

Large Filing Separator Sheet

Case Number: 13-360-EL-BGA

File Date: 1/22/2014

Section: 3 of 3

Number of Pages: 89

Description of Document: Exhibits

ADDITIONAL 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: Champaign Township / City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 11/19/08 Quantity: <1"

Photograph Information: yes

Elevated Turbidity? (Y/N): N Canopy (% open): 90-95%

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) _____ 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: - stream dry at time of evaluation

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

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

Ag field

FLOW →

Vegetated banks Ag field

EIP007



Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

STREAM - E

QHEI Score:

44

Stream & Location: STREAM E - DUGAN RUN

RM: Date: 6/28/2011

Scorers Full Name & Affiliation: BRAND FALKENBERG - HULL

River Code: STORET #:

Lat./Long.: 40.1383 183.6717245

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
☐ BEDROCK (1)	☐ POOL (1)	☐ HARDPAN (1)	☐ POOL (1)
☐ BOULDER (1)	☐ RIFFLE (1)	☐ DETRITUS (1)	☐ RIFFLE (1)
☐ COBBLE (1)	☐ SLUDGE (1)	☐ MUCK (1)	☐ RIFFLE (1)
☐ GRAVEL (1)	☐ SILT (1)	☐ SILT (1)	☐ RIFFLE (1)
☐ SAND (1)	☐ SLUDGE (1)	☐ ARTIFICIAL (1)	☐ RIFFLE (1)
☐ BEDROCK (1)	☐ SLUDGE (1)	☐ ARTIFICIAL (1)	☐ RIFFLE (1)

ORIGIN	QUALITY
☐ LIMESTONE (1)	☐ HEAVY (1)
☐ SILT (1)	☐ MODERATE (1)
☐ WETLANDS (1)	☐ NORMAL (1)
☐ HARDPAN (1)	☐ FREE (1)
☐ SANDSTONE (1)	☐ EXTENSIVE (1)
☐ RIPRAP (1)	☐ MODERATE (1)
☐ LACUSTURNE (1)	☐ NORMAL (1)
☐ SHALE (1)	☐ NONE (1)
☐ COARSE (1)	

NUMBER OF BEST TYPES: 2 + 7 + 6 + 1 + 0 + 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.

AMOUNT

Check ONE (Or 2 & average)

COVER	AMOUNT
☐ UNDERCUT BANKS (1)	☐ EXTENSIVE (75%+)
☐ OVERHANGING VEGETATION (1)	☐ MODERATE (25-75%)
☐ SHALLOWS IN SLOW WATER (1)	☐ SPARSE (5-25%)
☐ ROOTWADS (1)	☐ NEARLY ABSENT (5%+)
☐ POOLS / DEEP (1)	
☐ ROOTWADS (1)	
☐ BOULDERS (1)	
☐ LOGS OR WOODY DEBRIS (1)	

Comments

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

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH (1)	☐ EXCELLENT (1)	☐ NONE (1)	☐ HIGH (1)
☐ MODERATE (1)	☐ GOOD (1)	☐ RECOVERED (1)	☐ MODERATE (1)
☐ LOW (1)	☐ FAIR (1)	☐ RECOVERING (1)	☐ LOW (1)
☐ NONE (1)	☐ POOR (1)	☐ RECENT OR NO RECOVERY (1)	

Comments

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

EROSION	RIPARIAN WIDTH	FLOOD PLAIN QUALITY
☐ NONE / LITTLE (1)	☐ WIDE (50m+)	☐ FOREST / SWAMP (1)
☐ MODERATE (2)	☐ MODERATE (10-50m)	☐ SHRUB OR OLD FIELD (1)
☐ HEAVY / SEVERE (3)	☐ NARROW (5-10m)	☐ RESIDENTIAL / PARK / NEW FIELD (1)
	☐ VERY NARROW (<5m)	☐ FENCED PASTURE (1)
	☐ NONE (1)	☐ OPEN PASTURE / ROW CROP (1)
		☐ CONSERVATION / TILAGE (1)
		☐ URBAN OR INDUSTRIAL (1)
		☐ MINING / CONSTRUCTION (1)

Comments

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH	CHANNEL WIDTH	CURRENT VELOCITY
☐ 1m (1)	☐ POOL WIDTH / RIFFLE WIDTH (1)	☐ TORRENTIAL (1)
☐ 0.75m (1)	☐ POOL WIDTH / RIFFLE WIDTH (1)	☐ VERY FAST (1)
☐ 0.5m (1)	☐ POOL WIDTH / RIFFLE WIDTH (1)	☐ FAST (1)
☐ 0.25m (1)	☐ POOL WIDTH / RIFFLE WIDTH (1)	☐ MODERATE (1)
☐ 0.2m (1)		☐ SLOW (1)
		☐ INTERMITTENT (1)
		☐ EDDIES (1)

Comments

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)	☐ MAXIMUM (20cm)	☐ STABLE (e.g., cobble, boulder)	☐ NONE (1)
☐ BEST AREAS (10cm)	☐ MAXIMUM (20cm)	☐ MOD. STABLE (e.g., large gravel)	☐ LOW (1)
☐ BEST AREAS (10cm)	☐ MAXIMUM (20cm)	☐ UNSTABLE (e.g., fine gravel, sand)	☐ MODERATE (1)
			☐ EXTENSIVE (1)

Comments

6] GRADIENT

DRAINAGE AREA

☐ VERY LOW / TOW (1)	☐ MODERATE (1)	☐ HIGH / VERY HIGH (1)
---	---------------------------------------	---

% POOL: 20	% GLIDE: 65
% RUN: 5	% RIFFLE: 10

Gradient Maximum 10



Primary Headwater Habitat Evaluation Form

EV0001 Stream F

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

74

SITE NAME/LOCATION MISSO 10/15

SITE NUMBER

RIVER BASIN

DRAINAGE AREA (mi²) 0.24

LENGTH OF STREAM REACH (ft) 200 LAT. 40°8'56.62 LONG. 93°34'10.48 RIVER CODE RIVER MILE

DATE 5/21/09 SCORER SMIT 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 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]		☐ SILT [3 pts]	
☒ BOULDER (>256 mm) [16 pts]	<u>1</u>	☐ LEAF PACK/WOODY DEBRIS [3 pts]	
☐ BEDROCK [16 pts]		☐ FINE DETRITUS [3 pts]	
☒ COBBLE (65-256 mm) [12 pts]	<u>15</u>	☐ CLAY or HARDPAN [0 pts]	
☒ GRAVEL (2-64 mm) [9 pts]	<u>45</u>	☐ MUCK [0 pts]	
☒ SAND (<2 mm) [6 pts]	<u>45</u>	☐ ARTIFICIAL [3 pts]	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 110

(A) 15

(B) 4

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

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

☐ > 30 centimeters [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. 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 (> 9' 7" - 4' 8") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

HHEI Metric Points

Substrate Max = 40

19

A + B

Pool Depth Max = 30

30

Bankfull Width Max = 30

25

This information must also be completed

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

RIPARIAN WIDTH

L	R	(Per Bank)
☐	☐	Wide >10m
☐	☐	Moderate 5-10m
☒	☒	Narrow <5m
☐	☐	None

COMMENTS

FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)
☐	☐	Mature Forest, Wetland
☐	☐	Immature Forest, Shrub or Old Field
☐	☐	Residential, Park, New Field
☐	☐	Fenced Pasture

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

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

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

COMMENTS

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

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

STREAM GRADIENT ESTIMATE

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

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

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

DOWNSTREAM DESIGNATED USE(S)

☒ WWH Name: Mud River 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: VA military District LOT 3468 NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: Champaign Township / City: Union Twp

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 5/20 Quantity: 2.1"

Photograph Information: EVP001.300.0006 photo #5 19420

Elevated Turbidity? (Y/N): N Canopy (% open): 40

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

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

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

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

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

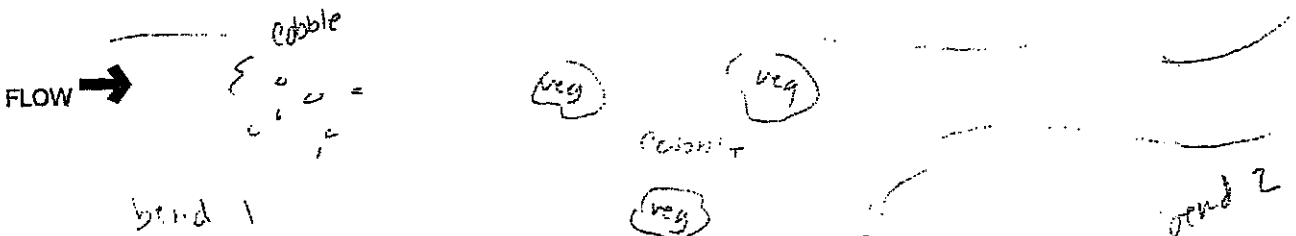
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N
Frogs or Tadpoles Observed? (Y/N) Y Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) Y Voucher? (Y/N) Y

Comments Regarding Biology: _____

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

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

See photos



3. Macroinvertebrate Scoring Sheet:

Stream F

EVP001

THE HEADWATER MACROINVERTEBRATE FIELD EVALUATION INDEX (HMFEI) SCORING SHEET

Indicate Abundance of Each Taxa Above each White Box.

Record HMFEI Scoring Value Points Within each Box.

For EPT taxa, also indicate the number of different taxa present

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

Sessile Animals (Porifera, Cnidaria, Bryozoa) (HMFEI pts = 1)		Crayfish (Decapoda) (HMFEI pts = 2)	R 2	Fishfly Larvae (Corydalidae) (HMFEI pts = 3)	
Aquatic Worms (Turbellaria, Oligochaeta, Hirudinea) (HMFEI pts = 1)		Dragonfly Nymphs (Anisoptera) (HMFEI pts = 2)		Water Penny Beetles (Psephenidae) (HMFEI pts = 3)	
Sow Bugs (Isopoda) (HMFEI pts = 1)		Riffle Beetles (Dryopidae, Elmidae, Ptilodactylidae) (HMFEI pts = 2)		Cranefly Larvae (Tipulidae) (HMFEI pts = 3)	
Scuds (Amphipoda) (HMFEI pts = 1)		Larvae of other Flies (Diptera) Name: (HMFEI pts = 1)	R 1	EPT TAXA	
Water Mites (Hydracarina) (HMFEI pts = 1)		Midges (Chironomids) (HMFEI pts = 1)	C 1	Total No. EPT Taxa	
Damselfly Nymphs (Zygoptera) (HMFEI pts = 1)		Snails (Gastropoda) (HMFEI pts = 1)	C 1	Taxa Present [HMFEI pts =	2
Alderfly Larvae (Sialidae) (HMFEI pts = 1)		Clams (Bivalvia) (HMFEI pts = 1)		No. Taxa (x) 3]	6
Other Beetles (Coleoptera) (HMFEI pts = 1)		Other Taxa:		Stonfly Nymphs (Plecoptera)	
Other Taxa:		Other Taxa:		Taxa Present [HMFEI pts =	
Other Taxa:		Other Taxa:		No. Taxa (x) 3]	
Other Taxa:		Other Taxa:		Caddisfly Larvae (Trichoptera)	
Other Taxa:		Other Taxa:		Taxa Present	1
Other Taxa:		Other Taxa:		[HMFEI pts =	3
Other Taxa:		Other Taxa:		No. Taxa (x) 3]	

Voucher Sample ID Stream 16 HMFEI-1

Time Spent (minutes): 30

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

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

14

IF Final HMFEI Score is ≥ 20 , Then CLASS III PHWH STREAM

IF Final HMFEI Score is 7 to 19, Then CLASS II PHWH STREAM

IF Final HMFEI Score is ≤ 6 , Then CLASS I PHWH STREAM

EVP001 Stream F sheet 16

PHWH STREAM BIOLOGICAL CHARACTERISTICS FIELD SHEET:

1. Fish: Voucher Specimens Retained? (circle) Y / N Time Spent (minutes): _____
 Sample Method _____ Stream Length Assessed (meters) _____

Species	Number Caught	Notes

2. Salamanders: Voucher Specimens Retained? (circle) Y / N Time Spent (minutes): 30
 Sample Method VES Stream Length Assessed (meters) 61 (200 ft)

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

Notes on Vertebrates: no vertebrates were observed at this sample reach



Primary Headwater Habitat Evaluation Form

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

32

SITE NAME/LOCATION EVP001 - Shear 9 - 1AHE1 - 1
SITE NUMBER _____ RIVER BASIN Mad R DRAINAGE AREA (mi²) 1.05
LENGTH OF STREAM REACH (ft) 200 LAT. _____ LONG. _____ RIVER CODE _____ RIVER MILE _____
DATE 11/19/08 SCORER B. Carr 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 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)		☒ 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 pt)	
☐ GRAVEL (2-64 mm) (8 pts)	20	☐ MUCK (0 pts)	
☒ SAND (<2 mm) (6 pts)	60	☐ ARTIFICIAL (3 pts)	

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

0

(A) 9

(B) 3

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

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

☐ > 30 centimeters (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. 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 (> 9' 7" - 4' 8") (20 pts)	

COMMENTS

AVERAGE BANKFULL WIDTH (meters):

HHEI
Metric
PointsSubstrate
Max = 40

12

A + B

Pool Depth
Max = 30

0

Bankfull
Width
Max=30

20

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

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

RIPARIAN WIDTH

FLOODPLAIN QUALITY

L R (Per Bank)

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

COMMENTS

L R (Most Predominant per Bank)

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

L R

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

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

☐ Stream Flowing☐ Subsurface flow with isolated pools (Interstitial)

COMMENTS

☒ Moist Channel, isolated pools, no flow (Intermittent)☐ Dry channel, no water (Ephemeral)

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

☐ None☒ 0.5☐ 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)Modified Class II
intermittent

ADDITIONAL 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: Champaign Township / City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: _____ Quantity: _____

Photograph Information: YES

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)

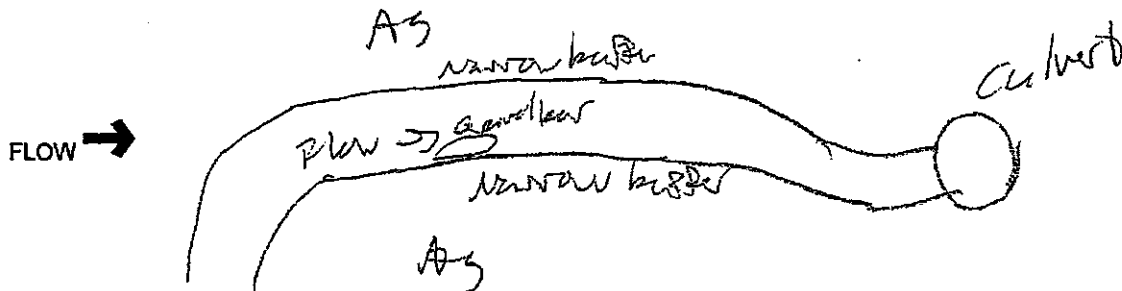
Fish Observed? (Y/N) N Voucher? (Y/N) _____ Salamanders Observed? (Y/N) N Voucher? (Y/N) _____
Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) _____

Comments Regarding Biology: _____

NO WATER / HMPFI NOT PERFORMED

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

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



photos 96-97

WWH

STREAM J-2



Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: (72)

Stream & Location: UT to DUGAN RUN

RM: _____ Date: 01/11/11

Scorers Full Name & Affiliation: B. FALKENBURG - HULL

River Code: _____ STORET #: _____

Lat/Long: 40.12997183.65464 Office Verified location ☐

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

BEST TYPES		OTHER TYPES		Check ONE (Or 2 & average)	
POOL RIFFLE		POOL RIFFLE		ORIGIN	
☐ BEDROCK/SLAB	☐ POOL RIFFLE	☐ HARDPAN	☐ POOL RIFFLE	☐ LIMESTONE	☐ SILT
☐ BOULDER	☐ POOL RIFFLE	☐ DETRITUS	☐ POOL RIFFLE	☐ TUS	☐ EMBEDDEDNESS
☒ COBBLE	<u>75</u>	☐ MUCK	<u>1</u>	☐ WE'LANDS	☐ SUBSTRATE
☒ GRAVEL	<u>15</u>	☐ SILT	<u>4</u>	☐ HARDPAN	☐ MODERATE
☐ SAND	<u>5</u>	☐ ARTIFICIAL		☐ SANDSTONE	☐ NORMAL
☐ BEDROCK				☐ RIP/RAP	☐ EXTENSIVE
				☐ FACIUM	☐ MODERATE
				☐ SHALE	☐ NORMAL
				☐ COALINE	☐ NONE

(Score natural substrates; ignore sludge from point-sources)

NUMBER OF BEST TYPES: 8 + 7 + 2 + 1 + 0 + 0 = 19

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.

AMOUNT	
Check ONE (Or 2 & average)	
☐ UNDERGUT BANKS	☐ EXCESSIVE
☐ OVERHANGING VEGETATION	☐ MODERATE
☐ SHALLOWS (IN SLOW WATER)	☐ SPARSE
☐ ROOTWADS	☐ NEARLY ABSENT
☐ BOULDERS	
☐ LOGS OR WOODY DEBRIS	

Comments: _____

1 + 1 + 2 + 1 + 1 + 1 + 7 = 14

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

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH	☐ EXCELLENT	☐ NONE	☐ HIGH
☐ MODERATE	☐ GOOD	☐ RECOVERED	☐ MODERATE
☐ LOW	☐ FAIR	☐ RECOVERING	☐ LOW
☐ NONE	☐ MOD	☐ RECENT OR NO RECOVERY	

Comments: _____

4 + 5 + 6 + 2 = 17

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

EROSION		RIPARIAN WIDTH		FLOOD PLAIN QUALITY	
☐ NONE	☐ MODERATE	☐ WIDE	☐ MODERATE	☐ FOREST / SWAMP	☐ CONSERVATION
☐ MODERATE	☐ MODERATE	☐ MODERATE	☐ MODERATE	☐ SHRUB / OLD FIELD	☐ URBAN / INDUSTRIAL
☐ HEAVY / SEVERE	☐ MODERATE	☐ NARROW	☐ MODERATE	☐ RESIDENTIAL / PARK / NEW FIELD	☐ MINING / CONSTRUCTION
		☐ VERY NARROW	☐ MODERATE	☐ FENCED PASTURE	
		☐ NONE	☐ MODERATE	☐ OPEN PASTURE / ROW CROPS	

Comments: _____

2 + 3 + (2/2) = 6

5) **POOL / GLIDE AND RIFFLE / RUN QUALITY**

MAXIMUM DEPTH	CHANNEL WIDTH	CURRENT VELOCITY	Recreation Potential Primary Contact Secondary Contact (circle one and comment on back)
Check ONE (ONLY)	Check ONE (Or 2 & average)	Check ALL that apply	
☐ 1m	☐ POOL WIDTH > RIFFLE WIDTH	☐ TORRENTIAL	
☐ 0.5m	☐ POOL WIDTH < RIFFLE WIDTH	☐ VERY FAST	
☐ 0.2m	☐ POOL WIDTH < RIFFLE WIDTH	☐ CASUAL	
☐ 0.1m	☐ POOL WIDTH < RIFFLE WIDTH	☐ MODERATE	
		☐ SLOW	
		☐ INTERSTITIAL	
		☐ INTERMITTENT	
		☐ POOL	

Comments: _____

4 + 2 + 1 = 7

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS
☐ BEST AREAS	☐ MAXIMUM > 50cm	☐ STABLE (FINE COBBLE / Boulders)	☐ NONE
☐ BEST AREAS	☐ MAXIMUM > 50cm	☐ MOD STABLE (fine gravel / sand)	☐ LOW
☐ BEST AREAS	☐ MAXIMUM > 50cm	☐ UNSTABLE (fine gravel / sand)	☐ MODERATE
			☐ EXTENSIVE

Comments: _____

1 + 1 + 2 + 1 = 5

6) **GRADIENT**

DRAINAGE AREA	% POOL	% GLIDE	% RUN	% RIFFLE
<u>0.65 m²</u>	<u>35</u>	<u>20</u>	<u>10</u>	<u>35</u>



Primary Headwater Habitat Evaluation Form

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

16

SITE NAME/LOCATION STREAM K - C/L CAPE PATH - UT Dugan Run
UT Dugan Run SITE NUMBER _____ RIVER BASIN _____ DRAINAGE AREA (mi²) 0.24
LENGTH OF STREAM REACH (ft) _____ LAT. 40.1279 LONG. 83.6748 RIVER CODE _____ RIVER MILE _____
DATE 6/28/2011 SCORER B. FALKENBERG COMMENTS DRY

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) (NO RECOVERY)
MODIFICATIONS _____

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
☐ BEDROCK (>63 mm)	_____	☐ SILT (<63 µm)	_____
☐ Boulders (>250 mm)	_____	☐ Leaf Pack/Wood Debris	_____
☐ Bedrock (<63 mm)	_____	☐ Fine Detritus	_____
☐ Cobble (63-250 mm)	_____	☒ Gravel (2-63 mm)	<u>100</u>
☐ Gravel (<2 mm)	_____	☐ Muck/Sludge	_____
☐ Sand (<2 mm)	_____	☐ Artificial	_____

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

(A) 0

(B) 1

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI Metric Points

Substrate Max = 40

1

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):

☐ 0-10 cm (0-10 in)	☐ 10-20 cm (10-20 in)
☐ 20-30 cm (20-30 in)	☐ 30-40 cm (30-40 in)
☐ 40-50 cm (40-50 in)	☐ 50-60 cm (50-60 in)
☐ 60-70 cm (60-70 in)	☐ 70-80 cm (70-80 in)
☐ 80-90 cm (80-90 in)	☐ 90-100 cm (90-100 in)
☐ 100-120 cm (100-120 in)	☐ 120-150 cm (120-150 in)
☐ 150-200 cm (150-200 in)	☐ 200-250 cm (200-250 in)
☐ 250-300 cm (250-300 in)	☐ 300-400 cm (300-400 in)
☐ 400-500 cm (400-500 in)	☐ 500-600 cm (500-600 in)
☐ 600-700 cm (600-700 in)	☐ 700-800 cm (700-800 in)
☐ 800-900 cm (800-900 in)	☐ 900-1000 cm (900-1000 in)
☐ 1000-1200 cm (1000-1200 in)	☐ 1200-1500 cm (1200-1500 in)
☐ 1500-2000 cm (1500-2000 in)	☐ 2000-2500 cm (2000-2500 in)
☐ 2500-3000 cm (2500-3000 in)	☐ 3000-4000 cm (3000-4000 in)
☐ 4000-5000 cm (4000-5000 in)	☐ 5000-6000 cm (5000-6000 in)
☐ 6000-7000 cm (6000-7000 in)	☐ 7000-8000 cm (7000-8000 in)
☐ 8000-9000 cm (8000-9000 in)	☐ 9000-10000 cm (9000-10000 in)
☐ 10000-12000 cm (10000-12000 in)	☐ 12000-15000 cm (12000-15000 in)
☐ 15000-20000 cm (15000-20000 in)	☐ 20000-25000 cm (20000-25000 in)
☐ 25000-30000 cm (25000-30000 in)	☐ 30000-40000 cm (30000-40000 in)
☐ 40000-50000 cm (40000-50000 in)	☐ 50000-60000 cm (50000-60000 in)
☐ 60000-70000 cm (60000-70000 in)	☐ 70000-80000 cm (70000-80000 in)
☐ 80000-90000 cm (80000-90000 in)	☐ 90000-100000 cm (90000-100000 in)
☐ 100000-120000 cm (100000-120000 in)	☐ 120000-150000 cm (120000-150000 in)
☐ 150000-200000 cm (150000-200000 in)	☐ 200000-250000 cm (200000-250000 in)
☐ 250000-300000 cm (250000-300000 in)	☐ 300000-400000 cm (300000-400000 in)
☐ 400000-500000 cm (400000-500000 in)	☐ 500000-600000 cm (500000-600000 in)
☐ 600000-700000 cm (600000-700000 in)	☐ 700000-800000 cm (700000-800000 in)
☐ 800000-900000 cm (800000-900000 in)	☐ 900000-1000000 cm (900000-1000000 in)
☐ 1000000-1200000 cm (1000000-1200000 in)	☐ 1200000-1500000 cm (1200000-1500000 in)
☐ 1500000-2000000 cm (1500000-2000000 in)	☐ 2000000-2500000 cm (2000000-2500000 in)
☐ 2500000-3000000 cm (2500000-3000000 in)	☐ 3000000-4000000 cm (3000000-4000000 in)
☐ 4000000-5000000 cm (4000000-5000000 in)	☐ 5000000-6000000 cm (5000000-6000000 in)
☐ 6000000-7000000 cm (6000000-7000000 in)	☐ 7000000-8000000 cm (7000000-8000000 in)
☐ 8000000-9000000 cm (8000000-9000000 in)	☐ 9000000-10000000 cm (9000000-10000000 in)
☐ 10000000-12000000 cm (10000000-12000000 in)	☐ 12000000-15000000 cm (12000000-15000000 in)
☐ 15000000-20000000 cm (15000000-20000000 in)	☐ 20000000-25000000 cm (20000000-25000000 in)
☐ 25000000-30000000 cm (25000000-30000000 in)	☐ 30000000-40000000 cm (30000000-40000000 in)
☐ 40000000-50000000 cm (40000000-50000000 in)	☐ 50000000-60000000 cm (50000000-60000000 in)
☐ 60000000-70000000 cm (60000000-70000000 in)	☐ 70000000-80000000 cm (70000000-80000000 in)
☐ 80000000-90000000 cm (80000000-90000000 in)	☐ 90000000-100000000 cm (90000000-100000000 in)
☐ 100000000-120000000 cm (100000000-120000000 in)	☐ 120000000-150000000 cm (120000000-150000000 in)
☐ 150000000-200000000 cm (150000000-200000000 in)	☐ 200000000-250000000 cm (200000000-250000000 in)
☐ 250000000-300000000 cm (250000000-300000000 in)	☐ 300000000-400000000 cm (300000000-400000000 in)
☐ 400000000-500000000 cm (400000000-500000000 in)	☐ 500000000-600000000 cm (500000000-600000000 in)
☐ 600000000-700000000 cm (600000000-700000000 in)	☐ 700000000-800000000 cm (700000000-800000000 in)
☐ 800000000-900000000 cm (800000000-900000000 in)	☐ 900000000-1000000000 cm (900000000-1000000000 in)
☐ 1000000000-1200000000 cm (1000000000-1200000000 in)	☐ 1200000000-1500000000 cm (1200000000-1500000000 in)
☐ 1500000000-2000000000 cm (1500000000-2000000000 in)	☐ 2000000000-2500000000 cm (2000000000-2500000000 in)
☐ 2500000000-3000000000 cm (2500000000-3000000000 in)	☐ 3000000000-4000000000 cm (3000000000-4000000000 in)
☐ 4000000000-5000000000 cm (4000000000-5000000000 in)	☐ 5000000000-6000000000 cm (5000000000-6000000000 in)
☐ 6000000000-7000000000 cm (6000000000-7000000000 in)	☐ 7000000000-8000000000 cm (7000000000-8000000000 in)
☐ 8000000000-9000000000 cm (8000000000-9000000000 in)	☐ 9000000000-10000000000 cm (9000000000-10000000000 in)
☐ 10000000000-12000000000 cm (10000000000-12000000000 in)	☐ 12000000000-15000000000 cm (12000000000-15000000000 in)
☐ 15000000000-20000000000 cm (15000000000-20000000000 in)	☐ 20000000000-25000000000 cm (20000000000-25000000000 in)
☐ 25000000000-30000000000 cm (25000000000-30000000000 in)	☐ 30000000000-40000000000 cm (30000000000-40000000000 in)
☐ 40000000000-50000000000 cm (40000000000-50000000000 in)	☐ 50000000000-60000000000 cm (50000000000-60000000000 in)
☐ 60000000000-70000000000 cm (60000000000-70000000000 in)	☐ 70000000000-80000000000 cm (70000000000-80000000000 in)
☐ 80000000000-90000000000 cm (80000000000-90000000000 in)	☐ 90000000000-100000000000 cm (90000000000-100000000000 in)
☐ 100000000000-120000000000 cm (100000000000-120000000000 in)	☐ 120000000000-150000000000 cm (120000000000-150000000000 in)
☐ 150000000000-200000000000 cm (150000000000-200000000000 in)	☐ 200000000000-250000000000 cm (200000000000-250000000000 in)
☐ 250000000000-300000000000 cm (250000000000-300000000000 in)	☐ 300000000000-400000000000 cm (300000000000-400000000000 in)
☐ 400000000000-500000000000 cm (400000000000-500000000000 in)	☐ 500000000000-600000000000 cm (500000000000-600000000000 in)
☐ 600000000000-700000000000 cm (600000000000-700000000000 in)	☐ 700000000000-800000000000 cm (700000000000-800000000000 in)
☐ 800000000000-900000000000 cm (800000000000-900000000000 in)	☐ 900000000000-1000000000000 cm (900000000000-1000000000000 in)
☐ 1000000000000-1200000000000 cm (1000000000000-1200000000000 in)	☐ 1200000000000-1500000000000 cm (1200000000000-1500000000000 in)
☐ 1500000000000-2000000000000 cm (1500000000000-2000000000000 in)	☐ 2000000000000-2500000000000 cm (2000000000000-2500000000000 in)
☐ 2500000000000-3000000000000 cm (2500000000000-3000000000000 in)	☐ 3000000000000-4000000000000 cm (3000000000000-4000000000000 in)
☐ 4000000000000-5000000000000 cm (4000000000000-5000000000000 in)	☐ 5000000000000-6000000000000 cm (5000000000000-6000000000000 in)
☐ 6000000000000-7000000000000 cm (6000000000000-7000000000000 in)	☐ 7000000000000-8000000000000 cm (7000000000000-8000000000000 in)
☐ 8000000000000-9000000000000 cm (8000000000000-9000000000000 in)	☐ 9000000000000-10000000000000 cm (9000000000000-10000000000000 in)
☐ 10000000000000-12000000000000 cm (10000000000000-12000000000000 in)	☐ 12000000000000-15000000000000 cm (12000000000000-15000000000000 in)
☐ 15000000000000-20000000000000 cm (15000000000000-20000000000000 in)	☐ 20000000000000-25000000000000 cm (20000000000000-25000000000000 in)
☐ 25000000000000-30000000000000 cm (25000000000000-30000000000000 in)	☐ 30000000000000-40000000000000 cm (30000000000000-40000000000000 in)
☐ 40000000000000-50000000000000 cm (40000000000000-50000000000000 in)	☐ 50000000000000-60000000000000 cm (50000000000000-60000000000000 in)
☐ 60000000000000-70000000000000 cm (60000000000000-70000000000000 in)	☐ 70000000000000-80000000000000 cm (70000000000000-80000000000000 in)
☐ 80000000000000-90000000000000 cm (80000000000000-90000000000000 in)	☐ 90000000000000-100000000000000 cm (90000000000000-100000000000000 in)
☐ 100000000000000-120000000000000 cm (100000000000000-120000000000000 in)	☐ 120000000000000-150000000000000 cm (120000000000000-150000000000000 in)
☐ 150000000000000-200000000000000 cm (150000000000000-200000000000000 in)	☐ 200000000000000-250000000000000 cm (200000000000000-250000000000000 in)
☐ 250000000000000-300000000000000 cm (250000000000000-300000000000000 in)	☐ 300000000000000-400000000000000 cm (300000000000000-400000000000000 in)
☐ 400000000000000-500000000000000 cm (400000000000000-500000000000000 in)	☐ 500000000000000-600000000000000 cm (500000000000000-600000000000000 in)
☐ 600000000000000-700000000000000 cm (600000000000000-700000000000000 in)	☐ 700000000000000-800000000000000 cm (700000000000000-800000000000000 in)
☐ 800000000000000-900000000000000 cm (800000000000000-900000000000000 in)	☐ 900000000000000-1000000000000000 cm (900000000000000-1000000000000000 in)
☐ 1000000000000000-1200000000000000 cm (1000000000000000-1200000000000000 in)	☐ 1200000000000000-1500000000000000 cm (1200000000000000-1500000000000000 in)
☐ 1500000000000000-2000000000000000 cm (1500000000000000-2000000000000000 in)	☐ 2000000000000000-2500000000000000 cm (2000000000000000-2500000000000000 in)
☐ 2500000000000000-3000000000000000 cm (2500000000000000-3000000000000000 in)	☐ 3000000000000000-4000000000000000 cm (3000000000000000-4000000000000000 in)
☐ 4000000000000000-5000000000000000 cm (4000000000000000-5000000000000000 in)	☐ 5000000000000000-6000000000000000 cm (5000000000000000-6000000000000000 in)
☐ 6000000000000000-7000000000000000 cm (6000000000000000-7000000000000000 in)	☐ 7000000000000000-8000000000000000 cm (7000000000000000-8000000000000000 in)
☐ 8000000000000000-9000000000000000 cm (8000000000000000-9000000000000000 in)	☐ 9000000000000000-10000000000000000 cm (9000000000000000-10000000000000000 in)
☐ 10000000000000000-12000000000000000 cm (10000000000000000-12000000000000000 in)	☐ 12000000000000000-15000000000000000 cm (12000000000000000-15000000000000000 in)
☐ 15000000000000000-20000000000000000 cm (15000000000000000-20000000000000000 in)	☐ 20000000000000000-25000000000000000 cm (20000000000000000-25000000000000000 in)
☐ 25000000000000000-30000000000000000 cm (25000000000000000-30000000000000000 in)	☐ 30000000000000000-40000000000000000 cm (30000000000000000-40000000000000000 in)
☐ 40000000000000000-50000000000000000 cm (40000000000000000-50000000000000000 in)	☐ 50000000000000000-60000000000000000 cm (50000000000000000-60000000000000000 in)
☐ 60000000000000000-70000000000000000 cm (60000000000000000-70000000000000000 in)	☐ 70000000000000000-80000000000000000 cm (70000000000000000-80000000000000000 in)
☐ 80000000000000000-90000000000000000 cm (80000000000000000-90000000000000000 in)	☐ 90000000000000000-100000000000000000 cm (90000000000000000-100000000000000000 in)
☐ 100000000000000000-120000000000000000 cm (100000000000000000-120000000000000000 in)	☐ 120000000000000000-150000000000000000 cm (120000000000000000-150000000000000000 in)
☐ 150000000000000000-20000000000	

STREAM K

ADDITIONAL 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: Dagan Run Distance from Evaluated Stream: 1.064 mi
☐ 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: Kings Creek NRCS Soil Map Page: 41 NRCS Soil Map Stream Order: 2
 County: Champaign Township / City: Union / Urbana

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: w/1 wk.. Quantity: ?
 Photograph Information: YES
 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: _____

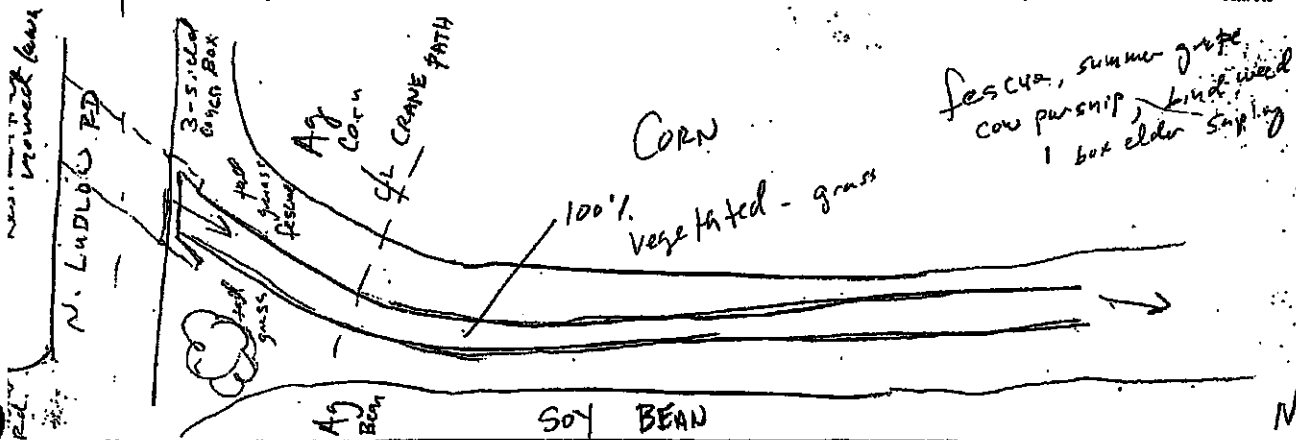
Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
 Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N
 Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N
 Comments Regarding Biology: NONE

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (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 L

Primary Headwater Habitat Evaluation Form

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

46

SITE NAME/LOCATION EVPOD1 SPECT 11a - 14482-1

SITE NUMBER 1

RIVER BASIN

DRAINAGE AREA (mi²) 1.95

LENGTH OF STREAM REACH (ft) 200

LAT.

LONG.

RIVER CODE

RIVER MILE

DATE 11/19/05

SCORER SMH, KC

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 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)		☐ SILT (3 pts)	
☐ BOULDER (>256 mm) [16 pts]		☐ LEAF PACK/WOODY DEBRIS (3 pts)	
☐ BEDROCK (16 pts)		☐ FINE DETRITUS (3 pts)	
☒ COBBLE (65-256 mm) [12 pts]	<u>30</u>	☐ CLAY or HARDPAN (0 pts)	
☐ GRAVEL (2-64 mm) [9 pts]	<u>25</u>	☐ MUCK (0 pts)	
☒ SAND (<2 mm) [6 pts]	<u>45</u>	☐ ARTIFICIAL (3 pts)	

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

30%

(A)

18

(B)

3

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

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]	☐ > 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 ~ 12" pool depths estimated

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]	☐ < 1.0 m (< 3' 3") [5 pts]
☐ > 1.5 m - 3.0 m (> 4' 7" - 9' 7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

3.5

Bankfull
Width
Max=30

25

This information must also be completed

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

RIPARIAN WIDTH

☒ L ☒ R (Per Bank)	
☒ Wide >10m	
☐ Moderate 5-10m	
☐ Narrow <5m	
☐ None	

COMMENTS

FLOODPLAIN QUALITY

☐ L ☐ R (Most Predominant per Bank)	
☐ Mature Forest, Wetland	
☒ Immature Forest, Shrub or Old Field	
☐ Residential, Park, New Field	
☐ Fenced Pasture	

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

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

☐ Stream Flowing	☒ Moist Channel, isolated pools, no flow (Intermittent)
☐ Subsurface flow with isolated pools (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)

Class II
intermittent

ADDITIONAL 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: Champaign Township / City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 11/18/08 Quantity: 21"

Photograph Information: yes

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

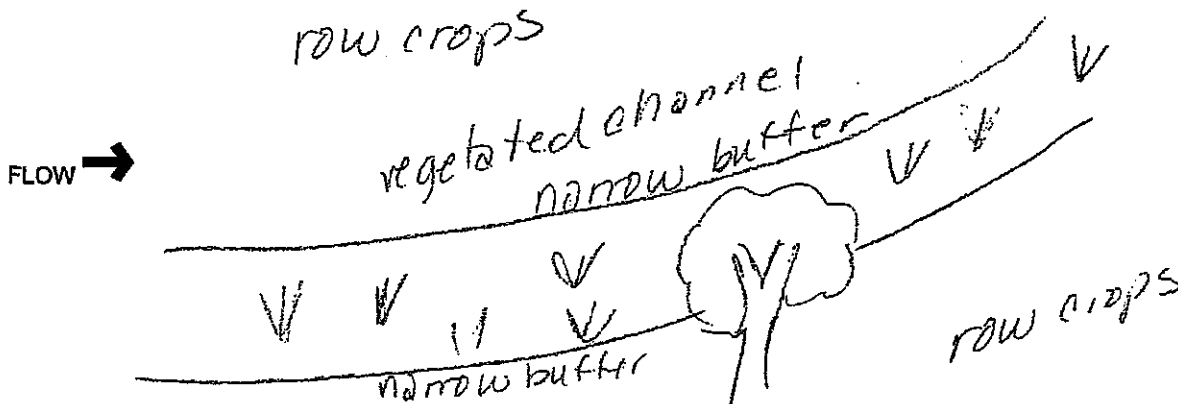
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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: -stream dry at time of evaluation

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

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





Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

STREAM L

QHEI Score: **51.5**

Stream & Location: Little Darby Creek - DRY CHANNEL

RM: _____ Date: 6/30/11

Scorers Full Name & Affiliation: BRAD FALKENBERG / HULL

River Code: _____ STORET #: _____

Lat./Long.: 40.0985 183.5915

Office verified location ☐

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

Check ONE (Or 2 & average)

BEST TYPES		OTHER TYPES		ORIGIN		QUALITY	
☐ BEDROCK/SLABS (1)	☒ POOL RIFFLE	☐ HARDPAN (4)	☒ POOL RIFFLE	☐ LIMESTONE (1)	☒ SILT	☐ HEAVY (1)	☒ Substrate
☐ BOULDER (9)	☒	☐ DETRITUS (3)	☐	☐ TILES (1)	☒	☐ MODERATE (1)	☒
☐ COBBLE (8)	☒	☐ MUCK (2)	☐	☐ WETLANDS (1)	☒	☐ NORMAL (1)	☒
☐ GRAVEL (7)	☒	☐ SILT (2)	☒	☐ HARDPAN (1)	☒	☐ FREE (1)	☒
☐ SAND (6)	☒	☐ ARTIFICIAL (5)	☐	☐ SANDSTONE (1)	☒	☐ EXTENSIVE (1)	☒
☐ BEDROCK (5)	☒	(Score natural substrates; ignore sludge from point-sources)	☐	☐ RIPRAP (1)	☒	☐ MODERATE (1)	☒
				☐ LACUSTURINE (1)	☒	☐ NORMAL (1)	☒
				☐ SHALE (1)	☒	☐ NONE (1)	☒
				☐ COALFINES (1)	☒		

NUMBER OF BEST TYPES: 2 + 7 + 6 + 1 + 0 + 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.

Check ONE (Or 2 & average)

AMOUNT	
☒ UNDERCLIFF BANKS (1)	☒ EXCESSIVE (75%+)
☒ OVERHANGING VEGETATION (1)	☒ MODERATE (25-75%)
☒ SHALLOWS IN SLOW WATER (1)	☒ SPARSE (2-25%)
☒ ROOTWADS (1)	☒ NEARLY ABSENT (5-10%)
☐ POLES / LOGS (2)	
☐ ROOTWADS (1)	
☐ BOULDERS (1)	
☒ OXBOWS / BACKWATERS (1)	
☒ AQUATIC MACROPHYTES (1)	
☒ LOGS OR WOODY DEBRIS (1)	

Comments

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

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

EROSION		RIPARIAN WIDTH		FLOOD PLAIN QUALITY	
☒ NONE / MINOR (1)	☒ MODERATE (10-50m)	☒ WIDE > 50m (4)	☒ MODERATE (10-50m)	☒ FOREST / SWAMP (3)	☒ CONSERVATION / TILAGE (1)
☐ MODERATE (2)	☐ NARROW < 10m (2)	☐ MODERATE (10-50m)	☐ NARROW < 10m (2)	☐ SHRUB OR OLD FIELD (2)	☐ URBAN OR INDUSTRIAL (1)
☐ HEAVY / SEVERE (1)	☐ VERY NARROW < 5m (1)	☐ NONE (1)	☐ NONE (1)	☐ RESIDENTIAL / PARK / NEW FIELD (1)	☐ MINING / CONSTRUCTION (1)
				☐ FENCED PASTURE (1)	
				☐ OPEN PASTURE / ROW CROP (1)	

Comments

5) POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH		CHANNEL WIDTH		CURRENT VELOCITY		Recreation Potential Primary Contact Secondary Contact (circle one and comment on back)
Check ONE (ONLY)	Check ONE (Or 2 & average)	Check ONE (Or 2 & average)	Check ALL that apply			
☐ 0-1m (1)	☐ POOL WIDTH < RIFFLE WIDTH (2)	☐ TORRENTIAL (1)	☐ SLOW (1)			
☐ 0.1-0.5m (1)	☐ POOL WIDTH = RIFFLE WIDTH (1)	☐ VERY FAST (1)	☒ INTERMITTENT (1)			
☐ 0.5-1m (1)	☒ POOL WIDTH > RIFFLE WIDTH (1)	☐ FAST (1)	☐ INTERMITTENT (2)			
☐ 1-2m (1)		☐ MODERATE (1)	☐ EDDIES (1)			

Comments

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 5-50cm (1)	☐ MOD. STABLE (e.g. Large Gravel) (1)	☐ LOW (1)
☒ BEST AREAS < 5cm (1)		☐ UNSTABLE (e.g. Fine Gravel, Sand) (1)	☐ MODERATE (1)
			☐ EXTENSIVE (1)

Comments

6) GRADIENT

DRAINAGE AREA	% POOL	% GLIDE	% RUN	% RIFFLE	Gradient Maximum
(2.04 m ²)	0	0	0	0	4



Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score:

46.5

Stream & Location: East Fork Buck Creek

RM:

Date: 5/21/08

Scorers Full Name & Affiliation: K. Carr - Hull

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		OTHER TYPES		ORIGIN		QUALITY	
☐ BLDR / SLABS [10]	☐ POOL RIFFLE	☐ HARDPAN [4]	☐ POOL RIFFLE	☐ LIMESTONE [1]	☐ SILT	☐ HEAVY [-2]	Substrate 7 Maximum 20
☐ BOULDER [9]	☐ GRAVEL [7]	☐ DETRITUS [3]	☐ MUCK [2]	☒ TILLS [1]	☐ WETLANDS [0]	☒ MODERATE [-1]	
☒ COBBLE [6]	☐ SAND [6]	☐ SILT [2]	☐ ARTIFICIAL [0]	☐ HARDPAN [0]	☐ SANDSTONE [0]	☐ FREE [1]	
☐ BEDROCK [5]				☐ RIP/RAP [0]	☐ LACUSTURINE [0]	☒ EXTENSIVE [-2]	
				☐ SHALE [-1]	☐ COAL FINES [-2]	☒ MODERATE [-1]	

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

Comments: 44.5

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

Check ONE (Or 2 & average)

☐ EXTENSIVE > 75% [11]

☐ MODERATE 25-75% [7]

☒ SPARSE 5-25% [3]

☐ NEARLY ABSENT < 5% [1]

Comments: 8

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

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [5]	☐ 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: 2, 4, 3.5, 2

Channel Maximum 20: 11.5

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

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

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

Comments: 3, 2, 0

Riparian Maximum 10: 5

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH	CHANNEL WIDTH	CURRENT VELOCITY	Recreation Potential
Check ONE (ONLY)	Check ONE (Or 2 & average)	Check ALL that apply	Primary Contact
☐ > 1m [6]	☒ POOL WIDTH > RIFFLE WIDTH [2]	☒ TORRENTIAL [-1]	Secondary Contact
☐ 0.7-1m [4]	☐ POOL WIDTH = RIFFLE WIDTH [1]	☐ VERY FAST [1]	
☒ 0.4-0.7m [2]	☐ POOL WIDTH < RIFFLE WIDTH [0]	☐ FAST [1]	
☐ 0.2-0.4m [1]		☒ MODERATE [1]	
☐ < 0.2m [0]		☐ INTERSTITIAL [-1]	
		☐ INTERMITTENT [-2]	
		☐ EDDIES [1]	

Indicate for reach - pools and riffles.

Comments: 2, 2, 2

Pool / Current Maximum 12: 6

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

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: 1, 1, 0

Riffle / Run Maximum 8: 3

6] GRADIENT (8.82 ft/mi)

DRAINAGE AREA (4.4 m²)

☐ VERY LOW - LOW [2-4]
☒ MODERATE [5-10]
☐ HIGH - VERY HIGH [10-6]

% POOL: 40

% GLIDE: 10

% RUN: 20

% RIFFLE: 30

Gradient Maximum 10: 6

strm length b/w contour lines = 1.02 mi
elev. drop = 1089 - 1080 = 9 ft
9' / 1.02 mi = 8.82 ft/mi

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

1st sample pass- 2nd

- ☐ BOAT
- ☒ WADE
- ☐ LINE
- ☐ OTHER
- ☐ DISTANCE
- ☐ 0.5 Km
- ☐ 0.2 Km
- ☐ 0.15 Km
- ☐ 0.12 Km
- ☐ OTHER

CLARITY

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

200 meters

CANOPY

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

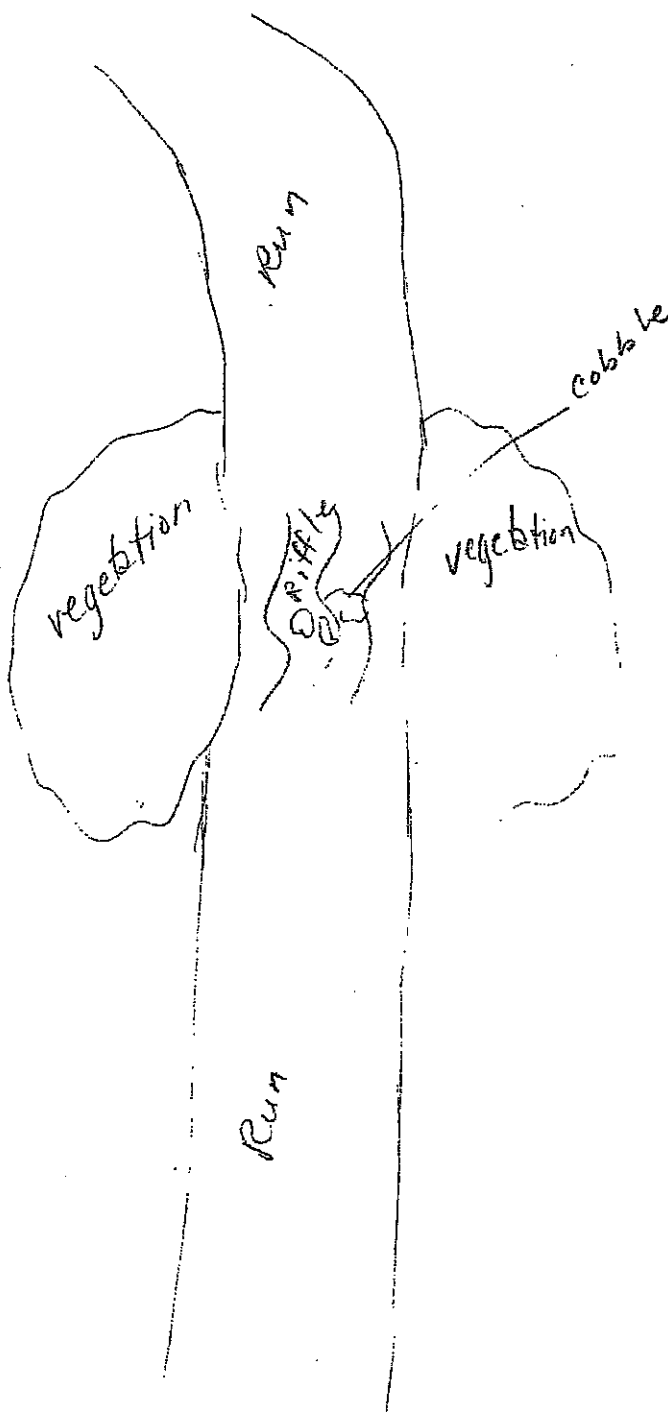
C) RECREATION

AREA DEPTH

POOL: ☐ > 100R2 ☐ > 3R

Flow →

Stream Drawing:



F) MEASUREMENTS

- ☐ width
- ☐ depth
- ☐ max. depth
- ☐ bankfull width
- ☐ bankfull x depth
- ☐ W/D ratio
- ☐ bankfull max. depth
- ☐ floodprone x width
- ☐ entrench. ratio
- ☐ Legacy Tree:

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

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

B) AESTHETICS

- NUISANCE ALGAE
- INVASIVE MACROPHYTES
- EXCESS TURBIDITY
- DISCOLORATION
- FOAM / SCUM
- OIL SHEEN
- TRASH / LITTER
- NUISANCE ODOR
- SLUDGE DEPOSITS
- CSO/ISSOS/OUTFALLS

photos 98-99

Mod WWH, but
designated CWH



Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

STREAM 0-2

QHEI Score: **39**

Stream & Location: EAST FORK BUCK CREEK - STR 02 RM: Date: 10/14/11

Scorer's Full Name & Affiliation: B. FALKENBURG - HULL

River Code: STORET #: Lat/Long: 40.0541483, 63.2253 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
☐ BEDROCK	☐ BEDROCK	☐ BEDROCK	☐ BEDROCK
☐ SAND	☐ SAND	☐ SAND	☐ SAND
☐ GRAVEL	☐ GRAVEL	☐ GRAVEL	☐ GRAVEL
☐ SILT	☐ SILT	☐ SILT	☐ SILT
☐ MUD	☐ MUD	☐ MUD	☐ MUD
☐ ORGANIC	☐ ORGANIC	☐ ORGANIC	☐ ORGANIC

NUMBER OF BEST TYPES: 14 + 0 + 1 + (-1) + (-1) = 13

Comments

Check ONE (Or 2 & average)

ORIGIN	QUALITY
☐ Limestone	☐ Heavy
☐ Sandstone	☐ Moderate
☐ Shale	☐ Poor
☐ Silt	☐ Excellent
☐ Mud	☐ Moderate
☐ Organic	☐ Poor

Substrate
13
Maximum 20

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

UNDERSTORY BANKS	OVERHANGING VEGETATION	SHALLOWS (IN SLOW WATER)	ROOTWADS	BOULDERS	LOGS	WOOD DEBRIS
☐ 0	☐ 0	☐ 0	☐ 0	☐ 0	☐ 0	☐ 0
☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1	☐ 1
☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2	☐ 2
☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3	☐ 3

Comments

Water cross, Potamogeton crispus

1 + 1 + 3 = 5

Cover
Maximum 20
5

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

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ High	☐ High	☐ High	☐ High
☐ Moderate	☐ Moderate	☐ Moderate	☐ Moderate
☐ Low	☐ Low	☐ Low	☐ Low
☐ None	☐ None	☐ None	☐ None

Comments

2 + 1 + 1 + 2 = 6

Channel
Maximum 20
6

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

EROSION	RIPARIAN WIDTH	FLOOD PLAIN QUALITY
☐ None	☐ None	☐ None
☐ Moderate	☐ Moderate	☐ Moderate
☐ Heavy	☐ Heavy	☐ Heavy
☐ Severe	☐ Severe	☐ Severe

Comments

3 + 1 + 1 = 5 Soy bean on both sides

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

Riparian
Maximum 10
5

5] **POOL / GLIDE AND RIFFLE / RUN QUALITY**

MAXIMUM DEPTH	CHANNEL WIDTH	CURRENT VELOCITY
☐ < 10cm	☐ < 10cm	☐ Torrential
☐ 10-20cm	☐ 10-20cm	☐ Vertical
☐ 20-30cm	☐ 20-30cm	☐ Fast
☐ 30-40cm	☐ 30-40cm	☐ Moderate
☐ 40-50cm	☐ 40-50cm	☐ Slow
☐ 50-60cm	☐ 50-60cm	☐ Very Slow

Comments

12", 13", 11" = ~30 cm = 0.3m 1 + 2 + 1 = 4

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:

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS
☐ Best	☐ Best	☐ Stable	☐ None
☐ Good	☐ Good	☐ Moderate	☐ Low
☐ Fair	☐ Fair	☐ Poor	☐ Moderate
☐ Poor	☐ Poor	☐ Unstable	☐ Excessive

Comments

No Riffle = 0

Riffle / Run
Maximum 8
0

6] **GRADIENT**

DRAINAGE AREA
(3.98 m²)

% POOL: % GLIDE:
% RUN: % RIFFLE:

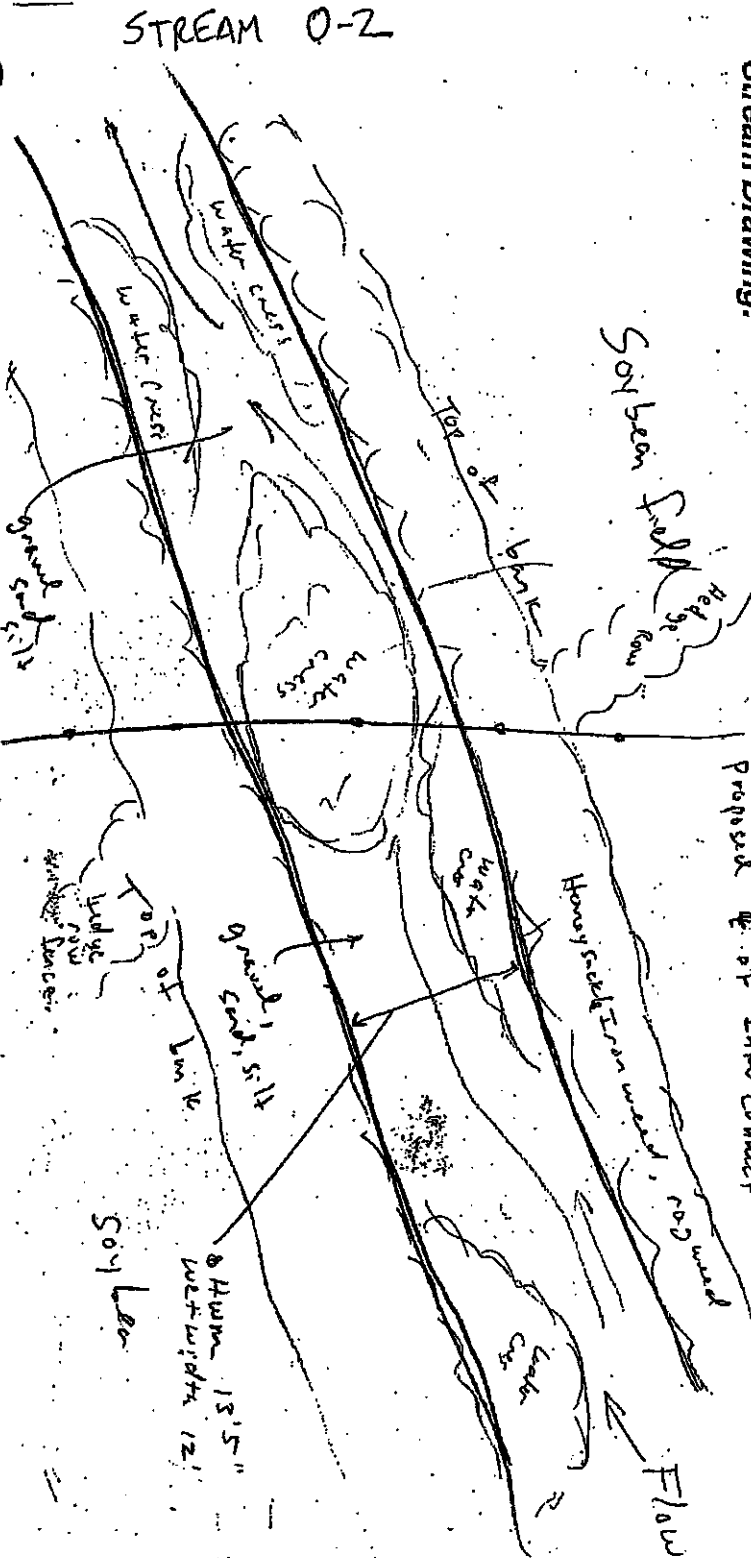
Gradient
Maximum 10
6

Check ALL that apply

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

[illegible]

Proposed E. of Interconnect





Primary Headwater Habitat Evaluation Form

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

19

SITE NAME/LOCATION EVA001, Map 18 Class 1 stream section
 SITE NUMBER 1 RIVER BASIN 1 DRAINAGE AREA (mi²) 0.07

LENGTH OF STREAM REACH (ft) 100 LAT. 40° 45' N LONG. 82° 45' W RIVER CODE 1 RIVER MILE 1.0
 DATE 5/22/08 SCORER HC COMMENTS most upstream reach

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 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
☐ BLDG SLABS [16 pts]		☒ SILT [3 pts]	
☐ 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]		☒ MUCK [0 pts]	
☐ SAND (<2 mm) [6 pts]		☐ ARTIFICIAL [3 pts]	

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

(A) 6

(B) 3

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

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

☐ > 30 centimeters [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. 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 (> 9' 7" - 4' 8") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

HHEI
Metric
Points

Substrate
Max = 40

9

A + B

Pool Depth
Max = 30

5

Bankfull
Width
Max=30

5

This information must also be completed

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

RIPARIAN WIDTH

L	R	(Per Bank)
☐	☐	Wide >10m
☐	☐	Moderate 5-10m
☒	☒	Narrow <5m
☐	☐	None

COMMENTS

FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)
☐	☐	Mature Forest, Wetland
☐	☐	Immature Forest, Shrub or Old Field
☒	☒	Residential, Park, New Field
☐	☐	Fenced Pasture

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

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

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

COMMENTS

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

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

STREAM GRADIENT ESTIMATE

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

no sinuosity = 1.0

ADDITIONAL 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: Mad River 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: VA Military District Lot 4186 NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: Champaign Township / City: Union Twp

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: May 20 Quantity: 1/2"

Photograph Information: EVPOOL. 300.0006. x15 photo # 24

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: this is the headwaters reach of this stream; representative of this reach.

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

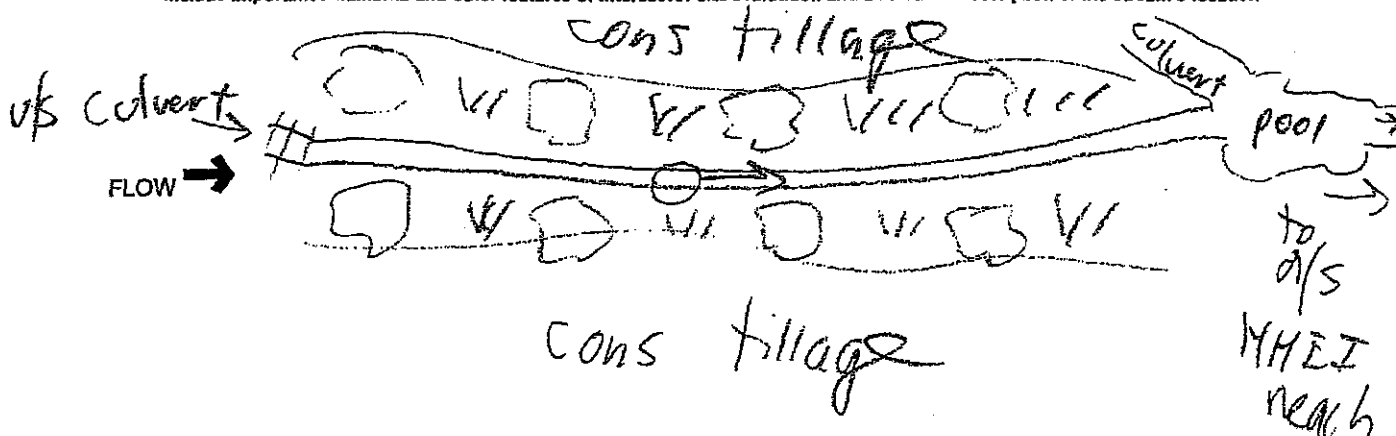
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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



Stream Q

HHEI 1 Turbine 70

Modified Class II



Primary Headwater Habitat Evaluation Form

EVP001

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

37

SITE NAME/LOCATION Stream Q SITE NUMBER 1 RIVER BASIN 1 DRAINAGE AREA (mi²) 1
 LENGTH OF STREAM REACH (ft) 200 LAT. 40° 15' N LONG. 81° 10' W RIVER CODE 1 RIVER MILE 1
 DATE 8/1/05 SCORER KRE, SML 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 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)				HHEI Metric Points
TYPE	PERCENT	TYPE	PERCENT	
☐ BLDR SLABS [16 pts]		☒ SILT [3 pts]	<u>100</u>	Substrate Max = 40 <u>9</u>
☐ BOULDER (>256 mm) [16 pts]		☐ LEAF PACK/WOODY DEBRIS [3 pts]		
☐ BEDROCK [16 pts]		☐ FINE DETRITUS [3 pts]		A + B
☐ COBBLE (65-256 mm) [12 pts]		☐ CLAY or HARDPAN [0 pt]		
☐ GRAVEL (2-64 mm) [9 pts]		☐ MUCK [0 pts]		Pool Depth Max = 30 <u>25</u>
☐ SAND (<2 mm) [8 pts]		☐ ARTIFICIAL [3 pts]		
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock <u>0</u>		(A) <u>6</u>	(B) <u>1</u>	Bankfull Width Max = 30 <u>5</u>
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:		TOTAL NUMBER OF SUBSTRATE TYPES:		
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):				Bankfull Width Max = 30 <u>5</u>
☐ > 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 <u></u> MAXIMUM POOL DEPTH (centimeters): <u></u>				Bankfull Width Max = 30 <u>5</u>
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 <u></u> AVERAGE BANKFULL WIDTH (meters): <u>7.5</u>				

This information must also be completed

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

RIPARIAN WIDTH		FLOODPLAIN QUALITY	
L	R	L	R
☐	☐ Wide >10m	☐	☐ Mature Forest, Wetland
☐	☐ Moderate 5-10m	☒	☒ Immature Forest, Shrub or Old Field
☒	☒ Narrow <5m	☐	☐ Residential, Park, New Field
☐	☐ None	☐	☐ 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 ☐ 1.0 ☒ 2.0 ☐ 3.0
☐ 0.5 ☐ 1.5 ☐ 2.5 ☐ >3

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

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

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

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____
☒ CWH Name: East For Buck Creek Distance from Evaluated Stream 0.2 mi
☐ 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: Champaign Township / City: Union Twp

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 8/10/09 Quantity: Unknown

Photograph Information: yes

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: A ditch / hedgerow, partially tiled along length

BIOTIC EVALUATION

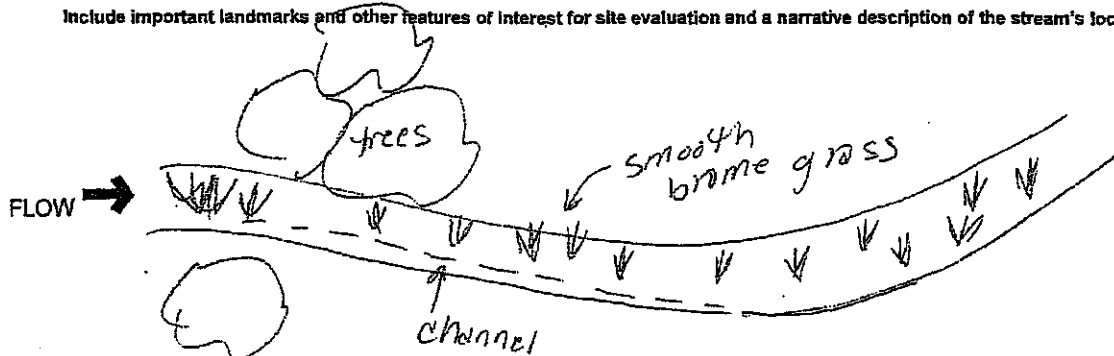
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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: none observed

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

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





Primary Headwater Habitat Evaluation Form

HHEI 2

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

43

Turbine 37 Stream R

Class II

SITE NAME/LOCATION

EVPO61

SITE NUMBER

RIVER BASIN

DRAINAGE AREA (mi²)

LENGTH OF STREAM REACH (ft)

200

LAT.

LONG.

RIVER CODE

RIVER MILE

DATE

8/11/04

SCORER

KC: SMH

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 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]		☐ 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]	40	☐ CLAY or HARDPAN [0 pt]	
☒ GRAVEL (2-64 mm) [9 pts]	25	☐ MUCK [0 pts]	
☒ SAND (<2 mm) [6 pts]	35	☐ ARTIFICIAL [3 pts]	

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

40

(A)

15

(B)

3

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

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

☐ > 30 centimeters [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. 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)

HHEI
Metric
Points

Substrate
Max = 40

18

A + B

Pool Depth
Max = 30

0

Bankfull
Width
Max=30

25

This information must also be completed

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

RIPARIAN WIDTH

FLOODPLAIN QUALITY

L	R	(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)

ADDITIONAL 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: Black Creek Distance from Evaluated Stream 7.2 mi
☐ 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: Chambers Township / City: Union Twp

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 8/10/09 Quantity: UNKNOWN

Photograph Information: VES

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:

Additional comments/description of pollution impacts: Severely eroded bank (~5' high),
indicate flashy flows

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)

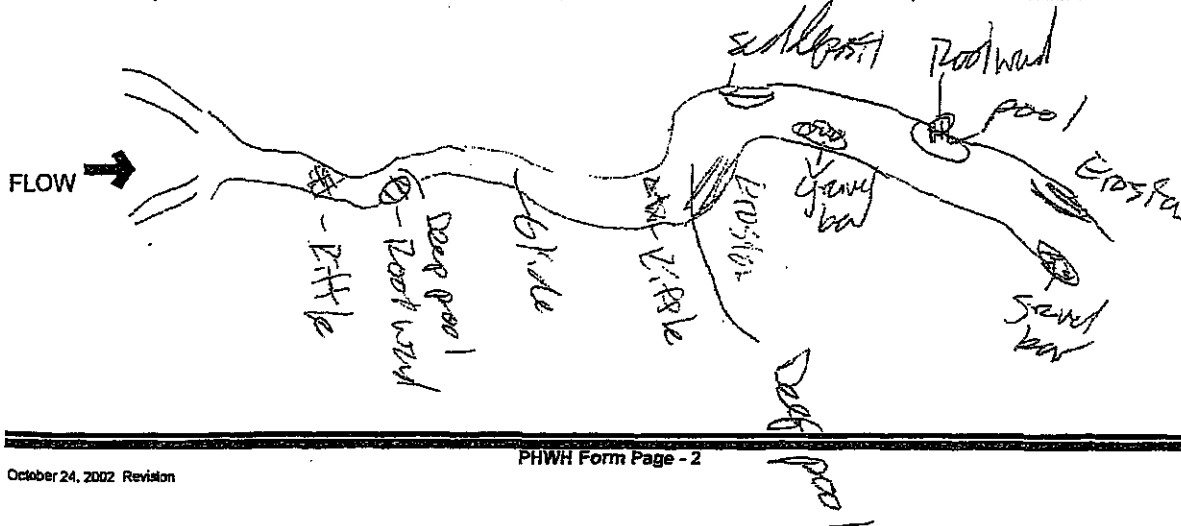
Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____
Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____

Comments Regarding Biology: _____

none observed

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

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





Turbine 18 Streams

Modified Class I

Primary Headwater Habitat Evaluation Form

HHEI 3

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

27

SITE NAME/LOCATION

SITE NUMBER

RIVER BASIN

DRAINAGE AREA (mi²)< 1 mi²

LENGTH OF STREAM REACH (ft)

200

LAT.

LONG.

RIVER CODE

RIVER MILE

DATE

8/12/09

SCORER

KC

COMMENTS

Agricultural Ditch

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

STREAM CHANNEL



NONE/NATURAL CHANNEL



RECOVERED



RECOVERING



RECENT OR NO RECOVERY

MODIFICATIONS:

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

TYPE
☐
☐
☐
☐
☐
☐
☐

Bldr Slabs (16 pts)
BOULDER (>256 mm) (16 pts)
BEDROCK (16 pt)
COBBLE (65-256 mm) (12 pts)
GRAVEL (2-64 mm) (9 pts)
SAND (<2 mm) (6 pts)

PERCENT

TYPE

☒
☐
☐
☐
☐
☐
☐

SILT (3 pt)
LEAF PACK/WOODY DEBRIS (3 pts)
FINE DETRITUS (3 pts)
CLAY or HARDPAN (0 pt)
MUCK (0 pts)
ARTIFICIAL (3 pts)

PERCENT

100

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

0

(A)

6

(B)

1

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI
Metric
PointsSubstrate
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):

6

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' 7" - 9' 7") (20 pts)

☐
☒
☐

> 1.0 m - 1.5 m (> 3' 3" - 4' 7") (15 pts)
< 1.0 m (< 3' 3") (5 pts)

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

0.74

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)

☐ ☐

Wide >10m

☐ ☐

Moderate 5-10m

☒ ☒

Narrow <5m

☐ ☐

None

L R
☐ ☐

(Most Predominant per Bank)

☐ ☐

Mature Forest, Wetland

☐ ☐

Immature Forest, Shrub or Old

☐ ☐

Field

☐ ☐

Residential, Park, New Field

☐ ☐

Fenced Pasture

L R
☐ ☐

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



1.0



2.0



3.0



0.5



1.5



2.5



>3

STREAM GRADIENT ESTIMATE



Flat (0.5 ft/100 ft)



Flat to Moderate



Moderate (2 ft/100 ft)



Moderate to Severe



Severe (10 ft/100 ft)

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

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

DOWNSTREAM DESIGNATED USE(S)
☒ WWH Name: Trapele Creek Distance from Evaluated Stream 2 mi
☐ 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: Champaign Township / City: Rush Twp

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 8/10/09 Quantity: Unknown
Photograph Information: Yes
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: Agricultural ditch

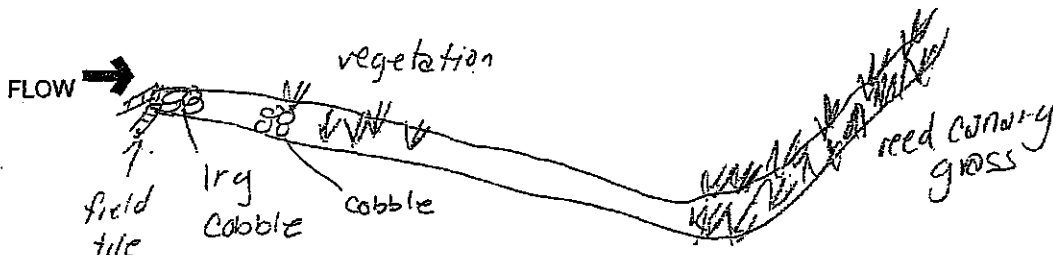
BIOTIC EVALUATION

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: _____

none observed

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

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





Stream V
Turbines 4/27/45

Modified Class II

Primary Headwater Habitat Evaluation Form

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

51

SITE NAME/LOCATION 1402 L-6
SITE NUMBER _____ RIVER BASIN _____ DRAINAGE AREA (mi²) <1 mi
LENGTH OF STREAM REACH (ft) 200 LAT. _____ LONG. _____ RIVER CODE _____ RIVER MILE _____
DATE 8/12/09 SCORER KC COMMENTS _____

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

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

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.				HHEI Metric Points
TYPE	PERCENT	TYPE	PERCENT	
☐ BEDR SLABS (16 pts)	_____	☐ SILT (3 pt)	<u>50</u>	Substrate Max = 40 <u>11</u>
☐ BOULDER (>256 mm) (16 pts)	_____	☐ LEAF PACK/WOODY DEBRIS (3 pts)	_____	
☐ BEDROCK (16 pt)	_____	☐ FINE DETRITUS (3 pts)	_____	Pool Depth Max = 30 <u>15</u>
☐ COBBLE (65-256 mm) (12 pts)	_____	☐ CLAY or HARDPAN (0 pt)	_____	
☐ GRAVEL (2-64 mm) (9 pts)	_____	☐ MUCK (0 pts)	_____	Bankfull Width Max=30 <u>25</u>
☐ SAND (<2 mm) (6 pts)	<u>10</u>	☐ ARTIFICIAL (3 pts)	_____	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock _____ (A) <u>9</u>		(B) <u>2</u>		
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: _____				
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):				
☐ > 30 centimeters (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): <u>10</u>				
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) <u>3.5</u>				

This information must also be completed

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

RIPARIAN WIDTH		FLOODPLAIN QUALITY			
L	R	L	R		
☐	☐ Wide >10m	☐	☐ (Most Predominant per Bank) 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 (Interstitia) ☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)
COMMENTS _____

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

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

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

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

DOWNSTREAM DESIGNATED USE(S)

☒ WWH Name: Dugan Run Distance from Evaluated Stream ~1 mi
☐ 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: Champaign Township / City: Urbana Twp

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 8/10/09 Quantity: Unknown

Photograph Information: yes

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: Ag ditch

BIOTIC EVALUATION

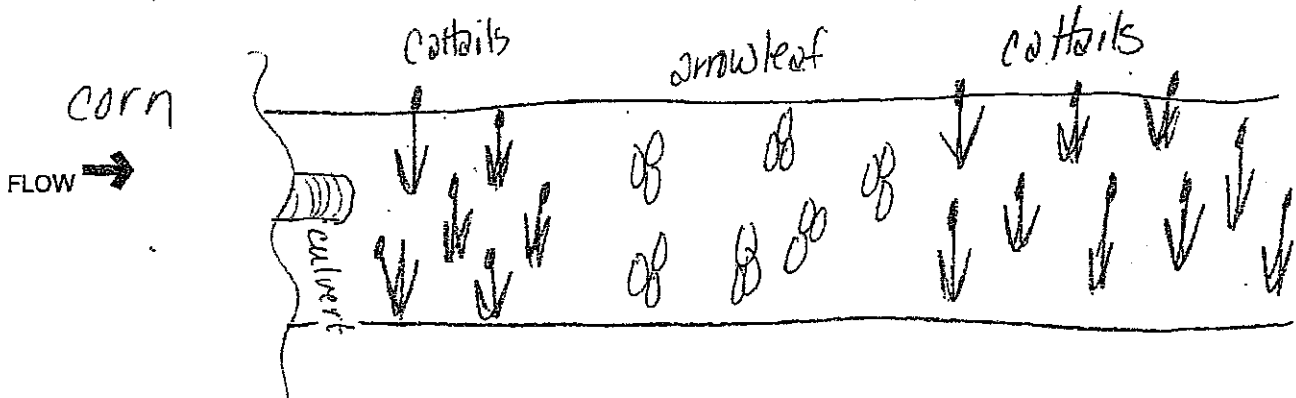
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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: none observed

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

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





Turbine 43 Stream W

Modified Class II

Primary Headwater Habitat Evaluation Form

HHEI 7

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

66

SITE NAME/LOCATION

EVPO01

SITE NUMBER

RIVER BASIN

DRAINAGE AREA (mi²)

LENGTH OF STREAM REACH (ft)

200

LAT.

LONG.

RIVER CODE

RIVER MILE

DATE

8/12/09

SCORER

SMH

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 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]

☒

SILT [3 pts]

90

☐

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]

☐

MUCK [0 pts]

☒

SAND (<2 mm) [6 pts]

10

☐

ARTIFICIAL [3 pts]

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

0

(A)

9

(B)

2

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

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

☐

> 30 centimeters [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]

24

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

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

☐

> 4.0 meters (> 13') [30 pts]

☐

> 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 (> 9' 7" - 4' 8") [20 pts]

3.5

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

HHEI Metric Points

Substrate Max = 40

11

A + B

Pool Depth Max = 30

30

Bankfull Width Max = 30

25

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

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

RIPARIAN WIDTH

FLOODPLAIN QUALITY

L R

(Per Bank)

L R

(Most Predominant per Bank)

L R

Conservation Tillage

☐

Wide >10m

☐

Mature Forest, Wetland

☐

Urban or Industrial

☐

Moderate 5-10m

☐

Immature Forest, Shrub or Old Field

☐

Open Pasture, Row Crop

☒

Narrow <5m

☐

Residential, Park, New Field

☒

Mining or Construction

☐

None

☐

Fenced Pasture

☐

COMMENTS

☒

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

☒

Stream Flowing

☐

Moist Channel, isolated pools, no flow (Intermittent)

☐

Subsurface flow with isolated pools (Intermittent)

☐

Dry channel, no water (Ephemeral)

COMMENTS

☒

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

☐

None

☐

1.0

☐

2.0

☐

3.0

☐

0.5

☐

1.5

☐

2.5

☐

>3

STREAM GRADIENT ESTIMATE

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

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

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

DOWNSTREAM DESIGNATED USE(S)

☒ WWH Name: Dugan Run 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: Champaign Township / City: Urbana Twp

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 8/10/09 Quantity: Unknown
 Photograph Information: Yes
 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: Ag ditch

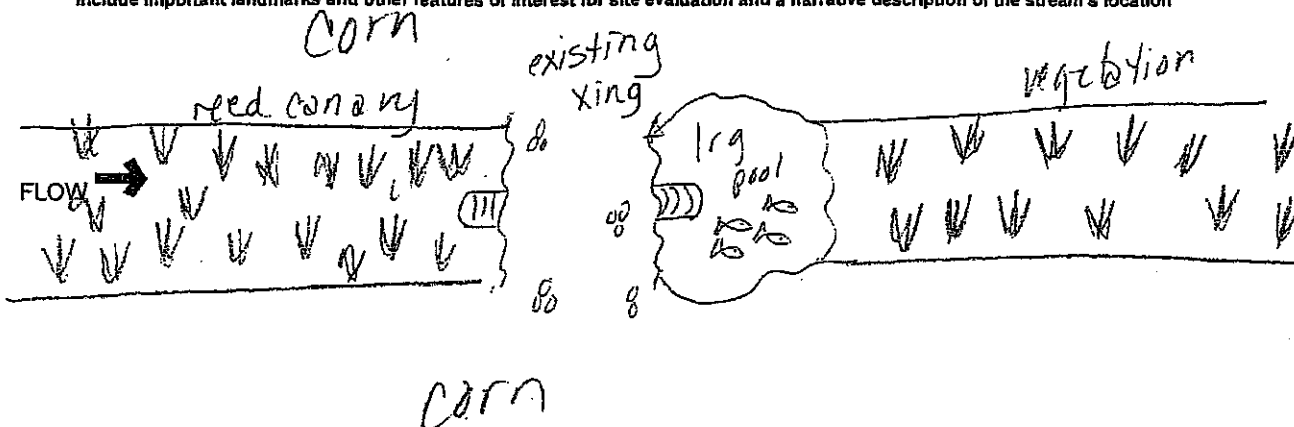
BIOTIC EVALUATION

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

lots of small fish in large pool

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

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





Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: **57**

Stream & Location: Elbow Kings Creek

RM: 18 Date: 8/12/01

River Code: -

STORET #: -

Lat./Long.: -

18

Office verified location ☐

Scorers Full Name & Affiliation: KC - Hull & Associates

1] SUBSTRATE

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

Check ONE (Or 2 & average)

BEST TYPES		OTHER TYPES		ORIGIN		QUALITY	
	POOL RIFFLE		POOL RIFFLE				
☐ 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]		☐ HARDPAN [0]		☐ FREE [1]	
☐ SAND [6]		☐ ARTIFICIAL [0]		☐ SANDSTONE [0]		☐ EXTENSIVE [-2]	
☐ BEDROCK [5]				☐ RIP/RAP [0]		☐ MODERATE [-1]	
(Score natural substrates; ignore sludge from point-sources)				☐ LACUSTURINE [0]		☒ NORMAL [0]	
				☐ SHALE [-1]		☐ NONE [1]	
				☐ COAL FINES [-2]			

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

Comments: Substrate **10** Maximum 20

2] INSTREAM COVER

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

AMOUNT

Check ONE (Or 2 & average)

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

Comments: Cover **11** Maximum 20

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 **13** Maximum 20

4] BANK EROSION AND RIPARIAN ZONE

River right looking downstream

RIPARIAN WIDTH

FLOOD PLAIN QUALITY

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

Comments: Riparian **5** Maximum 10

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH

CHANNEL WIDTH

CURRENT VELOCITY

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

Comments: Pool / Current **8** Maximum 12

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 **4** Maximum 8

6] GRADIENT

DRAINAGE AREA

R/mi

☐ VERY LOW - LOW [2-4]

%POOL: 40

%GLIDE: 15

Gradient

☒ MODERATE [6-10]

%RUN: 15

%RIFFLE: 30

Maximum

☐ HIGH - VERY HIGH [10-6]

6

AJ 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 ☒ 0.1 Km ☐ OTHER

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

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

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

BJ AESTHETICS

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

DJ MAINTENANCE

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

Circle some & COMMENT

EJ ISSUES

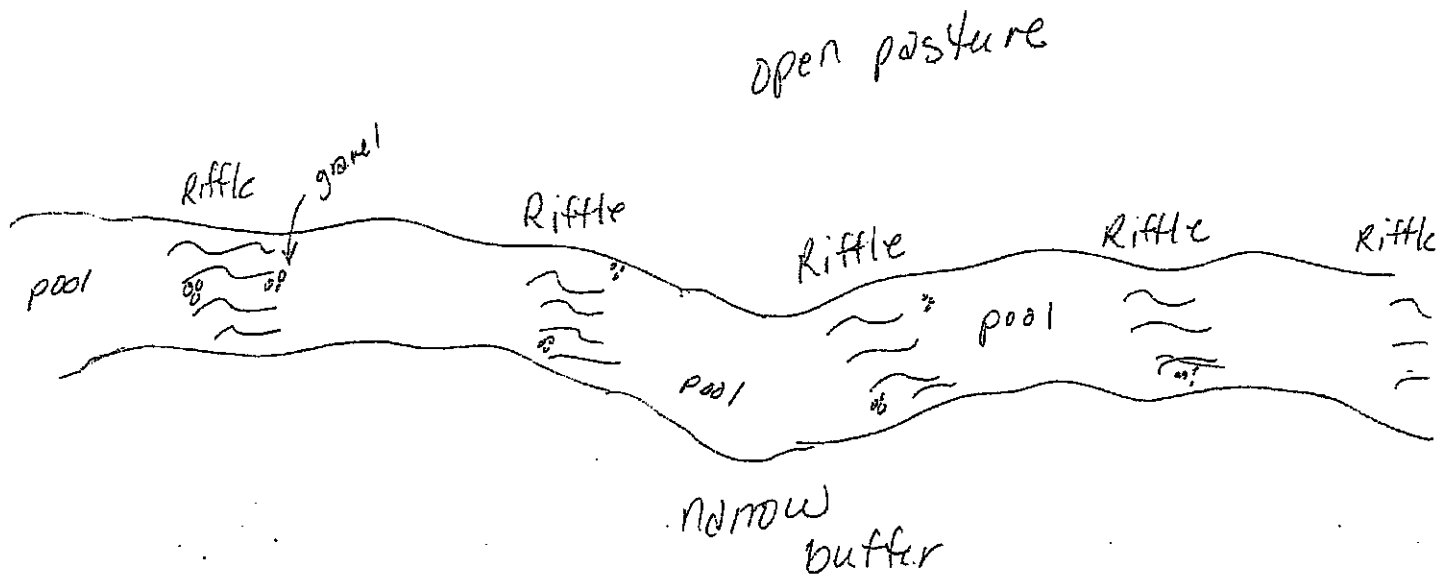
WWTP / CSO / NPDES / INDUSTRY ☐ HARDENED / URBAN / DIRT&GRIME ☐ CONTAMINATED / LANDFILL ☐ BMPs-CONSTRUCTION-SEDIMENT ☐ LOGGING / IRRIGATION / COOLING ☐ BANK / EROSION / SURFACE ☐ FALSE BANK / MANURE / LAGOON ☐ WASH H₂O / TILE / H₂O TABLE ☐ ACID / MINE / QUARRY / FLOW ☐ NATURAL / WETLAND / STAGNANT ☐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

FJ MEASUREMENTS

☐ width ☐ depth ☐ max. depth ☐ bankfull width ☐ bankfull depth ☐ W/D ratio ☐ bankfull max. depth ☐ floodprone x² width ☐ entrench. ratio ☐ Legacy Tree:

Stream Drawing:

Flow →



Stream Y

Ohio EPA

Qualitative Habitat Evaluation Index
and Use Assessment Field SheetQHEI Score: **47.5**Stream & Location: Buck Creek - Dist. S.D. 79 RM: 1 Date: 08/24/05Scorers Name & Affiliation: K. Zarr - H. H.River Code: 1 STORET #: 1 Lat./Long.: 18

1) SUBSTRATE

TYPE	POOL RIFFLE	TYPE	POOL RIFFLE	ORIGIN	QUALITY
(check ONLY Two substrate TYPE BOXES; estimate % or note every type present)				Check ONE (Or 2 & average)	
☐ BLDR/SLABS [10]		☒ GRAVEL [1]	<u>20</u>	☐ LIMESTONE [1]	☐ HEAVY [2]
☐ BOULDER [10]		☐ SAND [1]	<u>50</u>	☐ TILLS [1]	☐ MODERATE [1]
☐ COBBLE [10]	<u>10</u>	☐ BEDROCK [5]		☐ WETLANDS [1]	☒ NORMAL [1]
☐ HARDPAN [4]		☐ DETRITUS [3]		☐ HARDPAN [1]	☐ FREE [1]
☐ MUCK [2]		☐ ARTIFICIAL [10]		☐ SANDSTONE [1]	☐ EXTENSIVE [2]
☐ SILT [2]	<u>10</u>	(Score natural substrates; ignore slugs)		☐ RIP/RAP [1]	☐ MODERATE [1]
		☐ 4 or more [2] from point-sources		☐ LACURTINE [1]	☒ NORMAL [1]
NUMBER OF BETTER (2-5) TYPES:		☒ 3 or less [0]		☐ SHALE [1]	☐ NONE [1]
Comments				☐ COAL FINES [2]	

- stream was dry 13

2) INSTREAM COVER

AMOUNT	Check ONE (Or 2 & average)
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.	
☐ UNDERCUT BANKS [1]	☐ POOLS & TOWNS [2]
☐ OVERHANGING VEGETATION [1]	☐ ROOTWADS [1]
☐ SHALLOWS IN SLOW WATER [1]	☐ BOULDERS [1]
☐ ROOTWADS [1]	☐ OXBOWS, BACKWATERS [1]
	☐ AQUATIC MACROPHYTES [1]
	☐ LOGS OR WOODY DEBRIS [1]
Comments	

- stream was dry 3

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

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH [4]	☐ EXCELLENT [7]	☐ NONE [6]	☐ HIGH [4]
☐ 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]	

- stream was dry 3.5

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

RIPARIAN ZONE	FLOOD PLAIN QUALITY	EROSION
☐ WIDE > 50m [4]	☐ FOREST SWAMP [3]	☐ NONE/LITTLE [3]
☐ MODERATE 10-50m [3]	☐ SHRUB OR OLD FIELD [2]	☐ MODERATE [2]
☐ NARROW 5-10m [2]	☐ RESIDENTIAL PARK NEW FIELD [1]	☐ HEAVY/SEVERE [1]
☒ VERY NARROW < 5m [1]	☐ FENCED PASTURE [1]	
☐ NONE [0]		

Comments

5) POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH	CHANNEL WIDTH	CURRENT VELOCITY	Recreation Potential
Check ONE (ONLY)	Check ONE (Or 2 & average)	Check ALL that apply	(circle one) Property ownership Private Public Pool Depth Ankle/Knee/Hip
☐ > 1m [6]	☐ POOL WIDTH > RIFFLE WIDTH [2]	☐ EDDIES [1]	
☐ 0.7-1m [4]	☐ POOL WIDTH > RIFFLE WIDTH [1]	☐ FAST [1]	
☐ 0.4-0.7m [2]	☐ POOL WIDTH > RIFFLE WIDTH [0]	☐ MODERATE [1]	
☐ 0.2-0.4m [1]		☐ SLOW [1]	
☐ < 0.2m [0]		☐ VERY FAST [1]	

Comments stream was dry

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

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 > 10cm [1]	☐ MAXIMUM > 50cm [1]	☐ MOD. STABLE (e.g., Large Gravel) [1]	☐ FREE [1]
☐ BEST AREAS < 5cm [0]		☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]	☒ MODERATE [1]
			☐ EXTENSIVE [1]

Comments stream was dry

6) GRADIENT	DRAINAGE AREA	% POOL	% GLIDE	% RUN	% RIFFLE	Gradient
<u>1</u> m/m	<u>1</u> m ²	<u>30</u>	<u>20</u>	<u>20</u>	<u>30</u>	<u>6</u>
						Maximum 10

Note stream was dry during field walk.

Check ALL that apply

☐ BOATH
☒ WADE
☒ CLIMB
☐ OTHER

☐ 0-20 cm
☐ 20-40 cm
☐ 40-70 cm
☐ 70-90 cm
☐ 90-120 cm
☐ 120-150 cm
☐ 150-180 cm
☐ 180-210 cm
☐ 210-240 cm
☐ 240-270 cm
☐ 270-300 cm
☐ 300-330 cm
☐ 330-360 cm
☐ 360-390 cm
☐ 390-420 cm
☐ 420-450 cm
☐ 450-480 cm
☐ 480-510 cm
☐ 510-540 cm
☐ 540-570 cm
☐ 570-600 cm
☐ 600-630 cm
☐ 630-660 cm
☐ 660-690 cm
☐ 690-720 cm
☐ 720-750 cm
☐ 750-780 cm
☐ 780-810 cm
☐ 810-840 cm
☐ 840-870 cm
☐ 870-900 cm
☐ 900-930 cm
☐ 930-960 cm
☐ 960-990 cm
☐ 990-1020 cm
☐ 1020-1050 cm
☐ 1050-1080 cm
☐ 1080-1110 cm
☐ 1110-1140 cm
☐ 1140-1170 cm
☐ 1170-1200 cm
☐ 1200-1230 cm
☐ 1230-1260 cm
☐ 1260-1290 cm
☐ 1290-1320 cm
☐ 1320-1350 cm
☐ 1350-1380 cm
☐ 1380-1410 cm
☐ 1410-1440 cm
☐ 1440-1470 cm
☐ 1470-1500 cm
☐ 1500-1530 cm
☐ 1530-1560 cm
☐ 1560-1590 cm
☐ 1590-1620 cm
☐ 1620-1650 cm
☐ 1650-1680 cm
☐ 1680-1710 cm
☐ 1710-1740 cm
☐ 1740-1770 cm
☐ 1770-1800 cm
☐ 1800-1830 cm
☐ 1830-1860 cm
☐ 1860-1890 cm
☐ 1890-1920 cm
☐ 1920-1950 cm
☐ 1950-1980 cm
☐ 1980-2010 cm
☐ 2010-2040 cm
☐ 2040-2070 cm
☐ 2070-2100 cm
☐ 2100-2130 cm
☐ 2130-2160 cm
☐ 2160-2190 cm
☐ 2190-2220 cm
☐ 2220-2250 cm
☐ 2250-2280 cm
☐ 2280-2310 cm
☐ 2310-2340 cm
☐ 2340-2370 cm
☐ 2370-2400 cm
☐ 2400-2430 cm
☐ 2430-2460 cm
☐ 2460-2490 cm
☐ 2490-2520 cm
☐ 2520-2550 cm
☐ 2550-2580 cm
☐ 2580-2610 cm
☐ 2610-2640 cm
☐ 2640-2670 cm
☐ 2670-2700 cm
☐ 2700-2730 cm
☐ 2730-2760 cm
☐ 2760-2790 cm
☐ 2790-2820 cm
☐ 2820-2850 cm
☐ 2850-2880 cm
☐ 2880-2910 cm
☐ 2910-2940 cm
☐ 2940-2970 cm
☐ 2970-3000 cm
☐ 3000-3030 cm
☐ 3030-3060 cm
☐ 3060-3090 cm
☐ 3090-3120 cm
☐ 3120-3150 cm
☐ 3150-3180 cm
☐ 3180-3210 cm
☐ 3210-3240 cm
☐ 3240-3270 cm
☐ 3270-3300 cm
☐ 3300-3330 cm
☐ 3330-3360 cm
☐ 3360-3390 cm
☐ 3390-3420 cm
☐ 3420-3450 cm
☐ 3450-3480 cm
☐ 3480-3510 cm
☐ 3510-3540 cm
☐ 3540-3570 cm
☐ 3570-3600 cm
☐ 3600-3630 cm
☐ 3630-3660 cm
☐ 3660-3690 cm
☐ 3690-3720 cm
☐ 3720-3750 cm
☐ 3750-3780 cm
☐ 3780-3810 cm
☐ 3810-3840 cm
☐ 3840-3870 cm
☐ 3870-3900 cm
☐ 3900-3930 cm
☐ 3930-3960 cm
☐ 3960-3990 cm
☐ 3990-4020 cm
☐ 4020-4050 cm
☐ 4050-4080 cm
☐ 4080-4110 cm
☐ 4110-4140 cm
☐ 4140-4170 cm
☐ 4170-4200 cm
☐ 4200-4230 cm
☐ 4230-4260 cm
☐ 4260-4290 cm
☐ 4290-4320 cm
☐ 4320-4350 cm
☐ 4350-4380 cm
☐ 4380-4410 cm
☐ 4410-4440 cm
☐ 4440-4470 cm
☐ 4470-4500 cm
☐ 4500-4530 cm
☐ 4530-4560 cm
☐ 4560-4590 cm
☐ 4590-4620 cm
☐ 4620-4650 cm
☐ 4650-4680 cm
☐ 4680-4710 cm
☐ 4710-4740 cm
☐ 4740-4770 cm
☐ 4770-4800 cm
☐ 4800-4830 cm
☐ 4830-4860 cm
☐ 4860-4890 cm
☐ 4890-4920 cm
☐ 4920-4950 cm
☐ 4950-4980 cm
☐ 4980-5010 cm
☐ 5010-5040 cm
☐ 5040-5070 cm
☐ 5070-5100 cm
☐ 5100-5130 cm
☐ 5130-5160 cm
☐ 5160-5190 cm
☐ 5190-5220 cm
☐ 5220-5250 cm
☐ 5250-5280 cm
☐ 5280-5310 cm
☐ 5310-5340 cm
☐ 5340-5370 cm
☐ 5370-5400 cm
☐ 5400-5430 cm
☐ 5430-5460 cm
☐ 5460-5490 cm
☐ 5490-5520 cm
☐ 5520-5550 cm
☐ 5550-5580 cm
☐ 5580-5610 cm
☐ 5610-5640 cm
☐ 5640-5670 cm
☐ 5670-5700 cm
☐ 5700-5730 cm
☐ 5730-5760 cm
☐ 5760-5790 cm
☐ 5790-5820 cm
☐ 5820-5850 cm
☐ 5850-5880 cm
☐ 5880-5910 cm
☐ 5910-5940 cm
☐ 5940-5970 cm
☐ 5970-6000 cm
☐ 6000-6030 cm
☐ 6030-6060 cm
☐ 6060-6090 cm
☐ 6090-6120 cm
☐ 6120-6150 cm
☐ 6150-6180 cm
☐ 6180-6210 cm
☐ 6210-6240 cm
☐ 6240-6270 cm
☐ 6270-6300 cm
☐ 6300-6330 cm
☐ 6330-6360 cm
☐ 6360-6390 cm
☐ 6390-6420 cm
☐ 6420-6450 cm
☐ 6450-6480 cm

☒ 0.2 Km ☐ 0.15 Km ☐ 0.12 Km ☐ OTHER

STAGE 87 RECREATION

Executive Summary

462 ↑

Verständnis

Ms. B. 1. 1

Vegetation in Channel

Alkanol: 60-1125

12/9/96

1207

12/12/27

As Fed

Commonalities: Recreational/ Observed - Inferred, No. of adults - kids, Frequency, Hazards/ Potential, Other/ Sampling observations, Concerns, Arrows directions, etc.

The stream was dry during the 1960-61 season.

Click some & COMMENT

5 MAINTENANCE

DI AESTHETICS

CJ MERITS

CANOPY

WWTP / CSO / NPDES / INDUSTRY
HARDENED / URBAN / DIRT & GRIME
CONTAMINATED / LANDFILL
BMPs - CONSTRUCTION / SEDIMENT
LOGGING / IRRIGATION / COOLING
BANK / EROSION / SURFACE
FALSE BANK / MANURE / LAKE
WASH H₂O / TILE / 11-0" TABLE
ACID / MINE / QUARRY / FLOW
NATURAL / WETLAND / STAGNANT
PARK / GOLF / LAWN / HOME
ATMOSPHERE / DATA PAUCITY

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

MUSKIE ALGAE
 INVASIVE MARGARITE
 EXCORTURITY
 DISCOLORATION
 COAT SCUM
 OIL SHEEN
 DASH HATER
 MUSKIE COON
 BLUNDERBOTS
 SKELETON
 USG SOUTALLS

BOATS/CANOEING
SWIMMING/RAFTS
ROPEROCKRAMP
TRAININGWADERS
PATHS/CAMPS
SCHOOLS
PARTY,GRATITUDE
COVEREDBRIDGES
HORN/STEPSTONE
WATERFALL
VISTA/OUTCROP

☐ 2-85% OPEN
☐ 55% OPEN
☐ 30% OPEN
☐ 10% OPEN
☐ 10% CLOSED

POOL
AREA DEPTH
☐ >100/2 ☐ >3H
☐ <100/2 ☐ <3H

Legacy Tree:

photos
100-101

designated as CWH

STREAM Y-2



Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: **35.5**

Stream & Location: BUCK CREEK STREAM Y-2

RM: _____ Date: 10/10/11

Scorers Full Name & Affiliation: B. FALKENBURG - HULL

River Code: _____ STORET #: _____ Lat/Long: 40.0937283, -84.432 Office verified location ☐

1) SUBSTRATE Check ONLY Two substrate TYPE BOXES, estimate % or note every type present

BEST TYPES		OTHER TYPES		ORIGIN		QUALITY	
☐ BED/SLABS (1)	☐ POOL RIFFLE	☐ BED/SLABS (1)	☐ POOL RIFFLE	☐ LIMESTONE (1)	☐ SILT	☒ HEAVY (2)	Substrate 3 Maximum 20

Comments: 2 + 2 + 1 = 5

2) INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very sparse 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	
☐ UNDERCUT BANKS (1)	☐ EXCESSIVE (3)
☐ OVERHANGING VEGETATION (1)	☐ MODERATE (2)
☐ SHALLOW STAGNANT WATER (1)	☐ SPARSE (1)
☐ ROOTWADS (1)	☐ NEARLY ABSENT (0)
☐ BOULDERS (1)	

Comments: None

Cover
Maximum
20
0

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

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH (1)	☐ EXCELLENT (3)	☐ NONE (0)	☐ HIGH (3)
☒ MODERATE (2)	☐ GOOD (2)	☐ RECOVERING (2)	☐ MODERATE (2)
☐ LOW (1)	☐ FAIR (1)	☐ RECOVERING (1)	☐ LOW (1)
☐ NONE (0)	☐ POOR (0)	☐ RECENT OR NO RECOVERY (1)	

Comments: 3 + 3 + 4 + 2

Channel
Maximum
20
12

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

RIPARIAN WIDTH		FLOOD PLAIN QUALITY	
☐ EROSION	☐ WIDE (3)	☐ FOREST / SWAMP (1)	☐ CONSERVATION / WILDLIFE (1)
☒ MODERATE (2)	☐ MODERATE (2)	☐ SHRUB / OPEN FELD (2)	☐ URBAN / INDUSTRIAL (0)
☐ HEAVY / SEVERE (1)	☐ NARROW (1)	☐ RESIDENTIAL / PAVED (0)	☐ MINING / CONSTRUCTION (0)
	☐ VERY NARROW (0)	☐ FENCED PASTURE (1)	
	☐ NONE (0)	☐ OPEN PASTURE / ROW CROPS (0)	

Comments: 2 + 3 + (2 + 1/2 = 1.5) + (3 + 0/2) = 4.5

Indicate predominant land use(s) past 100m riparian.
Riparian
Maximum
10
4.5

5) POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH		CHANNEL WIDTH		CURRENT VI. JCT.	
☐ 1-10	☐ POOL WIDTH: RIFFLE WIDTH (1)	☐ 1-10	☐ POOL WIDTH: RIFFLE WIDTH (1)	☐ TORRENTIAL (1)	☐ SLOW (1)
☐ 0.5-1	☐ POOL WIDTH: RIFFLE WIDTH (1)	☐ 0.5-1	☐ POOL WIDTH: RIFFLE WIDTH (1)	☐ VERY FAST (1)	☐ INTERMITTENT (1)
☐ 0.1-0.5	☐ POOL WIDTH: RIFFLE WIDTH (1)	☐ 0.1-0.5	☐ POOL WIDTH: RIFFLE WIDTH (1)	☐ FAST (1)	☐ INTERMITTENT (1)
☐ 0.05-0.1	☐ POOL WIDTH: RIFFLE WIDTH (1)	☐ 0.05-0.1	☐ POOL WIDTH: RIFFLE WIDTH (1)	☐ MODERATE (1)	☐ POOL (1)

Comments: 0

Recreation Potential
Primary Contact
Secondary Contact
(circle one and comment on back)
Pool / Current
Maximum
12
0

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Check ONE (Or 2 & average).

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS
☐ BEST AREAS (3)	☐ MAXIMUM (3)	☐ STABLE (3)	☐ NONE (2)
☐ BEST AREAS (3)	☐ MAXIMUM (3)	☐ MOD. STABLE (2)	☐ LOW (1)
☐ BEST AREAS (3)	☐ MAXIMUM (3)	☐ UNSTABLE (1)	☐ MODERATE (1)
			☐ EXTENSIVE (1)

Comments: 0

Riffle / Run
Maximum
8
0

6) GRADIENT

DRAINAGE AREA	% POOL	% GLIDE	% RUN	% RIFFLE
<u>10</u> ft ² /mi <u>(3.5)</u> m ²	☒ VERY LOW (1)	☐	☐	☐
	☐ MODERATE (2)	☐	☐	☐
	☐ HIGH / VERY HIGH (3)	☐	☐	☐

Gradient
Maximum
10
6

photos
102-107

designated CWH

STREAM Y-3



Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: **22**

Stream & Location: BUCK CREEK RM: Date: 10/10/11

Scorers Full Name & Affiliation: B. FALK INBURG

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		OTHER TYPES		ORIGIN		QUALITY	
☐ BEDROCK	☐ SLABS	☐ HARD PAN	☐ POOL RIFFLE	☐ LIMESTONE	☐ SILT	☐ HEAVY	Substrate 7 Maximum 20
☐ COBBLES	☐ GRAVEL	☐ MUCK	☐ POOL RIFFLE	☐ WETLANDS	☐ SANDSTONE	☐ MODERATE	
☐ SAND	☐ BEDROCK	☐ SILT	☐ POOL RIFFLE	☐ HARD PAN	☐ RIP/RAP	☐ EXTENSIVE	
☐ BEDROCK	☐ BEDROCK	☐ ARTIFICIAL	☐ POOL RIFFLE	☐ SANDSTONE	☐ FACI/TURNE	☐ MODERATE	
☐ BEDROCK	☐ BEDROCK	☐ ARTIFICIAL	☐ POOL RIFFLE	☐ RIP/RAP	☐ FACI/TURNE	☐ MODERATE	

NUMBER OF BEST TYPES: ☐ 0-100% sludge from point-sources

Comments: $8 + 2 + 0 + 1 - 2 - 2 = 7$

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	
☐ UNDERCUT BANKS	☐ ROCKS
☐ OVERHANGING VEGETATION	☐ ROOTWADS
☐ SHALLOWS / TUSOV WATER	☐ BOULDERS
☐ ROOTWADS	☐ OXBOWS / BACKWATERS
☐ SHALLOWS	☐ AQUATIC MACROPHYGES
☐ ROOTWADS	☐ LOGS OR WOODY DEBRIS

Comments: $Absent + 0$ Cover Maximum **0**

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

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH	☐ EXCELLENT	☐ NONE	☐ HIGH
☐ MODERATE	☐ GOOD	☐ RECOVERED	☐ MODERATE
☐ LOW	☐ FAIR	☐ RECOVERING	☐ LOW
☐ NONE	☐ POOR	☐ RESENTING / NON-RECOVERING	☐ NONE

Comments: $2 + 1 + (3 + 1/2) = 2 + 2$

Channel Maximum **7**

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

EROSION		RIPARIAN WIDTH		FLOOD PLAIN QUALITY	
☐ NONE	☐ MODERATE	☐ WIDE	☐ MODERATE	☐ FOREST SWAMP	☐ CONSERVATION / ULLAGE
☐ MODERATE	☐ MODERATE	☐ MODERATE	☐ MODERATE	☐ SHRUB OR OLD FIELD	☐ URBAN / INDUSTRIAL
☐ HEAVY / SEVERE	☐ MODERATE	☐ NARROW	☐ MODERATE	☐ RESIDENTIAL / PARK / NEW FIELD	☐ MINING / CONSTRUCTION
☐ HEAVY / SEVERE	☐ MODERATE	☐ VERY NARROW	☐ MODERATE	☐ FENCED PASTURE	☐ OPEN PASTURE / ROW CROP

Comments: $2 + 1 + 1$

Riparian Maximum **4**

5) POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH		CHANNEL WIDTH		CURRENT VELOCITY		Recreation Potential Primary Contact Secondary Contact (circle one and comment on back)
☐ 1-10	☐ 1-10	☐ POOL WIDTH	☐ RIFFLE WIDTH	☐ TORRENTIAL	☐ SLOW	
☐ 1-10	☐ 1-10	☐ POOL WIDTH	☐ RIFFLE WIDTH	☐ VERY FAST	☐ INTERMITTENT	
☐ 1-10	☐ 1-10	☐ POOL WIDTH	☐ RIFFLE WIDTH	☐ MODERATE	☐ EDDIES	

Comments: 0 DRY

Pool / Current Maximum **0**

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS
☐ BEST AREAS	☐ MAXIMUM	☐ STABLE	☐ NONE
☐ BEST AREAS	☐ MAXIMUM	☐ MOD. STABLE	☐ LOW
☐ BEST AREAS	☐ MAXIMUM	☐ UNSTABLE	☐ MODERATE

Comments: 0 DRY

Riffle / Run Maximum **0**

6) GRADIENT DRAINAGE AREA

43 1.07 4 22



Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: **33**

Stream & Location: BUCK CREEK - STR. Y-4

RM: 1 Date: 2/14/11

EVER POWER

Scorers Full Name & Affiliation: B. FALKINBURG / HULL

River Code: 1

STORET #: 18

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
☐ BEDROCK	☐	☐ SAND	☐
☐ GRAVEL	☐	☐ SILT	☐
☐ SAND	☐	☐ SLUDGE	☐
☐ BEDROCK	☐	☐ SLUDGE	☐

Check ONE (Or 2 & average)

ORIGIN	QUALITY
☐ SILT	☐ HEAVY
☐ SAND	☐ MODERATE
☐ GRAVEL	☐ NORMAL
☐ BEDROCK	☐ EXCELLENT

Substrate **13** Maximum 20

NUMBER OF BEST TYPES: 7 + 4 + 2 + 1 + (-1) + 0 = 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.

UNDERSTORY PLANTS	POOLS	OVERHANGING VEGETATION	ROCKWADS	BOULDERS	EXPOSED ROOTWADS	AQUATIC MACROPHYTES	LOGS OR WOOD DEBRIS
☐	☐	☐	☐	☐	☐	☐	☐

Comments: 1 + 1

Cover Maximum **2** 20

3] CHANNEL MORPHOLOGY

Check ONE in each category (Or 2 & average)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH	☐ EXCELLENT	☐ ONE	☐ HIGH
☐ MODERATE	☐ GOOD	☐ RECOVERING	☐ MODERATE
☐ LOW	☐ FAIR	☐ RECOVERING	☐ LOW

Channel Maximum **5** 20

4] BANK EROSION AND RIPARIAN ZONE

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

River right looking downstream

EROSION	RIPARIAN WIDTH	FLOOD PLAIN QUALITY
☐ NON-EROSIVE	☐ WIDE	☐ FOREST
☐ MODERATE	☐ MODERATE	☐ SHRUB
☐ SEVERE	☐ NARROW	☐ RESIDENTIAL

Comments: 1 + 0 + 0

Indicate predominant land use(s) past 100m riparian. **1** Maximum 10

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

Check ONE (ONLY) MAXIMUM DEPTH

Check ONE (Or 2 & average) CHANNEL WIDTH

Check ALL that apply CURRENT VELOCITY

MAXIMUM DEPTH	CHANNEL WIDTH	CURRENT VELOCITY
☐ POOL	☐ POOL	☐ SLOW
☐ GLIDE	☐ GLIDE	☐ MODERATE
☐ RIFFLE	☐ RIFFLE	☐ RAPID

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

Pool / Current Maximum **5** 12

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Check ONE (Or 2 & average)

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS
☐ POOL	☐ POOL	☐ POOL	☐ POOL
☐ GLIDE	☐ GLIDE	☐ GLIDE	☐ GLIDE
☐ RIFFLE	☐ RIFFLE	☐ RIFFLE	☐ RIFFLE

Comments: 1 + 2 + 0 + 0

Riffle / Run Maximum **3** 24

6] GRADIENT 40.1 ft/mi ☐ DRAINAGE AREA 11.85 mi² ☐

%POOL: 5 %GLIDE: 85 %RUN: 5 %RIFFLE: 5

Gradient Maximum **4** 10

Primary Headwater Habitat Evaluation Form

STREAM AA

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

54

SITE NAME/LOCATION EXP007 SITE NUMBER AA RIVER BASIN Buck Creek DRAINAGE AREA (mi²) 0.26
 LENGTH OF STREAM REACH (ft) 200 LAT. 40.1319 LONG. 93.6301 RIVER CODE _____ RIVER MILE _____
 DATE 6/29/2011 SCORER B. FALKINBURG COMMENTS Buck Creek

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 ☐ PRESENT OR NO RECOVERY
 MODIFICATIONS: Channel rebed - cleared out - 12-16 months ago

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.				HHEI Metric Points
TYPE	PERCENT	TYPE	PERCENT	Substrate Max = 40 9 A + B
☐ BLDR SLABS [16 pts]		☐ SKT [3 pts]	<u>25</u>	
☐ BOULDER (>256 mm) [16 pts]	<u>2</u>	☐ LEAF PACK/WOODY DEBRIS [3 pts]		
☐ BEDROCK [16 pts]		☐ FINE DETRITUS [3 pts]		
☐ COBBLE (65-256 mm) [12 pts]	<u>15</u>	☐ CLAY or HARDPAN [10 pts]	<u>25</u>	
☐ GRAVEL (2-64 mm) [16 pts]	<u>23</u>	☐ MUCK [10 pts]		
☐ SAND (<2 mm) [16 pts]	<u>10</u>	☐ ARTIFICIAL [3 pts]		
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock <u>17%</u>		(A) 3	(B) 6	
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:		TOTAL NUMBER OF SUBSTRATE TYPES:		
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):				
☐ >30 centimeters [20 pts]	☐ 5 cm - 10 cm [15 pts]	MAXIMUM POOL DEPTH (centimeters): <u>7cm</u>		
☐ 22.5 - 30 cm [30 pts]	☐ <5 cm [5 pts]			
☐ <10 - 22.5 cm [25 pts]	☐ NO WATER OR MOIST CHANNEL [0 pts]			
COMMENTS _____				
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]	AVERAGE BANKFULL WIDTH (meters) <u>21'</u>		
☐ >3.0 m - 4.0 m (>9'7" - 13') [25 pts]	☐ <1.0 m (<3'3") [5 pts]			
☐ >1.6 m - 3.0 m (>5'7" - 9'8") [20 pts]				
COMMENTS _____				

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)

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)

STREAK AA

ADDITIONAL 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: Buck Creek Distance from Evaluated Stream headwaters
☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: North Lewisburg NRCS Soil Map Page: 41 NRCS Soil Map Stream Order: 2
 County: Champaign Township / City: Union Twp. / Urbana

MISCELLANEOUS

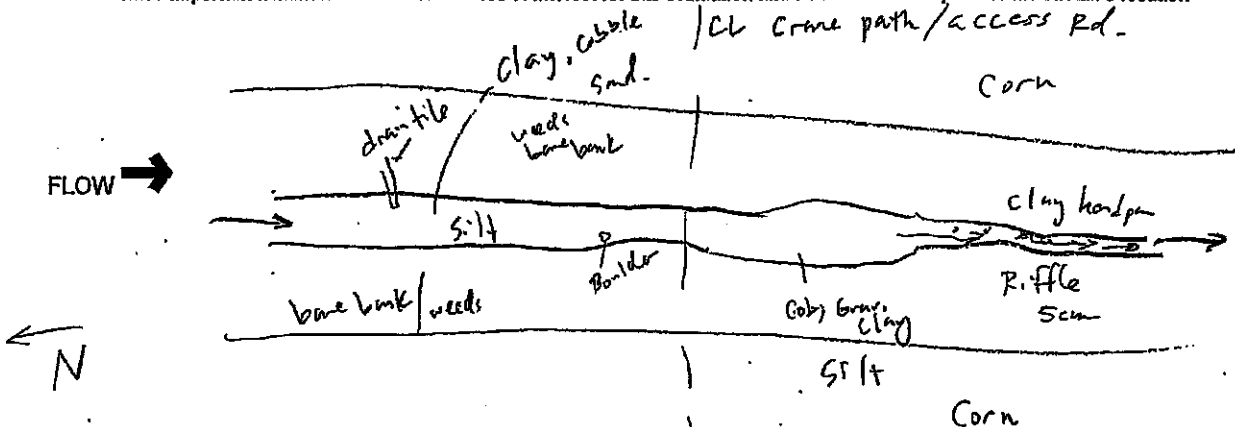
Base Flow Conditions? (Y/N): Y Date of last precipitation: ? several days Quantity: ?
 Photograph Information: _____
 Elevated Turbidity? (Y/N): N Canopy (% open): 100
 Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number: _____
 Field Measures: 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: streams in this area are mostly channelized, however, this segment was channelized w/in last 20 years.
 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) _____ Voucher? (Y/N) _____
 Frogs or Tadpoles Observed? (Y/N) _____ Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) _____ Voucher? (Y/N) _____
 Comments Regarding Biology: Crayfish observed

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

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



69

MODIFICATIONS Channelized Ag. Ditch

October 24, 2002 Revision

STREAM BB

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

QHEI PERFORMED? - ☒ Yes ☐ No QHEI Score 45 (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☐ VWH Name: _____ Distance from Evaluated Stream _____
☐ CWH Name: _____ Distance from Evaluated Stream _____
☒ EWH Name: Treacle Creek Distance from Evaluated Stream headwaters

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

USGS Quadrangle Name: North Lewisburg NRCS Soil Map Page: 33 NRCS Soil Map Stream Order: 2
 County: Champaign Township / City: Union Twp / Urbana

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: > 2 days Quantity: ?

Photograph Information: Yes

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

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

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

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

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

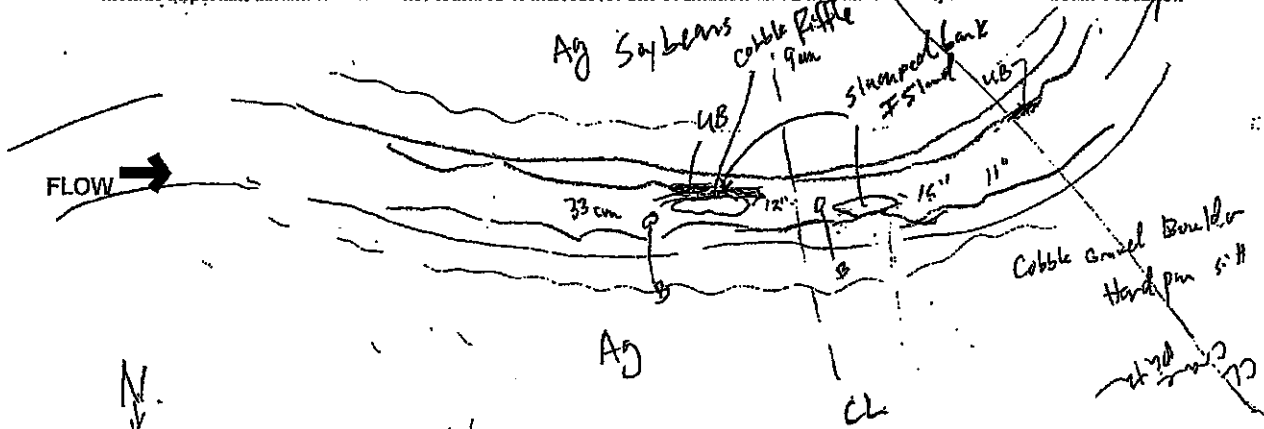
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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: Green Frog, Ebony Jewelwing adults,

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (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 BB - Check Drainage Area

Qualitative Habitat Evaluation Index
and Use Assessment Field SheetQHEI Score: **47**Stream & Location: EvaporRM: _____ Date: 6/29/11Scorers Full Name & Affiliation: B. FALL 10346 - HULLRiver Code: _____ STORET #: _____ Lat./Long.: 40.143 183.6201 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
☐ BEDROCK (1)		☐ HARDPAN (1)	
☐ BOUNDER (1)	<u>2%</u>	☐ DETRITUS (1)	
☒ COBBLE (1)	<u>30%</u>	☐ MUCK (1)	
☐ GRAVEL (1)	<u>15%</u>	☐ SILT (1)	<u>3%</u>
☒ SAND (1)	<u>2%</u>	☐ ARTIFICIAL (1)	
☐ BEDROCK (1)			

Check ONE (Or 2 & average)

ORIGIN	QUALITY
☐ LIMESTONE (1)	☐ HEAVY (2)
☒ SILT (1)	☒ MODERATE (1)
☐ WETLANDS (1)	☐ NORMAL (1)
☐ HARDPAN (1)	☐ FREE (1)
☐ SANDSTONE (1)	☐ EXTENSIVE (2)
☐ RIPRAP (1)	☒ MODERATE (1)
☐ LACUSTINE (1)	☐ NORMAL (1)
☐ SHALE (1)	☐ NONE (1)
☐ COAL FINES (2)	

Substrate

15
Maximum 20NUMBER OF BEST TYPES: 2 for more 1 sludge from point-sources 1 for less 1

Comments

2 + 0 + 6 + 1 - 1 - 1 = 15

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.

UNDERCUT BANKS (1)	POOLS (1)	POOLS (2)	POOLS (3)
☐ UNDERCUT BANKS (1)	☐ POOLS (1)	☐ POOLS (2)	☐ POOLS (3)
☐ OVERHANGING VEGETATION (1)	☐ ROOTWADS (1)	☐ ROOTWADS (2)	☐ ROOTWADS (3)
☐ SHALLOWS IN SLOW WATER (1)	☐ BOULDERS (1)	☐ BOULDERS (2)	☐ BOULDERS (3)
☐ ROOTWADS (1)			

AMOUNT

Check ONE (Or 2 & average)

☐ EXTENSIVE (75%+)
☐ MODERATE (25-75%)
☒ SPARSE (5-25%)
☐ NEARLY ABSENT (5%+)

Comments

1 + 1 + 3 = 5Cover
Maximum 20**5**

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

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH (1)	☐ EXCELLENT (1)	☐ NONE (1)	☐ HIGH (3)
☐ MODERATE (2)	☐ GOOD (2)	☐ RECOVERED (1)	☐ MODERATE (2)
☒ LOW (1)	☐ FAIR (3)	☒ RECOVERING (3)	☐ LOW (1)
☐ NONE (1)	☐ POOR (1)	☐ RECENT OR NO RECOVERY (1)	

Comments

2 + 3 + 3 + 2Channel
Maximum 20**10**

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

EROSION	RIPARIAN WIDTH	FLOOD PLAIN QUALITY	CONSERVATION TREATMENT
☐ NONE (1)	☐ WIDE (50m+)	☐ FOREST SWAMP (3)	☐ CONSERVATION TREATMENT (1)
☒ MODERATE (2)	☐ MODERATE (10-50m)	☐ SHRUB OR OLD FIELD (1)	☐ URBAN OR INDUSTRIAL (1)
☐ HEAVY/SEVERE (1)	☐ NARROW (5-10m)	☐ RESIDENTIAL PARK NEW FIELD (1)	☐ MINING/CONSTRUCTION (1)
	☐ VERY NARROW (<5m)	☐ FENCED PASTURE (1)	
	☐ NONE (1)	☐ OPEN PASTURE / ROW CROP (1)	

Comments

2 + 1 + 1 = 4

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

Riparian
Maximum 10**4**

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH

CHANNEL WIDTH

CURRENT VELOCITY

Check ONE (ONLY)

Check ONE (Or 2 & average)

Check ALL that apply

☐ 1m (1)
☐ 0.75m (1)
☐ 0.5m (1)
☐ 0.25m (1)
☐ 0.1m (1)

☐ POOL WIDTH > RIFFLE WIDTH (1)
☐ POOL WIDTH < RIFFLE WIDTH (1)
☒ POOL WIDTH < RIFFLE WIDTH (1)

☐ TORRENTIAL (1)	☒ SLOW (1)
☐ VERY FAST (1)	☐ INTERMITTENT (1)
☐ FAST (1)	☐ INTERMITTENT (1)
☐ MODERATE (1)	☐ EDDIES (1)

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

Comments

1 + 0 + 1 = 2Pool /
Current
Maximum 12**2**

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)
☒ BEST AREAS (5-10cm)
☐ BEST AREAS (<5cm)

☐ MAXIMUM (2-50cm)
☒ MAXIMUM (2-50cm)

☒ STABLE (e.g. Cobble, Boulder)
☐ MODERATE (e.g. Large Gravel)
☐ UNSTABLE (e.g. Fine Gravel, Sand)

☒ NONE (1)
☐ LOW (1)
☐ MODERATE (1)
☐ EXTENSIVE (1)

Comments

1 + 1 + 2 + 2 = 6Riffle /
Run
Maximum 8**6**

6] GRADIENT

ft/mi

☒ VERY LOW (DOWN 2-4)%POOL: 60%GLIDE: 35

Gradient

DRAINAGE AREA

mi²☐ MODERATE (6-10)%RUN: 0%RIFFLE: 5

Maximum

Comments

(1.1)mi²☐ HIGH (VERY HIGH 10-5)

Maximum 10

2



Mod class II

BB-3

Primary Headwater Habitat Evaluation Form

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

61

SITE NAME/LOCATION: UNT-10 TRENCH CREEKSITE NUMBER: BB-3

RIVER BASIN: _____

DRAINAGE AREA (mi²): 0.15LENGTH OF STREAM REACH (ft): _____ LAT. 40.14581 LONG. 83.61726 RIVER CODE: _____ RIVER MILE: _____DATE: 12-12-11 SCORER: BME/KMT 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 ☒ PERCENT OF NO RECOVERY
MODIFICATIONS: _____

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)		☐ SILT (3 pts)	<u>15</u>
☐ BOULDER (>256 mm) (16 pts)	<u>1</u>	☐ LEAF PACK/WOODY DEBRIS (3 pts)	<u>5</u>
☐ BEDROCK (16 pts)		☐ FINE DETRITUS (3 pts)	
☐ COBBLE (65-256 mm) (12 pts)	<u>15</u>	☐ CLAY or HARDPAN (0 pt)	
☒ GRAVEL (2-64 mm) (9 pts)	<u>40</u>	☐ MUCK (0 pts)	
☒ SAND (<2 mm) (6 pts)	<u>40</u>	☐ ARTIFICIAL (3 pts)	

Total of Percentages of
Bldr Slabs, Boulder, Cobble, Bedrock 16(A) 15(B) 6

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI
Metric
PointsSubstrate
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)	☐ > 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 9" 8" 9" 8"

MAXIMUM POOL DEPTH (centimeters):

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 - 1.5 m (> 9' - 4'8") (15 pts)
☐ > 3.0 m - 4.0 m (> 9' - 13') (25 pts)	☐ > 1.0 m - 1.5 m (> 3' - 4'8") (5 pts)
☐ > 1.5 m - 3.0 m (> 4'8" - 9'8") (20 pts)	

COMMENTS 3' 4' 4' 6"

AVERAGE BANKFULL WIDTH (meters)

Bankfull
Width
Max = 30

15

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY

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

RIPARIAN WIDTH

FLOODPLAIN QUALITY

L	R	(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 (Intermittent)	☐ Dry channel, no water (Ephemeral)

COMMENTS _____

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

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

STREAM GRADIENT ESTIMATE

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

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

BB-3

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: TREACLE CREEK 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: Champaign Township / City: _____

MISCELLANEOUS

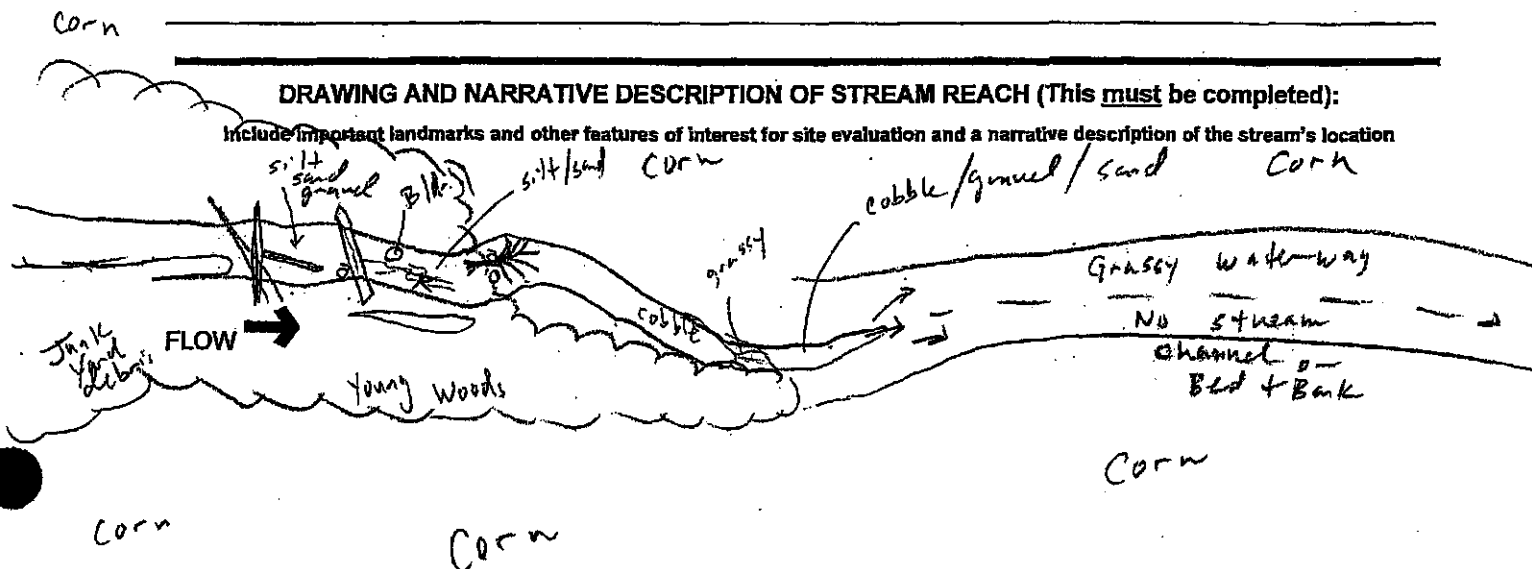
Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____
 Photograph Information: yes ↑ + ↓
 Elevated Turbidity? (Y/N): N Canopy (% open): 20%
 Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or Id. and attach results) Lab Number: _____
 Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____
 Is the sampling reach representative of the stream (Y/N): Y ^{upstream} If not, please explain: N - downstream - turns into
an un-grassed waterway - no bed/bank, no channel
 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



Primary Headwater Habitat Evaluation Form

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

21

SITE NAME/LOCATION EXP 007 SITE NUMBER CC RIVER BASIN UT Buck Creek DRAINAGE AREA (mi²) 0.63
 LENGTH OF STREAM REACH (ft) 200 LAT. 40.0821 LONG. 83.6267 RIVER CODE _____ RIVER MILE _____
 DATE 6/30/11 SCORER B. FALKINBURG COMMENTS Dry narrow stream channel

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

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

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

TYPE	PERCENT	TYPE	PERCENT
☐ BLDR SLABS (16 pts)		☐ SILT (3 pts)	
☐ BOULDER (>256 mm) (16 pts)	<u>2</u>	☐ LEAF PACK/WOODY DEBRIS (3 pts)	
☐ BEDROCK (16 pts)		☐ FINE DETRITUS (3 pts)	
☒ COBBLE (65-256 mm) (12 pts)	<u>25</u>	☐ CLAY or HARPAN (10 pts)	<u>49</u>
☐ GRAVEL (2-64 mm) (8 pts)	<u>24</u>	☐ MUCK (10 pts)	
☐ SAND (<2 mm) (6 pts)		☐ ARTIFICIAL (3 pts)	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 27%

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 (10 pts)	☐ 2 cm (5 pts)
☐ > 10 - 22.5 cm (25 pts)	☒ NO WATER OR MOIST CHANNEL (0 pts)

Pool Depth Max = 30

0

COMMENTS

MAXIMUM POOL DEPTH (centimeters):

0

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

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

Bankfull Width Max = 30

5

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

2.5

This information must also be completed

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

RIPARIAN WIDTH

L/R	(Per Bank)
☐	Wide >10m
☐	Moderate 5-10m
☐	Narrow <5m
☐	None

FLOODPLAIN QUALITY

L/R	(Most Predominant per Bank)	L/R	
☐	Mature Forest, Wetland	☒	Conservation Tillage
☐	Immature Forest, Shrub or Old Field	☐	Urban or Industrial
☒	Residential, Park, New Field	☐	Open Pasture, Row Crop
☐	Fenced Pasture	☐	Mining or Construction

COMMENTS

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

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

COMMENTS

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

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

STREAM GRADIENT ESTIMATE

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

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

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

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____
☒ CWH Name: Buck Creek Distance from Evaluated Stream 1,451 feet
☐ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: Urbana East NRCS Soil Map Page: 50 NRCS Soil Map Stream Order 3
 County: Champaign Township / City: Union twp / Mutual

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: > 2 days Quantity: ?

Photograph Information: _____

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: channel rock & dry

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

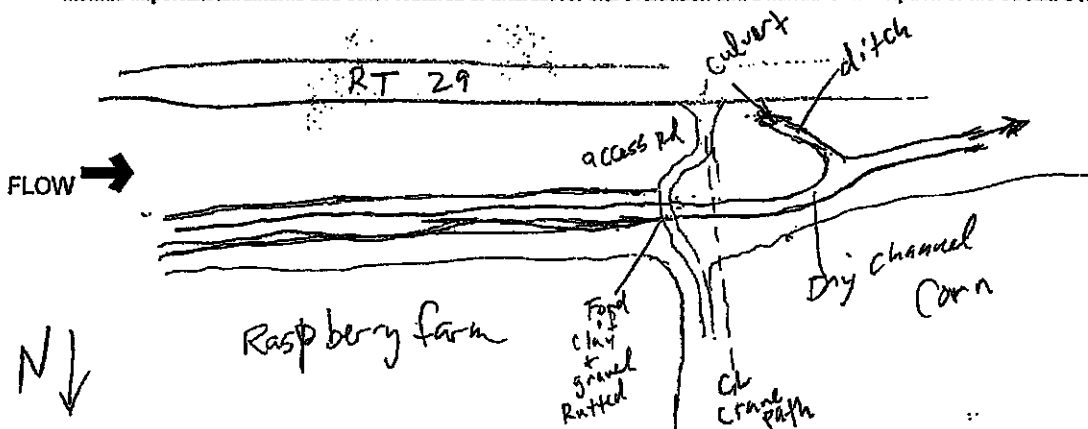
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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: None observed

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

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



Stream DD

Primary Headwater Habitat Evaluation Form

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

22

SITE NAME/LOCATION EVPOOT Stream DD
 SITE NUMBER Str. DD RIVER BASIN Little Darby DRAINAGE AREA (mi²) 0.048
 LENGTH OF STREAM REACH (ft) 200 LAT. 40.0885 LONG. 83.5876 RIVER CODE _____ RIVER MILE _____
 DATE 6/30/11 SCORER BMF COMMENTS WT to Little Darby Creek

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: Channelized

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)				HHEI Metric Points		
TYPE		PERCENT	TYPE	PERCENT	Substrate Max = 40 17 A + B	
☐	Bldr Slabs (16 pts)		☐	Silt (3 pts)		10
☐	Boulder (>256 mm) (16 pts)		☐	Leaf Pack/Woody Debris (3 pts)		
☐	Bedrock (16 pts)		☐	Fine Detritus (3 pts)		
☒	Cobble (63-256 mm) (12 pts)	25	☒	Clay or Hardpan (10 pts)		50
☐	Gravel (2-64 mm) (10 pts)	10	☐	Muck (10 pts)		
☐	Sand (<2 mm) (6 pts)	5	☐	Artificial (3 pts)		
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock <u>25%</u> (A)			(B) <u>5</u>			
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12				TOTAL NUMBER OF SUBSTRATE TYPES: 5		
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):						
☐	> 80 centimeters (20 pts)	☐	> 5 cm - 10 cm (15 pts)	☐	Pool Depth Max = 30 0	
☐	> 22.5 - 30 cm (10 pts)	☐	< 5 cm (5 pts)	☒		
☐	> 10 - 22.5 cm (25 pts)	☒	NO WATER OR MOIST CHANNEL (10 pts)			
COMMENTS _____ MAXIMUM POOL DEPTH (centimeters): 0						
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):						
☐	> 4.0 meters (> 13') (30 pts)	☐	> 1.0 m - 1.5 m (> 3' - 4' 8") (15 pts)	☐	Bankfull Width Max = 30 5	
☐	> 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' 7" - 9' 7") (20 pts)					
COMMENTS _____ AVERAGE BANKFULL WIDTH (meters): 2'						

This information must also be completed

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

RIPARIAN ZONE	FLOODPLAIN QUALITY
L R (Per Bank) ☐ Wide >10m ☐ Moderate 5-10m ☐ Narrow <5m ☐ None	L R (Most Predominant per Bank) ☐ Mature Forest, Wetland ☒ Immature Forest, Shrub or Old Field + CRP ☐ Residential, Park, New Field ☐ Fenced Pasture
	L R ☐ 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	☒ 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 DD

ADDITIONAL 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: Little Darby Creek Distance from Evaluated Stream 390'
☒ EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: Mechanicsburg NRCS Soil Map Page: 51 NRCS Soil Map Stream Order 1st
 County: Champaign Township / City: Union / Mechanicsburg

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: > 3 days Quantity: ?
 Photograph Information: yes

Elevated Turbidity? (Y/N): Dry 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: Dry

Additional comments/description of pollution impacts: Dry

BIOTIC EVALUATION

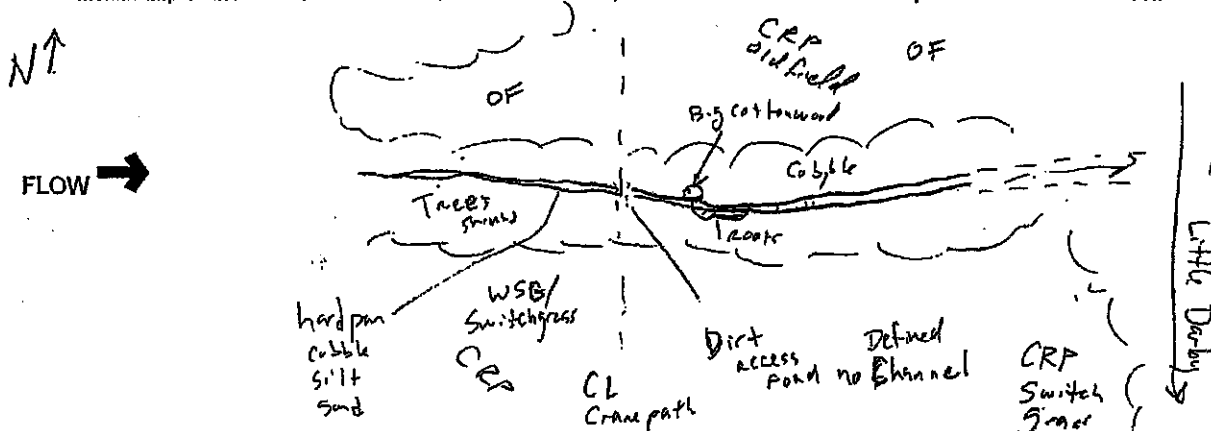
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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: None observed - Dry channel

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

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



STREAM EE Primary Headwater Habitat Evaluation Form

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

34

SITE NAME/LOCATION EVP001 - UT East Fork Buck Creek
 SITE NUMBER EE RIVER BASIN _____ DRAINAGE AREA (mi²) 0.31
 LENGTH OF STREAM REACH (ft) 200 LAT. 40.0656 LONG. 83.6156 RIVER CODE _____ RIVER MILE _____
 DATE 6/30/11 SCORER B.M. FALKENBURG COMMENTS Dry Channel, phalaris dominated, silt & gravel

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 Channelled Ag Ditch

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.				HHEI Metric Points
TYPE	PERCENT	TYPE	PERCENT	Substrate Max = 40 14 A + B
☐ BLDR SLABS (16 pts)	_____	☐ SILT (3 pts)	<u>25</u>	
☐ BOULDER (>256 mm) (16 pts)	_____	☐ LEAF PACK/WOODY DEBRIS (3 pts)	_____	
☐ BEDROCK (16 pts)	_____	☐ FINE DETRITUS (3 pts)	_____	
☐ COBBLE (66-256 mm) (12 pts)	_____	☐ CLAY or HARPAN (10 pts)	_____	
☐ GRAVEL (2-64 mm) (9 pts)	<u>25</u>	☐ MUCK (10 pts)	_____	
☐ SAND (<2 mm) (6 pts)	_____	☐ ARTIFICIAL (3 pts)	_____	
Total of Percentages of Bldr Slabs, Boulder, Cpbble, Bedrock <u>07</u>		(A) 12		
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:		TOTAL NUMBER OF SUBSTRATE TYPES: (B) 2		
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):				
☐ 30 centimeters (20 pts)	☐ 5 cm - 10 cm (15 pts)			
☐ 22.5 - 30 cm (30 pts)	☐ 5 cm (5 pts)			
☐ 10 - 22.5 cm (25 pts)	☒ NO WATER OR MOIST CHANNEL (0 pts)			
COMMENTS <u>Dry</u> MAXIMUM POOL DEPTH (centimeters): 0				
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):				Bankfull Width Max=30 20
☐ < 4.0 meters (< 13') (30 pts)	☐ > 1.0 m - 1.6 m (> 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' 8") (20 pts)				
COMMENTS _____ AVERAGE BANKFULL WIDTH (meters) 6'				

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)

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

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

DOWNSTREAM DESIGNATED USE(S)

☐ VWH Name: E. Fork Buck Creek Distance from Evaluated Stream 1160
☐ 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: Mechanicsburg NRCS Soil Map Page: 60 NRCS Soil Map Stream Order 3rdCounty: Champaign Township / City: Union / Mechanicsburg

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: Dry 7-30-4 days Quantity: ?Photograph Information: YElevated Turbidity? (Y/N): N Canopy (% open): 100Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or Id. and attach results) Lab Number: _____Field Measures: Temp (°C) N Dissolved Oxygen (mg/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)

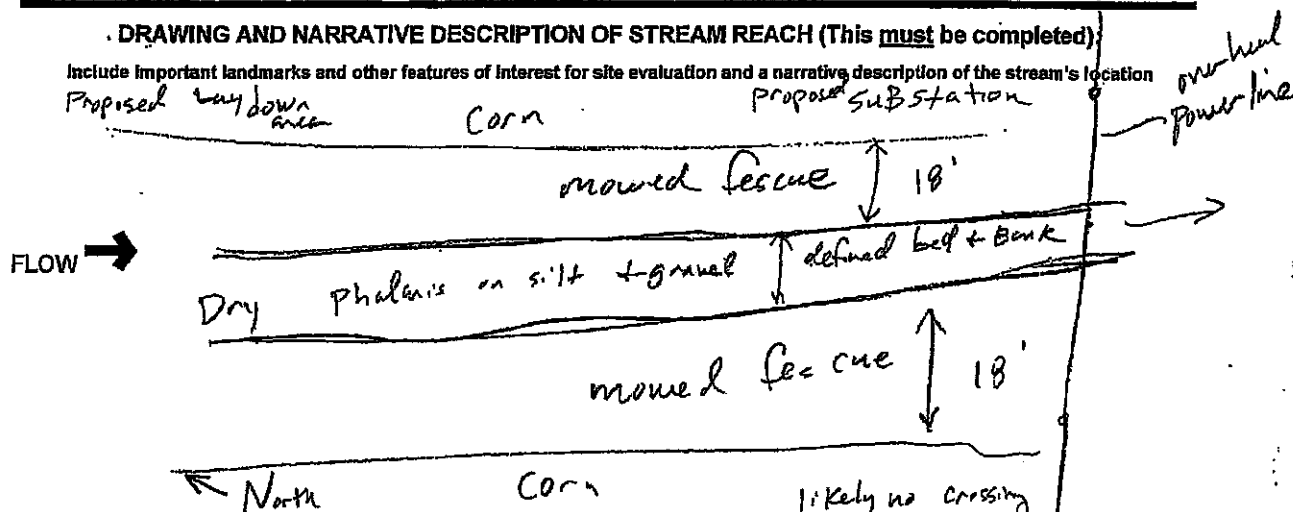
Fish Observed? (Y/N) _____ Voucher? (Y/N) _____ Salamanders Observed? (Y/N) _____ Voucher? (Y/N) _____

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



ephemeral, isolated

Mod class II

STREAM GG

Primary Headwater Habitat Evaluation Form

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

45

SITE NAME/LOCATION EVER POWERSITE NUMBER STR-GG

RIVER BASIN

DRAINAGE AREA (mi²) 0.19LENGTH OF STREAM REACH (ft) 200 LAT. LONG. RIVER CODE RIVER MILEDATE 10/10/11 SCORER B. FALKENBERG COMMENTS DRY - ISOLATED - No Receiving Stream

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

STREAM CHANNEL: ☒ NONE / NATURAL CHANNEL: ☒ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERYMODIFICATIONS: past channel erosion - recovered

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.				HHEI Metric Points
TYPE	PERCENT	TYPE	PERCENT	
☐ BLDG SLABS (16 pts)		☐ SILT (3 pts)	<u>40</u>	Substrate Max = 40 25
☐ BOULDER (>256 mm) (16 pts)		☐ LEAF PACK/WOODY DEBRIS (3 pts)		
☐ BEDROCK (16 pts)		☐ FINE DETRITUS (3 pts)		A + B
☐ COBBLE (65-256 mm) (12 pts)	<u>40</u>	☐ CLAY or HARDPAN (10 pts)	<u>10</u>	
☐ GRAVEL (2-64 mm) (8 pts)	<u>10</u>	☐ MUCK (10 pts)		Pool Depth Max = 30 0
☐ SAND (<2 mm) (6 pts)		☐ ARTIFICIAL (3 pts)		
Total of Percentages of Bldg Slabs, Boulder, Cobble, Bedrock <u>40</u>		(A) 21	(B) 4	Bankfull Width Max = 30 20
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:		TOTAL NUMBER OF SUBSTRATE TYPES:		
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):				
☐ > 30 centimeters (20 pts)		☐ 5 cm - 10 cm (15 pts)		0
☐ 22.5 - 30 cm (10 pts)		☐ 5 cm (5 pts)		
☐ > 10 - 22.5 cm (25 pts)		☒ NO WATER OR MOIST CHANNEL (10 pts)		
COMMENTS <u>DRY</u> MAXIMUM POOL DEPTH (centimeters):				
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):				
☐ > 4.0 meters (> 13') (30 pts)		☐ 1.0 m - 1.5 m (> 3' 3" - 4' 9") (15 pts)		5.5'
☐ > 3.0 m - 4.0 m (> 9' 8" - 13') (25 pts)		☐ < 1.0 m (< 3' 3") (5 pts)		
☒ > 1.5 m - 3.0 m (> 4' 9" - 9' 8") (20 pts)				
COMMENTS <u>5.5'</u> AVERAGE BANKFULL WIDTH (meters)				

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

COMMENTS

FLOODPLAIN QUALITY

- L R (Most Predominant per Bank)
- ☐ Mature Forest, Wetland
- ☒ Immature Forest, Shrub or Old Field
- ☐ Residential, Park, New Field
- ☐ Fenced Pasture

- L R
- ☒ Conservation Tillage
- ☐ Urban or Industrial
- ☐ Open Pasture, Row Crop
- ☐ Mining or Construction

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

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

COMMENTS

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)

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

STREAM EG

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: CHAMPAIGN Township / City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photograph Information: Y

Elevated Turbidity? (Y/N): N 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): Y If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

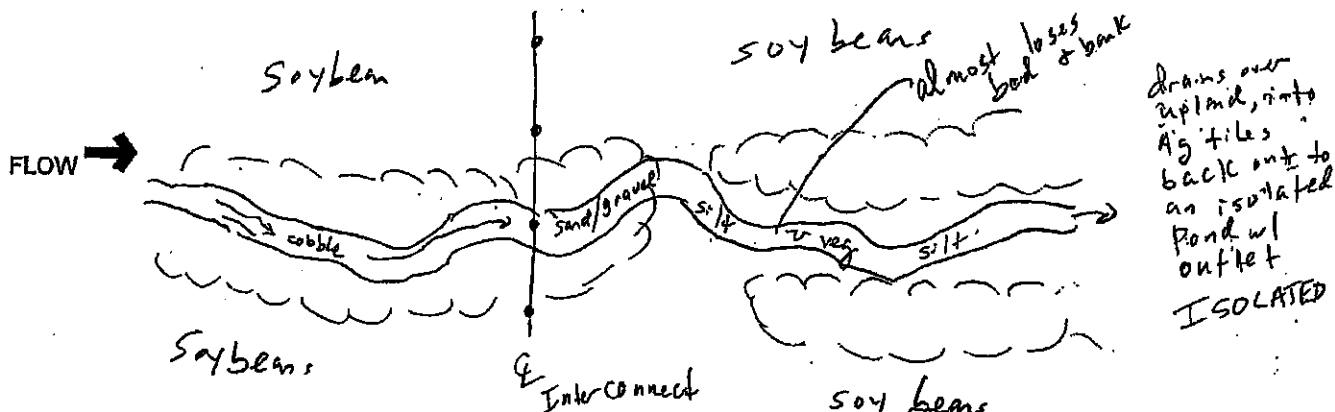
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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: NO WATER

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (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 I

STREAM HH

Primary Headwater Habitat Evaluation Form

Ephemeral

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

22

SITE NAME/LOCATION EVERPOWERSITE NUMBER STR. HH

RIVER BASIN

DRAINAGE AREA (mi²) 0.25LENGTH OF STREAM REACH (ft) 200 LAT. LONG. RIVER CODE RIVER MILEDATE 10/10/11 SCORER BMF COMMENTS Completed OFFSITE NO ACCESS

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 FOR NO RECOVERY
MODIFICATIONS:

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)		☐ SILT (3 pts)	<u>85</u>
☐ BOULDER (>256 mm) (16 pts)		☐ LEAF PACK/WOODY DEBRIS (3 pts)	
☐ BEDROCK (16 pts)		☐ FINE DETRITUS (3 pts)	
☐ COBBLE (65-256 mm) (12 pts)	<u>15</u>	☐ CLAY or HARDPAN (0 pts)	
☐ GRAVEL (2-64 mm) (8 pts)		☐ MUCK (0 pts)	
☐ SAND (<2 mm) (6 pts)		☐ ARTIFICIAL (3 pts)	

Total of Percentages of
Bltr Slabs, Boulder, Cobble, Bedrock15(A) 15(B) 2

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

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

☐ > 30 centimeters (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. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):

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

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

feet 2'HHEI
Metric
PointsSubstrate
Max = 401.7

A + B

Pool Depth
Max = 300Bankfull
Width
Max = 305

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

FLOODPLAIN QUALITY

- L R (Most Predominant per Bank)
- ☐ Mature Forest, Wetland
- ☐ Immature Forest, Shrub or Old Field
- ☐ Residential, Park, New Field
- ☒ Fenced Pasture

- L R
- ☐ 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)

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

STREAM HH

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

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____
☐ CWH Name: BULK CREEK Distance from Evaluated Stream 100'
☐ 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: CHAMPAIGN Township / City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photograph Information: YES

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) _____ If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

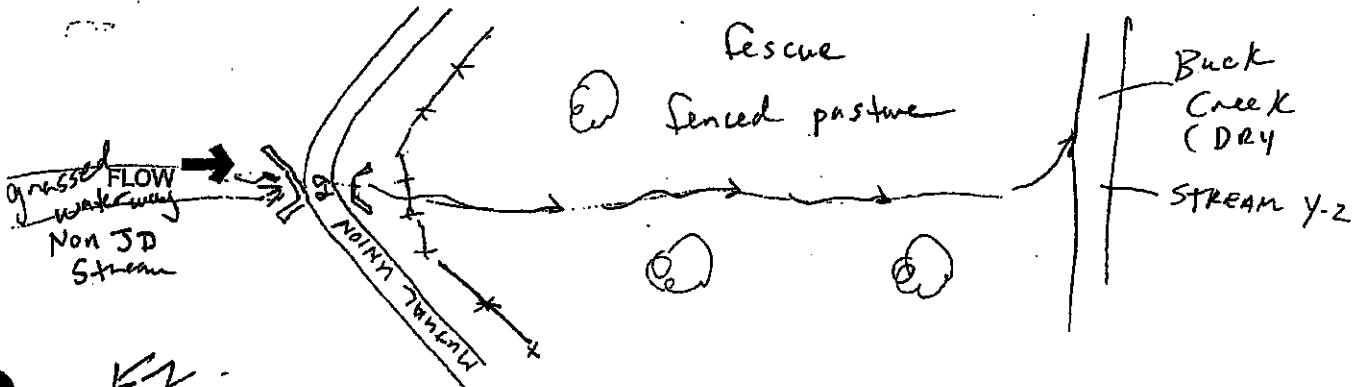
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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: DRY

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

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



Ephemeral

Mod class I

STREAM II

Primary Headwater Habitat Evaluation Form

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

25

SITE NAME/LOCATION EVER POWERSITE NUMBER STR II

RIVER BASIN

DRAINAGE AREA (mi²) 0.04LENGTH OF STREAM REACH (ft) 200LAT. 40.09861LONG. 83.63875

RIVER CODE

RIVER MILE

DATE 10/10/11SCORER BMF-HULLCOMMENTS DRY

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

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

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.				HHEI Metric Points
TYPE	PERCENT	TYPE	PERCENT	Substrate Max = 40 10 A + B
☐ BLDR SLABS (16 pts)		☒ SILT (3 pts)	90	
☐ BOULDER (>256 mm) [16 pts]	1	☐ LEAF PACK/WOODY DEBRIS (3 pts)		
☐ BEDROCK (16 pts)		☐ FINE DETRITUS (3 pts)		
☐ COBBLE (65-256 mm) [12 pts]	2	☐ CLAY or HARDPAN (10 pts)		
☐ GRAVEL (2-64 mm) [8 pts]	7	☐ MUCK (0 pts)		
☐ SAND (<2 mm) [6 pts]		☐ ARTIFICIAL (3 pts)		
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock <u>3%</u>		(A) <u>6</u>	(B) <u>4</u>	
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:		TOTAL NUMBER OF SUBSTRATE TYPES:		
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):				
☐ > 30 centimeters (20 pts)	☐ 5 cm - 10 cm (15 pts)	☐ > 10 - 22.5 cm (25 pts)	☐ NO WATER OR MOIST CHANNEL (0 pts)	Pool Depth Max = 30 0
COMMENTS				
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):				
☐ > 4.0 meters (> 13') (30 pts)	☐ 1.0 m - 1.5 m (> 3' - 4' 8") (15 pts)	☐ > 9.0 m - 4.0 m (> 29' - 13') (25 pts)	☐ 1.0 m (< 3' 3") (5 pts)	Bankfull Width Max=30 15
☐ > 22.5 - 30 cm (30 pts)		☐ > 1.5 m - 3.0 m (> 4' 11" - 9' 8") (20 pts)		
COMMENTS				
AVERAGE BANKFULL WIDTH (meters) <u>3.5'</u>				

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

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

STREAM II

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

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____
☐ CWH Name: BUCK CREEK - DRY 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: CHAMPAIGN Township / City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: _____ Quantity: _____

Photograph Information: Y _____

Elevated Turbidity? (Y/N): N Canopy (% open): 50

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

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

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

Additional comments/description of pollution impacts: Broken Glass / tractor tires

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)

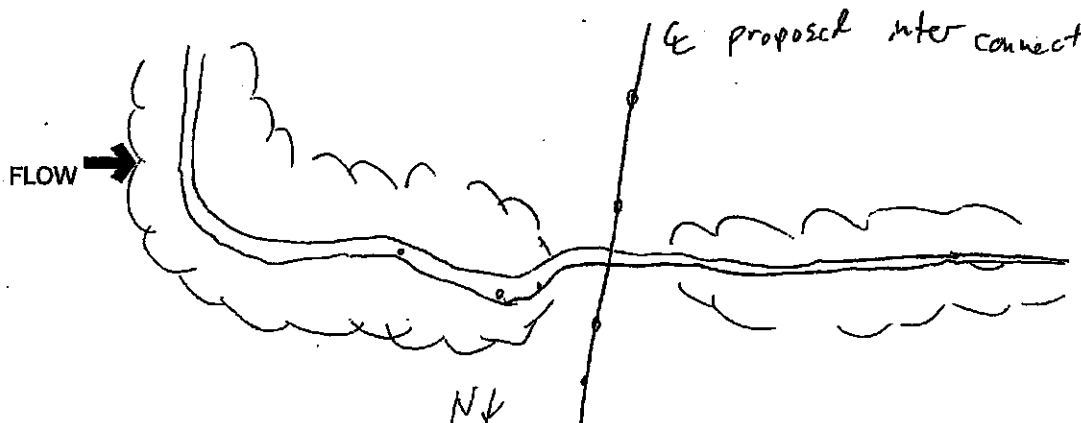
Fish Observed? (Y/N) N Voucher? (Y/N) _____ Salamanders Observed? (Y/N) N Voucher? (Y/N) _____

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

Comments Regarding Biology: DRY

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

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



Mod WWH

STREAM JJ



Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: **36.5**Stream & Location: UT BUCK CREEKRM: 10/10/11Scorer's Full Name & Affiliation: B. FALKINBURG - HULLRiver Code: - STORET #: -Lat/Long: 40.1103483, 63.819Office verified location ☐

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

BEST TYPES		OTHER TYPES		ORIGIN		QUALITY	
☐ BLOYS/ABS/10	☐ POOL RIFFLE	☐ HARD PAN/14	☐ POOL RIFFLE	☐ LIMESTONE/11	☐ SILT	☐ HEAVY/21	Substrate 16 Maximum 20
☐ BOUNDER/9	☐ 30	☐ DETRITUS/13	☐ 125	☐ WETLANDS/6	☐ MODERATE/1	☐ NORMAL/10	
☐ COBBLE/10	☐ 30	☐ MUCK/2	☐ 125	☐ HARD PAN/10	☐ EXTENSIVE/12	☐ MODERATE/14	
☐ GRAVEL/17	☐ 14	☐ SILT/12	☐ 125	☐ SANDSTONE/10	☐ MODERATE/14	☐ NORMAL/10	
☐ SAND/11	☐ 14	☐ ARTIFICIAL/10	☐ 125	☐ RIPRAP/10	☐ MODERATE/14	☐ NONES/1	

NUMBER OF BEST TYPES: 8 (Score natural substrates; ignore sludge from point-sources)

Comments: 8 + 7 + 2 + 1 + -1 -1 = 16

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	
☐ UNDERGUT BANKS/11	☐ EXENSIVE/25
☐ OVERHANGING VEGETATION/11	☐ MODERATE/25
☐ SHALLOW IN SLOW WATER/11	☐ SPARSE/25
☐ ROOTWADS/11	☐ NEARLY ABSENT/25

Comments: 1 + 1

Cover Maximum **2** 18

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

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY
☐ HIGH/11	☐ EXCELLENT/1	☐ NONE/6	☐ HIGH/11
☐ MODERATE/10	☐ GOOD/5	☐ RECOVERED/10	☐ MODERATE/10
☐ LOW/11	☐ FAIR/1	☐ RECOVERING/11	☐ LOW/11
☐ NONE/11	☐ POOR/1	☐ RESISTOR NO RECOVERY/11	

Comments: 3 + 3 + 3.5 + 2

Channel Maximum **11.5** 29.5

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

EROSION		RIPARIAN WIDTH		FLOOD PLAIN QUALITY	
☐ NONE/LITTLE/11	☐ WIDE/10/11	☐ FOREST SWAMP/11	☐ CONSERVATION/11		
☐ MODERATE/11	☐ MODERATE/10/11	☐ SHRUB OR BUSH/11	☐ URBAN OR INDUSTRIAL/11		
☐ HEAVY/SEVERE/11	☐ NARROW/5/11	☐ RESIDENTIAL/PARK/NEW FIELD/11	☐ MINING/CONSTRUCTION/11		
	☐ VERY NARROW/5/11	☐ FENCED PASTURE/11			
	☐ NONE/11	☐ OPEN PASTURE/11			

Comments: 2 + 1 + 0

Indicate predominant land use(s) past 100m riparian. Riparian Maximum **3** 32.5

5) POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH	CHANNEL WIDTH	CURRENT VELOCITY	Recreation Potential
Check ONE (ONLY)	Check ONE (Or 2 & average)	Check ALL that apply	Primary Contact
☐ 1-1m/11	☐ POOL WIDTH/11	☐ TORRENTIAL/1	Secondary Contact
☐ 0.5-1m/11	☐ POOL WIDTH/11	☐ VERY FAST/11	(circle one and comment on back)
☐ 0.1-0.5m/11	☐ POOL WIDTH/11	☐ FAST/11	
☐ 0.01-0.1m/11	☐ POOL WIDTH/11	☐ MODERATE/11	
☐ 0.001-0.01m/11	☐ POOL WIDTH/11	☐ SLOW/11	
		☐ INTERSTITIAL/11	
		☐ INTERMITTENT/11	
		☐ EDDIES/11	

Comments: DRY

Pool / Current Maximum **0** 32.5

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

RIFFLE DEPTH	RUN DEPTH	RIFFLE / RUN SUBSTRATE	RIFFLE / RUN EMBEDDEDNESS
☐ BEST AREAS/10/11	☐ MAXIMUM/10/11	☐ STABLE/10/11	☐ NONE/21
☐ BEST AREAS/10/11	☐ MAXIMUM/10/11	☐ MOD. STABLE/10/11	☐ LOW/11
☐ BEST AREAS/10/11	☐ MAXIMUM/10/11	☐ UNSTABLE/10/11	☐ MODERATE/10
			☐ EXTENSIVE/11

Comments: DRY

Riffle / Run Maximum **0** 32.5

6) GRADIENT 46 ft/mi
DRAINAGE AREA 11.08 m²

☐ VERY LOW/LOW/24	☐ 4
☐ MODERATE/10/11	
☐ HIGH/VERY HIGH/10/11	

%POOL: 0 %GLIDE: 0
%RUN: 0 %RIFFLE: 0Gradient Maximum **4** 36.5



Primary Headwater Habitat Evaluation Form

Ephemeral

Class II

STREAM LL

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

32

SITE NAME/LOCATION EVER POWER UT-OUT TO OUGAN RUN
 SITE NUMBER STR-LL RIVER BASIN _____ DRAINAGE AREA (mi²) 0.05
 LENGTH OF STREAM REACH (ft) 200 LAT. _____ LONG. _____ RIVER CODE _____ RIVER MILE _____
 DATE 10/12/11 SCORER B. FALKENBERG COMMENTS _____

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

STREAM CHANNEL ☒ NONGENETIC CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENTLY NO RECOVERY
 MODIFICATIONS _____

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)		☐ SILT (3 pts)	<u>20</u>
☐ BOULDER (>256 mm) (16 pts)		☒ LEAF PACK/WOODY DEBRIS (3 pts)	<u>10</u>
☐ BEDROCK (16 pts)		☐ FINE DETRIUS (3 pts)	
☒ COBBLE (65-256 mm) (12 pts)	<u>20</u>	☒ CLAY or HARDPAN (10 pts)	<u>40</u>
☒ GRAVEL (2-64 mm) (8 pts)	<u>10</u>	☐ MUCK (0 pts)	
☐ SAND (<2 mm) (8 pts)		☐ ARTIFICIAL (3 pts)	

Total of Percentages of
Bldr Slabs, Boulder, Cobble, Bedrock 20

(A) 12

(B) 5

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):

☐ 30 centimeters (20 pts)	☐ 5 cm (16 pts)
☐ 22.5 - 30 cm (30 pts)	☒ 5 cm (16 pts)
☐ 10 - 22.5 cm (25 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 (16 pts)	☒ 3.0 m (15 pts)
☐ 3.0 m (16 pts)	☐ 1.0 m (15 pts)
☐ 1.0 m (16 pts)	☐ 0.5 m (15 pts)

COMMENTS 3

AVERAGE BANKFULL WIDTH (meters)

15

Bankfull
Width
Max = 30

15

This information must also be completed

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

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

COMMENTS _____

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

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

COMMENTS _____

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

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

STREAM GRADIENT ESTIMATE

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

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

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

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: STREAM B - UT to Dugan Run 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: CHAMPAIGN Township / City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/12/11 Quantity: ?

Photograph Information: yes - 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: culvert

BIOTIC EVALUATION

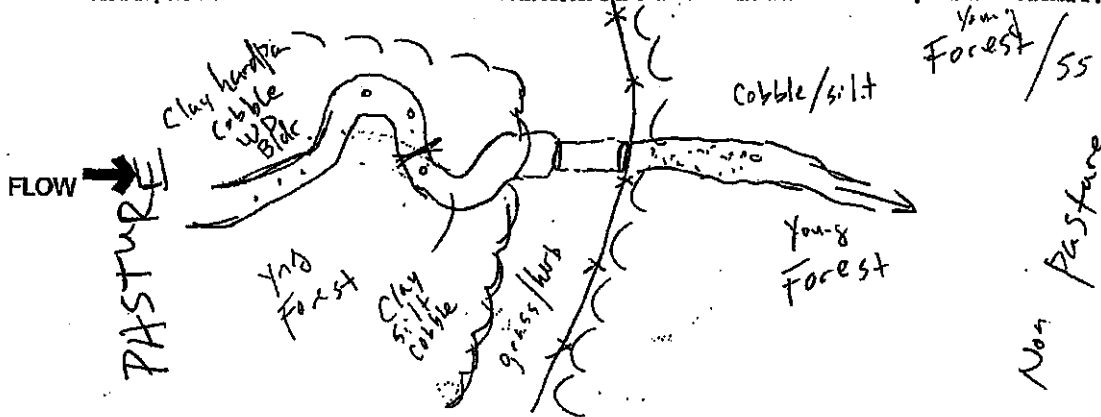
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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





Primary Headwater Habitat Evaluation Form

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

29

SITE NAME/LOCATION STREAM MMUT to MT to PROCTOR RUN
 SITE NUMBER STR-MM RIVER BASIN _____ DRAINAGE AREA (mi²) 0.13
 LENGTH OF STREAM REACH (ft) 200 LAT. 40.13742 LONG. 83.57935 RIVER CODE _____ RIVER MILE _____
 DATE 10/12/11 SCORER B. FALKENBERG COMMENTS DRY

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 ☐ RECEIVED OR NO RECOVERY
 MODIFICATIONS

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
☐ BLK SLABS (16 pts)		☒ SILT (3 pts)	96%
☐ BOULDER (≥256 mm) (16 pts)		☐ LEAF PACK/WOODY DEBRIS (3 pts)	4%
☐ BEDROCK (16 pts)		☐ FINE DETRITUS (3 pts)	
☐ COBBLE (65-256 mm) (12 pts)	1%	☐ CLAY or HARD PAN (0 pts)	
☐ GRAVEL (2-64 mm) (9 pts)		☐ MUCK (0 pts)	
☐ SAND (≤2 mm) (6 pts)		☐ ARTIFICIAL (3 pts)	

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

(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):

☐ ≤ 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):

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)	☐ > 10 m (≥ 33') - 3.3' - 4.0' (15 pts)
☐ > 3.0 m (≥ 9.7') - 9.7' - 13' (25 pts)	☐ > 3.0 m (≥ 9.7') (15 pts)
☒ > 1.5 m (≥ 4.9') - 4.9' - 9.7' (20 pts)	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

6.5

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

- L R (Per Bank)
☐ Wide >10m
☐ Moderate 5-10m
☒ Narrow <5m
☐ None

COMMENTS

FLOODPLAIN QUALITY

- L R (Most Predominant per Bank)
☐ Mature Forest, Wetland
☐ Immature Forest, Shrub or Old Field
☒ Residential, Park, New Field
☐ Fenced Pasture

- L R
☐ Conservation Tillage
☐ Urban or Industrial
☒ Open Pasture, Row Crop
☐ Mining or Construction

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

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

COMMENTS

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)

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

STREAM-MM

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

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: PROCTOR RUN 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: Champaign Township / City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/12/11 Quantity: Trace
 Photograph Information: yes 1 + 2
 Elevated Turbidity? (Y/N): N Canopy (% open): 0
 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: _____

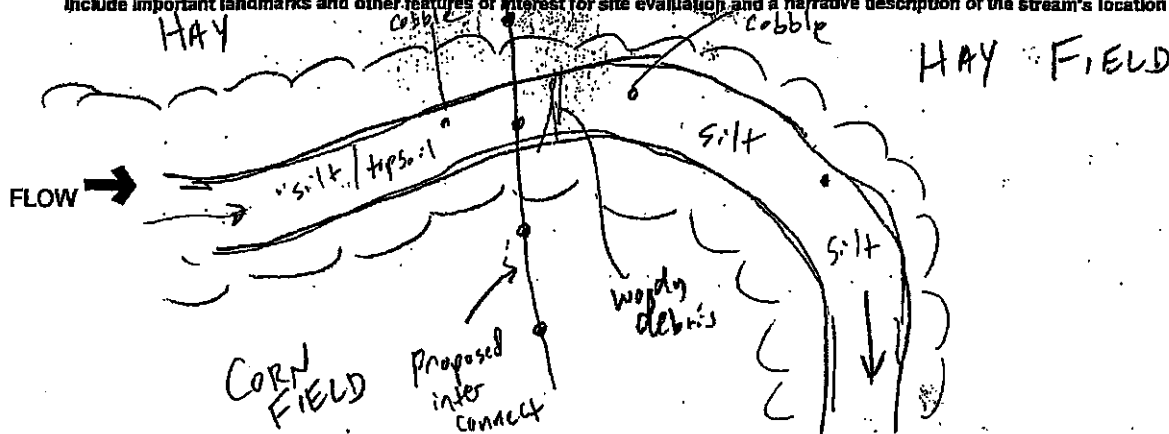
BIOTIC EVALUATION

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) _____ 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: None - DRY

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

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



Ephemeral

Mod class II



Primary Headwater Habitat Evaluation Form

STREAM NN

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

46

SITE NAME/LOCATION EVER POWER UT to Little Darby Creek
 SITE NUMBER STR-NN RIVER BASIN Little Darby DRAINAGE AREA (mi²) 0.51
 LENGTH OF STREAM REACH (m) 700 LAT. _____ LONG. _____ RIVER CODE _____ RIVER MILE _____
 DATE 10/13/11 SCORER B. FALKINBURG COMMENTS DRY

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

STREAM CHANNEL ☒ NONE NATURAL CHANNEL ☒ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVER
 MODIFICATIONS _____

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)	<u>5</u>	☐ SILT (3 pts)	_____
☐ BOULDER (225 mm) (16 pts)	<u>5</u>	☐ LEAF PACK/WOODY DEBRIS (3 pts)	_____
☐ BEDROCK (16 pts)	_____	☐ FINE DETRITUS (3 pts)	_____
☒ COBBLE (65-256 mm) (12 pts)	<u>60</u>	☐ CLAY or HARDPAN (0 pts)	_____
☐ GRAVEL (2-64 mm) (9 pts)	<u>20</u>	☐ MUCK (0 pts)	_____
☐ SAND (<2 mm) (6 pts)	<u>10</u>	☐ ARTIFICIAL (3 pts)	_____

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

70%

(A) 21(B) 5

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI
Metric
PointsSubstrate
Max = 40

26

A + B

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

☐ 30 centimeters (20 pts)	☐ 3 cm (10 pts) (15 pts)
☐ 22.5 - 30 cm (30 pts)	☐ 5 cm (15 pts)
☐ 10 - 22.5 cm (25 pts)	☒ NO WATER OR MOIST CHANNEL (0 pts)

COMMENTS DRY

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):

☐ 3.0 meters (1' 3") (30 pts)	☐ 3.0 m (3' 0") (15 pts)
☐ 2.0 m (2' 0") (15 pts)	☐ 1.0 m (3' 3") (15 pts)
☒ 1.5 m (2' 0") (10 pts)	☐ 1.0 m (3' 3") (15 pts)

COMMENTS 8' 7' 9'

AVERAGE BANKFULL WIDTH (meters)

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

L R (Per Bank)
☒ Wide >10m
☒ Moderate 5-10m
☐ Narrow <5m
☐ None

COMMENTS _____

FLOODPLAIN QUALITY

L R (Most Predominant per Bank)
☐ Mature Forest, Wetland
☐ Immature Forest, Shrub or Old Field
☐ Residential, Park, New Field
☐ Fenced Pasture

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

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

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

COMMENTS DRYSINUOSITY (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 m) ☐ Flat to Moderate ☐ Moderate (2 ft/100 m) ☒ Moderate to Severe ☐ Severe (10 ft/100 m)

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

STREAM NN

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

DOWNSTREAM DESIGNATED USE(S)

☐ WWW Name: LITTLE DARBY CREEK 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: CHAMPAIGN Township / City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/13/11 today Quantity: _____

Photograph Information: yes ↓ ↑

Elevated Turbidity? (Y/N): N Canopy (% open): 55

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

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

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

Additional comments/description of pollution impacts: _____

BIOIC 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)

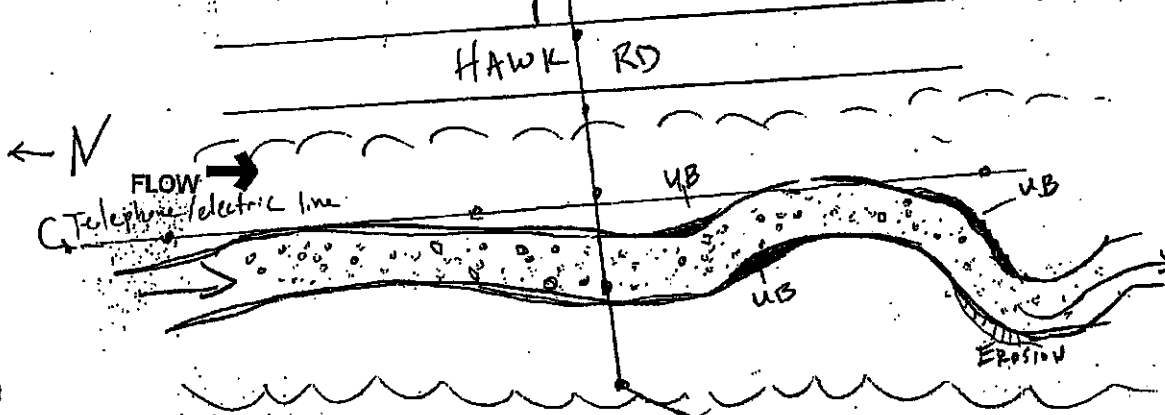
Fish Observed? (Y/N): N Voucher? (Y/N): N Salamanders Observed? (Y/N): N Voucher? (Y/N): _____

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

Comments Regarding Biology: terrestrial bugs

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

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



proposed inter connect

Ephemeral

Mod class II

STREAM-00



Primary Headwater Habitat Evaluation Form

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

36

SITE NAME/LOCATION EVER POWER - RT to BUCK CR.
 SITE NUMBER STA-00 RIVER BASIN _____ DRAINAGE AREA (mi²) 0.69
 LENGTH OF STREAM REACH (ft) 200 LAT. 40.07727 LONG. 83.64613 RIVER CODE _____ RIVER MILE _____
 DATE 10/13/11 SCORER B. FALKINBURG COMMENTS DRY & channelized

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 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)		☒ SILT (3 pts)	<u>60%</u>
☐ BOULDER (≥256 mm) (16 pts)	<u>1%</u>	☐ LEAF PACK/WOODY DEBRIS (3 pts)	
☐ BEDROCK (16 pts)		☐ FINE DETRITUS (3 pts)	
☐ COBBLE (65-256 mm) (12 pts)	<u>19%</u>	☐ CLAY or HARDSHIP (10 pts)	
☒ GRAVEL (2-64 mm) (8 pts)	<u>20%</u>	☐ MUCK (0 pts)	
☐ SAND (≤2 mm) (6 pts)		☐ ARTIFICIAL (3 pts)	

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

20%

(A)

12

(B)

4

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI
Metric
PointsSubstrate
Max = 40

16

A + B

Pool Depth
Max = 30

0

Bankfull
Width
Max = 30

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)	☐ 2.5 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

Dry 0

MAXIMUM POOL DEPTH (centimeters):

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

☐ 10 meters (≥ 13) (30 pts)	☐ 10 m - 15 m (≥ 9.3 - 14.6) (15 pts)
☐ 3.0 m - 10 m (≥ 9.7 - 31.1) (25 pts)	☐ 2.0 m (≥ 6.6) (5 pts)
☒ 1.5 m - 3.0 m (≥ 4.9 - 9.8) (20 pts)	

COMMENTS

6'9"

AVERAGE BANKFULL WIDTH (meters)

feet 6'9"

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

Dry

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

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

STREAM GRADIENT ESTIMATE

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

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

Stream 00

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

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____
☒ CWH Name: Back Creek 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: Champaign Township / City: Mutual

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: today 10/13/11 Quantity: ?

Photograph Information: yes ↓ & ↑

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

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

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

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

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

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

Fish Observed? (Y/N): N Voucher? (Y/N): _____ 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): _____

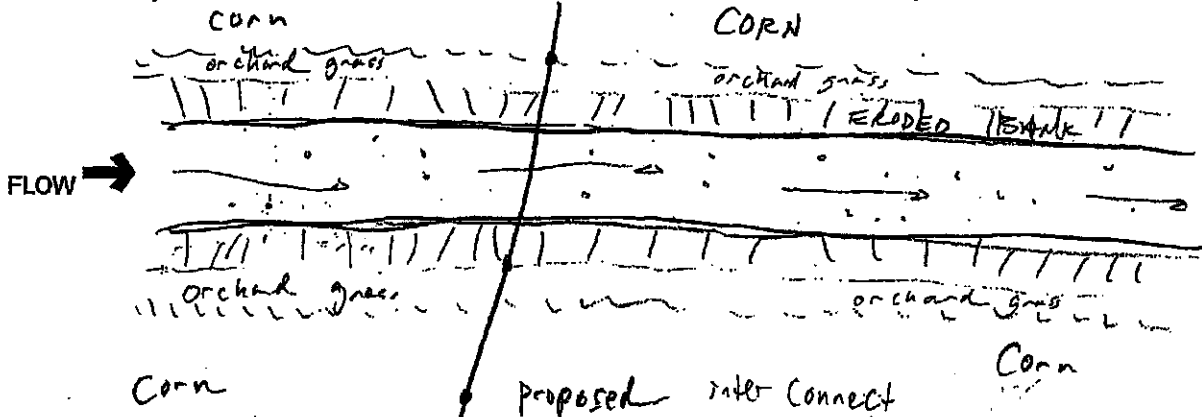
Comments Regarding Biology: Earthworm under piece of wood

upland plant species (FACU + UPL) growing in stream channel - velvet leaf, banyard grass, morning glory, pigweed, mulberry saplings, green fox tail, yellow sweet

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

clover

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





Primary Headwater Habitat Evaluation Form

STREAM PP

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

15

SITE NAME/LOCATION EVER POWER - STREAM PP - phase 2 interconnect from T806T90

SITE NUMBER STR-PP

RIVER BASIN

DRAINAGE AREA (mi²) 20.1

LENGTH OF STREAM REACH (ft) 200 LAT. 40.09636 LONG. 83.60214 RIVER CODE RIVER MILE

DATE 9/14/11 SCORER B. FALKENBURG COMMENTS DRY - UT to Little Darby Creek

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

STREAM CHANNEL ☐ NONE/NATURAL CHANNEL ☒ RECOVERED ☐ RECOVERING ☐ REMNANT OF NO RECOVERY
MODIFICATIONS

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)		☒ SILT (3 pts)	<u>80</u>
☐ BOULDER (>256 mm) (16 pts)	<u>1</u>	☐ LEAF PACK/WOODY DEBRIS (3 pts)	
☐ BEDROCK (16 pts)		☐ FINE DETRITUS (3 pts)	
☒ COBBLE (65-256 mm) (12 pts)	<u>10</u>	☐ CLAY or HARDPAN (0 pts)	<u>9</u>
☐ GRAVEL (2-64 mm) (9 pts)		☐ MUCK (0 pts)	
☐ SAND (<2 mm) (6 pts)		☐ ARTIFICIAL (3 pts)	

Total of Percentages of
Blkr Slabs, Boulder, Cobble, Bedrock 11%

(A) 6

(B) 4

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

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)	☐ >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 0 - dry

MAXIMUM POOL DEPTH (centimeters):

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)	☐ 10.0 m - 15.0 m (>33' - 49') (15 pts)
☐ 4.0 m - 4.0 m (13') (25 pts)	☒ 4.0 m (5.0 m) (15 pts)
☐ 1.5 m - 3.0 m (5' - 9'7") (10 pts)	

COMMENTS 3', 2.5', 3.5' = 3'

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 Soybeans on R side

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
☒ 0.5	☐ 1.5	☐ >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 PP

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

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

DOWNSTREAM DESIGNATED USE(S)

☒ WWH Name: Little Darby Creek 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: CHAMPAIGN Township / City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/14/11 Quantity: ?
 Photograph Information: yes ↓ + ↑
 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)

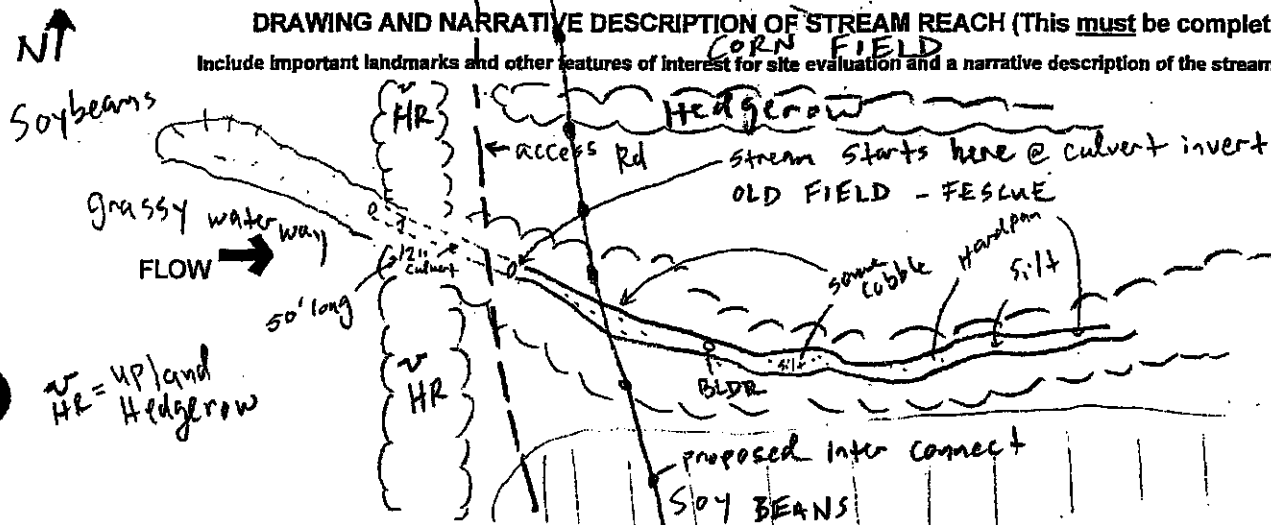
Fish Observed? (Y/N) N Voucher? (Y/N) _____ Salamanders Observed? (Y/N) N Voucher? (Y/N) _____
 Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) _____ Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) _____

Comments Regarding Biology: _____

None noted

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

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





Primary Headwater Habitat Evaluation Form

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

STREAM QQ

15

SITE NAME/LOCATION EVERPOWER SITE NUMBER STR-QQ RIVER BASIN _____ DRAINAGE AREA (mi²) 0.20
 LENGTH OF STREAM REACH (m) 200 LAT. _____ LONG. _____ RIVER CODE _____ RIVER MILE _____
 DATE 10/17/11 SCORER B. FALKOWSKI COMMENTS DRY

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 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)		☒ SILT (3 pt)	<u>8.5</u>
☐ BOULDER (>256 mm) (16 pts)		☐ LEAF PACK/WOODY DEBRIS (3 pts)	
☐ BEDROCK (16 pt)		☐ FINE DETRITUS (3 pts)	
☐ COBBLE (65-256 mm) (12 pts)	<u>1</u>	☐ CLAY or HARDPAN (0 pt)	<u>12</u>
☐ GRAVEL (2-64 mm) (9 pts)	<u>2</u>	☐ MUCK (0 pts)	
☐ SAND (<2 mm) (6 pts)		☐ ARTIFICIAL (3 pts)	

Total Percentages of
Bltr Slabs, Boulder, Cobble, Bedrock

1%

(A) 6

(B) 4

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

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

☐ > 30 centimeters (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 DRY

MAXIMUM POOL DEPTH (centimeters):

0

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

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

COMMENTS 24"

AVERAGE BANKFULL WIDTH (meters):

2

HHEI
Metric
Points

Substrate
Max = 40

10

A + B

Pool Depth
Max = 30

0

Bankfull
Width
Max=30

5

This Information must also be completed

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

RIPARIAN WIDTH

L	R	(Per Bank)
☐	☐	Wide >10m
☐	☐	Moderate 5-10m
☐	☐	Narrow <5m
☐	☐	None

COMMENTS _____

FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)
☐	☐	Mature Forest, Wetland
☐	☐	Immature Forest, Shrub or Old Field
☐	☐	Residential, Park, New Field
☐	☐	Fenced Pasture

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

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

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

COMMENTS _____

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

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

STREAM GRADIENT ESTIMATE

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

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

STREAM QQ

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

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____
☐ CWH Name: _____ UT to TREACLE CREEK 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: CHAMPAIGN Township / City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/14/11 Quantity: 2
 Photograph Information: Yes ↑ + ↓
 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: _____

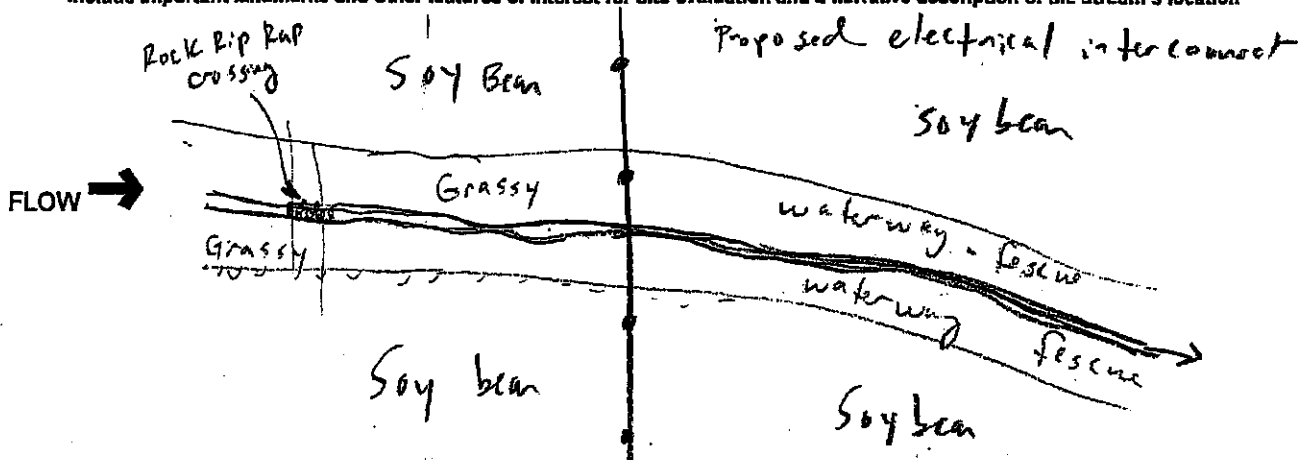
Additional comments/description of pollution impacts: Grassed waterway w/ a defined channel
 Bed + Bank + evidence of flow

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: DRY - Nothing observed

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

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



Mod class II
by HHEI

STREAM WW

Primary Headwater Habitat Evaluation Form

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

42

SITE NAME/LOCATION EVER POWER - PH 2
 SITE NUMBER STR WW RIVER BASIN UT Little Dry DRAINAGE AREA (mi²) 0.72
 LENGTH OF STREAM REACH (ft) 200 LAT. _____ LONG. _____ RIVER CODE _____ RIVER MILE _____
 DATE 10/19/11 SCORER BMF COMMENTS _____

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

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

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.				HHEI Metric Points
TYPE	PERCENT	TYPE	PERCENT	
☐ BLDR SLABS (16 pts)	_____	☐ SILT (3 pts)	_____	Substrate Max = 40 22 A + B
☐ BOULDER (>256 mm) (16 pts)	_____	☐ LEAF PACK WOODY DEBRIS (3 pts)	_____	
☐ BEDROCK (16 pts)	_____	☐ FINE DETRITUS (3 pts)	_____	
☐ COBBLE (65-256 mm) (12 pts)	<u>5</u>	☐ CLAY or HARDPAN (10 pts)	_____	
☒ GRAVEL (2-64 mm) (8 pts)	<u>90</u>	☐ MUCK (10 pts)	_____	
☐ SAND (<2 mm) (6 pts)	<u>10</u>	☒ ARTIFICIAL (3 pts)	<u>10</u>	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock <u>5</u>		(A) <u>18</u>	(B) <u>4</u>	
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: _____ TOTAL NUMBER OF SUBSTRATE TYPES: _____				
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):				
☐ > 30 centimeters (20 pts) ☐ 22.5 - 30 cm (10 pts) ☒ < 10 - 22.5 cm (5 pts) ☒ NO WATER OR MOIST CHANNEL (0 pts)				
COMMENTS <u>dry channel</u> MAXIMUM POOL DEPTH (centimeters): <u>0</u>				
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):				
☐ > 4.0 meters (> 13') (30 pts) ☐ 3.0 m - 4.0 m (> 9' - 13') (25 pts) ☒ 1.5 m - 3.0 m (> 4' - 9') (20 pts)				Bankfull Width Max = 30 20
☐ > 1.0 m - 1.5 m (> 3' - 4' 8") (15 pts) ☐ < 1.0 m (< 3') (5 pts)				
COMMENTS <u>7', 6', 8'</u> AVERAGE BANKFULL WIDTH (meters) <u>7'</u>				

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)		
☐ ☐	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 No flow / Dry

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

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

STREAM GRADIENT ESTIMATE

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

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

STREAM WW

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: Little Darby Creek 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: CHAMPAIGN Township / City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: TODAY Quantity: ~1"
 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: _____

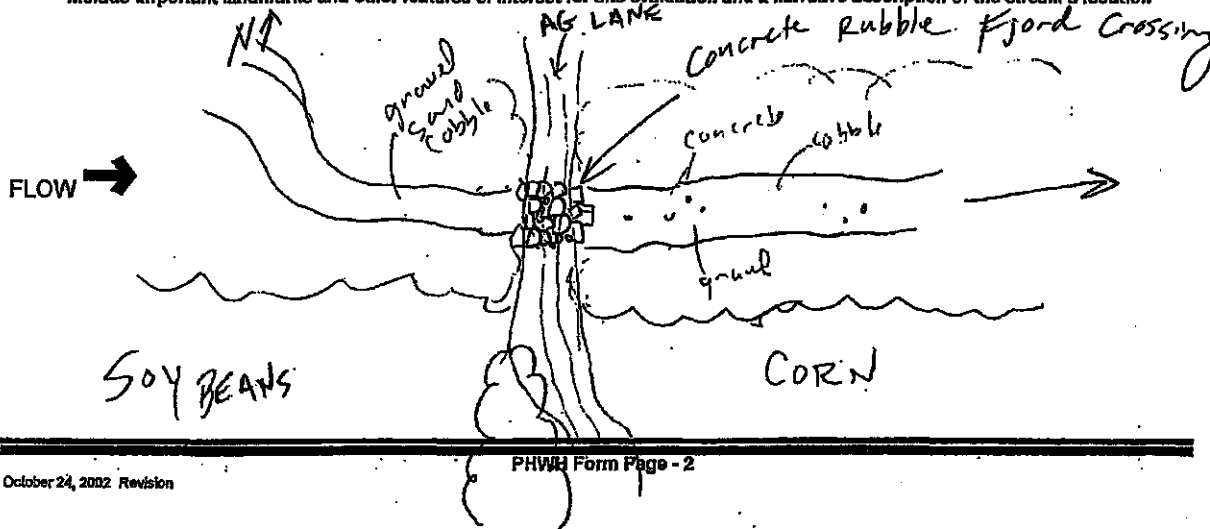
Additional comments/description of pollution impacts: Concrete Rubble Ford Crossing
for Ag implements.

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: 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



ephemeral

Mod class II
by HHEI

Primary Headwater Habitat Evaluation Form

STREAM XX

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

38

SITE NAME/LOCATION EVER POWER
 SITE NUMBER SAR-XX RIVER BASIN Little Darby DRAINAGE AREA (mi²) 0.01
 LENGTH OF STREAM REACH (ft) 200 LAT. 40.8517 LONG. 83.584107 RIVER CODE _____ RIVER MILE _____
 DATE 10/19/11 SCORER BMF 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 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.)				HHEI Metric Points
TYPE	PERCENT	TYPE	PERCENT	
☐ BLDR SLABS (16 pts)	_____	☐ SILT (3 pts)	☒ 20	Substrate Max = 40 23 A + B
☐ BOULDER (>256 mm) (16 pts)	_____	☐ LEAF PACK/WOODY DEBRIS (3 pts)	_____	
☐ BEDROCK (16 pts)	_____	☐ FINE DETRITUS (3 pts)	_____	
☐ COBBLE (65-256 mm) (12 pts)	☒ 10	☐ CLAY or HARDPAN (10 pts)	☒ 10	
☒ GRAVEL (2-64 mm) (19 pts)	☒ 60	☐ MUCK (10 pts)	_____	
☐ SAND (<2 mm) (6 pts)	☒ 10	☐ ARTIFICIAL (3 pts)	_____	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock <u>10</u>		(A) <u>18</u>	(B) <u>5</u>	
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:		TOTAL NUMBER OF SUBSTRATE TYPES:		
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):				
☐ > 80 centimeters (20 pts)	☐ 55 cm - 10 cm (15 pts)	Pool Depth Max = 30 0		
☐ 22.5 - 30 cm (10 pts)	☐ < 5 cm (5 pts)			
☐ < 10 - 22.5 cm (25 pts)	☒ NO WATER OR MOIST CHANNEL (10 pts)			
COMMENTS <u>dry</u>		MAXIMUM POOL DEPTH (centimeters):		0
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):				
☐ > 4.0 meters (> 13') (30 pts)	☒ 1.0 m - 1.5 m (< 5' 3" - 4' 9") (15 pts)	Bankfull Width Max = 30 15		
☐ 3.0 m - 4.0 m (< 9' 8" - 13') (25 pts)	☐ < 1.0 m (< 3' 3") (5 pts)			
☐ 1.5 m - 3.0 m (< 5' 3" - 9' 8") (20 pts)				
COMMENTS _____		AVERAGE BANKFULL WIDTH (meters)		4'

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)		
☐	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 CRP W&G HAY

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 Dry

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)

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

STREAM XX

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: LITTLE DARBY CR. 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: CHAMPAIGN Township / City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: Today Quantity: 1"
 Photograph Information: yes ↑ + ↓
 Elevated Turbidity? (Y/N): N Canopy (% open): 20
 Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or Id. and attach results) Lab Number: _____
 Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____
 Is the sampling reach representative of the stream (Y/N) Y If not, please explain: _____

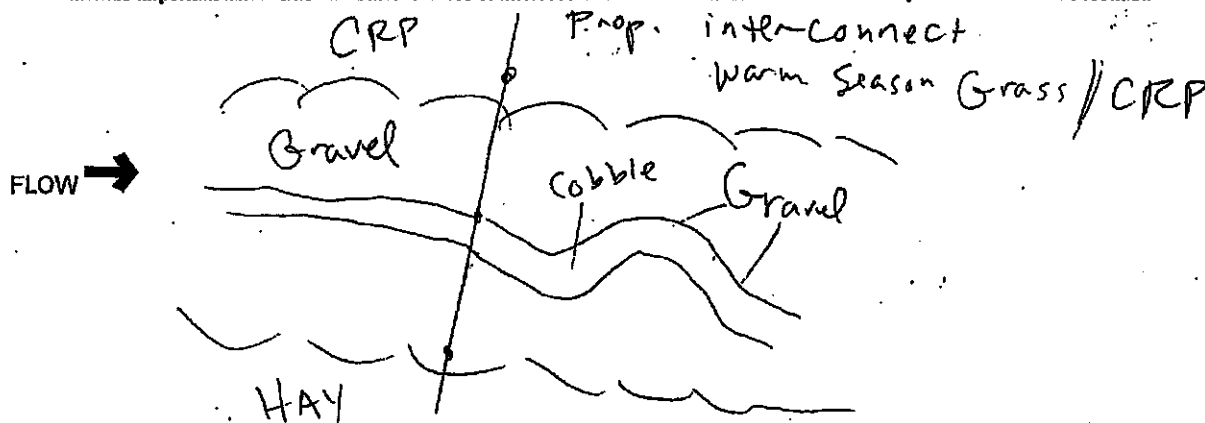
Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): 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



Primary Headwater Habitat Evaluation Form

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

8

SITE NAME/LOCATION Ever Power SITE NUMBER RIVER BASIN Little Darby DRAINAGE AREA (mi²) 0.27
 LENGTH OF STREAM REACH (ft) LAT. 40.076222 LONG. 83.585147 RIVER CODE RIVER MILE
 DATE 10/19/11 SCORER BMF 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: channel in open 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
☐ BLDG SLABS (16 pts)		☐ SILT (3 pts)	
☐ BOULDER (>256 mm) (16 pts)		☐ 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)	70
☐ GRAVEL (2-64 mm) (9 pts)	15	☐ MUCK (0 pts)	
☐ SAND (<2 mm) (5 pts)		☐ ARTIFICIAL (3 pts)	

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

15

(A)

0

(B)

3

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

HHEI Metric Points

Substrate Max = 40

3

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):

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' 6") (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 (> 9' 7" - 4' 6") (20 pts)	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

24"

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

COMMENTS

FLOODPLAIN QUALITY

- L R (Most Predominant per Bank)
- ☐ Mature Forest, Wetland
- ☐ Immature Forest, Shrub or Old Field
- ☐ Residential, Park, New Field
- ☐ Fenced Pasture

- L R
- ☐ Conservation Tillage
- ☐ Urban or Industrial
- ☒ Open Pasture, Row Crop
- ☐ Mining or Construction

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

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

COMMENTS

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)

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

STREAM YY

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

DOWNSTREAM DESIGNATED USE(S)

☐ VWH Name: _____ Distance from Evaluated Stream _____
☐ CWH Name: _____ Distance from Evaluated Stream _____
☐ EWH Name: Little Darby Creek 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: Champaign Township / City: Mechanicsburg

MISCELLANEOUS

Base Flow Conditions? (Y/N): _____ Date of last precipitation: Today Quantity: > 1"

Photograph Information: Yes ↓ & ↑

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

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

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

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

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

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

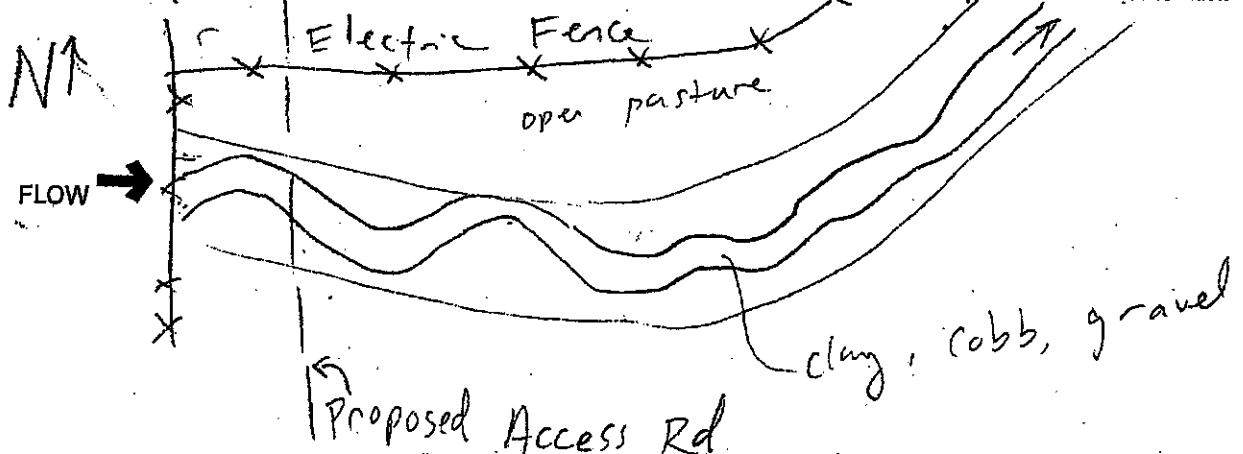
Fish Observed? (Y/N) N Voucher? (Y/N) _____ Salamanders Observed? (Y/N) N Voucher? (Y/N) N

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



Primary Headwater Habitat Evaluation Form

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

43

SITE NAME/LOCATION Lower Power Phase II

SITE NUMBER SHM 22-1 RIVER BASIN

DRAINAGE AREA (mi²) 0.24

LENGTH OF STREAM REACH (ft) 200

LAT. 40.10537

LONG. 83.62419

RIVER CODE

RIVER MILE

DATE 10/20/11 SCORER QMF

COMMENTS DRY DESPITE 2 DAYS SOLID RAIN!

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

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

MODIFICATIONS:

Channelization

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)		☐ SILT (3 pts)	
☐ BOULDER (>256 mm) (16 pts)	☒	☐ LEAF PACK/WOODY DEBRIS (3 pts)	
☐ BEDROCK (16 pts)		☐ FINE DETRITUS (3 pts)	
☐ COBBLE (65-256 mm) (12 pts)	☒ 5	☐ CLAY or HARDPAN (10 pts)	☒ 2
☒ GRAVEL (2-64 mm) (8 pts)	☒ 90	☐ MUCK (10 pts)	
☐ SAND (<2 mm) (8 pts)	☒ 2	☐ ARTIFICIAL (3 pts)	

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 6%

(A) 18

(B) 5

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

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)	☐ > 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):

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)	☐ > 1.0 m (> 3' 3") (5 pts)
☒ > 1.5 m - 3.0 m (> 4' 7" - 9' 7") (20 pts)	

COMMENTS

6', 7', 7'

AVERAGE BANKFULL WIDTH (meters)

6.0

Bankfull Width Max = 30

20

This information must also be completed

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

RIPARIAN WIDTH		FLOODPLAIN QUALITY	
L	R	L	R
☒ 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

DRY

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

☐ None	☐ 1.0	☐ 2.0
☐ 0.5	☐ 1.5	☒ >3

STREAM GRADIENT ESTIMATE

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

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

STREAM ZZ

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

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____
☐ CWH Name: BUCK CREEK 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: CHAMPAIGN Township / City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: TODAY Quantity: ✓ 1-2"

Photograph Information: Y

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) N Dissolved Oxygen (mg/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

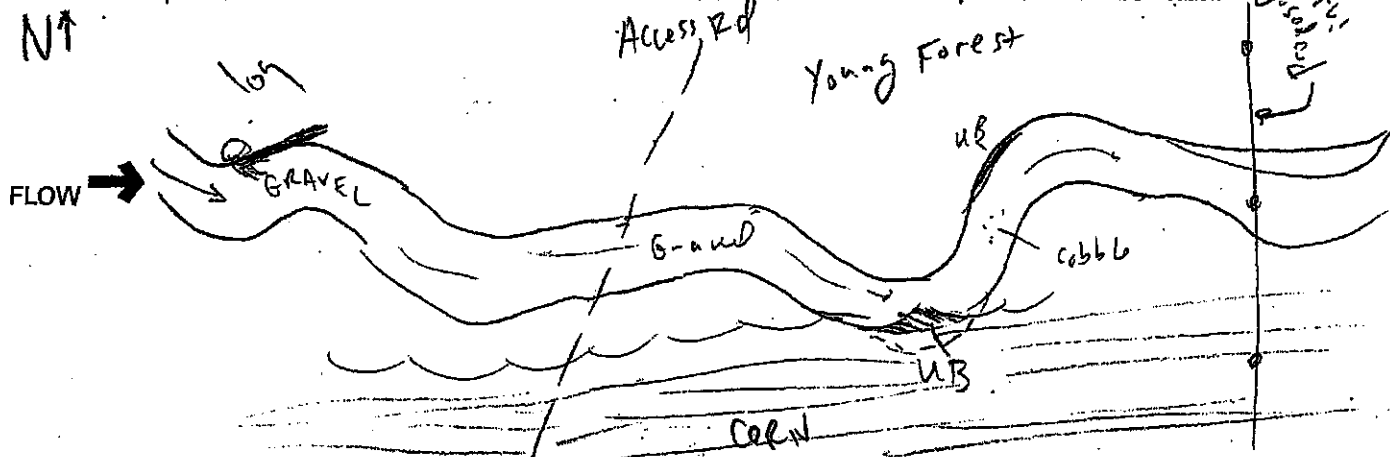
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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 22-2

Primary Headwater Habitat Evaluation Form

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

29

SITE NAME/LOCATION EVERLOW Phase II
 SITE NUMBER 22-2 RIVER BASIN _____ DRAINAGE AREA (mi²) 0.10
 LENGTH OF STREAM REACH (R) 200 LAT. _____ LONG. _____ RIVER CODE _____ RIVER MILE _____
 DATE 10/20/11 SCORER _____ COMMENTS _____

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

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

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 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]		☒ SILT [3 pts]	<u>25</u>
☐ BOULDER (>256 mm) [16 pts]	<u>1</u>	☐ LEAF PACK/WOODY DEBRIS [3 pts]	<u>15</u>
☐ BEDROCK [16 pts]		☐ FINE DETRITUS [3 pts]	
☐ COBBLE (63-256 mm) [12 pts]		☐ CLAY or HARDPAN [10 pts]	
☐ GRAVEL (2-64 mm) [9 pts]		☐ MUCK [10 pts]	
☐ SAND (<2 mm) [6 pts]		☐ ARTIFICIAL [3 pts]	

Total of Percentages of
Bldr Slabs, Boulder, Cobble, Bedrock 1

(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):

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

COMMENTS dry

MAXIMUM POOL DEPTH (centimeters):

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' 9") [15 pts]
☒ 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☐ 0.5 m - 1.0 m (> 1' 6" - 3' 3") [5 pts]
☐ 1.5 m - 3.0 m (> 4' 9" - 9' 7") [20 pts]	

COMMENTS

AVERAGE BANKFULL WIDTH (meters)

5'4"

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		FLOODPLAIN QUALITY			
L	R	L	R	L	R
☒	☒	☒	☒	☐	☐
(Per Bank)		(Most Predominant per Bank)			
Wide >10m		Mature Forest, Wetland		☐	☐
Moderate 5-10m		Immature Forest, Shrub or Old Field		☐	☐
Narrow <5m		Residential, Park, New Field		☒	☒
None		Fenced Pasture		☐	☐
				☐	☐

COMMENTS

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

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

COMMENTS

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

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

STREAM GRADIENT ESTIMATE

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

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

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

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____
☐ CWH Name: Buck Creek 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: Champaign Township / City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N) N Date of last precipitation: 10-20-11 Quantity: 1-2"

Photograph Information: Y

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) NA Dissolved Oxygen (mg/l) NA pH (S.U.) NA Conductivity (µmhos/cm) NA

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

Additional comments/description of pollution impacts:

BIOTIC EVALUATION

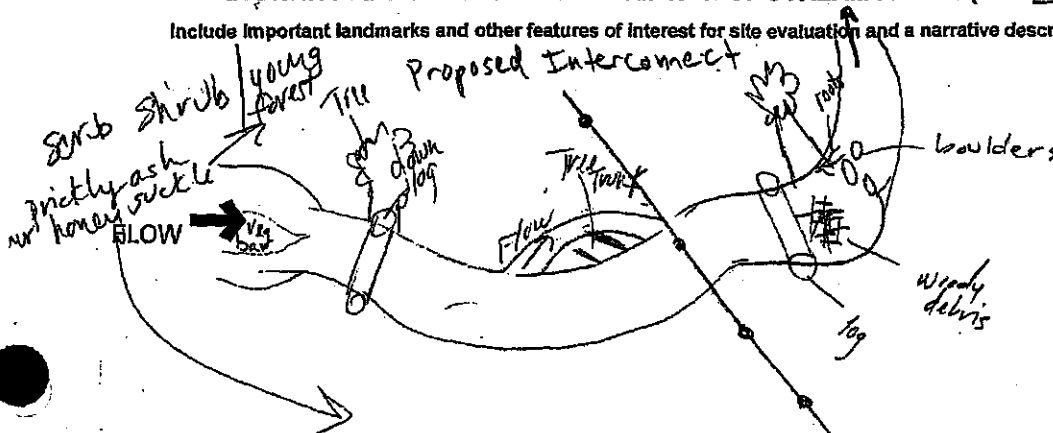
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

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





Mod Class II
STREAM AAA
Primary Headwater Habitat Evaluation Form

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

34

SITE NAME/LOCATION ENP010 UT to Buck Creek
SITE NUMBER _____ RIVER BASIN _____ DRAINAGE AREA (mi²) 0.06
LENGTH OF STREAM REACH (ft) _____ LAT. _____ LONG. _____ RIVER CODE _____ RIVER MILE _____
DATE _____ SCORER BMF COMMENTS _____

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

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

1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 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)		☒ SILT (3 pt)	30
☒ BOULDER (>256 mm) (16 pts)	10	☐ LEAF PACK WOODY DEBRIS (3 pts)	
☐ BEDROCK (16 pt)		☐ FINE DETRITUS (3 pts)	
☒ COBBLE (63-256 mm) (12 pts)	15	☒ CLAY or HARD PAN (0 pt)	40
☐ GRAVEL (2-64 mm) (8 pts)	20	☐ MUCK (0 pts)	
☐ SAND (<2 mm) (8 pts)	15	☐ ARTIFICIAL (3 pts)	

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

15

(A) 3

(B) 6

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:

TOTAL NUMBER OF SUBSTRATE TYPES:

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

☒ > 30 centimeters (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

15" 12" 11"

MAXIMUM POOL DEPTH (centimeters):

39

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

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

COMMENTS

3'2"

AVERAGE BANKFULL WIDTH (meters)

15

HHEI
Metric
Points

Substrate
Max = 40

9

A + B

Pool Depth
Max = 30

20

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

COMMENTS

FLOODPLAIN QUALITY

L	R	(Most Predominant per Bank)
☐	☐	Mature Forest, Wetland
☐	☐	Immature Forest, Shrub or Old Field
☐	☐	Residential, Park, New Field
☐	☐	Fenced Pasture

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

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

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

COMMENTS

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

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

STREAM GRADIENT ESTIMATE

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

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

STREAM AAA

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

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____
☒ CWH Name: Buck Creek 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: today Quantity: _____

Photograph Information: Yes ↑ & ↓

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

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

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

Is the sampling reach representative of the stream (Y/N) _____ 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

