOODPLAIN QUALITY (Most Predominant per Bank) L R		L R	
☒☐	Wide >10m	☐☐	Mature Forest, Wetland	☐☐	Conservation Tillage
☐☐	Moderate 5-10m	☐☐	Immature Forest, Shrub or Old Field	☐☐	Urban or Industrial
☐☒	Narrow <5m	☐☐	Residential, Park, New Field	☐☐	Open Pasture, Row Crop
☐☒	None	☐☐	Fenced Pasture	☐☐	Mining or Construction

COMMENTS: Residential RB riparian

FLOW REGIME (At Time of Evaluation) (Check ONLY one box)
☒ Stream Flowing
☐ Subsurface flow with isolated pools (interstitial)
☐ Moist Channel, isolated pools, no flow (intermittent)
☐ Dry channel, no water (Ephemeral)
COMMENTS ______

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box)
☐ None ☐ 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

Stream 145   HC BAD-030216-09

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? ☐ Yes ☒ No QHEI Score ______

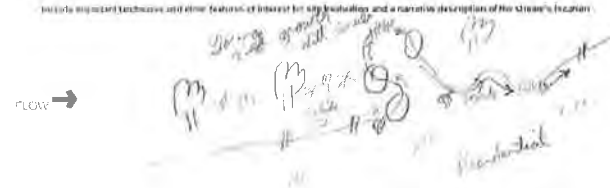
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

MISCELLANEOUS
Base Flow Conditions? (Y/N): N   Date of last precipitation: Spring Thaw + Recent Precip. Today   Quantity: ?
Photograph information: Otto
Elevated Turbidity? (Y/N): N   Canopy (% open): 40
Were samples collected for water chemistry? (Y/N): N
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

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 146   Good Warmwater

OhioEPA Qualitative Habitat Evaluation Index and Use Assessment Field Sheet   **QHEI Score:** 63

Stream & Location: QH BAD-030216-01 Gantlope Paton   RM: ______   Date: 03/02/16
Scorers Full Name & Affiliation: ______
River Code: ______ STORET #: ______ Lat./Long.: ______ Office verified location ☐

1] SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

BEST TYPES	POOL	RIFFLE	OTHER TYPES	POOL	RIFFLE
☐☐ BLDR/SLABS [10]			☐☐ HARDPAN [4]		
☐☐ BOULDER [9]			☐☐ DETRITUS [3]		
☐☐ COBBLE [8]		20	☐☐ MUCK [2]		
☐☒ GRAVEL [7]	20	30	☐☐ SILT [2]	30	10
☒☐ SAND [6]	50	40	☐☐ ARTIFICIAL [0]		
☐☐ BEDROCK [5]			(Score natural substrates; ignore sludge from point-sources)		

NUMBER OF BEST TYPES: ☐ 4 or more [2] ☒ 3 or less [0]
Comments 13

ORIGIN (Check ONE (Or 2 & average)): ☒ LIMESTONE [1] ☐ TILLS [1] ☐ WETLANDS [0] ☐ HARDPAN [0] ☐ SANDSTONE [0] ☐ RIP/RAP [0] ☐ LACUSTURINE [0] ☐ SHALE [-1] ☐ COAL FINES [-2]

QUALITY — SILT: ☐ HEAVY [-2] ☐ MODERATE [-1] ☒ NORMAL [0] ☐ FREE [1]
EMBEDDEDNESS: ☐ EXTENSIVE [-2] ☐ MODERATE [-1] ☒ NORMAL [0] ☐ NONE [1]   0

Substrate Maximum 20: 14

2] INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.
1 UNDERCUT BANKS [1]   1 POOLS > 70cm [2]   ___ OXBOWS, BACKWATERS [1]
1 OVERHANGING VEGETATION [1]   1 ROOTWADS [1]   ___ AQUATIC MACROPHYTES [1]
___ SHALLOWS (IN SLOW WATER) [1]   ___ BOULDERS [1]   1 LOGS OR WOODY DEBRIS [1]
1 ROOTMATS [1]
Comments 7

AMOUNT Check ONE (Or 2 & average): ☐ EXTENSIVE >75% [11] ☒ MODERATE 25-75% [7] ☐ SPARSE 5-<25% [3] ☐ NEARLY ABSENT <5% [1]   7

Cover Maximum 20: 14

3] CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average)
SINUOSITY: ☐ HIGH [4] ☒ MODERATE [3] ☐ LOW [2] ☐ NONE [1]
DEVELOPMENT: ☐ EXCELLENT [7] ☒ GOOD [5] ☐ FAIR [3] ☐ POOR [1]
CHANNELIZATION: ☐ NONE [6] ☒ RECOVERED [4] ☐ RECOVERING [3] ☐ RECENT OR NO RECOVERY [1]   4
STABILITY: ☐ HIGH [3] ☒ MODERATE [2] ☒ LOW [1]   1.5
Comments 3 5

Channel Maximum 20: 13.5

4] BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average)
River right looking downstream
EROSION (L R): ☐☐ NONE / LITTLE [3] ☐☐ MODERATE [2] ☐☐ HEAVY / SEVERE [1]   2
RIPARIAN WIDTH (L R): ☐☐ WIDE > 50m [4] ☐☒ MODERATE 10-50m [3] ☐☐ NARROW 5-10m [2] ☒☐ VERY NARROW < 5m [1] ☐☐ NONE [0]   2
FLOOD PLAIN QUALITY (L R): ☐☐ FOREST, SWAMP [3] ☐☐ SHRUB OR OLD FIELD [2] ☐☒ RESIDENTIAL, PARK, NEW FIELD [1] ☐☐ FENCED PASTURE [1] ☒☐ OPEN PASTURE, ROWCROP [0] ☐☐ CONSERVATION TILLAGE [1] ☐☐ URBAN OR INDUSTRIAL [0] ☐☐ MINING / CONSTRUCTION [0]   0.5
Indicate predominant land use(s) past 100m riparian.
Comments

Riparian Maximum 10: 4.5

5] POOL / GLIDE AND RIFFLE / RUN QUALITY
MAXIMUM DEPTH Check ONE (ONLY!): ☐ > 1m [6] ☒ 0.7-<1m [4] ☐ 0.4-<0.7m [2] ☐ 0.2-<0.4m [1] ☐ < 0.2m [0]
CHANNEL WIDTH Check ONE (Or 2 & average): ☐ POOL WIDTH > RIFFLE WIDTH [2] ☒ POOL WIDTH = RIFFLE WIDTH [1] ☐ POOL WIDTH > RIFFLE WIDTH [0]   1
CURRENT VELOCITY Check ALL that apply: ☐ TORRENTIAL [-1] ☐ VERY FAST [1] ☒ FAST [1] ☐ MODERATE [1] ☐ SLOW [1] ☐ INTERSTITIAL [-1] ☐ INTERMITTENT [-2] ☐ EDDIES [1]   1
Indicate for reach - pools and riffles.
Recreation Potential: Primary Contact / Secondary Contact (circled: Secondary Contact)
Comments 4

Pool / Current Maximum 12: 6

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: ☐ NO RIFFLE [metric=0]
Check ONE (Or 2 & average).
RIFFLE DEPTH: ☐ BEST AREAS > 10cm [2] ☒ BEST AREAS 5-10cm [1] ☐ BEST AREAS < 5cm [metric=0]   1
RUN DEPTH: ☐ MAXIMUM > 50cm [2] ☒ MAXIMUM < 50cm [1]   1
RIFFLE / RUN SUBSTRATE: ☐ STABLE (e.g., Cobble, Boulder) [2] ☒ MOD. STABLE (e.g., Large Gravel) [1] ☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]   1
RIFFLE / RUN EMBEDDEDNESS: ☐ NONE [2] ☐ LOW [1] ☒ MODERATE [0] ☐ EXTENSIVE [-1]   0
Comments

Riffle / Run Maximum 8: 3

6] GRADIENT (2.4 ft/mi) ☐ VERY LOW - LOW [2-4] ☐ MODERATE [6-10] ☒ HIGH - VERY HIGH [10-6]
DRAINAGE AREA (21.88 mi²)
%POOL: 25   %GLIDE: 65   %RUN: 10   %RIFFLE: 10

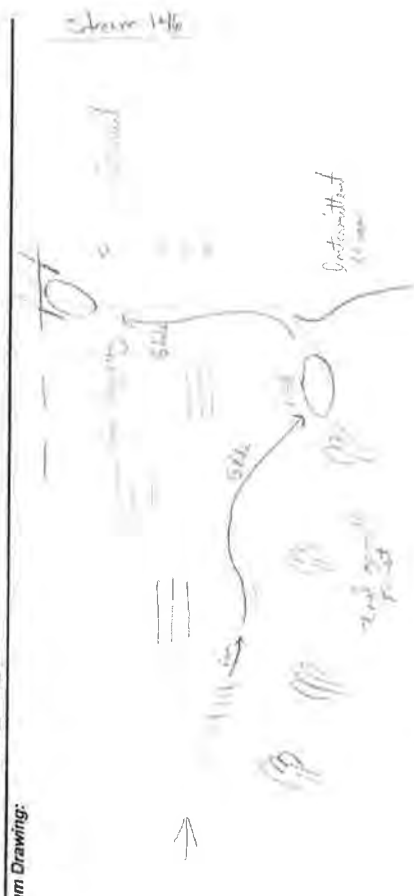
Gradient Maximum 10: 8

EPA 4520   06/16/06

A] SAMPLED REACH Check ALL that apply
METHOD: ☐ BOAT ☐ WADE ☐ L. LINE ☒ OTHER
STAGE: ☐ HIGH ☒ UP ☐ NORMAL ☐ LOW ☐ DRY
DISTANCE: ☐ 0.5 Km ☐ 0.2 Km ☐ 0.15 Km ☐ 0.12 Km ☒ OTHER ______ meters
CLARITY: ☐ < 20 cm ☒ 20-<40 cm ☐ 40-70 cm ☐ > 70 cm/ CTB ☐ SECCHI DEPTH
CANOPY: ☐ > 85%-OPEN ☐ 55%-<85% ☐ 30%-<55% ☐ 10%-<30% ☐ <10%-CLOSED
B] AESTHETIC: ☐ NUISANCE ALGAE ☐ INVASIVE MACROPHYTES ☐ EXCESS TURBIDITY ☐ DISCOLORATION ☐ FOAM / SCUM ☐ OIL SHEEN ☐ TRASH / LITTER ☐ NUISANCE ODOR ☐ SLUDGE DEPOSITS ☐ CSOs/SSOs/OUTFALLS
C] REC
D] MAINTENANCE: PUBLIC / PRIVATE / BOTH / NA; ACTIVE / HISTORIC / BOTH / NA; YOUNG-SUCCESSION-OLD; SPRAY / SNAG / REMOVED; MODIFIED / DIPPED OUT / NA; LEVEED / ONE SIDED; RELOCATED / CUTOFFS; MOVING-BEDLOAD-STABLE; ARMOURED / SLUMPS; ISLANDS / SCOURED; IMPOUNDED / DESICCATED; FLOOD CONTROL / DRAINAGE
E] ISSUES: WWTP / CSO / NPDES / INDUSTRY; HARDENED / URBAN / DIRT&GRIME; CONTAMINATED / LANDFILL; BMPs-CONSTRUCTION-SEDIMENT; LOGGING / IRRIGATION / COOLING; BANK / EROSION / SURFACE; FALSE BANK / MANURE / LAGOON; WASH H_2O / TILE / H_2O TABLE; ACID / MINE / QUARRY / FLOW; NATURAL / WETLAND / STAGNANT; PARK / GOLF / LAWN / HOME; ATMOSPHERE / DATA PAUCITY
F] MEASUREMENTS: x̄ width; x̄ depth; max. depth; x̄ bankfull width 22'; bankfull x̄ depth; W/D ratio; bankfull max. depth; floodprone x² width; entrench. ratio

Stream Drawing:

Stream 146



Stream 147 Mod. Class 1 III BAD-030216-017

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 23

SITE NAME/LOCATION Goodhope - Boston

SITE NUMBER 017 RIVER BASIN ______ DRAINAGE AREA (mi²) ______

LENGTH OF STREAM REACH (ft) 200 ft LAT ______ LONG ______ RIVER CODE ______ RIVER MILE ______

DATE 03/02/16 SCORER BAO/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 [x] RECOVERING [ ] RECENT OR NO RECOVERY

MODIFICATIONS: ATV Trails running through/along 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
[ ] [ ]	BLDR SLABS [16 pts]		[x] [ ]	SILT [3 pt]	40
[ ] [ ]	BOULDER (>256 mm) [16 pts]		[ ] [ ]	LEAF PACK/WOODY DEBRIS [3 pts]	10
[ ] [ ]	BEDROCK [16 pt]		[ ] [ ]	FINE DETRITUS [3 pts]	
[ ] [ ]	COBBLE (65-256 mm) [12 pts]		[ ] [ ]	CLAY or HARDPAN [0 pt]	
[ ] [ ]	GRAVEL (2-64 mm) [9 pts]	20	[ ] [ ]	MUCK [0 pts]	
[ ] [x]	SAND (<2 mm) [6 pts]	30	[ ] [ ]	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points — Substrate Max = 40: 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 one box)

[ ] > 30 centimeters [30 pts]
[ ] > 22.5 - 30 cm [30 pts]
[ ] > 10 - 22.5 cm [25 pts]
[ ] > 5 cm - 10 cm [15 pts]
[x] < 5 cm [5 pts]
[ ] NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): 2"

Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):

[ ] > 4.0 meters (> 13') [30 pts]
[ ] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
[ ] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
[ ] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
[x] ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS ______ AVERAGE BANKFULL WIDTH (meters) 1.5'

Bankfull Width Max=30: 5

This information **must** also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L R		FLOODPLAIN QUALITY (Most Predominant per Bank) L R		L R	
[x] [x]	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
[x] [x]	None	[ ] [ ]	Fenced Pasture	[ ] [ ]	Mining or Construction

COMMENTS Riparian wide in forest right ... riparian within ROW

FLOW REGIME (*At Time of Evaluation*) (Check ONLY one box)

[x] Stream Flowing
[ ] Subsurface flow with isolated pools (Interstitial)
[ ] Moist Channel, isolated pools, no flow (Intermittent)
[ ] Dry channel, no water (Ephemeral)

COMMENTS ______

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box)

[ ] None [ ] 0.5 [ ] 1.0 [ ] 1.5 [ ] 2.0 [x] 2.5 [ ] 3.0 [ ] >3

STREAM GRADIENT ESTIMATE

[ ] Flat (0.5 ft/100 ft) [ ] Flat to Moderate [x] Moderate (2 ft/100 ft) [ ] Moderate to Severe [ ] Severe (10 ft/100 ft)

Stream 147 III BAD-030216-017

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? [ ] Yes [x] No QHEI Score ______ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

[ ] WWH Name ______ Distance from Evaluated Stream ______
[ ] CWH Name ______ Distance from Evaluated Stream ______
[ ] EWH Name ______ Distance from Evaluated Stream ______

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name ______ NRCS Soil Map Page ______ NRCS Soil Map Stream Order ______

County ______ Township / City ______

MISCELLANEOUS Spring Thaw & Recent Precip.

Base Flow Conditions? (Y/N) N Date of last precipitation Today Quantity ?

Photograph Information: 2 Photos: Upstream + Downstream

Elevated Turbidity? (Y/N) N Canopy (% open) 50

Were samples collected for water chemistry? (Y/N) N (Note lab sample no. or id. and attach results) Lab Number ______

Field Measures: Temp (°C) ______ Dissolved Oxygen (mg/l) ______ pH (S.U.) ______ Conductivity (µmhos/cm) ______

Is the sampling reach representative of the stream (Y/N) Y If not, please explain ______

Additional comments/description of pollution impacts: ______

BIOTIC EVALUATION

Performed? (Y/N): 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)

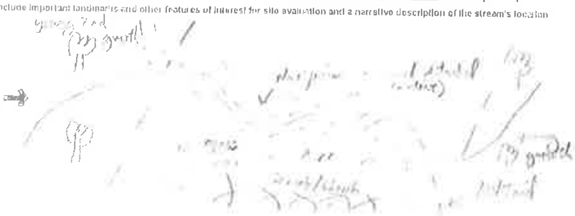
Fish Observed? (Y/N) ______ Voucher? (Y/N) ______ Salamanders Observed? (Y/N) ______ Voucher? (Y/N) ______
Frogs or Tadpoles Observed? (Y/N) ______ Voucher? (Y/N) ______ Aquatic Macroinvertebrates Observed? (Y/N) ______ Voucher? (Y/N) ______

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 →



Stream 148 Class 2 III BAD-030216-016

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 40

SITE NAME/LOCATION Goodhope - Boston

SITE NUMBER 016 RIVER BASIN ______ DRAINAGE AREA (mi²) ______

LENGTH OF STREAM REACH (ft) 200 ft LAT ______ LONG ______ RIVER CODE ______ RIVER MILE ______

DATE 03/02/16 SCORER BAO/BCR COMMENTS Intermittent

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL [x] 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
[ ] [ ]	BLDR SLABS [16 pts]		[ ] [ ]	SILT [3 pt]	20
[ ] [ ]	BOULDER (>256 mm) [16 pts]		[ ] [ ]	LEAF PACK/WOODY DEBRIS [3 pts]	10
[ ] [ ]	BEDROCK [16 pt]		[ ] [ ]	FINE DETRITUS [3 pts]	
[ ] [ ]	COBBLE (65-256 mm) [12 pts]	10	[ ] [ ]	CLAY or HARDPAN [0 pt]	
[ ] [x]	GRAVEL (2-64 mm) [9 pts]	30	[ ] [ ]	MUCK [0 pts]	
[x] [ ]	SAND (<2 mm) [6 pts]	30	[ ] [ ]	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 10

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 15

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points — Substrate Max = 40: 20 (A + B)

2. Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes*) (Check ONLY one box)

[ ] > 30 centimeters [30 pts]
[ ] > 22.5 - 30 cm [30 pts]
[ ] > 10 - 22.5 cm [25 pts]
[x] > 5 cm - 10 cm [15 pts]
[ ] < 5 cm [5 pts]
[ ] NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): 3"

Pool Depth Max = 30: 15

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box)

[ ] > 4.0 meters (> 13') [30 pts]
[ ] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
[ ] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
[ ] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
[x] ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS ______ AVERAGE BANKFULL WIDTH (meters) 2'

Bankfull Width Max=30: 5

This information **must** also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L R		FLOODPLAIN QUALITY (Most Predominant per Bank) L R		L R	
[x] [x]	Wide >10m	[ ] [ ]	Mature Forest, Wetland	[ ] [ ]	Conservation Tillage
[ ] [ ]	Moderate 5-10m	[x] [x]	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)

[x] Stream Flowing
[ ] Subsurface flow with isolated pools (Interstitial)
[ ] Moist Channel, isolated pools, no flow (Intermittent)
[ ] Dry channel, no water (Ephemeral)

COMMENTS ______

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box)

[ ] None [ ] 0.5 [ ] 1.0 [ ] 1.5 [ ] 2.0 [x] 2.5 [ ] 3.0 [ ] >3

STREAM GRADIENT ESTIMATE

[ ] Flat (0.5 ft/100 ft) [ ] Flat to Moderate [x] Moderate (2 ft/100 ft) [ ] Moderate to Severe [ ] Severe (10 ft/100 ft)

Stream 148 III BAD-030216-016

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? [ ] Yes [x] No QHEI Score ______ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

[ ] WWH Name ______ Distance from Evaluated Stream ______
[ ] CWH Name ______ Distance from Evaluated Stream ______
[ ] EWH Name ______ Distance from Evaluated Stream ______

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name ______ NRCS Soil Map Page ______ NRCS Soil Map Stream Order ______

County ______ Township / City ______

MISCELLANEOUS Spring Thaw

Base Flow Conditions? (Y/N) N Date of last precipitation Today Quantity ?

Photograph Information: 2 Photos: Upstream + Downstream

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: 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)

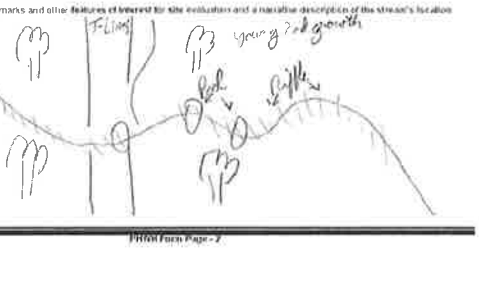
Fish Observed? (Y/N) ______ Voucher? (Y/N) ______ Salamanders Observed? (Y/N) ______ Voucher? (Y/N) ______
Frogs or Tadpoles Observed? (Y/N) ______ Voucher? (Y/N) ______ Aquatic Macroinvertebrates Observed? (Y/N) ______ Voucher? (Y/N) ______

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 →



Stream 149 Class 1 HH-BAD-030216-015

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): 15

SITE NAME/LOCATION: [illegible]

SITE NUMBER: 015 RIVER BASIN: ____ DRAINAGE AREA (mi²): ____

LENGTH OF STREAM REACH (ft): 100ft LAT: ____ LONG: ____ RIVER CODE: ____ RIVER MILE: ____

DATE: 03/02/16 SCORER: [illegible] COMMENTS: Ephemeral

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 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]		☒☐	SILT [3 pt]	40
☐☐	BOULDER (>256 mm) [16 pts]		☐☒	LEAF PACK/WOODY DEBRIS [3 pts]	40
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	5	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]	15	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock ____

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 6

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points — Substrate Max = 40: 10 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☒ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ____ MAXIMUM POOL DEPTH (centimeters): 0" (Trickle)

Pool Depth Max = 30: 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☒ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS ____ AVERAGE BANKFULL WIDTH (meters): 1' feet

Bankfull Width Max = 30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L R		FLOODPLAIN QUALITY (Most Predominant per Bank) L R		L R	
☒☒	Wide >10m	☐☐	Mature Forest, Wetland	☐☐	Conservation Tillage
☐☐	Moderate 5-10m	☒☒	Immature Forest, Shrub or Old Field	☐☐	Urban or Industrial
☐☐	Narrow <5m	☐☐	Residential, Park, New Field	☐☐	Open Pasture, Row Crop
☐☐	None	☐☐	Fenced Pasture	☐☐	Mining or Construction

COMMENTS ____

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):

- ☒ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS ____

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

Stream 149 HH-BAD-030216-015

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 Spring Thaw

Base Flow Conditions? (Y/N): N Date of last precipitation: Today Quantity: ?

Photograph Information: 2 Photos, Upstream + Downstream

Elevated Turbidity? (Y/N): N Canopy (% open): 2%

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: 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 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 →

Stream 150 Class 1 HH-BAD-030216-014

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): 20

SITE NAME/LOCATION: [illegible]

SITE NUMBER: 014 RIVER BASIN: ____ DRAINAGE AREA (mi²): ____

LENGTH OF STREAM REACH (ft): 150ft LAT: ____ LONG: ____ RIVER CODE: ____ RIVER MILE: ____

DATE: 03/02/16 SCORER: [illegible] COMMENTS: Ephemeral

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 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]		☒☐	SILT [3 pt]	40
☐☐	BOULDER (>256 mm) [16 pts]		☐☒	LEAF PACK/WOODY DEBRIS [3 pts]	40
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	5	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]	15	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 6

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points — Substrate Max = 40: 10 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):

- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☒ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ____ MAXIMUM POOL DEPTH (centimeters): 1" (inches)

Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):

- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☒ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS ____ AVERAGE BANKFULL WIDTH (meters): 1' feet

Bankfull Width Max = 30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L R		FLOODPLAIN QUALITY (Most Predominant per Bank) L R		L R	
☒☒	Wide >10m	☐☐	Mature Forest, Wetland	☐☐	Conservation Tillage
☐☐	Moderate 5-10m	☒☒	Immature Forest, Shrub or Old Field	☐☐	Urban or Industrial
☐☐	Narrow <5m	☐☐	Residential, Park, New Field	☐☐	Open Pasture, Row Crop
☐☐	None	☐☐	Fenced Pasture	☐☐	Mining or Construction

COMMENTS ____

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):

- ☒ Stream Flowing
- ☐ Subsurface flow with isolated pools (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS ____

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

Stream 150 HH-BAD-030216-014

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 Spring Thaw + [illegible]

Base Flow Conditions? (Y/N): N Date of last precipitation: ____ Quantity: ?

Photograph Information: 2 Photos, Upstream + Downstream

Elevated Turbidity? (Y/N): N Canopy (% open): [illegible]

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: 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) ____

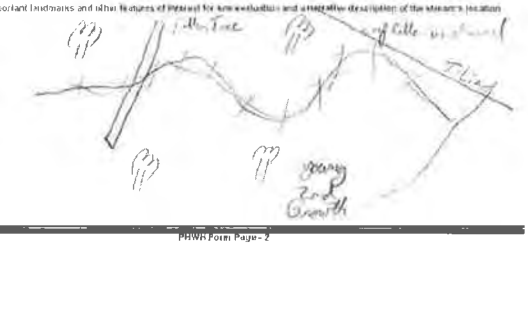
Frogs or Tadpoles Observed? (Y/N) ____ Voucher? (Y/N) ____ Aquatic Macroinvertebrates Observed? (Y/N) ____ Voucher? (Y/N) ____

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 →



Stream 151 Class 2 HHBAO-030216-013

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 20

SITE NAME/LOCATION [illegible]
SITE NUMBER 013 RIVER BASIN ____ DRAINAGE AREA (mi²) ____
LENGTH OF STREAM REACH (ft) 200 ft LAT ____ LONG ____ RIVER CODE ____ RIVER MILE ____
DATE 03/02/16 SCORER BAO/RCR COMMENTS Ephemeral

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 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]		☒☐	SILT [3 pt]	40
☐☐	BOULDER (>256 mm) [16 pts]		☐☒	LEAF PACK/WOODY DEBRIS [3 pts]	40
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	5	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]	15	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock ____
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 6
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points — Substrate Max = 40: 10 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):
☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts]
☒ < 5 cm [5 pts]
☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ____ MAXIMUM POOL DEPTH (centimeters): 1" (inches)

Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):
☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☒ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS ____ AVERAGE BANKFULL WIDTH (meters): 1' (feet)

Bankfull Width Max=30: 5

This information **must** also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L R		FLOODPLAIN QUALITY (Most Predominant per Bank) L R		L R	
☒☒	Wide >10m	☐☐	Mature Forest, Wetland	☐☐	Conservation Tillage
☐☐	Moderate 5-10m	☒☒	Immature Forest, Shrub or Old Field	☐☐	Urban or Industrial
☐☐	Narrow <5m	☐☐	Residential, Park, New Field	☐☐	Open Pasture, Row Crop
☐☐	None	☐☐	Fenced Pasture	☐☐	Mining or Construction

COMMENTS ____

FLOW REGIME (At Time of Evaluation) (Check ONLY one box)
☒ Stream Flowing
☐ Subsurface flow with isolated pools (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)
COMMENTS ____

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/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☒ Moderate to Severe ☐ Severe (10 ft/100 ft)

Stream 151 HHBAO-030216-013

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 ____

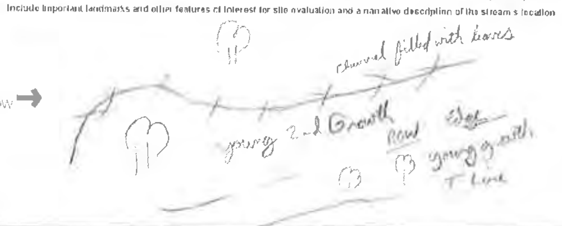
MISCELLANEOUS Spring Thaw
Base Flow Conditions? (Y/N): N Date of last precipitation: Today Quantity: ?
Photograph Information: 2 photos, upstream + downstream
Elevated Turbidity? (Y/N): N Canopy (% open): 20
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number ____
Field Measures: Temp (°C) ____ Dissolved Oxygen (mg/l) ____ pH (S.U.) ____ Conductivity (µmhos/cm) ____
Is the sampling reach representative of the stream (Y/N) Y If not, please explain ____

Additional comments/description of pollution impacts: 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 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 →



Stream 152 Class 2 HHBAO-030216-012

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 60

SITE NAME/LOCATION [illegible]
SITE NUMBER 012 RIVER BASIN ____ DRAINAGE AREA (mi²) ____
LENGTH OF STREAM REACH (ft) 200 ft LAT ____ LONG ____ RIVER CODE ____ RIVER MILE ____
DATE 03/02/16 SCORER BAO/RCR COMMENTS Intermittent

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 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]		☐☐	SILT [3 pt]	10
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	5
☐☐	BEDROCK [16 pt]	5	☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	
☐☒	GRAVEL (2-64 mm) [9 pts]	30	☐☐	MUCK [0 pts]	
☒☐	SAND (<2 mm) [6 pts]	50	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 5
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 15
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points — Substrate Max = 40: 20 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):
☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☒ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts]
☐ < 5 cm [5 pts]
☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ____ MAXIMUM POOL DEPTH (centimeters): 5" (inches)

Pool Depth Max = 30: 25

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):
☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☒ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS ____ AVERAGE BANKFULL WIDTH (meters): 3.5' (feet)

Bankfull Width Max=30: 15

This information **must** also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L R		FLOODPLAIN QUALITY (Most Predominant per Bank) L R		L R	
☒☒	Wide >10m	☐☐	Mature Forest, Wetland	☐☐	Conservation Tillage
☐☐	Moderate 5-10m	☒☒	Immature Forest, Shrub or Old Field	☐☐	Urban or Industrial
☐☐	Narrow <5m	☐☐	Residential, Park, New Field	☐☐	Open Pasture, Row Crop
☐☐	None	☐☐	Fenced Pasture	☐☐	Mining or Construction

COMMENTS ____

FLOW REGIME (At Time of Evaluation) (Check ONLY one box)
☒ Stream Flowing
☐ Subsurface flow with isolated pools (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)
COMMENTS ____

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/100 ft) ☐ Flat to Moderate ☒ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

Stream 152 HHBAO-030216-012

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 ____

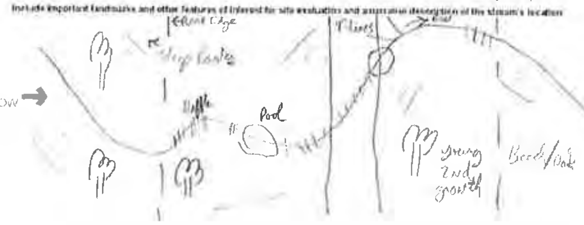
MISCELLANEOUS Spring Thaw + Recent Rains
Base Flow Conditions? (Y/N): N Date of last precipitation: Today Quantity: ?
Photograph Information: 2 photos, upstream + downstream
Elevated Turbidity? (Y/N): N Canopy (% open): 25%
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number ____
Field Measures: Temp (°C) ____ Dissolved Oxygen (mg/l) ____ pH (S.U.) ____ Conductivity (µmhos/cm) ____
Is the sampling reach representative of the stream (Y/N) Y If not, please explain ____

Additional comments/description of pollution impacts: 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 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 →



Stream 153 Class 1 HH-BAO-030216-011

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 23

SITE NAME/LOCATION Goodhope-Boston
SITE NUMBER 011 RIVER BASIN ______ DRAINAGE AREA (mi²) ______
LENGTH OF STREAM REACH (ft) 100 ft LAT. ______ LONG. ______ RIVER CODE ______ RIVER MILE ______
DATE 03/02/16 SCORER BAO/BCR COMMENTS Ephemeral

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: [X] 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 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]		[X]☐	SILT [3 pt]	40
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	20
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	10	☐☐	MUCK [0 pts]	
☐[X]	SAND (<2 mm) [6 pts]	30	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock ______
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points — Substrate Max = 40: 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* one box)

☐ > 30 centimeters [20 pts] ☐ > 5 cm - 10 cm [15 pts]
☐ > 22.5 - 30 cm [30 pts] [X] < 5 cm [5 pts]
☐ > 10 - 22.5 cm [25 pts] ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): 1"

Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box)

☐ > 4.0 meters (> 13') [30 pts] ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] [X] < 1.0 m (< 3' 3") [5 pts]
☐ > 1.5 m - 3.0 m (> 4' 0" - 9' 7") [20 pts]

COMMENTS ______ AVERAGE BANKFULL WIDTH (meters) 1'

Bankfull Width Max=30: 5

This information **must** also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH L R	(Per Bank)	FLOODPLAIN QUALITY L R	(Most Predominant per Bank)	L R	
[X][X]	Wide >10m	☐☐	Mature Forest, Wetland	☐☐	Conservation Tillage
☐☐	Moderate 5-10m	[X][X]	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)

[X] Stream Flowing ☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Subsurface flow with isolated pools (Interstitial) ☐ Dry channel, no water (Ephemeral)

COMMENTS ______

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box)

☐ None ☐ 1.0 ☐ 2.0 ☐ 3.0
[X] 0.5 ☐ 1.5 ☐ 2.5 ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat ☐ Flat to Moderate ☐ Moderate ☐ Moderate to Severe [X] Severe

Stream 153 HH-BAO-030216-011

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? ☐ Yes [X] No QHEI Score ______ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)
☐ WWH Name: ______ Distance from Evaluated Stream ______
☐ CWH Name: ______ Distance from Evaluated Stream ______
☐ EWH Name: ______ Distance from Evaluated Stream ______

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name ______ NRCS Soil Map Page ______ NRCS Soil Map Stream Order ______
County ______ Township / City ______

MISCELLANEOUS Spring melt + Recent Precip.
Base Flow Conditions? (Y/N): N Date of last precipitation: Today Quantity: ?
Photograph Information: 2 Photos, Upstream + Downstream
Elevated Turbidity? (Y/N): N Canopy (% open): 25
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: ______
Field Measures: Temp (°C) ______ Dissolved Oxygen (mg/l) ______ pH (S.U.) ______ Conductivity (µmhos/cm) ______
Is the sampling reach representative of the stream (Y/N) Y If not, please explain ______

Additional comments/description of pollution impacts: N/A

BIOTIC EVALUATION

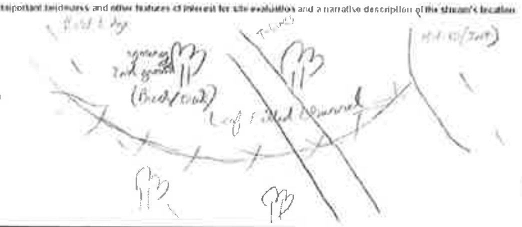
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) ____ Voucher? (Y/N) ____ Salamanders Observed? (Y/N) ____ Voucher? (Y/N) ____
Frogs or 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 →



Stream 154 Class 1 HH-BAO-030216-012

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 23

SITE NAME/LOCATION Goodhope-Boston
SITE NUMBER 012 RIVER BASIN ______ DRAINAGE AREA (mi²) ______
LENGTH OF STREAM REACH (ft) 100 ft LAT. ______ LONG. ______ RIVER CODE ______ RIVER MILE ______
DATE 03/02/16 SCORER BAO/BCR COMMENTS Ephemeral

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: [X] 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 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]		[X]☐	SILT [3 pt]	40
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	10
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	20	☐☐	MUCK [0 pts]	
☐[X]	SAND (<2 mm) [6 pts]	30	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points — Substrate Max = 40: 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* one box)

☐ > 30 centimeters [20 pts] ☐ > 5 cm - 10 cm [15 pts]
☐ > 22.5 - 30 cm [30 pts] [X] < 5 cm [5 pts]
☐ > 10 - 22.5 cm [25 pts] ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): 1"

Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

☐ > 4.0 meters (> 13') [30 pts] ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] [X] < 1.0 m (< 3' 3") [5 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]

COMMENTS ______ AVERAGE BANKFULL WIDTH (meters) 1'

Bankfull Width Max=30: 5

This information **must** also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH L R	(Per Bank)	FLOODPLAIN QUALITY L R	(Most Predominant per Bank)	L R	
[X][X]	Wide >10m	☐☐	Mature Forest, Wetland	☐☐	Conservation Tillage
☐☐	Moderate 5-10m	[X][X]	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)

[X] Stream Flowing ☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Subsurface flow with isolated pools (Interstitial) ☐ Dry channel, no water (Ephemeral)

COMMENTS ______

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box)

☐ None ☐ 1.0 ☐ 2.0 ☐ 3.0
[X] 0.5 ☐ 1.5 ☐ 2.5 ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat ☐ Flat to Moderate ☐ Moderate ☐ Moderate to Severe [X] Severe

Stream 154 HH-BAO-030216-012

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? ☐ Yes [X] No QHEI Score ______ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)
☐ WWH Name: ______ Distance from Evaluated Stream ______
☐ CWH Name: ______ Distance from Evaluated Stream ______
☐ EWH Name: ______ Distance from Evaluated Stream ______

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name ______ NRCS Soil Map Page ______ NRCS Soil Map Stream Order ______
County ______ Township / City ______

MISCELLANEOUS Spring Thaw + Recent Precip.
Base Flow Conditions? (Y/N): N Date of last precipitation: Today Quantity: ?
Photograph Information: 2 Photos, Upstream + Downstream
Elevated Turbidity? (Y/N): N Canopy (% open): 25
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: ______
Field Measures: Temp (°C) ______ Dissolved Oxygen (mg/l) ______ pH (S.U.) ______ Conductivity (µmhos/cm) ______
Is the sampling reach representative of the stream (Y/N) Y If not, please explain ______

Additional comments/description of pollution impacts: N/A

BIOTIC EVALUATION

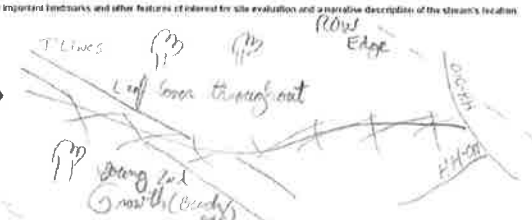
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) ____ Voucher? (Y/N) ____ Salamanders Observed? (Y/N) ____ Voucher? (Y/N) ____
Frogs or 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 →



Stream 155 Mod. Class 2 HH BA0-030316-01

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 37

SITE NAME/LOCATION AEP Groveport Parkway

SITE NUMBER 01 RIVER BASIN ______ DRAINAGE AREA (mi²) ______

LENGTH OF STREAM REACH (ft) ______ LAT ______ LONG ______ RIVER CODE ______ RIVER MILE ______

DATE 03/03/16 SCORER BAD, ACK COMMENTS ______

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☐ RECOVERED ☒ RECOVERING ☒ RECENT OR NO RECOVERY

Was formerly drain tiled, channelized

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
☐☐	BLDR SLABS [16 pts]		☐☐	SILT [3 pt]	12
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	3
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☒	COBBLE (65-256 mm) [12 pts]	20	☐☒	CLAY or HARDPAN [0 pt]	50
☐☐	GRAVEL (2-64 mm) [9 pts]	15	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]		☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock ______

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 12

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points — Substrate Max = 40: 17 (A + B)

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box)

☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☒ > 5 cm - 10 cm [15 pts]
☐ < 5 cm [5 pts]
☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): 8

Pool Depth Max = 30: 15

3. **BANK FULL WIDTH** (Measured as the average of 3-4 measurements) (Check ONLY one box)

☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☒ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS ______ AVERAGE BANKFULL WIDTH (meters) 1

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank): ☒☒ 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)
☐ 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

STREAM GRADIENT ESTIMATE

☐ Flat ☐ Flat to Moderate ☐ Moderate ☐ Moderate to Severe ☒ Severe

Stream 155 HH-BA0-030316-01

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)

☐ 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 030116 Quantity UKN

Photograph Information ______

Elevated Turbidity? (Y/N) ______ Canopy (% open) 40

Were samples collected for water chemistry? (Y/N) ______ (Note lab sample no. or id. and attach results) Lab Number ______

Field Measures Temp (°C) ______ Dissolved Oxygen (mg/l) ______ pH (S.U.) ______ Conductivity (µmhos/cm) ______

Is the sampling reach representative of the stream (Y/N) Y If not, please explain ______

Additional comments/description of pollution impacts ______

BIOTIC EVALUATION

Performed? (Y/N) 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)

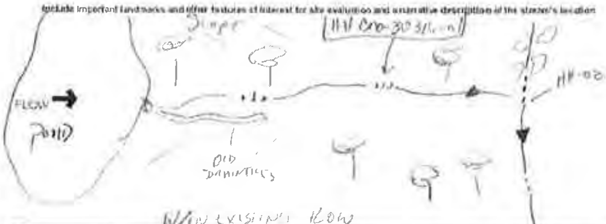
Fish Observed? (Y/N) Y Voucher? (Y/N) ______ Salamanders Observed? (Y/N) Y Voucher? (Y/N) ______

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



Stream 156 Mod. Class 2 HHBA0-030316-02 5100

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 41

SITE NAME/LOCATION AEP Groveport - Parkway

SITE NUMBER 02 RIVER BASIN ______ DRAINAGE AREA (mi²) ______

LENGTH OF STREAM REACH (ft) ______ LAT ______ LONG ______ RIVER CODE ______ RIVER MILE ______

DATE 03/03/16 SCORER BAD, ACK COMMENTS Intermittent

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

Portion w/in existing ROW; Riparian has recovered in portions

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
☐☐	BLDR SLABS [16 pts]		☐☒	SILT [3 pt]	30
☐☐	BOULDER (>256 mm) [16 pts]	10	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	10
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☒	COBBLE (65-256 mm) [12 pts]	30	☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	15	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]	5	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock ______

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 15

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 6

HHEI Metric Points — Substrate Max = 40: 21 (A + B)

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box)

☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☒ > 5 cm - 10 cm [15 pts]
☐ < 5 cm [5 pts]
☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): 3

Pool Depth Max = 30: 15

3. **BANK FULL WIDTH** (Measured as the average of 3-4 measurements) (Check ONLY one box):

☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☒ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS ______ AVERAGE BANKFULL WIDTH (meters) 1.5

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (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)
☐ 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

STREAM GRADIENT ESTIMATE

☐ Flat ☐ Flat to Moderate ☐ Moderate ☐ Moderate to Severe ☒ Severe

Stream 156

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 030116 Quantity UKN

Photograph Information 2 photos

Elevated 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 (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)

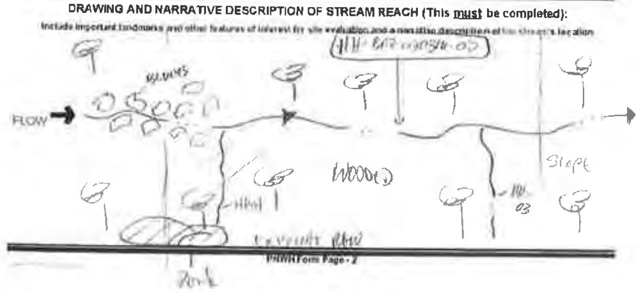
Fish Observed? (Y/N) N Voucher? (Y/N) ______ Salamanders Observed? (Y/N) N Voucher? (Y/N) ______

Frogs or 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



Stream 157 Mod. Class 1 HH-BAO-030316-03

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): 19

SITE NAME/LOCATION ____
SITE NUMBER 03 RIVER BASIN ____ DRAINAGE AREA (mi²) ____
LENGTH OF STREAM REACH (ft) ____ LAT ____ LONG ____ RIVER CODE ____ RIVER MILE ____
DATE 03/03/16 SCORER ____ COMMENTS Ephemeral

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

Riparian has been cleared & portion recovered / w/in 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
☐☐	BLDR SLABS [16 pts]		☐☒	SILT [3 pt]	40
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	10
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]	10	☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	10	☐☐	MUCK [0 pts]	
☐☒	SAND (<2 mm) [6 pts]	30	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 10

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points — Substrate Max = 40: 14 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):
☐ > 30 centimeters [20 pts] ☐ > 22.5 - 30 cm [30 pts] ☐ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts] ☐ < 5 cm [5 pts] ☒ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ____ MAXIMUM POOL DEPTH (centimeters): 0 — Pool Depth Max = 30: 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):
☐ > 4.0 meters (> 13') [30 pts] ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ☒ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS ____ AVERAGE BANKFULL WIDTH (ft) 1 — Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank): ☐☐ 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) ☐ 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 ☐ Flat to Moderate ☐ Moderate ☐ Moderate to Severe ☒ Severe

Stream 157 HH-BAO-030316-03

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

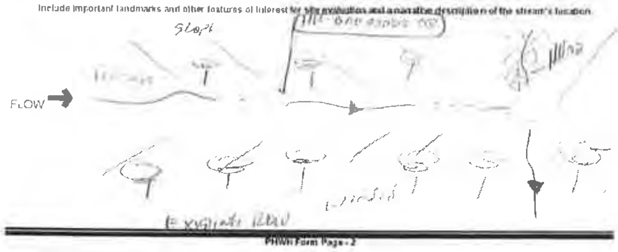
USGS Quadrangle Name ____ NRCS Soil Map Page ____ NRCS Soil Map Stream Order ____
County ____ Township / City ____

MISCELLANEOUS
Base Flow Conditions? (Y/N) Y Date of last precipitation 030116 Quantity UKN
Photograph Information 2 Photos
Elevated Turbidity? (Y/N) Y Canopy (% open) 40
Were samples collected for water chemistry? (Y/N) ____ (Note lab sample no. or id. and attach results) Lab Number ____
Field Measures: Temp (°C) ____ Dissolved Oxygen (mg/l) ____ pH (S.U.) ____ Conductivity (µmhos/cm) ____
Is the sampling reach representative of the stream (Y/N) Y If not, please explain ____

Additional comments/description of pollution impacts ____

BIOTIC EVALUATION
Performed? (Y/N) 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 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



Stream 158 Class 2 HH-BAO-030316-04

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): 30

SITE NAME/LOCATION ____
SITE NUMBER 04 RIVER BASIN ____ DRAINAGE AREA (mi²) ____
LENGTH OF STREAM REACH (ft) ____ LAT ____ LONG ____ RIVER CODE ____ RIVER MILE ____
DATE 03/03/16 SCORER ____ COMMENTS Ephemeral

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 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]		☐☒	SILT [3 pt]	40
☐☐	BOULDER (>256 mm) [16 pts]	15	☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☒	COBBLE (65-256 mm) [12 pts]	30	☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	10	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]	10	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock ____

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 15 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points — Substrate Max = 40: 20 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):
☐ > 30 centimeters [20 pts] ☐ > 22.5 - 30 cm [30 pts] ☐ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts] ☒ < 5 cm [5 pts] ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ____ MAXIMUM POOL DEPTH (inches): 1" — Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):
☐ > 4.0 meters (> 13') [30 pts] ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ☒ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS ____ AVERAGE BANKFULL WIDTH (ft) 1.5 — Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (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) ☐ 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

STREAM GRADIENT ESTIMATE ☐ Flat ☐ Flat to Moderate ☐ Moderate ☐ Moderate to Severe ☒ Severe

Stream 158 HH-BAO-030316-04

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 03/01/16 Quantity UKN
Photograph Information 2 Photos
Elevated Turbidity? (Y/N) ____ Canopy (% open) 20
Were samples collected for water chemistry? (Y/N) ____ (Note lab sample no. or id. and attach results) Lab Number ____
Field Measures: Temp (°C) ____ Dissolved Oxygen (mg/l) ____ pH (S.U.) ____ Conductivity (µmhos/cm) ____
Is the sampling reach representative of the stream (Y/N) Y If not, please explain ____

Additional comments/description of pollution impacts ____

BIOTIC EVALUATION
Performed? (Y/N) 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 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

Stream 159 Class 1 HH BAO-030316-05

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 24

SITE NAME/LOCATION ________
SITE NUMBER 05 RIVER BASIN ________ DRAINAGE AREA (mi²) ________
LENGTH OF STREAM REACH (ft) ________ LAT. ________ LONG. ________ RIVER CODE ________ RIVER MILE ________
DATE 03/03/16 SCORER BAO, BCR COMMENTS Ephemeral

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 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]		☐☒	SILT [3 pt]	40
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	10
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]	10	☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	10	☐☐	MUCK [0 pts]	
☐☒	SAND (<2 mm) [6 pts]	30	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock ________

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points — Substrate Max = 40: 14 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):

☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts]
☒ < 5 cm [5 pts]
☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ________ MAXIMUM POOL DEPTH (~~centimeters~~ in): 1"

Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box)

☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☒ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS ________ AVERAGE BANKFULL WIDTH (~~meters~~ ft) 1.5

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L R		FLOODPLAIN QUALITY (Most Predominant per Bank) L R		L R	
☒☒	Wide > 10m	☒☒	Mature Forest, Wetland	☐☐	Conservation Tillage
☐☐	Moderate 5-10m	☐☐	Immature Forest, Shrub or Old Field	☐☐	Urban or Industrial
☐☐	Narrow < 5m	☐☐	Residential, Park, New Field	☐☐	Open Pasture, Row Crop
☐☐	None	☐☐	Fenced Pasture	☐☐	Mining or Construction

COMMENTS ________

FLOW REGIME (At Time of Evaluation) (Check ONLY one box)

☒ Stream Flowing
☐ Subsurface flow with isolated pools (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)

COMMENTS ________

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

Stream 159 HH BAO-030316-05

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: 03/01/16 Quantity: Unkn
Photograph Information: 2 Photos
Elevated Turbidity? (Y/N): Y Canopy (% open): 50
Were samples collected for water chemistry? (Y/N): ________ (Note lab sample no. or id. and attach results) Lab Number ________
Field Measures: Temp (°C) ________ Dissolved Oxygen (mg/l) ________ pH (S.U.) ________ Conductivity (µmhos/cm) ________
Is the sampling reach representative of the stream (Y/N) Y If not, please explain ________

Additional comments/description of pollution impacts: ________

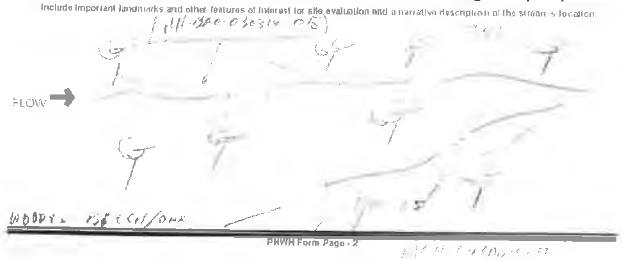
BIOTIC EVALUATION

Performed? (Y/N): 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 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



Stream 160 Mod. Class 2 HH-BAO-030316-06

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 35

SITE NAME/LOCATION ________
SITE NUMBER 06 RIVER BASIN ________ DRAINAGE AREA (mi²) ________
LENGTH OF STREAM REACH (ft) ________ LAT. ________ LONG. ________ RIVER CODE ________ RIVER MILE ________
DATE 03/03/16 SCORER BAO, BCR COMMENTS Ephemeral

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

Channelized, Mowed, Riparian cut

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
☐☐	BLDR SLABS [16 pts]		☐☐	SILT [3 pt]	20
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	10
☐☒	BEDROCK [16 pt]	30	☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	10	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]	20	☐☐	ARTIFICIAL [3 pts]	10

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock ________

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 19

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 6

HHEI Metric Points — Substrate Max = 40: 25 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):

☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts]
☒ < 5 cm [5 pts]
☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ________ MAXIMUM POOL DEPTH (centimeters): 1"

Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):

☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☒ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS ________ AVERAGE BANKFULL WIDTH (~~meters~~ ft) 2"

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L R		FLOODPLAIN QUALITY (Most Predominant per Bank) L R		L R	
☐☒	Wide > 10m	☐☐	Mature Forest, Wetland	☐☐	Conservation Tillage
☐☐	Moderate 5-10m	☒☒	Immature Forest, Shrub or Old Field	☐☐	Urban or Industrial
☒☐	Narrow < 5m	☒☐	Residential, Park, New Field	☐☐	Open Pasture, Row Crop
☐☐	None	☐☐	Fenced Pasture	☐☐	Mining or Construction

COMMENTS ________

FLOW REGIME (At Time of Evaluation) (Check ONLY one box)

☒ Stream Flowing
☐ Subsurface flow with isolated pools (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)

COMMENTS ________

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

Stream 160 HHEI

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: 03/01/16 Quantity: UNK
Photograph Information: 2 Photos
Elevated Turbidity? (Y/N): Y Canopy (% open) ________
Were samples collected for water chemistry? (Y/N) ________ (Note lab sample no. or id. and attach results) Lab Number ________
Field Measures: Temp (°C) ________ Dissolved Oxygen (mg/l) ________ pH (S.U.) ________ Conductivity (µmhos/cm) ________
Is the sampling reach representative of the stream (Y/N) ________ If not, please explain ________

Additional comments/description of pollution impacts: Trash Pile

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 Tadpoles Observed? (Y/N) 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 161 Mod. Class 2 HH-BAO-030316-02

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): 35

SITE NAME/LOCATION: [illegible]

SITE NUMBER: 07 RIVER BASIN: _____ DRAINAGE AREA (mi²): _____

LENGTH OF STREAM REACH (ft): _____ LAT: _____ LONG: _____ RIVER CODE: _____ RIVER MILE: _____

DATE: 03/03/16 SCORER: BAO, BCR COMMENTS: [illegible]

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

Riparian cut w/in 100'

HHEI Metric Points

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 4). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]		☐ ☒	SILT [3 pts]	30
☐	BOULDER (>256 mm) [16 pts]		☐	LEAF PACK/WOODY DEBRIS [3 pts]	10
☐	BEDROCK [16 pts]		☐	FINE DETRITUS [3 pts]	
☐	COBLE (65-256 mm) [12 pts]	10	☐	CLAY or HARDPAN [0 pts]	5
☐	GRAVEL (2-64 mm) [9 pts]	30	☐	MUCK [0 pts]	
☒	SAND (<2 mm) [6 pts]	35	☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: _____ (A) 9

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (B) 6

TOTAL NUMBER OF SUBSTRATE TYPES: _____

Substrate Max = 40: 15

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 31 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm sewer pipes) (Check ONLY one box)

☐ > 30 centimeters [20 pts]
☐ 22.5 - 30 cm [10 pts]
☐ 10 - 22.5 cm [5 pts]
☐ > 5 cm - 10 cm [15 pts]
☒ < 5 cm [3 pts]
☐ NO WATER OR MOST CHANNEL DRY [0 pts]

COMMENTS: _____ MAXIMUM POOL DEPTH (centimeters): 4

Pool Depth Max = 30: 3

3. **BANK FULL WIDTH** (Measured as the average of 3-4 measurements) (Check ONLY one box):

☐ > 4.0 meters [30 pts]
☐ > 3.0 m - 4.0 m (> 9'7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4'8" - 9'7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3'3" - 4'8") [15 pts]
☒ 1.0 m (< 3'3") [5 pts]

COMMENTS: _____ AVERAGE BANKFULL WIDTH (meters): 1

Bankfull Width Max = 30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY (NOTE: River Left (L) and Right (R) as looking downstream)

RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
Wide > 10m	☒	☒	Mature Forest, Wetland	☐	☐	Conservation Tillage
Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☒	☒	Urban or Industrial
Narrow < 5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: _____

FLOW REGIME (At Time of Evaluation) (Check ONLY one box)

☐ Stream Flowing
☐ Subsurface flow with isolated pools (intermittent)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)

COMMENTS: [illegible]

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 161

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 03/01/16 Quantity [illegible]

Photograph Information: [illegible]

Elevated Turbidity? (Y/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 (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: TRASH

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 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

Stream 162 Class 1 HH BAO 030316 02

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): 25

SITE NAME/LOCATION: [illegible]

SITE NUMBER: 08 RIVER BASIN: _____ DRAINAGE AREA (mi²): _____

LENGTH OF STREAM REACH (ft): _____ LAT: _____ LONG: _____ RIVER CODE: _____ RIVER MILE: _____

DATE: 03/03/16 SCORER: BAO, BCR COMMENTS: [illegible]

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

HHEI Metric Points

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 4). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]		☐ ☒	SILT [3 pts]	70
☐	BOULDER (>256 mm) [16 pts]		☐	LEAF PACK/WOODY DEBRIS [3 pts]	10
☐	BEDROCK [16 pts]		☐	FINE DETRITUS [3 pts]	
☐	COBLE (65-256 mm) [12 pts]		☐	CLAY or HARDPAN [0 pts]	
☐	GRAVEL (2-64 mm) [9 pts]	20	☐	MUCK [0 pts]	
☒	SAND (<2 mm) [6 pts]	20	☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0 (A) 9

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (B) 9

TOTAL NUMBER OF SUBSTRATE TYPES: _____

Substrate Max = 40: 18

A + B

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 31 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm sewer pipes) (Check ONLY one box)

☐ > 30 centimeters [20 pts]
☐ 22.5 - 30 cm [10 pts]
☐ 10 - 22.5 cm [5 pts]
☐ > 5 cm - 10 cm [15 pts]
☒ < 5 cm [3 pts]
☐ NO WATER OR MOST CHANNEL DRY [0 pts]

COMMENTS: _____ MAXIMUM POOL DEPTH (centimeters): 3

Pool Depth Max = 30: 3

3. **BANK FULL WIDTH** (Measured as the average of 3-4 measurements) (Check ONLY one box):

☐ > 4.0 meters [30 pts]
☐ > 3.0 m - 4.0 m (> 9'7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4'8" - 9'7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3'3" - 4'8") [15 pts]
☒ 1.0 m (< 3'3") [5 pts]

COMMENTS: _____ AVERAGE BANKFULL WIDTH (meters): 1

Bankfull Width Max = 30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY (NOTE: River Left (L) and Right (R) as looking downstream)

RIPARIAN WIDTH (Per Bank)	L	R	FLOODPLAIN QUALITY (Most Predominant per Bank)	L	R	
Wide > 10m	☒	☒	Mature Forest, Wetland	☐	☐	Conservation Tillage
Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☒	☒	Urban or Industrial
Narrow < 5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: _____

FLOW REGIME (At Time of Evaluation) (Check ONLY one box)

☒ Stream Flowing
☐ Subsurface flow with isolated pools (intermittent)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)

COMMENTS: [illegible]

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 162

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 03/01/16 Quantity [illegible]

Photograph Information: [illegible]

Elevated Turbidity? (Y/N) Y Canopy (% open) 40

Were samples collected for water chemistry? (Y/N) _____ (Note lab sample no. or id, and attach results) Lab Number _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

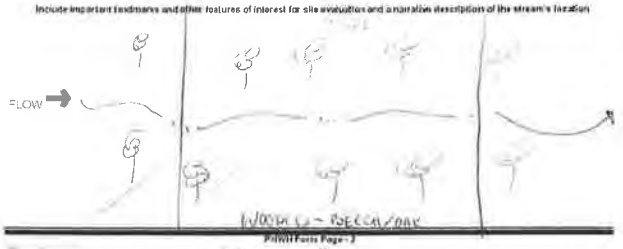
Performed? (Y/N) N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) N Voucher? (Y/N) ____ Salamanders Observed? (Y/N) N Voucher? (Y/N) ____
Frogs or 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

Stream 163 Mod. Class 1 HH BAO-030316-09

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 23

SITE NAME/LOCATION: AEP Goodhope Pond

SITE NUMBER: 09 RIVER BASIN: ______ DRAINAGE AREA (mi²): ______

LENGTH OF STREAM REACH (ft) ______ LAT. ______ LONG ______ RIVER CODE ______ RIVER MILE ______

DATE 03/03/16 SCORER BAO, BCR COMMENTS Ephemeral

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

Portion of Riparian w/in Pond

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
BLDR SLABS [16 pts]		SILT [3 pt]	40
BOULDER (>256 mm) [16 pts]		LEAF PACK/WOODY DEBRIS [3 pts]	20
BEDROCK [16 pt]		FINE DETRITUS [3 pts]	
COBBLE (65-256 mm) [12 pts]		CLAY or HARDPAN [0 pt]	
GRAVEL (2-64 mm) [9 pts]	10	MUCK [0 pts]	
SAND (<2 mm) [6 pts]	30	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock ______

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points — Substrate Max = 40: 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 one box)

☐ > 30 centimeters [20 pts] ☐ > 22.5 - 30 cm [30 pts] ☐ > 10 - 22.5 cm [25 pts] ☐ > 5 cm - 10 cm [15 pts] ☒ < 5 cm [5 pts] ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): .5

Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):

☐ > 4.0 meters (> 13') [30 pts] ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ☒ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS ______ AVERAGE BANKFULL WIDTH (meters) 1'

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank): ☒☒ 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); ☐ 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

STREAM GRADIENT ESTIMATE: ☐ Flat ☐ Flat to Moderate ☐ Moderate ☐ Moderate to Severe ☒ Severe

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 3/1/16 Quantity ______

Photograph Information: 2 Photos

Elevated 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 (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)

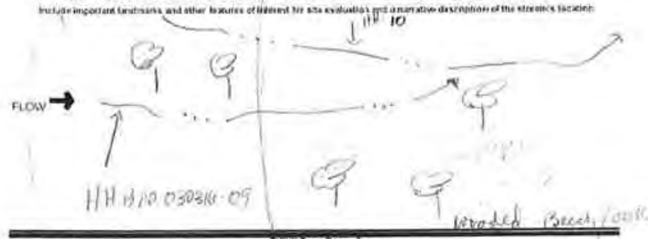
Fish Observed? (Y/N) N Voucher? (Y/N) ___ Salamanders Observed? (Y/N) Y Voucher? (Y/N) ___

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



Stream 164 Mod. Class 1 HH BAO-030316-10

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 24

SITE NAME/LOCATION: AEP Goodhope Pond

SITE NUMBER: 10 RIVER BASIN: ______ DRAINAGE AREA (mi²): ______

LENGTH OF STREAM REACH (ft) ______ LAT. ______ LONG ______ RIVER CODE ______ RIVER MILE ______

DATE 03/03/16 SCORER BAO, BCR COMMENTS Ephemeral

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

Portion of Riparian w/in Existing Pond

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
BLDR SLABS [16 pts]		SILT [3 pt]	35
BOULDER (>256 mm) [16 pts]		LEAF PACK/WOODY DEBRIS [3 pts]	20
BEDROCK [16 pt]		FINE DETRITUS [3 pts]	
COBBLE (65-256 mm) [12 pts]	5	CLAY or HARDPAN [0 pt]	
GRAVEL (2-64 mm) [9 pts]	10	MUCK [0 pts]	
SAND (<2 mm) [6 pts]	30	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock ______

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points — Substrate Max = 40: 14 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box)

☐ > 30 centimeters [20 pts] ☐ > 22.5 - 30 cm [30 pts] ☐ > 10 - 22.5 cm [25 pts] ☐ > 5 cm - 10 cm [15 pts] ☒ < 5 cm [5 pts] ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): .5

Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):

☐ > 4.0 meters (> 13') [30 pts] ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ☒ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS ______ AVERAGE BANKFULL WIDTH (ft) 1

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank): ☒☒ 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); ☐ 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 ☐ Flat to Moderate ☐ Moderate ☐ Moderate to Severe ☒ Severe

Stream 164

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 03/01/16 Quantity UKN

Photograph Information: 2 photos

Elevated 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 (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)

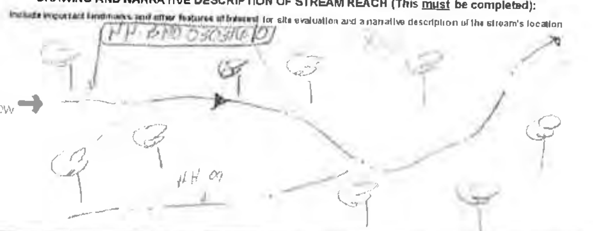
Fish Observed? (Y/N) N Voucher? (Y/N) ___ Salamanders Observed? (Y/N) N Voucher? (Y/N) ___

Frogs or Tadpoles Observed? (Y/N) 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 165 Mod. Class 2 HHBAO-030316 11

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): 50

SITE NAME/LOCATION: [illegible]

SITE NUMBER: 11 RIVER BASIN ______ DRAINAGE AREA (mi²) ______

LENGTH OF STREAM REACH (ft) ______ LAT ______ LONG ______ RIVER CODE ______ RIVER MILE ______

DATE: 03/03/16 SCORER: BAo, BCR COMMENTS: [illegible]

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

[illegible handwriting]

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
BLDR SLABS [16 pts]		☒ SILT [3 pt]	30
BOULDER (>256 mm) [16 pts]		LEAF PACK/WOODY DEBRIS [3 pts]	10
BEDROCK [16 pt]		FINE DETRITUS [3 pts]	
COBBLE (65-256 mm) [12 pts]	10	CLAY or HARDPAN [0 pt]	
☒ GRAVEL (2-64 mm) [9 pts]	30	MUCK [0 pts]	
☒ SAND (<2 mm) [6 pts]	30	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 10

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 15

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points — Substrate Max = 40: 20 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):

☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☒ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts]
☐ < 5 cm [5 pts]
☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): 15

Pool Depth Max = 30: 25

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):

☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☒ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS ______ AVERAGE BANKFULL WIDTH (meters): 0.5

Bankfull Width Max = 30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (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)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)

COMMENTS [illegible]

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

Stream 165 HHBAO 030316 11

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: [illegible] Quantity: [illegible]

Photograph Information: [illegible]

Elevated Turbidity? (Y/N): Y Canopy (% open): ______

Were samples collected for water chemistry? (Y/N) ______ (Note lab sample no. or id. and attach results) Lab Number ______

Field Measures: Temp (°C) ______ Dissolved Oxygen (mg/l) ______ pH (S.U.) ______ Conductivity (µmhos/cm) ______

Is the sampling reach representative of the stream (Y/N): 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)

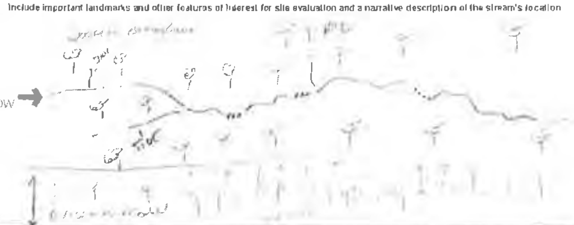
Fish Observed? (Y/N): N Voucher? (Y/N) ______ Salamanders Observed? (Y/N): N Voucher? (Y/N) ______
Frogs or Tadpoles Observed? (Y/N): N Voucher? (Y/N) ______ Aquatic Macroinvertebrates Observed? (Y/N) ______ Voucher? (Y/N) ______

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 →



Stream 166 Class 1 HHBAO-030316-12

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): 23

SITE NAME/LOCATION: [illegible]

SITE NUMBER: 12 RIVER BASIN ______ DRAINAGE AREA (mi²) ______

LENGTH OF STREAM REACH (ft) ______ LAT ______ LONG ______ RIVER CODE ______ RIVER MILE ______

DATE: 03/03/16 SCORER: BAo, BCR COMMENTS: [illegible]

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 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]		SILT [3 pt]	40
BOULDER (>256 mm) [16 pts]		LEAF PACK/WOODY DEBRIS [3 pts]	10
BEDROCK [16 pt]		FINE DETRITUS [3 pts]	
COBBLE (65-256 mm) [12 pts]		CLAY or HARDPAN [0 pt]	
GRAVEL (2-64 mm) [9 pts]	30	MUCK [0 pts]	
SAND (<2 mm) [6 pts]	10	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: ______

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points — Substrate Max = 40: 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 one box):

☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts]
☒ < 5 cm [5 pts]
☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): 5

Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):

☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☒ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS ______ AVERAGE BANKFULL WIDTH (ft): 1

Bankfull Width Max = 30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank): ☒☒ 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)
☐ 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

STREAM GRADIENT ESTIMATE: ☐ Flat ☐ Flat to Moderate ☒ Moderate ☐ Moderate to Severe ☐ Severe

Stream 166 HHBAO-030316-12

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: 03/01/16 Quantity: [illegible]

Photograph Information: [illegible]

Elevated Turbidity? (Y/N): Y Canopy (% open): 20

Were samples collected for water chemistry? (Y/N) ______ (Note lab sample no. or id. and attach results) Lab Number ______

Field Measures: Temp (°C) ______ Dissolved Oxygen (mg/l) ______ pH (S.U.) ______ Conductivity (µmhos/cm) ______

Is the sampling reach representative of the stream (Y/N): Y If not, please explain ______

Additional comments/description of pollution impacts: ______

BIOTIC EVALUATION

Performed? (Y/N): 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 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 →

Stream 167 Mod Class 2 HH-BAO-030316-13

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 45

SITE NAME/LOCATION: [illegible]

SITE NUMBER 13 RIVER BASIN ______ DRAINAGE AREA (mi²) ______

LENGTH OF STREAM REACH (ft) ______ LAT. ______ LONG. ______ RIVER CODE ______ RIVER MILE ______

DATE 030316 SCORER BAO, BCK COMMENTS INTERMITTENT

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

Riparian ... w/in 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
☐☐	BLDR SLABS [16 pts]		☐☒	SILT [3 pt]	25
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	
☐☐	BEDROCK [16 pt]	20	☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]	10	☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	20	☐☐	MUCK [0 pts]	
☐☒	SAND (<2 mm) [6 pts]	25	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock ______

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 6

HHEI Metric Points — Substrate Max = 40: 15 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box)

☐ > 30 centimeters [20 pts] ☐ > 22.5 - 30 cm [30 pts] ☒ > 10 - 22.5 cm [25 pts] ☐ > 5 cm - 10 cm [15 pts] ☐ < 5 cm [5 pts] ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): 6"

Pool Depth Max = 30: 25

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box)

☐ > 4.0 meters (> 13') [30 pts] ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ☒ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS ______ AVERAGE BANKFULL WIDTH (ft): 1.5

Bankfull Width Max = 30: 5

This information **must** also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank): L ☒ R ☒ Wide >10m; ☐☐ Moderate 5-10m; ☐☐ Narrow <5m; ☐☐ None

FLOODPLAIN QUALITY (Most Predominant per Bank): L ☒ R ☐ Mature Forest, Wetland; L ☐ R ☒ 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) ☐ Moist 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 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

Stream 167 HH-13

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 03/01/16 Quantity UKN

Photograph information ______

Elevated Turbidity? (Y/N) Y Canopy (% open) 50

Were samples collected for water chemistry? (Y/N) ______ (Note lab sample no. or id. and attach results) Lab Number ______

Field Measures: Temp (°C) ______ Dissolved Oxygen (mg/l) ______ pH (S.U.) ______ Conductivity (µmhos/cm) ______

Is the sampling reach representative of the stream (Y/N) Y If not, please explain ______

Additional comments/description of pollution impacts ______

BIOTIC EVALUATION

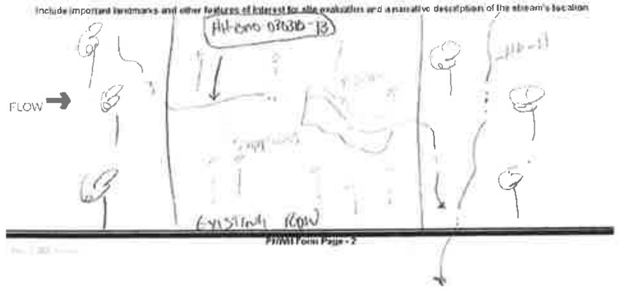
Performed? (Y/N) N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) N Voucher? (Y/N) ______ Salamanders Observed? (Y/N) N Voucher? (Y/N) ______
Frogs or 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



Stream 168 Class 2 HH-BAO-03/03/16-14

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 34

SITE NAME/LOCATION [illegible]

SITE NUMBER 14 RIVER BASIN ______ DRAINAGE AREA (mi²) ______

LENGTH OF STREAM REACH (ft) ______ LAT ______ LONG ______ RIVER CODE ______ RIVER MILE ______

DATE 03/03/16 SCORER BAO, BCK COMMENTS INTERMITTENT

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 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]		☐☒	SILT [3 pt]	30
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	
☐☐	BEDROCK [16 pt]	10	☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]	10	☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	20	☐☐	MUCK [0 pts]	
☐☒	SAND (<2 mm) [6 pts]	30	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 20

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points — Substrate Max = 40: 14 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box)

☐ > 30 centimeters [20 pts] ☐ > 22.5 - 30 cm [30 pts] ☐ > 10 - 22.5 cm [25 pts] ☒ > 5 cm - 10 cm [15 pts] ☐ < 5 cm [5 pts] ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ______ MAXIMUM POOL DEPTH (in): 3"

Pool Depth Max = 30: 15

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):

☐ > 4.0 meters (> 13') [30 pts] ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ☒ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS ______ AVERAGE BANKFULL WIDTH (Ft.): 2'

Bankfull Width Max = 30: 5

This information **must** also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank): L ☒ R ☒ Wide >10m; ☐☐ Moderate 5-10m; ☐☐ Narrow <5m; ☐☐ None

FLOODPLAIN QUALITY (Most Predominant per Bank): ☐☐ Mature Forest, Wetland; L ☒ R ☒ 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) ☐ 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

STREAM GRADIENT ESTIMATE

☐ Flat ☐ Flat to Moderate ☒ Moderate ☐ Moderate to Severe ☐ Severe

Stream 168 HH-BAO-030316-14

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 03/01/16 Quantity UKN

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

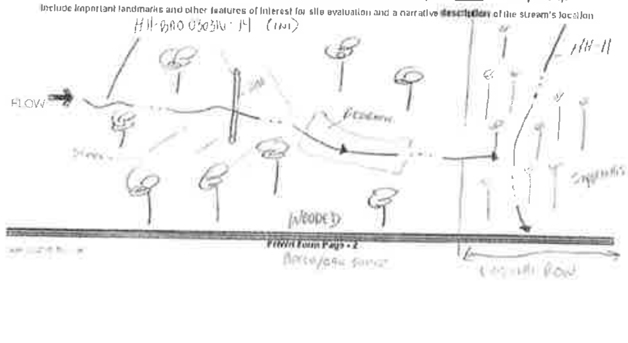
Performed? (Y/N) N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) N Voucher? (Y/N) ______ Salamanders Observed? (Y/N) N Voucher? (Y/N) ______
Frogs or Tadpoles Observed? (Y/N) 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



Existing Row

Stream 169   Mod. Class 1   HH-BAO-03/03/16-15

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 24

SITE NAME/LOCATION [illegible]

SITE NUMBER 15 RIVER BASIN ____ DRAINAGE AREA (mi²) ____

LENGTH OF STREAM REACH (ft) ____ LAT ____ LONG ____ RIVER CODE ____ RIVER MILE ____

DATE 03/03/16 SCORER BAO, BCR COMMENTS EPHEMERAL

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

Stream w/in Existing Row & Riparian area has been cleared

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
☐☐	BLDR SLABS [16 pts]		☐☐	SILT [3 pt]	40
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	10
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]	10	☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	10	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]	30	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock ____

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points — Substrate Max = 40: 14 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box)

☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts]
☒ < 5 cm [5 pts]
☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ____ MAXIMUM POOL DEPTH (centimeters): 1.5"

Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):

☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☒ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS ____ AVERAGE BANKFULL WIDTH (~~meters~~ Ft) 1.5

Bankfull Width Max = 30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (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 (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 ☐ Flat to Moderate ☐ Moderate ☒ Moderate to Severe ☐ Severe

Stream 169   HH-BAO-030316-15

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 03/01/16 Quantity UKN

Photograph Information 2 photos

Elevated Turbidity? (Y/N) Y 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 (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

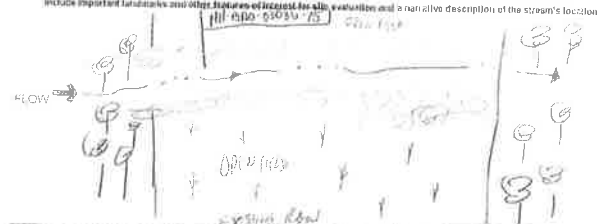
Performed? (Y/N) N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) N Voucher? (Y/N) ____ Salamanders Observed? (Y/N) N Voucher? (Y/N) ____
Frogs or Tadpoles Observed? (Y/N) 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 170   Mod. Class 2   HH-BAO-030316-16

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 44

SITE NAME/LOCATION [illegible]

SITE NUMBER 16 RIVER BASIN ____ DRAINAGE AREA (mi²) ____

LENGTH OF STREAM REACH (ft) ____ LAT ____ LONG ____ RIVER CODE ____ RIVER MILE ____

DATE 03/03/16 SCORER BAO, BCR COMMENTS INTERMITTENT

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

Stream Riparian has been cut & contains culvert

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
☐☐	BLDR SLABS [16 pts]		☐☒	SILT [3 pt]	35
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]	10	☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	05	☐☐	MUCK [0 pts]	
☐☒	SAND (<2 mm) [6 pts]	30	☐☐	ARTIFICIAL [3 pts]	5

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 10

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points — Substrate Max = 40: 14 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box)

☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☒ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts]
☐ < 5 cm [5 pts]
☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ____ MAXIMUM POOL DEPTH (centimeters): 8"

Pool Depth Max = 30: 25

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):

☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☒ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS ____ AVERAGE BANKFULL WIDTH (meters) 2"

Bankfull Width Max = 30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank), L R: ☐☐ 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 (interstitial); ☐ Moist Channel, isolated pools, no flow (intermittent); ☐ Dry channel, no water (Ephemeral)

COMMENTS ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): ☐ None ☐ 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

Stream 170   HH-BAO-030316-16

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 ____
☐ 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 03/01/16 Quantity UKN

Photograph Information 2 photos

Elevated Turbidity? (Y/N) Y Canopy (% open) 100

Were samples collected for water chemistry? (Y/N) ____ (Note lab sample no. or id. and attach results) Lab Number ____

Field Measures: Temp (°C) ____ Dissolved Oxygen (mg/l) ____ pH (S.U.) ____ Conductivity (µmhos/cm) ____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain ____

Additional comments/description of pollution impacts ____

BIOTIC EVALUATION

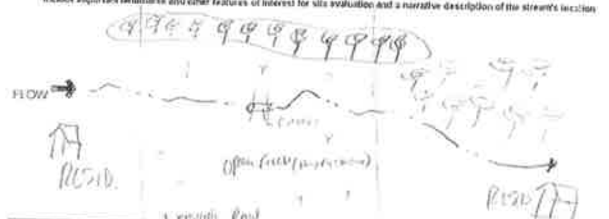
Performed? (Y/N) N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) N Voucher? (Y/N) ____ Salamanders Observed? (Y/N) N Voucher? (Y/N) ____
Frogs or Tadpoles Observed? (Y/N) 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 171

Mod. Class 2 HH-BAE-030716-??

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 48

SITE NAME/LOCATION DEF Coal Hope Road
SITE NUMBER 02 RIVER BASIN ______ DRAINAGE AREA (mi^2) ______
LENGTH OF STREAM REACH (ft) ______ LAT ______ LONG ______ RIVER CODE ______ RIVER MILE ______
DATE 3/7/16 SCORER BAE / BCR COMMENTS Perennial

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
grading / channelization

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
☐☐	BLDR SLABS [16 pts]		☐☐	SILT [3 pt]	30
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	10
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	10	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]	50	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock ______
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points — Substrate Max = 40: 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 one box):
☒ > 30 centimeters [20 pts] ☐ > 5 cm - 10 cm [15 pts]
☐ > 22.5 - 30 cm [30 pts] ☐ < 5 cm [5 pts]
☐ > 10 - 22.5 cm [25 pts] ☐ NO WATER OR MOIST CHANNEL [0 pts]
COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): 16"
Pool Depth Max = 30: 20

3. **BANK FULL WIDTH** (Measured as the average of 3-4 measurements) (Check ONLY one box):
☐ > 4.0 meters (> 13') [30 pts] ☒ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ☐ ≤ 1.0 m (≤ 3' 3") [5 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
COMMENTS ______ AVERAGE BANKFULL WIDTH (meters) 45"
Bankfull Width Max=30: 15

This information must also be completed
RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank): L ☒ R ☒ Wide >10m; ☐☐ Moderate 5-10m; ☐☐ Narrow <5m; ☐☐ None
FLOODPLAIN QUALITY (Most Predominant per Bank): ☐☐ Mature Forest, Wetland; L ☐ R ☒ Immature Forest, Shrub or Old Field; L ☒ R ☐ 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 ☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Subsurface flow with isolated pools (Interstitial) ☐ Dry channel, no water (Ephemeral)
COMMENTS ______

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):
☐ None ☐ 0.5 ☐ 1.0 ☐ 1.5 ☐ 2.0 ☐ 2.5 ☐ 3.0 ☒ >3

STREAM GRADIENT ESTIMATE
☒ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

Stream 171

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 ______

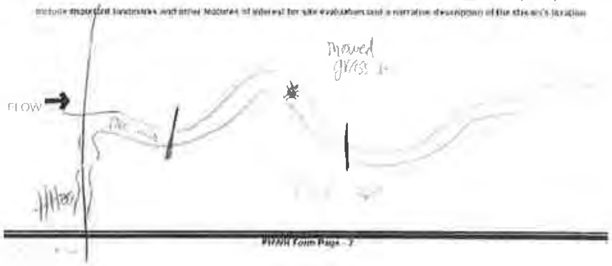
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name ______ NRCS Soil Map Page ______ NRCS Soil Map Stream Order ______
County ______ Township / City ______

MISCELLANEOUS
Base Flow Conditions? (Y/N) N Date of last precipitation ______ Quantity ______
Photograph Information ______
Elevated Turbidity? (Y/N) N Canopy (% open) 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) ______ 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 →



Stream 172

Mod. Class 1 HH BAE-030716-DS

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 20

SITE NAME/LOCATION DEF Coal Hope Road
SITE NUMBER 05 RIVER BASIN ______ DRAINAGE AREA (mi^2) ______
LENGTH OF STREAM REACH (ft) ______ LAT. ______ LONG ______ RIVER CODE ______ RIVER MILE ______
DATE 3/7/16 SCORER BAE COMMENTS INT

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
grading / channelization

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
☐☐	BLDR SLABS [16 pts]		☐☐	SILT [3 pt]	30
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	20	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]	50	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock ______
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 3

HHEI Metric Points — Substrate Max = 40: 12 (A + B)

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):
☐ > 30 centimeters [20 pts] ☐ > 5 cm - 10 cm [15 pts]
☐ > 22.5 - 30 cm [30 pts] ☒ < 5 cm [5 pts]
☐ > 10 - 22.5 cm [25 pts] ☐ NO WATER OR MOIST CHANNEL [0 pts]
COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): 2"
Pool Depth Max = 30: 5

3. **BANK FULL WIDTH** (Measured as the average of 3-4 measurements) (Check ONLY one box):
☐ > 4.0 meters (> 13') [30 pts] ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ☒ ≤ 1.0 m (≤ 3' 3") [5 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
COMMENTS ______ AVERAGE BANKFULL WIDTH (meters) 1.5'
Bankfull Width Max=30: 5

This information must also be completed
RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank): L ☒ R ☒ Wide >10m; ☐☐ Moderate 5-10m; ☐☐ Narrow <5m; ☐☐ None
FLOODPLAIN QUALITY (Most Predominant per Bank): ☐☐ Mature Forest, Wetland; L ☒ R ☒ 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 ☒ Moist Channel, isolated pools, no flow (Intermittent)
☐ Subsurface flow with isolated pools (Interstitial) ☐ Dry channel, no water (Ephemeral)
COMMENTS ______

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):
☐ None ☐ 0.5 ☐ 1.0 ☐ 1.5 ☐ 2.0 ☐ 2.5 ☐ 3.0 ☒ >3

STREAM GRADIENT ESTIMATE
☒ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

Stream 172

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) 50
Were samples collected for water chemistry? (Y/N) N (Note lab sample no. or id. and attach results) Lab Number ______
Field Measures Temp (°C) ______ Dissolved Oxygen (mg/l) ______ pH (S.U.) ______ Conductivity (µmhos/cm) ______
Is the sampling reach representative of the stream (Y/N) Y If not, please explain ______
Additional comments/description of pollution impacts ______

BIOTIC EVALUATION
Performed? (Y/N) ______ (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 →

Stream 173 Mod. Class 1 HH BAE-030416-04

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): 38

SITE NAME/LOCATION: [illegible]

SITE NUMBER 04 RIVER BASIN ____ DRAINAGE AREA (mi²) ____

LENGTH OF STREAM REACH (ft) ____ LAT. ____ LONG. ____ RIVER CODE ____ RIVER MILE ____

DATE 3/9/16 SCORER ____ COMMENTS ephemeral

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 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]		☐☐	SILT [3 pts]	20
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	
☐☐	BEDROCK [16 pts]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pts]	
☐☐	GRAVEL (2-64 mm) [9 pts]	20	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]	50	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock ____ (A) 15 (B) 2

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI Metric Points — Substrate Max = 40: 17; A + B

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box)

☐ > 50 centimeters [20 pts]
☐ > 22.5 - 50 cm [10 pts]
☐ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts]
☒ < 5 cm [5 pts]
☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ____ MAXIMUM POOL DEPTH (centimeters):

Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):

☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☒ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS ____ AVERAGE BANKFULL WIDTH (meters):

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☒	☒	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☒	☒	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS ____

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):

☐ Stream Flowing
☐ Subsurface flow with isolated pools (Interstitial)
☒ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)

COMMENTS ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box)

☐ None ☐ 1.0 ☐ 2.0 ☐ 3.0
☒ 0.5 ☐ 1.5 ☐ 2.5 ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☒ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

PHWH Form Page - 1

Stream 173

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) 30-40

Were samples collected for water chemistry? (Y/N) N (Note lab sample no. or #, 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 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 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

Stream 174 Mod. Class 2 HH BAE-030416-03

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): 32

SITE NAME/LOCATION: [illegible]

SITE NUMBER 03 RIVER BASIN ____ DRAINAGE AREA (mi²) ____

LENGTH OF STREAM REACH (ft) ____ LAT. ____ LONG. ____ RIVER CODE ____ RIVER MILE ____

DATE 3/9/16 SCORER HH/BAE COMMENTS ephemeral

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

Channelized / [illegible]

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
☐☐	BLDR SLABS [16 pts]		☐☐	SILT [3 pts]	20
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	
☐☐	BEDROCK [16 pts]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pts]	
☐☐	GRAVEL (2-64 mm) [9 pts]	20	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]	50	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock ____ (A) 9 (B) 3

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI Metric Points — Substrate Max = 40: 12; A + B

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box)

☐ > 50 centimeters [20 pts]
☐ > 22.5 - 50 cm [10 pts]
☐ > 10 - 22.5 cm [15 pts]
☒ > 5 cm - 10 cm [15 pts]
☐ < 5 cm [5 pts]
☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ____ MAXIMUM POOL DEPTH (centimeters):

Pool Depth Max = 30: 15

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):

☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☒ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS ____ AVERAGE BANKFULL WIDTH (meters)

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R		FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☒	☒	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☒	☒	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS ____

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):

☐ Stream Flowing
☐ Subsurface flow with isolated pools (Interstitial)
☒ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)

COMMENTS ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box)

☐ None ☐ 1.0 ☐ 2.0 ☐ 3.0
☐ 0.5 ☐ 1.5 ☐ 2.5 ☒ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☒ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

PHWH Form Page - 1

Stream 174

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 ____

Photographic Information ____

Elevated Turbidity? (Y/N) N Canopy (% open) 35-40

Were samples collected for water chemistry? (Y/N) N (Note lab sample no. or #, and attach results) Lab Number ____

Field Measures Temp (°C) ____ Dissolved Oxygen (mg/l) ____ pH (S.U.) ____ Conductivity (µmhos/cm) ____

Is the sampling reach representative of the stream? (Y/N) Y If not, please explain ____

Additional comments/description of pollution impacts ____

BIOTIC EVALUATION

Performed? (Y/N) ____ (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

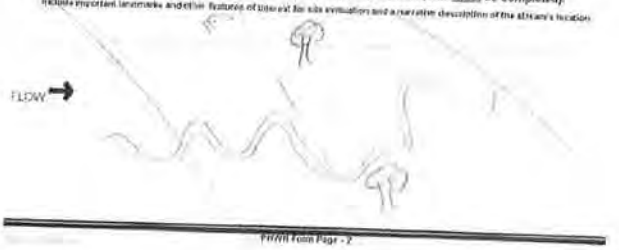
Fish Observed? (Y/N) ____ Voucher? (Y/N) ____ Salamanders Observed? (Y/N) ____ Voucher? (Y/N) ____
Frogs or Tadpoles Observed? (Y/N) ____ Voucher? (Y/N) ____ Aquatic Macroinvertebrates Observed? (Y/N) ____ Voucher? (Y/N) ____

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

Stream 175 Mod. Class 1 ## BAE-050416-02

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 22

SITE NAME/LOCATION ______

SITE NUMBER ______ RIVER BASIN ______ DRAINAGE AREA (mi²) ______

LENGTH OF STREAM REACH (ft) ______ LAT ______ LONG ______ RIVER CODE ______ RIVER MILE ______

DATE ______ SCORER ______ COMMENTS ephemeral

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

trash dump

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
☐☐ BLDR SLABS [16 pts]		☐☐ SILT [3 pt]	20
☐☐ BOULDER (>256 mm) [16 pts]		☐☐ LEAF PACK/WOODY DEBRIS [3 pts]	40
☐☐ BEDROCK [16 pt]		☐☐ FINE DETRITUS [3 pts]	
☐☐ COBBLE (65-256 mm) [12 pts]		☐☐ CLAY or HARDPAN [0 pt]	
☐☐ GRAVEL (2-64 mm) [9 pts]		☐☐ MUCK [0 pts]	
☐☐ SAND (<2 mm) [6 pts]	40	☐☐ ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock ______

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 3

HHEI Metric Points — Substrate Max = 40: 12 (A + B)

2 Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes*) (Check *ONLY* one box)

☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts]
☒ < 5 cm [5 pts]
☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): 4"

Pool Depth Max = 30: 5

3 BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☒ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS ______ AVERAGE BANKFULL WIDTH (meters) 1'

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank): L R ☒☒ 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 (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☒ Dry channel, no water (Ephemeral)

COMMENTS ______

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box)

☐ None ☒ 0.5 ☐ 1.0 ☐ 1.5 ☐ 2.0 ☐ 2.5 ☐ 3.0 ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☒ Severe (10 ft/100 ft)

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 ______ 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 2920 2928

Elevated Turbidity? (Y/N) N Canopy (% open) 80

Were samples collected for water chemistry? (Y/N) N (Note lab sample no. or id. and attach results) Lab Number ______

Field Measures Temp (°C) ______ Dissolved Oxygen (mg/l) ______ pH (S.U.) ______ Conductivity (µmhos/cm) ______

Is the sampling reach representative of the stream (Y/N) Y If not, please explain ______

Additional comments/description of pollution impacts ______

BIOTIC EVALUATION

Performed? (Y/N) ______ (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 →

Stream 176 Mod. Class 2 ## BAE-050416-01

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 59

SITE NAME/LOCATION ______

SITE NUMBER 01 RIVER BASIN ______ DRAINAGE AREA (mi²) ______

LENGTH OF STREAM REACH (ft) ______ LAT ______ LONG ______ RIVER CODE ______ RIVER MILE ______

DATE 3/9/16 SCORER ______ COMMENTS Intermittent

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

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

TYPE	PERCENT	TYPE	PERCENT
☐☐ BLDR SLABS [16 pts]		☐☐ SILT [3 pt]	15
☐☐ BOULDER (>256 mm) [16 pts]		☐☐ LEAF PACK/WOODY DEBRIS [3 pts]	
☐☐ BEDROCK [16 pt]		☐☐ FINE DETRITUS [3 pts]	
☐☐ COBBLE (65-256 mm) [12 pts]	15	☐☐ CLAY or HARDPAN [0 pt]	
☐☐ GRAVEL (2-64 mm) [9 pts]	30	☐☐ MUCK [0 pts]	
☐☐ SAND (<2 mm) [6 pts]	40	☐☐ ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 15

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 15

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points — Substrate Max = 40: 19 (A + B)

2 Maximum Pool Depth (*Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes*) (Check *ONLY* one box)

☒ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts]
☐ < 5 cm [5 pts]
☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): 14"

Pool Depth Max = 30: 20

3 BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check *ONLY* one box):

☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☒ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS ______ AVERAGE BANKFULL WIDTH (meters) 6'

Bankfull Width Max=30: 20

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank): L R ☒☒ 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 (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)

COMMENTS ______

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☐ None ☐ 0.5 ☐ 1.0 ☐ 1.5 ☐ 2.0 ☐ 2.5 ☐ 3.0 ☒ >3

STREAM GRADIENT ESTIMATE

☒ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

Stream 176

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) 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 (S.U.) ______ Conductivity (µmhos/cm) ______

Is the sampling reach representative of the stream (Y/N) Y If not, please explain ______

Additional comments/description of pollution impacts ______

BIOTIC EVALUATION

Performed? (Y/N) ______ (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

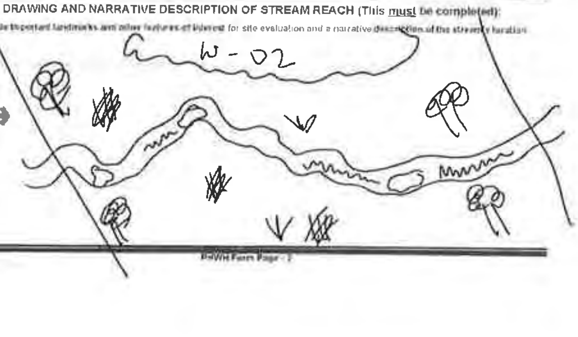
Fish Observed? (Y/N) ____ Voucher? (Y/N) ____ Salamanders Observed? (Y/N) ____ Voucher? (Y/N) ____
Frogs or Tadpoles Observed? (Y/N) ____ Voucher? (Y/N) ____ Aquatic Macroinvertebrates Observed? (Y/N) ____ Voucher? (Y/N) ____

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 →



Stream 177 Mod. Class 1 BAE HH-030816-01

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 19

SITE NAME/LOCATION [illegible]

SITE NUMBER 01 RIVER BASIN _____ DRAINAGE AREA (mi²) _____

LENGTH OF STREAM REACH (ft) 150 ft LAT _____ LONG _____ RIVER CODE _____ RIVER MILE _____

DATE 03/08/16 SCORER BAE/BCR COMMENTS Ephemeral

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

Riparian Grading, Transmission Construction

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
☐☐ BLDR SLABS [16 pts]		☒☐ SILT [3 pt]	60
☐☐ BOULDER (>256 mm) [16 pts]		☐☒ LEAF PACK/WOODY DEBRIS [3 pts]	25
☐☐ BEDROCK [16 pt]		☐☐ FINE DETRITUS [3 pts]	
☐☐ COBBLE (65-256 mm) [12 pts]		☐☐ CLAY or HARDPAN [0 pt]	
☐☐ GRAVEL (2-64 mm) [8 pts]		☐☐ MUCK [0 pts]	
☐☐ SAND (<2 mm) [6 pts]	15	☐☐ ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0 (A) 6 (B) 3

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI Metric Points: Substrate Max = 40: 9; A + B

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box)

☐ > 50 centimeters [20 pts] ☐ > 5 cm - 10 cm [15 pts]
☐ > 22.5 - 30 cm [30 pts] ☒ < 5 cm [5 pts]
☐ > 10 - 22.5 cm [21 pts] ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS _____ MAXIMUM POOL DEPTH (centimeters) feet 0.5

Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):

☐ > 4.0 meters (> 13') [30 pts] ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ☒ ≤ 1.0 m (≤ 3' 3") [5 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]

COMMENTS _____ AVERAGE BANKFULL WIDTH (meters) feet 1'

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY (NOTE: River Left (L) and Right (R) as looking downstream☆)

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☒	☒ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☒	☒ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS _____

FLOW REGIME (At Time of Evaluation) (Check ONLY one box)

☐ Stream Flowing ☒ Moist Channel, isolated pools, no flow (Intermittent)
☐ Subsurface flow with isolated pools (Interstitial) ☐ Dry channel, no water (Ephemeral)

COMMENTS _____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box)

☐ None ☐ 1.0 ☐ 2.0 ☐ 3.0
☒ 0.5 ☐ 1.5 ☐ 2.5 ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☒ Severe (4 ft/100 ft)

PHWH Form Page - 1

Stream 177 HH-BAE-[illegible]

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☒ No OHEI 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 _____ Quality _____

Photograph Information [illegible] upstream

Elevated Turbidity? (Y/N) N Canopy (% open) [illegible]

Were samples collected for water chemistry? (Y/N) N (Note lab sample no. on site 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 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 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

Stream 178 Mod. Class 1 HH-BAE-030816-02

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 19

SITE NAME/LOCATION [illegible]

SITE NUMBER 02 RIVER BASIN _____ DRAINAGE AREA (mi²) _____

LENGTH OF STREAM REACH (ft) 500 ft LAT _____ LONG _____ RIVER CODE _____ RIVER MILE _____

DATE 03/08/16 SCORER BAE/BCR COMMENTS Ephemeral

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

Ponded, Riparian 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.

TYPE	PERCENT	TYPE	PERCENT
☐☐ BLDR SLABS [16 pts]		☒☐ SILT [3 pt]	60
☐☐ BOULDER (>256 mm) [16 pts]		☐☒ LEAF PACK/WOODY DEBRIS [3 pts]	25
☐☐ BEDROCK [16 pt]		☐☐ FINE DETRITUS [3 pts]	
☐☐ COBBLE (65-256 mm) [12 pts]		☐☐ CLAY or HARDPAN [0 pt]	
☐☐ GRAVEL (2-64 mm) [8 pts]		☐☐ MUCK [0 pts]	
☐☐ SAND (<2 mm) [6 pts]	15	☐☐ ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0 (A) 6 (B) 3

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI Metric Points: Substrate Max = 40: 9; A + B

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box)

☐ > 50 centimeters [20 pts] ☐ > 5 cm - 10 cm [15 pts]
☐ > 22.5 - 30 cm [30 pts] ☒ < 5 cm [5 pts]
☐ > 10 - 22.5 cm [25 pts] ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS _____ MAXIMUM POOL DEPTH (centimeters) feet 0.5'

Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):

☐ > 4.0 meters (> 13') [30 pts] ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ☒ ≤ 1.0 m (≤ 3' 3") [5 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]

COMMENTS _____ AVERAGE BANKFULL WIDTH (meters) feet 1'

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY (NOTE: River Left (L) and Right (R) as looking downstream☆)

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R	L	R
☒	☒ Wide >10m	☐	☐ Mature Forest, Wetland	☐	☐ Conservation Tillage
☐	☐ Moderate 5-10m	☒	☒ Immature Forest, Shrub or Old Field	☐	☐ Urban or Industrial
☐	☐ Narrow <5m	☐	☐ Residential, Park, New Field	☐	☐ Open Pasture, Row Crop
☐	☐ None	☐	☐ Fenced Pasture	☐	☐ Mining or Construction

COMMENTS _____

FLOW REGIME (At Time of Evaluation) (Check ONLY one box)

☐ Stream Flowing ☒ Moist Channel, isolated pools, no flow (Intermittent)
☐ Subsurface flow with isolated pools (Interstitial) ☐ Dry channel, no water (Ephemeral)

COMMENTS _____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box)

☐ None ☐ 1.0 ☐ 2.0 ☐ 3.0
☒ 0.5 ☐ 1.5 ☐ 2.5 ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☒ Severe (4 ft/100 ft)

PHWH Form Page - 1

Stream 178 HH-BAE-[illegible]-02

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☒ No OHEI 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 Spring Thaw Quality ?

Photograph Information [illegible] upstream

Elevated Turbidity? (Y/N) N Canopy (% open) 20

Were samples collected for water chemistry? (Y/N) N (Note lab sample no. on site 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 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 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

Stream 179 Mod. Class 2 HH BHE 030816-03

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 34

SITE NAME/LOCATION ____
SITE NUMBER 03 RIVER BASIN ____ DRAINAGE AREA (mi²) ____
LENGTH OF STREAM REACH (ft) 300 ft LAT ____ LONG ____ RIVER CODE ____ RIVER MILE ____
DATE 03/08/16 SCORER BAE/BCR COMMENTS Intermittent

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 — Grading / TL 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
☐☐	BLDR SLABS [16 pts]		☒☐	SILT [3 pt]	35
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	10
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]	5	☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	20	☐☐	MUCK [0 pts]	
☐☒	SAND (<2 mm) [6 pts]	30	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 5
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points — Substrate Max = 40: 14 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box)
☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☒ > 5 cm - 10 cm [15 pts]
☐ < 5 cm [5 pts]
☐ NO WATER OR MOIST CHANNEL [0 pts]
COMMENTS ____ MAXIMUM POOL DEPTH (centimeters): 4"

Pool Depth Max = 30: 15

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):
☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☒ ≤ 1.0 m (≤ 3' 3") [5 pts]
COMMENTS ____ AVERAGE BANKFULL WIDTH ~~(meters)~~ feet 2'

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank), L R:
☒☒ 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 TL ROW

FLOW REGIME (At Time of Evaluation) (Check ONLY one box)
☒ Stream Flowing
☐ Subsurface flow with isolated pools (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)
COMMENTS ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):
☐ None ☐ 0.5 ☐ 1.0 ☐ 1.5 ☐ 2.0 ☐ 2.5 ☐ 3.0 ☒ >3

STREAM GRADIENT ESTIMATE
☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☒ Severe (10 ft/100 ft)

Stream 179 HH BHE 030816-03

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 ____

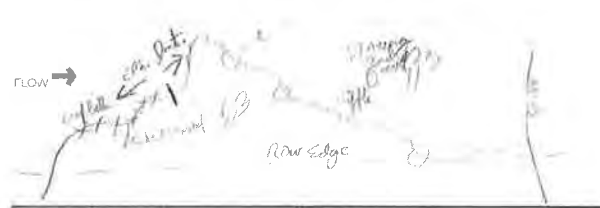
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

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 Spring Flood Quantity ____
Photograph Information 6 ... upstream + downstream
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 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 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



Stream 180 Mod. Class 1 HH BHE 030816-04

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 17

SITE NAME/LOCATION ____
SITE NUMBER ____ RIVER BASIN ____ DRAINAGE AREA (mi²) ____
LENGTH OF STREAM REACH (ft) ____ LAT. ____ LONG. ____ RIVER CODE ____ RIVER MILE ____
DATE 3/8/16 SCORER BAE/BCR COMMENTS Ephemeral

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 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]		☐☐	SILT [3 pt]	30
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	10
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]		☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]	60	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock ____
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 3

HHEI Metric Points — Substrate Max = 40: 12 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box)
☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts]
☐ < 5 cm [5 pts]
☒ NO WATER OR MOIST CHANNEL [0 pts]
COMMENTS ____ MAXIMUM POOL DEPTH (centimeters): —

Pool Depth Max = 30: X

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):
☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 6") [15 pts]
☒ ≤ 1.0 m (≤ 3' 3") [5 pts]
COMMENTS ____ AVERAGE BANKFULL WIDTH (meters) 1'

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank), L R:
☒☒ 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 (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☒ Dry channel, no water (Ephemeral)
COMMENTS ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):
☐ None ☒ 0.5 ☐ 1.0 ☐ 1.5 ☐ 2.0 ☐ 2.5 ☐ 3.0 ☐ >3

STREAM GRADIENT ESTIMATE
☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☒ Severe (10 ft/100 ft)

Stream 180

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 ____

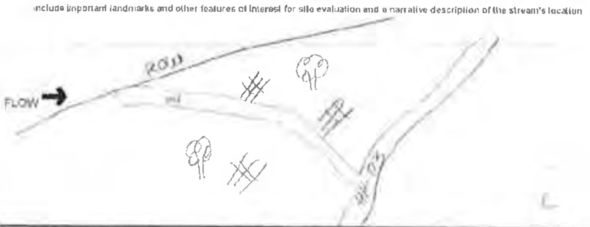
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

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) 90
Were samples collected for water chemistry? (Y/N) N (Note lab sample no. or id. and attach results) Lab Number ____
Field Measures Temp (°C) ____ Dissolved Oxygen (mg/l) ____ pH (S.U.) ____ Conductivity (µmhos/cm) ____
Is the sampling reach representative of the stream (Y/N) Y If not, please explain ____
Additional comments/description of pollution impacts ____

BIOTIC EVALUATION
Performed? (Y/N) N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) N Voucher? (Y/N) ____ 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



Stream 181 Mod. Class 2 III-BAE 3085 D.

OhioEPA **Primary Headwater Habitat Evaluation Form**

HHEI Score (sum of metrics 1, 2, 3) : 59

SITE NAME/LOCATION

SITE NUMBER ____ RIVER BASIN ____ DRAINAGE AREA (mi²) ____

LENGTH OF STREAM REACH (ft) 2 ft LAT. ____ LONG ____ RIVER CODE ____ RIVER MILE ____

DATE 03/08/16 SCORER ____ COMMENTS Intermittent

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

Possible historic mining

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
☐☐	BLDR SLABS [16 pts]		☐☐	SILT [3 pt]	20
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	10
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	
☐☒	GRAVEL (2-64 mm) [9 pts]	30	☐☐	MUCK [0 pts]	
☒☐	SAND (<2 mm) [6 pts]	40	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock ____

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 15

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points — Substrate Max = 40: 19 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box)

☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☒ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts]
☐ < 5 cm [5 pts]
☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ____ MAXIMUM POOL DEPTH (centimeters): 5" (inches)

Pool Depth Max = 30: 25

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):

☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☒ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS ____ AVERAGE BANKFULL WIDTH (~~meters~~ feet) 4

Bankfull Width Max=30: 15

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (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)
☐ 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

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☒ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

Stream 181

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 ____ NRCS Soil Map Page ____ NRCS Soil Map Stream Order ____

County ____ Township / City ____

MISCELLANEOUS

Base Flow Conditions? (Y/N) N Date of last precipitation Spring ____ Quantity ?

Photograph Information 2 photos, upstream (____) + downstream (____)

Elevated Turbidity? (Y/N) ____ Canopy (% open) ____

Were samples collected for water chemistry? (Y/N) N (Note lab sample no. or id. and attach results) Lab Number ____

Field Measures: Temp (°C) ____ Dissolved Oxygen (mg/l) ____ pH (S.U.) ____ Conductivity (µmhos/cm) ____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain ____

Additional comments/description of pollution impacts 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)

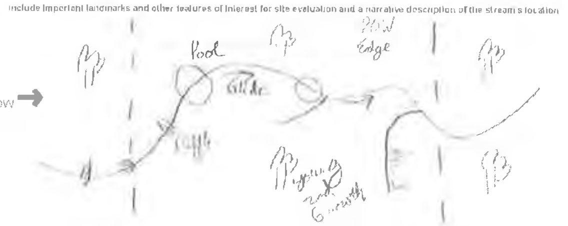
Fish Observed? (Y/N) ____ Voucher? (Y/N) ____ Salamanders Observed? (Y/N) ____ Voucher? (Y/N) ____

Frogs or 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



Stream 182 Mod. Class 1 HII BAE 030816-06

OhioEPA **Primary Headwater Habitat Evaluation Form**

HHEI Score (sum of metrics 1, 2, 3) : 17

SITE NAME/LOCATION

SITE NUMBER 06 RIVER BASIN ____ DRAINAGE AREA (mi²) ____

LENGTH OF STREAM REACH (ft) ____ LAT. ____ LONG ____ RIVER CODE ____ RIVER MILE ____

DATE 3/8/16 SCORER ____ COMMENTS ephemeral

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

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

TYPE		PERCENT	TYPE		PERCENT
☐☐	BLDR SLABS [16 pts]		☐☐	SILT [3 pt]	10
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	40
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]		☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]	50	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock ____

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9

TOTAL NUMBER OF SUBSTRATE TYPES: (B) 3

HHEI Metric Points — Substrate Max = 40: 12 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box)

☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts]
☐ < 5 cm [5 pts]
☒ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ____ MAXIMUM POOL DEPTH (centimeters): 0

Pool Depth Max = 30: 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):

☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS ____ AVERAGE BANKFULL WIDTH (meters) 1.5'

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (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)
☐ 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

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☒ Severe (10 ft/100 ft)

Stream 182

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 ____ 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) ____

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)

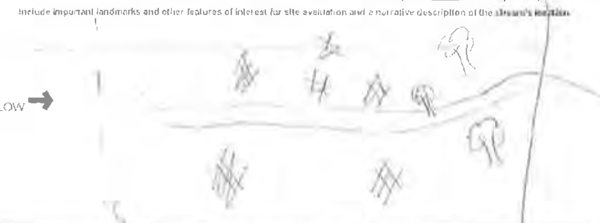
Fish Observed? (Y/N) N Voucher? (Y/N) ____ Salamanders Observed? (Y/N) ____ Voucher? (Y/N) ____

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



Stream 183 Mod. Class 2 HH-BAE [illegible]

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): 50

SITE NAME/LOCATION [illegible]
SITE NUMBER [illegible] RIVER BASIN ____ DRAINAGE AREA (mi²) ____
LENGTH OF STREAM REACH (ft) ____ LAT ____ LONG ____ RIVER CODE ____ RIVER MILE ____
DATE 3/8/16 SCORER [illegible] COMMENTS Intermittent

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
Grading in 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
☐☐	BLDR SLABS [16 pts]		☐☐	SILT [3 pt]	10
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	10
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]	10	☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	30	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]	40	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock ____
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 15
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 5

HHEI Metric Points — Substrate Max = 40: 20 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box)
☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☒ > 5 cm - 10 cm [15 pts]
☐ < 5 cm [5 pts]
☐ NO WATER OR MOIST CHANNEL [0 pts]
COMMENTS ____ MAXIMUM POOL DEPTH (centimeters): 4"

Pool Depth Max = 30: 15

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):
☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☒ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ ≤ 1.0 m (≤ 3' 3") [5 pts]
COMMENTS ____ AVERAGE BANKFULL WIDTH (meters) 4'

Bankfull Width Max=30: 15

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (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 (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)
COMMENTS ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box)
☐ None ☐ 0.5 ☐ 1.0 ☐ 1.5 ☐ 2.0 ☐ 2.5 ☐ 3.0 ☒ >3

STREAM GRADIENT ESTIMATE
☐ Flat (0.5 ft/100 ft) ☒ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

Stream 183

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 ____

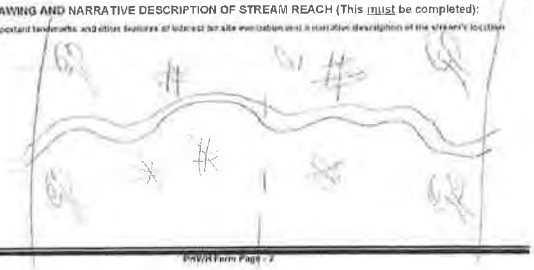
MISCELLANEOUS
Base Flow Conditions? (Y/N): N Date of last precipitation: ____ Quantity: ____
Photograph Information: ____
Elevated Turbidity? (Y/N): N Canopy (% open): 25-30
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: ____
Field Measures: Temp (°C) ____ Dissolved Oxygen (mg/l) ____ pH (S.U.) ____ Conductivity (µmhos/cm) ____
Is the sampling reach representative of the stream (Y/N) Y If not, please explain ____

Additional comments/description of pollution impacts: ____

BIOTIC EVALUATION
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) N Voucher? (Y/N) ____ 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 →



Stream 184 Mod. Class 1 HH-BAE 030816-08

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): 23

SITE NAME/LOCATION [illegible]
SITE NUMBER 38 RIVER BASIN ____ DRAINAGE AREA (mi²) ____
LENGTH OF STREAM REACH (ft) 150 ft LAT ____ LONG ____ RIVER CODE ____ RIVER MILE ____
DATE [illegible] SCORER [illegible] COMMENTS Ephemeral

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
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
☐☐	BLDR SLABS [16 pts]		☒☐	SILT [3 pt]	40
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	20
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	10	☐☐	MUCK [0 pts]	
☐☒	SAND (<2 mm) [6 pts]	30	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock ____
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4

HHEI Metric Points — Substrate Max = 40: 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 one box)
☐ > 30 centimeters [20 pts]
☐ > 22.5 - 30 cm [30 pts]
☐ > 10 - 22.5 cm [25 pts]
☐ > 5 cm - 10 cm [15 pts]
☒ < 5 cm [5 pts]
☐ NO WATER OR MOIST CHANNEL [0 pts]
COMMENTS ____ MAXIMUM POOL DEPTH (centimeters): inches 0.5

Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):
☐ > 4.0 meters (> 13') [30 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☒ ≤ 1.0 m (≤ 3' 3") [5 pts]
COMMENTS ____ AVERAGE BANKFULL WIDTH (meters) feet 1.5'

Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (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 (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)
COMMENTS ____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):
☐ None ☒ 0.5 ☐ 1.0 ☐ 1.5 ☐ 2.0 ☐ 2.5 ☐ 3.0 ☐ >3

STREAM GRADIENT ESTIMATE
☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☒ Moderate to Severe ☐ Severe (10 ft/100 ft)

Stream 184

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 ____

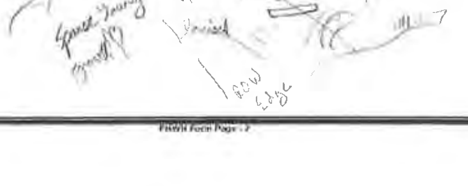
MISCELLANEOUS
Base Flow Conditions? (Y/N): N Date of last precipitation: Spring Thaw Quantity: ?
Photograph Information: 2 Photos, upstream + downstream
Elevated Turbidity? (Y/N): N Canopy (% open): 30
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) 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: 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 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 →



Stream 185 Mod. Class 1 HH EAL 030916-04

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 18

SITE NAME/LOCATION [illegible]
SITE NUMBER 17 RIVER BASIN ______ DRAINAGE AREA (mi²) ______
LENGTH OF STREAM REACH (ft) ______ LAT. ______ LONG. ______ RIVER CODE ______ RIVER MILE ______
DATE [illegible] SCORER [illegible] COMMENTS Ephemeral

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 [x] RECOVERING [ ] RECENT OR NO RECOVERY
grading (former mining) [illegible]

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
[ ][ ]	BLDR SLABS [16 pts]		[ ][ ]	SILT [3 pt]	40
[ ][ ]	BOULDER (>256 mm) [16 pts]		[ ][ ]	LEAF PACK/WOODY DEBRIS [3 pts]	10
[ ][ ]	BEDROCK [16 pt]		[ ][ ]	FINE DETRITUS [3 pts]	
[ ][ ]	COBBLE (65-256 mm) [12 pts]		[ ][ ]	CLAY or HARDPAN [0 pt]	
[ ][ ]	GRAVEL (2-64 mm) [9 pts]	10	[ ][ ]	MUCK [0 pts]	
[ ][ ]	SAND (<2 mm) [6 pts]	40	[ ][ ]	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock ______
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4
HHEI Metric Points — Substrate Max = 40: 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 one box)
[ ] > 30 centimeters [20 pts] [ ] > 5 cm - 10 cm [15 pts]
[ ] > 22.5 - 30 cm [30 pts] [ ] < 5 cm [5 pts]
[ ] > 10 - 22.5 cm [25 pts] [x] NO WATER OR MOIST CHANNEL [0 pts]
COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): 0
Pool Depth Max = 30: 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):
[ ] > 4.0 meters (> 13') [30 pts] [ ] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
[ ] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] [x] ≤ 1.0 m (≤ 3' 3") [5 pts]
[ ] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
COMMENTS ______ AVERAGE BANKFULL WIDTH (meters) 1'
Bankfull Width Max=30: 5

This information must also be completed
RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L R: [x][x] Wide >10m; [ ][ ] Moderate 5-10m; [ ][ ] Narrow <5m; [ ][ ] None
FLOODPLAIN QUALITY (Most Predominant per Bank) L R: [ ][ ] Mature Forest, Wetland; [x][x] 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 [ ] Moist Channel, isolated pools, no flow (Intermittent)
[ ] Subsurface flow with isolated pools (Interstitial) [ ] Dry channel, no water (Ephemeral)
COMMENTS ______

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box)
[ ] None [ ] 0.5 [ ] 1.0 [x] 1.5 [ ] 2.0 [ ] 2.5 [ ] 3.0 [ ] >3

STREAM GRADIENT ESTIMATE
[ ] Flat (0.5 ft/100 ft) [ ] Flat to Moderate [ ] Moderate (2 ft/100 ft) [x] Moderate to Severe [ ] Severe (10 ft/100 ft)

Stream 185 HH EAL 030916-04

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - [ ] Yes [x] No QHEI Score ______ (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)
[ ] WWH Name ______ Distance from Evaluated Stream ______
[ ] CWH Name ______ Distance from Evaluated Stream ______
[ ] EWH Name ______ Distance from Evaluated Stream ______

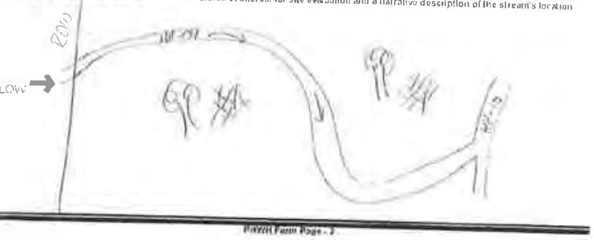
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name ______ NRCS Soil Map Page ______ NRCS Soil Map Stream Order ______
County ______ Township / City ______

MISCELLANEOUS
Base Flow Conditions? (Y/N) N Date of last precipitation Spring thaw Quantity ______
Photograph Information ______
Elevated Turbidity? (Y/N) N Canopy (% open) 25
Were samples collected for water chemistry? (Y/N) N (Note lab sample no. or id. and attach results) Lab Number ______
Field Measures: Temp (°C) ______ Dissolved Oxygen (mg/l) ______ pH (S.U.) ______ Conductivity (µmhos/cm) ______
Is the sampling reach representative of the stream (Y/N) Y If not, please explain ______
Additional comments/description of pollution impacts ______

BIOTIC EVALUATION
Performed? (Y/N) 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 →



Stream 186 Mod. Class 1 HH EAL 030916-010

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 23

SITE NAME/LOCATION [illegible]
SITE NUMBER 010 RIVER BASIN ______ DRAINAGE AREA (mi²) ______
LENGTH OF STREAM REACH (ft) 200 ft LAT. ______ LONG. ______ RIVER CODE ______ RIVER MILE ______
DATE 03/09/16 SCORER [illegible] COMMENTS Ephemeral

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 [x] RECOVERED [ ] RECOVERING [ ] RECENT OR NO RECOVERY
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
[ ][ ]	BLDR SLABS [16 pts]		[x][ ]	SILT [3 pt]	40
[ ][ ]	BOULDER (>256 mm) [16 pts]		[ ][ ]	LEAF PACK/WOODY DEBRIS [3 pts]	10
[ ][ ]	BEDROCK [16 pt]		[ ][ ]	FINE DETRITUS [3 pts]	
[ ][ ]	COBBLE (65-256 mm) [12 pts]		[ ][ ]	CLAY or HARDPAN [0 pt]	
[ ][ ]	GRAVEL (2-64 mm) [9 pts]	10	[ ][ ]	MUCK [0 pts]	
[ ][x]	SAND (<2 mm) [6 pts]	40	[ ][ ]	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock ______
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 9
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4
HHEI Metric Points — Substrate Max = 40: 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 one box)
[ ] > 30 centimeters [20 pts] [ ] > 5 cm - 10 cm [15 pts]
[ ] > 22.5 - 30 cm [30 pts] [x] < 5 cm [5 pts]
[ ] > 10 - 22.5 cm [25 pts] [ ] NO WATER OR MOIST CHANNEL [0 pts]
COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): 1"
Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):
[ ] > 4.0 meters (> 13') [30 pts] [ ] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
[ ] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] [x] ≤ 1.0 m (≤ 3' 3") [5 pts]
[ ] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
COMMENTS ______ AVERAGE BANKFULL WIDTH (meters) 1'
Bankfull Width Max=30: 5

This information must also be completed
RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L R: [x][x] Wide >10m; [ ][ ] Moderate 5-10m; [ ][ ] Narrow <5m; [ ][ ] None
FLOODPLAIN QUALITY (Most Predominant per Bank) L R: [ ][ ] Mature Forest, Wetland; [x][x] 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):
[x] Stream Flowing [ ] Moist Channel, isolated pools, no flow (Intermittent)
[ ] Subsurface flow with isolated pools (Interstitial) [ ] Dry channel, no water (Ephemeral)
COMMENTS ______

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box)
[ ] None [ ] 0.5 [ ] 1.0 [ ] 1.5 [x] 2.0 [ ] 2.5 [ ] 3.0 [ ] >3

STREAM GRADIENT ESTIMATE
[ ] Flat (0.5 ft/100 ft) [ ] Flat to Moderate [x] Moderate (2 ft/100 ft) [x] Moderate to Severe [ ] Severe (10 ft/100 ft)

Stream 186 HH EAL 030916-010

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - [ ] Yes [x] No QHEI Score ______ (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)
[ ] WWH Name ______ Distance from Evaluated Stream ______
[ ] CWH Name ______ Distance from Evaluated Stream ______
[ ] EWH Name ______ Distance from Evaluated Stream ______

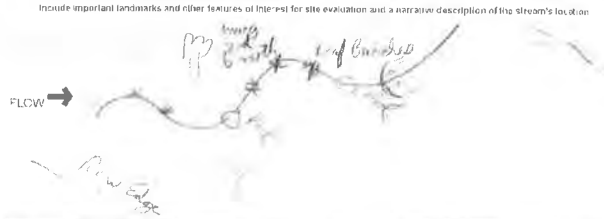
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name ______ NRCS Soil Map Page ______ NRCS Soil Map Stream Order ______
County ______ Township / City ______

MISCELLANEOUS
Base Flow Conditions? (Y/N) N Date of last precipitation Spring Thaw Quantity ?
Photograph Information 3 Video, upstream, downstream
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 N/A

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 →



Stream 187 Mod. Class 2

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 57

SITE NAME/LOCATION ______
SITE NUMBER ______ RIVER BASIN ______ DRAINAGE AREA (mi²) ______
LENGTH OF STREAM REACH (ft) 200 ft LAT. ______ LONG. ______ RIVER CODE ______ RIVER MILE ______
DATE 03/08/16 SCORER ______ COMMENTS ______

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☒ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY
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
☐☐	BLDR SLABS [16 pts]		☐☐	SILT [3 pt]	10
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	10
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	
☒☐	GRAVEL (2-64 mm) [9 pts]	40	☐☐	MUCK [0 pts]	
☐☒	SAND (<2 mm) [6 pts]	40	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock ______
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 15
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 4
HHEI Metric Points — Substrate Max = 40: 19 (A + B)

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box)
- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☒ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☐ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): 6"
Pool Depth Max = 30: 25

3. **BANK FULL WIDTH** (Measured as the average of 3-4 measurements) (Check ONLY one box):
- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☒ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☐ < 1.0 m (≤ 3' 3") [5 pts]

COMMENTS ______ AVERAGE BANKFULL WIDTH (~~meters~~ feet) 4'
Bankfull Width Max=30: 15

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (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 (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☐ Dry channel, no water (Ephemeral)

COMMENTS ______

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box)
☐ None ☐ 0.5 ☐ 1.0 ☐ 1.5 ☐ 2.0 ☐ 2.5 ☐ 3.0 ☒ >3

STREAM GRADIENT ESTIMATE
☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☒ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

Stream 187

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 2 Photos, Upstream + Downstream
Elevated Turbidity? (Y/N) N Canopy (% open) 25
Were samples collected for water chemistry? (Y/N) N (Note lab sample no. or id. and attach results) Lab Number ______
Field Measures Temp (°C) ______ Dissolved Oxygen (mg/l) ______ pH (S.U.) ______ Conductivity (µmhos/cm) ______
Is the sampling reach representative of the stream (Y/N) Y If not, please explain ______

Additional comments/description of pollution impacts n/a

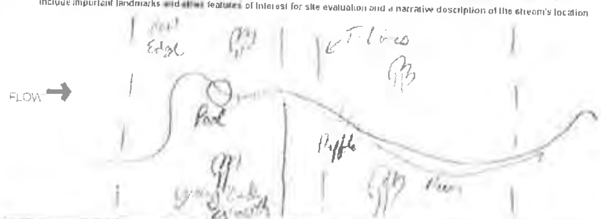
BIOTIC EVALUATION

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 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



Stream 188 Mod. Class 1

Ohio EPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 14

SITE NAME/LOCATION ______
SITE NUMBER 12 RIVER BASIN ______ DRAINAGE AREA (mi²) ______
LENGTH OF STREAM REACH (ft) ______ LAT. ______ LONG. ______ RIVER CODE ______ RIVER MILE ______
DATE 3/8/16 SCORER BAE COMMENTS Ephemeral

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
Grading / mining

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
☐☐	BLDR SLABS [16 pts]		☒☐	SILT [3 pt]	50
☐☐	BOULDER (>256 mm) [16 pts]		☐☒	LEAF PACK/WOODY DEBRIS [3 pts]	40
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]		☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]	10	☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock ______
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 6
TOTAL NUMBER OF SUBSTRATE TYPES: (B) 3
HHEI Metric Points — Substrate Max = 40: 9 (A + B)

2. **Maximum Pool Depth** (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box)
- ☐ > 30 centimeters [20 pts]
- ☐ > 22.5 - 30 cm [30 pts]
- ☐ > 10 - 22.5 cm [25 pts]
- ☐ > 5 cm - 10 cm [15 pts]
- ☐ < 5 cm [5 pts]
- ☒ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): ø
Pool Depth Max = 30: ø

3. **BANK FULL WIDTH** (Measured as the average of 3-4 measurements) (Check ONLY one box):
- ☐ > 4.0 meters (> 13') [30 pts]
- ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]
- ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
- ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
- ☒ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS ______ AVERAGE BANKFULL WIDTH (meters) 1'
Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank), L R:
- ☒☒ 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 (Interstitial)
- ☐ Moist Channel, isolated pools, no flow (Intermittent)
- ☒ Dry channel, no water (Ephemeral)

COMMENTS ______

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box)
☐ None ☐ 0.5 ☐ 1.0 ☒ 1.5 ☐ 2.0 ☐ 2.5 ☐ 3.0 ☐ >3

STREAM GRADIENT ESTIMATE
☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☒ Severe (10 ft/100 ft)

Stream 188

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) ______
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 ______

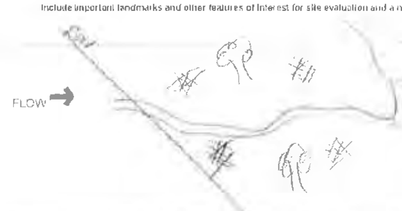
BIOTIC EVALUATION

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) ______ 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



Stream 189 Fair Warmwater

OhioEPA **Qualitative Habitat Evaluation Index and Use Assessment Field Sheet** **QHEI Score:** 46

Stream & Location: [illegible] RM. ___ Date: __/__/06

[illegible] Scorers Full Name & Affiliation: ________

River Code: __-___-___ STORET #: ______ Lat./Long.: ______ /8_ ______ Office verified location ☐

1] SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

BEST TYPES	POOL	RIFFLE	OTHER TYPES	POOL	RIFFLE
☐☐ BLDR /SLABS [10]			☐☐ HARDPAN [4]		
☐☐ BOULDER [9]			☐☐ DETRITUS [3]		
☐☐ COBBLE [8]			☒☐ MUCK [2]	70	75
☐☐ GRAVEL [7]			☐☒ SILT [2]	70	90
☐☐ SAND [6]	10	10	☐☐ ARTIFICIAL [0]		
☐☐ BEDROCK [5]			(Score natural substrates; ignore sludge from point-sources)		

NUMBER OF BEST TYPES: ☐ 4 or more [2] ☒ 3 or less [0]

Check ONE (Or 2 & average)

ORIGIN: ☐ LIMESTONE [1] ☐ TILLS [1] ☐ WETLANDS [0] ☐ HARDPAN [0] ☒ SANDSTONE [0] ☐ RIP/RAP [0] ☐ LACUSTURINE [0] ☐ SHALE [-1] ☐ COAL FINES [-2]

QUALITY: SILT ☒ HEAVY [-2] ☐ MODERATE [-1] ☐ NORMAL [0] ☐ FREE [1]; EMBEDDEDNESS ☒ EXTENSIVE [-2] ☐ MODERATE [-1] ☐ NORMAL [0] ☐ NONE [1]

Substrate Maximum 20: 0

Comments

2] INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

1 UNDERCUT BANKS [1] · 1 OVERHANGING VEGETATION [1] · __ SHALLOWS (IN SLOW WATER) [1] · __ ROOTMATS [1] · 1 POOLS > 70cm [2] · __ ROOTWADS [1] · __ BOULDERS [1] · __ OXBOWS, BACKWATERS [1] · __ AQUATIC MACROPHYTES [1] · 1 LOGS OR WOODY DEBRIS [1]

AMOUNT Check ONE (Or 2 & average): ☐ EXTENSIVE >75% [11] ☐ MODERATE 25-75% [7] ☒ SPARSE 5-<25% [3] ☐ NEARLY ABSENT <5% [1]

Comments — Cover Maximum 20: 7

3] CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [6]	☐ HIGH [3]
☐ MODERATE [3]	☐ GOOD [5]	☒ RECOVERED [4]	☒ MODERATE [2]
☒ LOW [2]	☒ FAIR [3]	☒ RECOVERING [3]	☐ LOW [1]
☐ NONE [1]	☐ POOR [1]	☐ RECENT OR NO RECOVERY [1]	

Comments — Channel Maximum 20: 10.5

4] BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average) River right looking downstream

EROSION (L R)	RIPARIAN WIDTH (L R)	FLOOD PLAIN QUALITY (L R)	
☐☐ NONE / LITTLE [3]	☒☐ WIDE > 50m [4]	☒☒ FOREST, SWAMP [3]	☐☐ CONSERVATION TILLAGE [1]
☐☐ MODERATE [2]	☐☒ MODERATE 10-50m [3]	☐☐ SHRUB OR OLD FIELD [2]	☐☐ URBAN OR INDUSTRIAL [0]
☒☒ HEAVY / SEVERE [1]	☐☐ NARROW 5-10m [2]	☐☐ RESIDENTIAL, PARK, NEW FIELD [1]	☐☐ MINING / CONSTRUCTION [0]
	☐☐ VERY NARROW < 5m [1]	☐☐ FENCED PASTURE [1]	Indicate predominant land use(s) past 100m riparian
	☐☐ NONE [0]	☐☐ OPEN PASTURE, ROWCROP [0]	

Comments 3,5 — Riparian Maximum 10: 7.5

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH Check ONE (ONLY!): ☒ > 1m [6] ☐ 0.7-<1m [4] ☐ 0.4-<0.7m [2] ☐ 0.2-<0.4m [1] ☐ < 0.2m [0]

CHANNEL WIDTH Check ONE (Or 2 & average): ☒ POOL WIDTH > RIFFLE WIDTH [2] ☐ POOL WIDTH = RIFFLE WIDTH [1] ☐ POOL WIDTH > RIFFLE WIDTH [0]

CURRENT VELOCITY Check ALL that apply: ☐ TORRENTIAL [-1] ☐ VERY FAST [1] ☐ FAST [1] ☒ MODERATE [1] ☒ SLOW [1] ☐ INTERSTITIAL [-1] ☐ INTERMITTENT [-2] ☐ EDDIES [1] — Indicate for reach - pools and riffles.

Recreation Potential: Primary Contact / Secondary Contact (circle one and comment on back)

Comments — Pool / Current Maximum 12: 10

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Check ONE (Or 2 & average) ☒ NO RIFFLE [metric=0]

RIFFLE DEPTH: ☐ BEST AREAS > 10cm [2] ☐ BEST AREAS 5-10cm [1] ☐ BEST AREAS < 5cm [metric=0]

RUN DEPTH: ☐ MAXIMUM > 50cm [2] ☐ MAXIMUM < 50cm [1]

RIFFLE / RUN SUBSTRATE: ☐ STABLE (e.g., Cobble, Boulder) [2] ☐ MOD. STABLE (e.g., Large Gravel) [1] ☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]

RIFFLE / RUN EMBEDDEDNESS: ☐ NONE [2] ☐ LOW [1] ☐ MODERATE [0] ☐ EXTENSIVE [-1]

Comments — Riffle / Run Maximum 8: 0

6] GRADIENT (17 ft/mi) ☐ VERY LOW - LOW [2-4] ☒ MODERATE [6-10] ☐ HIGH - VERY HIGH [10-6]

DRAINAGE AREA (7.16 mi²)

%POOL: 50 %GLIDE: 50 %RUN: ____ %RIFFLE: ____ — Gradient Maximum 10: 10

EPA 4520 06/16/06

Stream 189

Stream 189

Comment RE: Reach consistency / Is reach typical of stream? Recreation/Observed / Inferred Other / Sampling observations Concerns Access directions etc.

A] SAMPLED REACH Check ALL that apply

METHOD: ☐ BOAT ☐ WADE ☐ L. LINE ☐ OTHER

STAGE (1st sample pass - 2nd): ☐☐ HIGH ☐☐ UP ☐☐ NORMAL ☐☐ LOW ☐☐ DRY

DISTANCE: ☐ 0.5 Km ☐ 0.2 Km ☐ 0.15 Km ☐ 0.12 Km ☐ OTHER ____ meters

CLARITY (1st sample pass - 2nd): ☐☐ < 20 cm ☐☐ 20-<40 cm ☐☐ 40-70 cm ☐☐ > 70 cm/ CTB ☐☐ SECCHI DEPTH 1st ____ cm 2nd ____ cm

CANOPY: ☐ > 85%- OPEN ☐ 55%-<85% ☐ 30%-<55% ☐ 10%-<30% ☐ <10%- CLOSED

B] AESTHETIC: ☐ NUISANCE ALGAE ☐ INVASIVE MACROPHYTES ☐ EXCESS TURBIDITY ☐ DISCOLORATION ☐ FOAM / SCUM ☐ OIL SHEEN ☐ TRASH / LITTER ☐ NUISANCE ODOR ☐ SLUDGE DEPOSITS ☐ CSOs/SSOs/OUTFALLS

C] REC AREA DEPTH POOL: ☐ >100ft² ☐ >3ft

D] MAINTENANCE: PUBLIC / PRIVATE / BOTH / NA; ACTIVE / HISTORIC / BOTH / NA; YOUNG-SUCCESSION-OLD; SPRAY / SNAG / REMOVED; MODIFIED / DIPPED OUT / NA; LEVEED / ONE SIDED; RELOCATED / CUTOFFS; MOVING-BEDLOAD-STABLE; ARMOURED / SLUMPS; ISLANDS / SCOURED; IMPOUNDED / DESICCATED; FLOOD CONTROL / DRAINAGE

Circle some & COMMENT

E] ISSUES: WWTP / CSO / NPDES / INDUSTRY; HARDENED / URBAN / DIRT&GRIME; CONTAMINATED / LANDFILL; BMPs-CONSTRUCTION-SEDIMENT; LOGGING / IRRIGATION / COOLING; BANK / EROSION / SURFACE; FALSE BANK / MANURE / LAGOON; WASH H_2O / TILE / H_2O TABLE; ACID / MINE / QUARRY / FLOW; NATURAL / WETLAND / STAGNANT; PARK / GOLF / LAWN / HOME; ATMOSPHERE / DATA PAUCITY

F] MEASUREMENTS: x̄ width 7.06 15; x̄ depth 12"; max. depth 36"; x̄ bankfull width 20; bankfull x̄ depth; W/D ratio; bankfull max. depth; floodprone x² width; entrench ratio; Le Tree:

Stream Drawing:

Stream 190 Mod. Class 1 [illegible]

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 13

SITE NAME/LOCATION [illegible]

SITE NUMBER 190 RIVER BASIN ________ DRAINAGE AREA (mi²) ____

LENGTH OF STREAM REACH (ft) ____ LAT ____ LONG ____ RIVER CODE ____ RIVER MILE ____

DATE [illegible] SCORER [illegible] COMMENTS Ephemeral

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 — 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

TYPE		PERCENT	TYPE		PERCENT
☐☐	BLDR SLABS [16 pts]		☒☐	SILT [3 pt]	80
☐☐	BOULDER (>256 mm) [16 pts]		☐☒	LEAF PACK/WOODY DEBRIS [3 pts]	20
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]		☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]		☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock ____

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 6 — TOTAL NUMBER OF SUBSTRATE TYPES: (B) 2

HHEI Metric Points — Substrate Max = 40: 8 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box)

☐ > 30 centimeters [20 pts] ☐ > 22.5 - 30 cm [30 pts] ☐ > 10 - 22.5 cm [25 pts] ☐ > 5 cm - 10 cm [15 pts] ☐ < 5 cm [5 pts] ☒ NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS ________ MAXIMUM POOL DEPTH (centimeters): 0 — Pool Depth Max = 30: 0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):

☐ > 4.0 meters (> 13') [30 pts] ☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ☒ ≤ 1.0 m (≤ 3' 3") [5 pts]

COMMENTS ________ AVERAGE BANKFULL WIDTH (meters) 1 — Bankfull Width Max=30: 5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (L R) (Per Bank)	FLOODPLAIN QUALITY (L R) (Most Predominant per Bank)	(L R)
☒☒ Wide >10m	☐☐ Mature Forest, Wetland	☐☐ Conservation Tillage
☐☐ Moderate 5-10m	☒☒ Immature Forest, Shrub or Old Field	☐☐ Urban or Industrial
☐☐ Narrow <5m	☐☐ Residential, Park, New Field	☐☐ Open Pasture, Row Crop
☐☐ None	☐☐ Fenced Pasture	☐☐ Mining or Construction

COMMENTS ________

FLOW REGIME (At Time of Evaluation) (Check ONLY one box)

☐ Stream Flowing ☐ Subsurface flow with isolated pools (Interstitial) ☐ Moist Channel, isolated pools, no flow (Intermittent) ☒ Dry channel, no water (Ephemeral)

COMMENTS ________

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box)

☐ None ☒ 0.5 ☐ 1.0 ☐ 1.5 ☐ 2.0 ☐ 2.5 ☐ 3.0 ☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☒ Severe (10 ft/100 ft)

Stream 190

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 [illegible] Quantity ____

Photograph Information ________

Elevated Turbidity? (Y/N) N Canopy (% open) 25

Were samples collected for water chemistry? (Y/N) N (Note lab sample no. or id. and attach results) Lab Number ____

Field Measures: Temp (°C) ____ Dissolved Oxygen (mg/l) ____ pH (S.U.) ____ Conductivity (µmhos/cm) ____

Is the sampling reach representative of the stream (Y/N) Y If not, please explain ________

Additional comments/description of pollution impacts ________

BIOTIC EVALUATION

Performed? (Y/N) ____ (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) ____

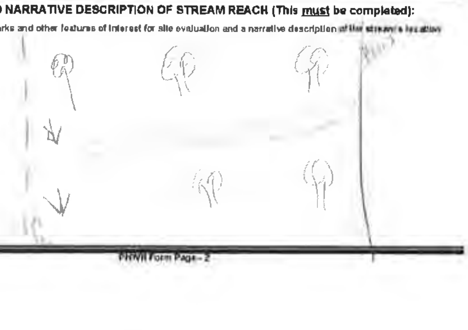
Frogs or Tadpoles Observed? (Y/N) ____ Voucher? (Y/N) ____ Aquatic Macroinvertebrates Observed? (Y/N) ____ Voucher? (Y/N) ____

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 ➜



Stream 191 Mod. Class 1 hh bio-03,33% ...

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 17

SITE NAME/LOCATION ______
SITE NUMBER 01 RIVER BASIN ______ DRAINAGE AREA (mi²) ______
LENGTH OF STREAM REACH (ft) ______ LAT. ______ LONG ______ RIVER CODE ______ RIVER MILE ______
DATE 3/3/16 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: TL ROW, 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

TYPE		PERCENT	TYPE		PERCENT
☐☐	BLDR SLABS [16 pts]		☒☐	SILT [3 pt]	60
☐☐	BOULDER (>256 mm) [16 pts]		☐☒	LEAF PACK/WOODY DEBRIS [3 pts]	30
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	10	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]		☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock ______
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) 6 TOTAL NUMBER OF SUBSTRATE TYPES: (B) 3

HHEI Metric Points — Substrate Max = 40: 9 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):
☐ > 30 centimeters [20 pts] ☐ > 5 cm - 10 cm [15 pts]
☐ > 22.5 - 30 cm [30 pts] ☒ < 5 cm [5 pts]
☐ > 10 - 22.5 cm [25 pts] ☐ NO WATER OR MOIST CHANNEL [0 pts]
COMMENTS 2" MAXIMUM POOL DEPTH (centimeters): 1"

Pool Depth Max = 30: 5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):
☐ > 4.0 meters (> 13') [30 pts] ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ☒ ≤ 1.0 m (≤ 3' 3") [5 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
COMMENTS 6" AVERAGE BANKFULL WIDTH (meters) 1'

Bankfull Width Max = 30: 5

This information must also be completed
RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L R	(Per Bank)	L R	(Most Predominant per Bank)	L R	
☒☒	Wide > 10m	☐☐	Mature Forest, Wetland	☐☐	Conservation Tillage
☐☐	Moderate 5-10m	☒☒	Immature Forest, Shrub or Old Field	☐☐	Urban or Industrial
☐☐	Narrow < 5m	☐☐	Residential, Park, New Field	☐☐	Open Pasture, Row Crop
☐☐	None	☐☐	Fenced Pasture	☐☐	Mining or Construction

COMMENTS ______

FLOW REGIME (At Time of Evaluation) (Check ONLY one box)
☒ Stream Flowing ☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Subsurface flow with isolated pools (Interstitial) ☐ Dry channel, no water (Ephemeral)
COMMENTS ______

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box)
☐ None ☐ 1.0 ☐ 2.0 ☐ 3.0
☐ 0.5 ☐ 1.5 ☐ 2.5 ☒ >3

STREAM GRADIENT ESTIMATE
☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☒ Moderate to Severe ☐ Severe (10 ft/100 ft)

Stream 191

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 3/2 Quantity ______
Photograph Information 7101 ... 7141
Elevated Turbidity? (Y/N) N Canopy (% open) 90
Were samples collected for water chemistry? (Y/N) N (Note lab sample no. or id. and attach results) Lab Number ______
Field Measures Temp (°C) ______ Dissolved Oxygen (mg/l) ______ pH (S.U.) ______ Conductivity (µmhos/cm) ______
Is the sampling reach representative of the stream (Y/N) Y If not, please explain ______

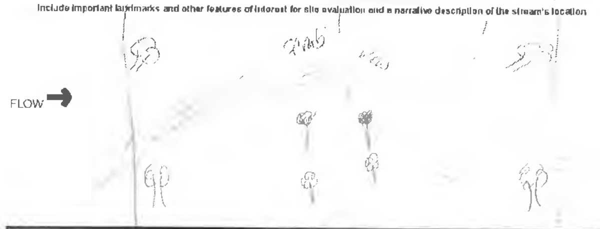
Additional comments/description of pollution impacts ______

BIOTIC EVALUATION

Performed? (Y/N) ______ (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



Stream 192 Mod. Class 1 hh-bio- ...

OhioEPA Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 15

SITE NAME/LOCATION ______
SITE NUMBER 03 RIVER BASIN ______ DRAINAGE AREA (mi²) ______
LENGTH OF STREAM REACH (ft) ______ LAT. ______ LONG ______ RIVER CODE ______ RIVER MILE ______
DATE 3/3/16 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
☐☐	BLDR SLABS [16 pts]		☐☐	SILT [3 pt]	50
☐☐	BOULDER (>256 mm) [16 pts]		☐☐	LEAF PACK/WOODY DEBRIS [3 pts]	20
☐☐	BEDROCK [16 pt]		☐☐	FINE DETRITUS [3 pts]	
☐☐	COBBLE (65-256 mm) [12 pts]		☐☐	CLAY or HARDPAN [0 pt]	
☐☐	GRAVEL (2-64 mm) [9 pts]	30	☐☐	MUCK [0 pts]	
☐☐	SAND (<2 mm) [6 pts]		☐☐	ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock ______
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: (A) ______ TOTAL NUMBER OF SUBSTRATE TYPES: (B) 3

HHEI Metric Points — Substrate Max = 40: 15 (A + B)

2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):
☐ > 30 centimeters [20 pts] ☐ > 5 cm - 10 cm [15 pts]
☐ > 22.5 - 30 cm [30 pts] ☒ < 5 cm [5 pts]
☐ > 10 - 22.5 cm [25 pts] ☐ NO WATER OR MOIST CHANNEL [0 pts]
COMMENTS ______ MAXIMUM POOL DEPTH (centimeters): 2"

Pool Depth Max = 30: ______

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):
☐ > 4.0 meters (> 13') [30 pts] ☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ☒ ≤ 1.0 m (≤ 3' 3") [5 pts]
☐ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]
COMMENTS ______ AVERAGE BANKFULL WIDTH (meters) ______

Bankfull Width Max = 30: 5

This information must also be completed
RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L R	(Per Bank)	L R	(Most Predominant per Bank)	L R	
☒☒	Wide > 10m	☐☐	Mature Forest, Wetland	☐☐	Conservation Tillage
☐☐	Moderate 5-10m	☐☐	Immature Forest, Shrub or Old Field	☐☐	Urban or Industrial
☐☐	Narrow < 5m	☐☐	Residential, Park, New Field	☒☒	Open Pasture, Row Crop
☐☐	None	☐☐	Fenced Pasture	☐☐	Mining or Construction

COMMENTS ______

FLOW REGIME (At Time of Evaluation) (Check ONLY one box)
☐ Stream Flowing ☒ Moist Channel, isolated pools, no flow (Intermittent)
☐ Subsurface flow with isolated pools (Interstitial) ☐ Dry channel, no water (Ephemeral)
COMMENTS ______

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box)
☐ None ☐ 1.0 ☐ 2.0 ☐ 3.0
☐ 0.5 ☐ 1.5 ☐ 2.5 ☒ >3

STREAM GRADIENT ESTIMATE
☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☒ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100 ft)

Stream 192

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 3/2 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 ______

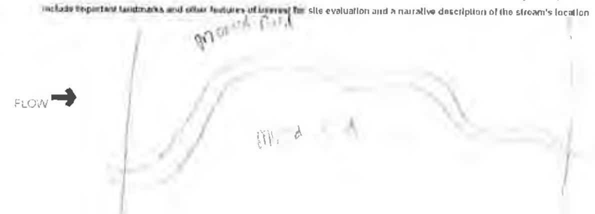
Additional comments/description of pollution impacts ______

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



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