### ChioEPA Primary Headwater Habitat Evaluation Form

ш		
ш	1.	
	160	V
	111	

SITE NAME/LOCATION ALV - NOSS GINGEY  SITE NUMBER RIVER BASIN SCIOTO RIVER DRAINAGE AREA (mi²) LENGTH OF STREAM REACH (ft) LAT 31353 ALA LONG 82.903 7007 RIVER CODE 0504 000 FOR MILE DATE 8 11 2017 SCORER KLV COMMENTS SOOK  NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Institute of Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Institute of Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams"	
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO REMODIFICATIONS:	COVERY
SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE  BLDR SLABS [16 pts]  BOULDER (>256 mm) [16 pts]  BEDROCK [16 pt]  COBBLE (65-256 mm) [12 pts]  GRAVEL (2-64 mm) [9 pts]  GRAVEL (2-64 mm) [9 pts]  Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock  SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:  TOTAL NUMBER OF SUBSTRATE TYPES:	HHEI Metric Points Substrate Max = 40
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):    > 30 centimeters [20 pts]	Pool Depth Max = 30
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts] > 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	Bankfull Width Max=30
This Information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream  RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank) L R (Most Predominant per Bank) Moderate 5-10m Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Field  Narrow <5m Residential, Park, New Field Open Pasture, Row Crop None COMMENTS  FLOW REGIME (At Time of Evaluation) COMMENTS  Moist Channel, isolated pools, no flow (Intermitten Dry channel, no water (Ephemeral) COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) None 1.0 2.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3	4
STREAM GRADIENT ESTIMATE  Flat (0.5 #/100 ft) Flat to Moderate (2 ft/100 ft) Moderate to Severe Severe (10 ft)	r100 h)

ADDITIONAL STREAM INFORMATION (This	Information Must Also be Completed):  No QHEI Score(If Yes, Attac	th Completed QHEI Form)
DOWNSTREAM DESIGNATED US WWH Name: LICK RUN CWH Name:	E(8)	Distance from Evaluated Stream
USGS Quadrangle Name Chilli cothctch	11. 1. 1	age: NRCS Soil Map Stream Order
MISCELLANEOUS  Base Flow Conditions? (Y/N):  Photograph Information	J	
Elevated Turbidity? (Y/N): Can		nd attach results) Lab Number:
		Conductivity (µmhos/cm)
ID number. Inc	clude appropriate field data sheets from the Prince of the	Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)
DRAWING AND NARRAT	IVE DESCRIPTION OF STREAM F	REACH (This must be completed):
-LOW	Maintaired Transmissiv ROW/ Posture	Shrub Finest
C1 x 3 (2)		THE WAY

June 20 2006 Revision

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

SITE NAME/LOCATION ALP-ROSS Ginge	RIVER BASIN SCIOTUS RIVON	DRAINAGE AREA (mi²) 0.0	35mi <sup>2</sup>
DATE 8/1201 SCORER KLV  NOTE: Complete All Items On This Form - Ref.	1.3156755 LONG 82.40491375 RIV COMMENTS SCO7	ER CODE 05000000 FR MILE	
STREAM CHANNEL NONE / NATURAL O	CHANNEL RECOVERED REC	OVERING TRECENT OR NO RECO	VERY
1. SUBSTRATE (Estimate percent of every type (Max of 40). Add total number of significant substance of the s	strate types found (Max of 8) Final metric	score is sum of boxes A & B.  PERCENT  DEBRIS [3 pts]	HHEI Metric Points
COBBLE (65-256 mm) [12 pts] GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts]	CLAY or HARDPAN  MUCK [0 pts]  ARTIFICIAL [3 pts]		Max = 40
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock  SCORE OF TWO MOST PREDOMINATE SUBSTRATE	TYPES: 7 TOTAL NUMBE	R OF SUBSTRATE TYPES:	A + B
2. Maximum Pool Depth (Measure the maximum evaluation. Avoid plunge pools from road culvert > 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts]	s or storm water pipes) (Check ONLY) > 5 cm - 10 cm [15   < 5 cm [5 pts]	one box): pts]  DIST CHANNEL [0 pts]	Pool Depth Max = 30
COMMENTS	MAXIMUM PO	OOL DEPTH (centimeters):	
3. BANK FULL WIDTH (Measured as the average > 4.0 meters (> 13') [30 pts]   3.0 m - 4.0 m (> 9'.7" - 13') [25 pts]   > 1.5 m - 3.0 m (> 4'.8" - 9'.7") [20 pts]	e of 3-4 measurements) (Chec > 1.0 m - 1.5 m (> 3' ☐ ≤ 1.0 m (≤ 3' 3") [5 p		Bankfull Width Max=30
COMMENTS	AVERAGE BA	ANKFULL WIDTH (meters)	15
RIPARIAN ZONE AND FLOODPLAIN Q		od Right (R) as looking downstream☆	
RIPARIAN WIDTH	Mature Forest, Wetland	L R Conservation Tillage	
Moderate 5-10m	Immature Forest, Shrub or Old Field	Urban or Industrial	
□□ Narrow <5m ⊠ None □□	Residential, Park, New Field Fenced Pasture	Open Pasture, Row Crop Mining or Construction	
COMMENTS	- 1 - 2 - 1		
	(Check ONLY one box) Moist Chann	nel, isolated pools, no flow (Intermittent) , no water (Ephemeral)	
FLOW REGIME (At Time of Evaluation)  Stream Flowing Subsurface flow with isolated pools (Inters COMMENTS	(Check ONLY one box) Moist Chann	, no water (Ephemeral)	

	Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)  WWH Name: UCK KUN	Distance from Evaluated Stream
CWH Name:	
_	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WAT	
	Springfield Tup- Chillicothe
MISCELLANEOUS	J
Base Flow Conditions? (Y/N). Date of last precipitation: 129	2017 Quantity: 4.25"
hotograph Information	
Elevated Turbidity? (Y/N): N Canopy (% open): 351.	
Vere samples collected for water chemistry? (Y/N): $M$ (Note lab sample r	no or id and attach results) Lab Number:
	(S.U.) Conductivity (µmhos/cm)
the sampling reach representative of the stream (Y/N)	oplain:
BIOTIC EVALUATION	
ID number. Include appropriate field data sheets fr	om the Primary Headwater Habitat Assessment Manual)
ID number. Include appropriate field data sheets fr	om the Primary Headwater Habitat Assessment Manual)
ID number. Include appropriate field data sheets fr	om the Primary Headwater Habitat Assessment Manual)
ID number. Include appropriate field data sheets from the control of the control	om the Primary Headwater Habitat Assessment Manual)
ID number. Include appropriate field data sheets frish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? rogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macroir	om the Primary Headwater Habitat Assessment Manual)
ID number. Include appropriate field data sheets frish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? rogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macroir	om the Primary Headwater Habitat Assessment Manual)
ID number. Include appropriate field data sheets frish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? rogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macroir	om the Primary Headwater Habitat Assessment Manual)
ID number. Include appropriate field data sheets frish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? rogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macroir comments Regarding Biology.	om the Primary Headwater Habitat Assessment Manual)  (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N
ID number. Include appropriate field data sheets from the control of the control	rom the Primary Headwater Habitat Assessment Manual)  (Y/N) \( \frac{N}{N} \) \( \fr
ID number. Include appropriate field data sheets from the field of the sheets from the	(Y/N) N Voucher? (Y/N)
ID number. Include appropriate field data sheets from the company of the company	(Y/N) N Voucher? (Y/N)
ID number. Include appropriate field data sheets from the Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? ogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macroir comments Regarding Biology.  DRAWING AND NARRATIVE DESCRIPTION OF ST Include important landmarks and other features of Interest for site eva	(Y/N) N Voucher? (Y/N)
ID number. Include appropriate field data sheets from the Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? ogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macroin amments Regarding Biology.  DRAWING AND NARRATIVE DESCRIPTION OF ST	(Y/N) Noucher? (Y/N)
ID number. Include appropriate field data sheets from the Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Aquatic Macroir comments Regarding Biology.  DRAWING AND NARRATIVE DESCRIPTION OF ST Include important landmarks and other features of interest for site eva	(Y/N) N Voucher? (Y/N)
ID number. Include appropriate field data sheets from the shoot of the short of the	(Y/N) N Voucher? (Y/N)
ID number. Include appropriate field data sheets from the commentation of the commenta	(Y/N) N Voucher? (Y/N)
ID number. Include appropriate field data sheets from the company of the company	(Y/N) Noucher? (Y/N)
ID number. Include appropriate field data sheets from the commentation of the commenta	(Y/N) N Voucher? (Y/N)
ID number. Include appropriate field data sheets from the Shand of Sherved? (Y/N) Not the Sh	(Y/N) N Voucher? (Y/N)
ID number. Include appropriate field data sheets from the Observed? (Y/N) Not the Salamanders Observed? (Y/N) Not the Salamanders Observed? Observed? (Y/N) Not the Salamanders Observed? Observed? (Y/N) Not the Salamanders Ob	(Y/N) Voucher? (Y/N)
ID number. Include appropriate field data sheets from the Observed? (Y/N) Noucher? (Y/N) Salamanders Observed? Observed? (Y/N) Noucher? (Y/N) Aquatic Macroin ments Regarding Biology.  DRAWING AND NARRATIVE DESCRIPTION OF ST Include important landmarks and other features of interest for site evaluation. Transmission Row pasture.	(Y/N) Noucher? (Y/N)
ID number. Include appropriate field data sheets from the Shobserved? (Y/N) Not the Salamanders Observed? (Y/N) Not the Salamanders Observ	(Y/N) N Voucher? (Y/N)

### Chieff Primary Headwater Habitat Evaluation Form

li	
	21
	24

SITE NAME/LOCATION AREA - KOSS ()	anger	0.025
LENGTH OF STREAM REACH (#) 1/2 DATE 8/1/2017 SCORER KLV	RIVER BASIN_ LAT. 39.32712198 LONG 82.9036245 RIVE COMMENTS SOOB	DRAINAGE AREA (mi²) 0.035mi² R CODE 050.00010 FRVER MILE
NOTE: Complete All Items On This Form	n - Refer to "Field Evaluation Manual for O	phio's PHWH Streams" for Instructions
STREAM CHANNEL NONE / NAT MODIFICATIONS:	TURAL CHANNEL    RECOVERED    RECO	VERING TRECENT OR NO RECOVERY
(Max of 40). Add total number of significa	ry type of substrate present. Check ONLY two prant substrate types found (Max of 8). Final metric server is substrate types found (Max of 8). Final metric server is substrate types found (Max of 8). Final metric server is substrate types found (Max of 8). Final metric server is substrate types found (Max of 8). Final metric server is substrate types for substrate	PERCENT DEBRIS [3 pts] SI DEBRIS [3 pts]
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBST	(A) (S) TOTAL NUMBER	OF SUBSTRATE TYPES:
	eximum pool depth within the 61 meter (200 ft) at culverts or storm water pipes) (Check ONLY or 5 cm - 10 cm [15 pt: 5 cm [5 pts] NO WATER OR MOIS	me box):  Max = 30
COMMENTS	MAXIMUM POO	DL DEPTH (centimeters):
3. BANK FULL WIDTH (Measured as the a > 4.0 meters (> 13') [30 pts]  3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	average of 3-4 measurements) (Check	
COMMENTS	AVERAGE BAN	NKFULL WIDTH (meters)
RIPARIAN ZONE AND FLOODPI RIPARIAN WIDTH	This information must also be completed LAIN QUALITY ☆NOTE: River Left (L) and R FLOODPLAIN QUALITY	ight (R) as looking downstream☆
L R (Per Bank)	L R (Most Predominant per Bank)	L R
☐ ☐ Wide >10m	Mature Forest, Wetland Immature Forest, Shrub or Old	Conservation Tillage
Moderate 5-10m	Field	Urban or Industrial Open Pasture, Row
☐ ☐ Narrow <5m ☐ ☐ None COMMENTS	Residential, Park, New Field Fenced Pasture	Crop Mining or Construction
FLOW REGIME (At Time of Evalue) Stream Flowing Subsurface flow with isolated pools COMMENTS	Moist Channel	, isolated pools, no flow (Intermittent) o water (Ephemeral)
SINUOSITY (Number of bends pe None	er 61 m (200 ft) of channel) (Check <i>ONLY</i> one bo	3.0 3.0 3.3
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)

DOWNSTREAM DESIGNATED USE(S)	n 00 11.
	Distance from Evaluated Stream 0.93miles
	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE E	NTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name Chillicathe Fust land modern	NRCS Soil Map Page: NRCS Soil Map Stream Order
county: ROSS Co	nship/city. Springfield Tup Chilliathe
MISCELLANEOUS	J
	29 2017 quantity: 4.25"
Base Flow Conditions? (Y/N): Date of last precipitation:	Quantity: C. A.
Photograph Information:	
Elevated Turbidity? (Y/N): 15 Canopy (% open): 15	<u> </u>
Were samples collected for water chemistry? (Y/N): (Note la	
Field Measures: Temp (°C) Dissolved Oxygen (mg/l)	pH (S.U.) Conductivity (μmhos/cm)
	t, please explain:
is the sampling reach representative of the stream (1/N)	t, picase expialit
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION  Performed? (Y/N): (If Yes, Record all observations. Vouch	ner collections optional. NOTE: all voucher samples must be labeled with the site
BIOTIC EVALUATION  Performed? (Y/N): (If Yes, Record all observations. Vouch ID number. Include appropriate field da Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquation Comments Regarding Biology.  DRAWING AND NARRATIVE DESCRIPTIO	tta sheets from the Primary Headwater Habitat Assessment Manual)
Performed? (Y/N): (If Yes, Record all observations. Vouch ID number. Include appropriate field da Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquation Comments Regarding Biology	N OF STREAM REACH (This must be completed):

### Chief Primary Headwater Habitat Evaluation Form

II7	
N	110
П	4
腿	

SITE NAME/LOCATION AP SITE NUMBER LENGTH OF STREAM REACH (ft) UU DATE BIZOIT SCORER VIV NOTE: Complete All Items On This Fo	RIVER BASIN Scroto RIVEY DRAINAGE AREA (mi²) 0.02	35mi <sup>2</sup>
STREAM CHANNEL NONE / N/ MODIFICATIONS:	ATURAL CHANNEL    RECOVERED    RECOVERING    RECENT OR NO RECOVE	ERY
(Max of 40). Add total number of signifi	PERCENT TYPE   PERCENT	HHEI Metric Points Substrate Max = 40
		ool Depth Max = 30
3. BANK FULL WIDTH (Measured as the > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] COMMENTS_	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankfull Width Max=30
RIPARIAN ZONE AND FLOOD RIPARIAN WIDTH	This information <u>must</u> also be completed  PPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆  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 Even Stream Flowing Subsurface flow with isolated po COMMENTS	Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)  per 61 m (200 ft) of channel) (Check ONLY one box):	
None O.5 STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate	1.0	:)

OHEI PERFORNIED? - Des Alto OHEI Score (If Yes, Atlach Completed CHEI Form)  DOWNSTREAM DESIGNATED USE(S)  Distance from Evaluated Stream Distance from Evaluation Map Page: NRCS Soil Map Stream Order Township / ORLy Springfield Tupe (Chillicoth)  MISCELLANEOUS  Base Flow Conditions? (V/N) Distance of last precipitation: 129 Zool Quantity Cass.  Were samples collected for water chemistry? (V/N) Distance of London Stream Distance On London Stream Distance Dis	ADDITIONAL STREAM INFORMATION (This Information Must Also be Con	mpleted):
Distance from Evaluated Stream  JOWN Name:  Distance from Evaluated Stream  Distance from Evaluated Stream  Distance from Evaluated Stream  MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA CLEARLY MARK THE SITE LOCATION  SGS Quadrangle Name Chillicath Last Landanadorn NRCS Soil Map Page:  NRCS Soil Map Stream Grider  Township / City Springfled Trup:  NRCS Soil Map Stream Grider  Township / City Springfled Trup:  Chillicath  MISCELLANEOUS  MISCELLANEOUS  Base Flow Conditions? (YM):  Date of last precipitation: 129 201  Canopy (% open): 201  revealed Turbicity? (YM):  Conductivity (umhos/cm)  The earnpling reach representative of the stream (YM)  If not, please explain:  BIOTIC EVALUATION  off (Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate feld data sheets from the Primary Headwater Habitat Assessment Manual)  Set Observed? (YM):  Drawling AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):  Include Important Landmarks and other feptiting of hydress for site evaluation and a narrative description of the stream's location  Transmission  Transm	QHEI PERFORMED? - Tyes No QHEI Score(	(If Yes, Attach Completed QHEI Form)
Distance from Evaluated Stream  OWN Name:  Distance from Evaluated Stream  MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA CLEARLY MARK THE SITE LOCATION  SGS Quadrangle Name Chillicothic Tast Conditions? (YAN):  MISCELLANEOUS  Size Flow Conditions? (YAN):  Date of last precipitation. 129 201 Quantity. 235  Indegraph Information:  evaled Turbidity? (YAN):  Canopy (% open):  201  ere samples collected for water chemistry? (YAN):  In (Note lab sample no. or id. and attach results) Lab Number:  evaled Turbidity? (YAN):  Dissolved Oxygen (mg/l)  pH (SU.)  Conductivity (umhos/orn)  Ithe sampling reach representative of the stream (YAN)  (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site  ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Marurus)  Sch Observed? (YAN):  Voucher? (YAN):  DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):  Include important landmarks and other feptures of halefest for site evaluation and a narrative description of the stream's location  Transmission  ROWN  Transmission  Transmission  Transmission  Transmission  Transmission  Transmission  Transmission  Transmission	DOWNSTREAM DESIGNATED USE(S)	- 22
Distance from Evaluated Stream Distance from Evaluated Stream MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA CLEARLY MARK THE SITE LOCATION  SGS Quadrangle Name Chillicath Last Landandary NRCS soil Map Page: NRCS Soil Map Stream Order  Durby	WWH Name: Scroto Rivo	Distance from Evaluated Stream 0.89miles
EWH Name:   Distance from Evaluated Stream   MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION	CWH Name:	Distance from Evaluated Stream
Ses Quadrangle Name Chillicoth i Edst I (Middractor) NRCS soil Map Page: NRCS soil Map Stream Order Public    NRCS LANEOUS  see Flow Conditions? (Y/N): Date of last precipitation: 129		
MISCELLANEOUS  se Flow Conditions? (Y/N): Date of last precipitation: [29] Zol Quantity 25	MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE W	ATERSHED AREA. CLEARLY MARK THE SITE LOCATION
MISCELLANEOUS  see Flow Conditions? (Y/N): Date of last precipitation: 129	sgs quadrangle Name Chillicoth i Fast Landonder Nings	Soil Map Page: NRCS Soil Map Stream Order
Include important landmarks and other festdres of tyte less for site evaluation and a narrative description of the stream's locations.  DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):  Include important landmarks and other festdres of tyte less for site evaluation and a narrative description of the stream's location.  DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):  Include important landmarks and other festdres of tyte less to rest and the stream's location.  DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):  Include important landmarks and other festdres of tyte less the evaluation and a narrative description of the stream's location.  Transmissional completed in the stream's location.	D c	6 611- (6 11 11
Date of last precipitation: 129 201 Quantity. 425  cotograph Information: 29 201.  cotograph Information: 201 Quantity (YN): 1 Canopy (% open): 201.  cre samples collected for water chemistry? (YN): 1 (Note lab sample no. or id. and attach results) Lab Number: 201 Add Measures: Temp ("C) Dissolved Oxygen (mg/h) pH (S.U.) Conductivity (jumhos/cm) 1 (If not, please explain: 201 Add Measures: 1 (If not, please explain: 201 Add Measures: 1 (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site 10 number. Include appropriate field data sheets from the Primary Headwater Habital Assessment Manual) 1 (If Yes, Record all observed? (YN) N Salamanders Observed? (YN) N Voucher? (YN) N Aquatic Macroinvertebrates Observed? (YN) N Voucher? (YN) N Nouther? (YN) N Nouther	ounty 105 CO Township / Cit	is springhera hup terminonie
coopgraph Information:  everted Turbidity? (Y/N): Name Canopy (% open): 20 1.  ere samples collected for water chemistry? (Y/N): Name (Note lab sample no. or id. and attach results) Lab Number:  ere samples collected for water chemistry? (Y/N): Name (Note lab sample no. or id. and attach results) Lab Number:  ere samples collected for water chemistry? (Y/N): Name (Note lab sample no. or id. and attach results) Lab Number:  ere samples collected for water chemistry? (Y/N): Name (Note lab sample no. or id. and attach results) Lab Number:  ere samples collected for water chemistry? (Y/N): Name (Note lab sample no. or id. and attach results) Lab Number:  ere samples collected for water chemistry? (Y/N): Name (Note lab sample no. or id. and attach results) Lab Number:  ere samples collected for water chemistry? (Y/N): Name (Note lab sample no. or id. and attach results) Lab Number:  ere samples collected for water chemistry? (Y/N): Name (Note lab sample no. or id. and attach results) Lab Number:  ere samples collected for water chemistry? (Y/N): Name (Note lab sample no. or id. and attach results) Lab Number:  ere samples collected for water chemistry? (Y/N): Name (Note lab sample no. or id. and attach results) Lab Number:  ere samples collected for water chemistry? (Y/N): Note lab sample no. or id. and attach results) Lab Number:  ere samples collected for water chemistry? (Y/N): Note lab sample no. or id. and attach results) Lab Number:  ere samples collected for water chemistry? (Y/N): Note lab sample no. or id. and attach results) Lab Number:  ere samples collected for water chemistry? (Y/N): Note lab sample no. or id. and attach results) Lab Number:  ere samples collected for water chemistry.  ere samples collected for water chemistry.  ere samples for id. and attach results) Lab Number:  ere samples for id. (Note):  ere samples for id. (No		4 5
colograph Information:  evated Turbidity? (Y/N):  Canopy (% open):  20 1.  ere samples collected for water chemistry? (Y/N):  Note lab sample no. or id. and attach results) Lab Number:  eled Measures:  Temp ("C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)  the sampling reach representative of the stream (Y/N)  If not, please explain:  BIOTIC EVALUATION  (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number: include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  Sin Observed? (Y/N)  Voucher? (Y/N)  Voucher? (Y/N)  Aquatic Macroinvertebrates Observed? (Y/N)  DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):  Include Important landmarks and other features of hatefest for site evaluation and a narrative description of the stream's location  Transmission Row  Augustic Macroinvertebrates Observed? (Y/N)  Agistic Policy  Transmission Row  Policy  Polic	se Flow Conditions? (Y/N): Date of last precipitation:	201 Quantity: $4.25$
Parallel Turbidity? (Y/N): Name Canopy (% open): 201.  Sere samples collected for water chemistry? (Y/N): Name lab sample no. or id. and attach results) Lab Number:  Seld Measures: Temp (*C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)  Ith not, please explain:  BIOTIC EVALUATION  If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  th Observed? (Y/N) Name Voucher? (Y/N) Name Stalemanders Observed? (Y/N) Name Voucher? (Y/N) Name Stalemanders Observed? (Y/N) Name Name Stalemanders Observed? (Y/N) Name Name Stalemanders Observed? (Y/N) Name Name Name Name Name Name Name Name		
rere samples collected for water chemistry? (Y/N):		
eld Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm) the sampling reach representative of the stream (Y/N) If not, please explain: diditional comments/description of pollution impacts:		
BIOTIC EVALUATION  erformed? (Y/N):	ere samples collected for water chemistry? (Y/N): 11 (Note lab sample	no. or id. and attach results) Lab Number:
BIOTIC EVALUATION  erformed? (Y/N):	eld Measures: Temp (°C) Dissolved Oxygen (mg/l) p	oH (S.U.) Conductivity (µmhos/cm)
BIOTIC EVALUATION  erformed? (Y/N):	the sampling reach representative of the stream (Y/N) If not, please	explain:
BIOTIC EVALUATION  (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  sh Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N INTERPRETATION OF STREAM REACH (This must be completed):  Include Important landmarks and other features of interest for site evaluation and a narrative description of the stream's location  Transmission Row		
BIOTIC EVALUATION  (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  Ish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N Omments 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  Transmission Row		
Include important landmarks and other features of interiest for site evaluation and a narrative description of the stream's location  Transmission Row  Pasture  Low	erformed? (Y/N):  (If Yes, Record all observations. Voucher collection of the propriate field data sheets shought of the propriate field data sheets ogs or Tadpoles Observed? (Y/N)  (If Yes, Record all observations. Voucher collection of the propriate field data sheets shought of the propriate field data sheets ogs or Tadpoles Observed? (Y/N)  Voucher? (Y/N)  Aquatic Macro	from the Primary Headwater Habitat Assessment Manual)  1? (Y/N) Voucher? (Y/N) Vo
Include Important landmarks and other features of interiest for site evaluation and a narrative description of the stream's location  Transmission Row  pasture  Owner photon		
Include important landmarks and other features of interiest for site evaluation and a narrative description of the stream's location  Transmission Row  pasture  Low		
Include Important landmarks and other features of Interest for site evaluation and a narrative description of the stream's location  Transmission Row  pasture  Low		
Steep boints  Transmission Row  pasture  First		
LOW - Sheep bolght First	Include important landmarks and other features of interest for site ev	
LOW - Free p bolgst	$\sim$ 1 ( $\sim$ 1	Row/
LOW - Free p bolgst	~ ~ ~ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	Transmission
ow - Togher boilet	de Obolina	pasture
ow - Cyteep boldt	Start	
Tregleep bolds )		
	.ow	
	- holds	
	TESTELL DIG	1
(Forest)		( First
(EUS)	1 2 4	9 10001
	(800)	

### ChieFPA Primary Headwater Habitat Evaluation Form

r		
ı	22	
ı	4	

SITE NAME/LOCATION PEP - KOSSU SITE NUMBER SITE NUMBER	RIVER BASIN SUDTO RIVER DRAINAGE AREA (mi²) 0.035 mi² LAT39.32755767 LONG 82.9662361 PRIVER CODE 05060020 RIVER MILE COMMENTS SO/0
	m - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions  TURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY
(Max of 40). Add total number of signific	TYPE of substrate present. Check ONLY two predominant substrate TYPE boxes and substrate types found (Max of 8). Final metric score is sum of boxes A & B.  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]  (B)  A + B  TOTAL NUMBER OF SUBSTRATE TYPES:
	Pool Depth d culverts or storm water pipes) (Check ONLY one box):
3. BANK FULL WIDTH (Measured as the > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]  COMMENTS	average of 3-4 measurements) (Check ONLY one box):    > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]   S 1.0 m (< 3' 3") [5 pts]     AVERAGE BANKFULL WIDTH (meters)   2'
RIPARIAN ZONE AND FLOODS RIPARIAN WIDTH	This information <u>must</u> also be completed  PLAIN QUALITY
L R (Per Bank) Wide >10m Moderate 5-10m	L R (Most Predominant per Bank)  Mature Forest, Wetland  Immature Forest, Shrub or Old Field  Conservation Tillage  Urban or Industrial
None COMMENTS	Residential, Park, New Field Crop Mining or Construction    Crop Mining or Construction   Check ONLY one box):
Stream Flowing Subsurface flow with isolated poor COMMENTS SINUOSITY (Number of bends poor None	Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)  per 61 m (200 ft) of channel) (Check ONLY one box): 1.0
STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft)   Flat to Moderate	1.5

ADDITIONAL STREAM INFORMATION (This Inf	ormation Must Also be Compl	ted):		
QHEI PERFORMED? - Yes No	QHEI Score(If Y	es, Attach Completed QHEI Form)		
DOWNSTREAM DESIGNATED USE(S	)	Distance from Evaluated	d Stream 090 mil	05
	87/19			
☐ EWH Name:		Distance from Evaluated		
MAPPING: ATTACH COPIES OF MAPS,	to the T			
USGS Quadrangle Name: Chillicothe East	Londonderny NRCS So	Map Page: NRCS Soil I	Map Stream Order	
county: Ross Co.	11.101	prinafield Twp./Chil	licitho	
County:	I ownship / City:	pringricus two-/ Chin	illerine	_
MISCELLANEOUS				
Base Flow Conditions? (Y/N): Date of la	est precipitation: 7 29 20	017 Quantity: 4,25	1	
Base Flow Goldstons. (Imp Bate of it	oc prodpitatori.			
Photograph Information:				-
Elevated Turbidity? (Y/N): Canopy	(% open): 351.			
Were samples collected for water chemistry? (Y/N				
				<del>-</del>
Field Measures: Temp (°C) Dissolved	Oxygen (mg/l) pH (	S.U.) Conductivity (µmh	os/cm)	
Is the sampling reach representative of the stream				
is the sampling reach representative of the stream	1 (17/N) If not, please expi	101.		_
A delition of a Mustice District Control of the Mustice District Control of the C	atar.			
Additional comments/description of pollution impa	cts			
Fish Observed? (Y/N) Voucher? (Y/N) Frogs or Tadpoles Observed? (Y/N) Voucher	e appropriate field data sheets from Salamanders Observed? (* er? (Y/N) Aquatic Macroinv  E DESCRIPTION OF STR	EAM REACH (This <u>must</u> b	Voucher? (Y/N) \( \frac{1}{2} \)  De completed):	
include ampultant landillants and other le	The state of the s	months and a real and a description	7	
· h	h (	h 2	1	
	ded )	, )	7/	,
( ) /FO	isted)		)	1
	1			~
-Low -				
Forested	3(	3	3	Transmission Row
	The state of the s			

### ChieFPA Primary Headwater Habitat Evaluation Form

Ī		٦
ı	14	ı

SITE NAME/LOCATION AT BOSS CONTROL SITE NUMBER LENGTH OF STREAM REACH (1) 340 DATE 8/1/2017 SCORER VIX.  NOTE: Complete All Items On This F	LAT39.32.7755		VER CODE _	RIVER MILE	
STREAM CHANNEL NONE / MODIFICATIONS:	NATURAL CHANNEL	RECOVERED REC	COVERING (	TRECENT OR NO RECO	OVERY
1. SUBSTRATE (Estimate percent of (Max of 40). Add total number of sign TYPE  BLDR SLABS [16 pts]  BOULDER (>256 mm) [16 pts]  BEDROCK [16 pt]  COBBLE (65-256 mm) [12 pts]  GRAVEL (2-64 mm) [9 pts]  SAND (<2 mm) [6 pts]  Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SU	PERCENT T		Y DEBRIS [3 pts]	of boxes A & B.  PERCENT  (B)	HHEI Metric Points Substrate Max = 40
2. Maximum Pool Depth (Measure the evaluation. Avoid plunge pools from a > 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts]		water pipes) (Check ONLY  > 5 cm - 10 cm [15  < 5 cm [5 pts]  NO WATER OR M	one box): pts] DIST CHANNI		Pool Depth Max = 30
3. BANK FULL WIDTH (Measured as 1 > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7' - 13') [25 pts] > 1.5 m - 3.0 m (> 4' 8" ± 9' 7") [20 pts] COMMENTS	he average of 3-4 m	> 1.0 m (< 3'37) [5]	k ONLY one '3"-4'8") [15 pte]	box):	Bankfull Width Max=30
	This inform	ation must also be complete	ed		i i
RIPARIAN ZONE AND FLOO RIPARIAN WIDTH	DPLAIN QUALITY FLOODPLAIN	ANOTE: River Left (L) and QUALITY	Right (R) as I	ooking downstream \$	
L R (Per Bank) Wide >10m Moderate 5-10m	L R (Mos	t Predominant per Bank) re Forest, Wetland ature Forest, Shrub or Old	□ R □ □	Conservation Tillage Urban or Industrial	
Narrow <5m None COMMENTS	☐ ☐ Resid	dential, Park, New Field ed Pasture	00	Open Pasture, Row Crop Mining or Construction	
FLOW REGIME (At Time of E Stream Flowing Subsurface flow with isolated p COMMENTS		Moist Chan	nel, isolated p	ools, no flow (Intermittent) phemeral)	iji.
SINUOSITY (Number of bend None 0.5	s per 61 m (200 ft) of 1.0 1.5	channel) (Check ONLY one 2.0 2.5	box):	] 3.0 ] >3	

QHEI PERFORMED			
	:D? - 🗆 Yes 🕱 No QHEI Score	(If Yes, Attach Completed QHEI Form)	
DOWNSTREAM DE	ESIGNATED USE(S)	Distance from Evaluated Strea	m 0.89 miles
		Distance from Evaluated Stream	
		Distance from Evaluated Stream	
		IRE WATERSHED AREA. CLEARLY MARK THE SIT	
	N= 111 1	NRCS Soil Map Page: NRCS Soil Map St	
2 Co	IIIIGIIC CASI CO MOTO	ip/city.SpringfieldTup/Chillicott	ream Order
county: KOSS CO	Towns	ip/city-springited the Chimen	10
MISCELLANEOUS	· · · · · · · · · · · · · · · · · · ·	0/2017 / 2511	
lase Flow Conditions? (Y/N):_	Date of last precipitation:	9 2017 Quantity: 4, 25"	
hotograph Information:			
	Canopy (% open): 100 /		
		sample no. or id. and attach results) Lab Number	
		pH (S.U.) Conductivity (µmhos/cm)	
s the sampling reach represen	entative of the stream (Y/N)	lease explain:	
BIOTIC EVALUATION	(If Yes, Record all observations. Voucher	collections optional. NOTE: all voucher samples must sheets from the Primary Headwater Habitat Assessme	
ish Observed? (Y/N) \ rogs or Tadpoles Observed?	Voucher? (Y/N) Salamanders Ob? (Y/N) Voucher? (Y/N) Aquation	served? (Y/N) Voucher? (Y/N) Voucher Voucher? (Y/N) Vouch	er? (Y/N)
ish Observed? (Y/N) \ rogs or Tadpoles Observed?	Voucher? (Y/N) Salamanders Ob? (Y/N) Voucher? (Y/N) Aquation	served? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Vouch	er? (Y/N)N
Comments Regarding Biology:  DRAWING AN	Voucher? (Y/N) Salamanders Ot (Y/N) Aquation Solid Salamanders Ot (Y/N) Aquation Solid Sol	OF STREAM REACH (This must be considered and a narrative description of the	npleted):
ish Observed? (Y/N) Norge or Tadpoles Observed? comments Regarding Biology.	Voucher? (Y/N) Salamanders Ot (Y/N) Aquation Solid Salamanders Ot (Y/N) Aquation Solid Sol	OF STREAM REACH (This <u>must</u> be consisted evaluation and a narrative description of the	mpleted):
rish Observed? (Y/N) Norge or Tadpoles Observed? Comments Regarding Biology.  DRAWING AN	Voucher? (Y/N) Salamanders Ot (Y/N) Aquation Solid Salamanders Ot (Y/N) Aquation Solid Sol	OF STREAM REACH (This <u>must</u> be consisted evaluation and a narrative description of the	mpleted):
ish Observed? (Y/N) Norogs or Tadpoles Observed? Comments Regarding Biology.  DRAWING AN Include Important lands	Voucher? (Y/N) Salamanders Ot (Y/N) Aquation Solid Salamanders Ot (Y/N) Aquation Solid Sol	OF STREAM REACH (This <u>must</u> be consisted evaluation and a narrative description of the	mpleted):
ish Observed? (Y/N) Norogs or Tadpoles Observed? Comments Regarding Biology.  DRAWING AN Include Important lands	Voucher? (Y/N) Salamanders Ot (Y/N) Aquation Solid Salamanders Ot (Y/N) Aquation Solid Sol	OF STREAM REACH (This <u>must</u> be consisted evaluation and a narrative description of the	mpleted):
ish Observed? (Y/N) Norge or Tadpoles Observed? Comments Regarding Biology.  DRAWING AN Include Important lands	Voucher? (Y/N) Salamanders Ot (Y/N) Aquation Solid Salamanders Ot (Y/N) Aquation Solid Sol	OF STREAM REACH (This <u>must</u> be consisted evaluation and a narrative description of the	npleted):
ish Observed? (Y/N) Norge or Tadpoles Observed? Comments Regarding Biology.  DRAWING AN Include Important lands	Voucher? (Y/N) Salamanders Ot? (Y/N) Youcher? (Y/N) Aquation Youcher? (Y/N) Aquation You NARRATIVE DESCRIPTION dmarks and other features of interest for	OF STREAM REACH (This <u>must</u> be consisted evaluation and a narrative description of the	npleted):

## Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1.

TE <u>ΘΠ</u> ΙΟΤΕ: Co	scorer KLV	COI	RIVER BASIN SCIOTO RIV 278333 LONG 82.906 79548 MMENTS SCIZ 2 "Field Evaluation Manual for the control of th	RIVER CODE OF STREET	H Streams" for Instru	uctions
ODIFICA	Control of the later				WILDERT ON NO RESO	VEIT!
(Max			ubstrate present. Check ONLY to types found (Max of 8). Final me  TYPE  SILT [3 pt]  LEAF PACKAWOO  FINE DETRITUS  CLAY OF HARDPA	DOY DEBRIS [3 pt	of boxes A & B.  PERCENT  5	HH Met Poir Subst
	GRAVEL (2-64 mm) [9 pts] GAND (<2 mm) [6 pts]	20	☐☐ MUCK [0 pts] ☐☐ ARTIFICIAL [3 pts		-	19
Bldr S	Total of Percentages of Slabs, Boulder, Cobble, Bedroc		(A) [5]	BER OF SUBSTR	(B)	A+
> 30 c > 22.5			of depth within the 61 meter (200 storm water pipes) (Check ONI > 5 cm - 10 cm [ < 5 cm [5 pts]	LY one box):		Pool D Max :
14			25 NO WAIER OR	HISTORIA DI LA		
BAN1 > 4.0 n	MENTS K FULL WIDTH (Measured as neters (> 13') [30 pts]	the average of 3	MAXIMUM  3-4 measurements) (Ch	POOL DEPTH (c	entimeters):	
> 4.0 n > 3.0 n > 1.5 n	MENTS K FULL WIDTH (Measured as		MAXIMUM  3-4 measurements) (Ch	POOL DEPTH (c	entimeters):  ox): ts)	Bank Wid Maxe
> 4.0 n > 3.0 n > 1.5 n	MENTS	This in DDPLAIN QUALIFLOODP	MAXIMUM  3-4 measurements) (Ch  3-1.0 m - 1.5 m (≥ 3.37)    AVERAGE  AVERAGE  Information must also be completely \$\text{ANOTE}\$: River Left (L) a LAIN QUALITY	POOL DEPTH (c leck ONLY one b 3'3'-4'8") [15 pt 5 pts] BANKFULL WID eted nd Right (R) as lo	ox): (s) OTH (meters)	Wid
> 4.0 n > 3.0 n > 1.5 n	MENTS	This in	MAXIMUM  3-4 measurements) (Ch  > 1.0 m - 1.5 m (sold)  ≤ 1.0 m (sold)  AVERAGE  AVERAGE  ITY \$\( \text{ANOTE} : \( \text{River Left} \) (L) a  LAIN QUALITY  (Most Predominant per Bank)  Mature Forest, Wetland	POOL DEPTH (c leck ONLY one b 3'3'-4'8') [15 pt 5 pts] BANKFULL WID	ox): (s) OTH (meters)	Wid
> 4.0 n > 3.0 n > 1.5 n	MENTS	This in DDPLAIN QUALIFLOODPLL R	MAXIMUM  3-4 measurements) (Ch  > 1.0 m - 1.5 m (≥  ≤ 1.0 m (≤ 3 37)]  AVERAGE  AVERAGE  INTY \$\( \text{ANOTE} : \( \text{River Left} (L) \) a  LAIN QUALITY  (Most Predominant per Bank)	POOL DEPTH (cleck ONLY one best 3*3*-4*8*) [15 pt 5 pt 5]  BANKFULL WID eted and Right (R) as lo	ox):  In the state of the state	Wid
BANI > 4.0 m   > 3.0 m   > 1.5 m   COMI	MENTS	This in DDPLAIN QUALIFICODP	MAXIMUM  3-4 measurements) (Ch  > 1.0 m - 1.5 m (so 3.37)  AVERAGE  AVERAGE  AVERAGE  Try \$\text{ANOTE}: River Left (L) at LAIN QUALITY}  (Most Predominant per Bank)  Mature Forest, Wetland  Immature Forest, Shrub or Old	POOL DEPTH (cleck ONLY one best of 37 - 4'87) [15 pts]  BANKFULL WID eted and Right (R) as lo	centimeters):  OX):  ITH (meters)  Oking downstream  Conservation Tillage  Urban or Industrial  Open Pasture, Row	Wid
BANI > 4.0 m > 3.0 m > 1.5 m COM	MENTS	This in DDPLAIN QUALIFLOODP	MAXIMUM  3-4 measurements) (Ch  > 1.0 m - 1.5 m (≥ ≤ 1.0 m (≤ 3 37))  AVERAGE  AVER	POOL DEPTH (cleck ONLY one best 373"- 4'8") [15 pts]  BANKFULL WID  eted nd Right (R) as lo	centimeters):  OX):  INTH (meters)  Oking downstream &  Conservation Tillage  Urban or Industrial	Wid
BANI > 4.0 m   > 3.0 m   > 1.5 m   COMI	MENTS	This in DDPLAIN QUALIFLOODP! L R	MAXIMUM  3-4 measurements) (Ch  > 1.0 m - 1.5 m (so 1.0 m (so 3.3))  AVERAGE  AVERA	POOL DEPTH (contects ONLY one best of the passion o	centimeters):  OX):  IS  OTH (meters)  Oking downstream  Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction  Ols, no flow (Intermittent)	Wid

DDITIONAL STREAM INFORMATION (This information Must Also	be Completed):
QHEI PERFORMED? - TYes No QHEI Score	(If Yes, Altach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	Distance from Evaluated Stream
☐ WWH Name:	
D EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE EN	ITIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Chillicothe tast Landowstern	NRCS Soil Map Page: NRCS Soil Map Stream Order
	ship/city. Springfield Twp. / Chillicothe
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Date of last precipitation:	29 Z017 Quantity: 4.25"
Photograph Information:	
Elevated Turbidity? (Y/N): \( \sum_{\text{\tint{\text{\tint{\text{\tinit}\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\texiext{\texi}\text{\text{\text{\text{\text{\text{\text{\texi{\texi}\text{\text{\texi}\text{\text{\text{\text{\text{\texi}\texit{\text{\text{\text{\	
Nere samples collected for water chemistry? (Y/N): Note lat	sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l)	pH (S.U.) Conductivity (µmhos/cm)
s the sampling reach representative of the stream (Y/N) If not,	please explain:
BIOTIC EVALUATION	
Performed? (Y/N): (If Yes, Record all observations. Voucher ID number. Include appropriate field date	er collections optional. NOTE: all voucher samples must be labeled with the site a sheets from the Primary Headwater Habitat Assessment Manual)  Disserved? (Y/N) Voucher?
Performed? (Y/N): (If Yes, Record all observations. Voucher ID number. Include appropriate field date	a sheets from the Primary Headwater Habitat Assessment Manual)  Observed? (Y/N) Voucher? (Y/N) V

### **Chieff** Primary Headwater Habitat Evaluation Form

I	18	1
П	10	

SITE NAME LOCATION AFT ROS OF SITE NUMBER  LENGTH OF STREAM REACH (ft) 172  DATE 8 1 207 SCORER VIV	RIVER BASIN SUBTO RIV LAT39.32718362 LONG82.90712937RIV COMMENTS S 013	
	TURAL CHANNEL    RECOVERED    REC	
(Max of 40). Add total number of signific	ery type of substrate present. Check ONLY two cant substrate types found (Max of 8). Final metric PERCENT TYPE SILT [3 pt] LEAF PACKWOOD FINE DETRITUS [3 CLAY or HARDPAN MUCK [0 pts] ARTIFICIAL [3 pts]  (A) CITATE TYPES:	c score is sum of boxes A & B.  PERCENT  O DEBRIS [3 pts]  Pts]  Percent  Substrate  Max = 40
		one box): Max = 30
3. BANK FULL WIDTH (Measured as the > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9',7" - 13') [25 pts] > 1.5 m - 3.0 m (> 4',8" - 9',7") [20 pts] COMMENTS	average of 3-4 measurements) (Chec > 1.0 m - 1.5 m (> 3 ≤ 1.0 m (≤ 3° 3") [5]	Bankfull Width
RIPARIAN ZONE AND FLOODS RIPARIAN WIDTH	This information must also be complete PLAIN QUALITY	
L R, (Per Bank) Wide >10m Moderate 5-10m	L R (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Shrub or Old Field	L R Conservation Tillage Urban or Industrial
□ □ Narrow <5m □ □ None COMMENTS	Residential, Park, New Field Fenced Pasture	Open Pasture, Row Crop Mining or Construction
FLOW REGIME (At Time of Eval Stream Flowing Subsurface flow with isolated poor		nel, isolated pools, no flow (Intermittent) I, no water (Ephemeral)
SINUOSITY (Number of bends p  None  0.5	er 61 m (200 ft) of channel) (Check ONLY one 1.0 2.0 1.5 2.5	box): 3.0 3.3
STREAM GRADIENT ESTIMATE  Flat (0.5 ft/100 ft)  Flat to Moderate	☐ Moderate (2 tr/100 ft) ☐ Moderate	to Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This information Must Also be Comp	oleted):
QHEI PERFORMED? - Yes No QHEI Score(If	Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: SCIOTO RIVER	Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
D EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WAT	ERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Chillicothe East Landandemy NRCS S	oil Map Page: NRCS Soil Map Stream Order
	Springfield Tup / Chillicothe
	springinger (vor ) similaring
MISCELLANEOUS  Base Flow Conditions? (Y/N): Date of last precipitation: 29 2	017 25"
	Quantity. C. D.
Photograph Information:	<del></del>
Devated Turbidity? (Y/N): Canopy (% open):	
Nere samples collected for water chemistry? (Y/N): (Note lab sample n	
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH	(S.U.) Conductivity (µmhos/cm)
s the sampling reach representative of the stream (Y/N) If not, please ex	plain:
40.04	
Additional comments/description of pollution impacts:	
DRAWING AND NARDATIVE DESCRIPTION OF ST	DEASS DEACH /This must be completed):
DRAWING AND NARRATIVE DESCRIPTION OF STI	
Include hiportax ratellians and outer reactes of inverse to site see	
Existed &	(, ), (, )
1 (1000)	
LOW	
00-10-	M K M K
	Trasted)
1	100000

### Primary Headwater Habitat Evaluation Form



NGTH OF STREAM REACH (11) 454 ATE 8/1/2017 SCORER KLX	J comments SC/U	E
The second secon	Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for I	-
TREAM CHANNEL ANONE A	/NATURAL CHANNEL   RECOVERED   RECOVERING   RECENT OR NO F	RECOVERY
-	f every type of substrate present. Check ONLY two predominant substrate TYPE boxe	s   HH
YPE	gnificant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  PERCENT TYPE PERCENT	Me
BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts]	SILT [3 pt]  LEAF PACKWOODY DEBRIS [3 pts]	Poi
BEDROCK [16 pt]	FINE DETRITUS [3 pts]	Subs
COBBLE (65-256 mm) [12 pts]	CLAY or HARDPAN [0 pt]	Max
GRAVEL (2-64 mm) [9 pts]  SAND (<2 mm) [6 pts]	MUCK [0 pts]	11/0
		_  -
Total of Percentages of Bidr Slabs, Boulder, Cobble, Bedroo	ok 10 (A) 15	_ A+
ORE OF TWO MOST PREDOMINATE SU	UBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES:	-
	he maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool
evaluation. Avoid plunge pools from > 30 centimeters [20 pts]	road culverts or storm water pipes) (Check ONLY one box):	Max
> 22.5 - 30 cm [30 pts]	<5 cm [5 pts]	_ 0
> 10 - 22.5 cm [25 pts]	NO WATER OR MOIST CHANNEL [0 pts]	
COMMENTS	MAXIMUM POOL DEPTH (centimeters):	
	the average of 3-4 measurements) (Check ONLY one box):	Ban
BANK FULL WIDTH (Measured as > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7' - 13') [25 pts]	> 1.0 m - 1.5 m (> 3'3" - 4'8") [15 pts]	Ban Wid Max
> 4.0 meters (> 13') [30 pts]	> 1.0 m - 1.5 m (> 3'3"- 4'8") [15 pts]  \$\left( \) \left( \) \	Wie
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7' - 13') [25 pts]	> 1.0 m - 1.5 m (> 3'3"- 4'8") [15 pts]  \$\left( \) \left( \) \	Wie
> 4.0 meters (> 13") [30 pts] > 3.0 m - 4.0 m (> 9" 7" - 13") [25 pts] > 1.5 m - 3.0 m (> 4" 8" - 9" 7") [20 pts	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]  \$\( \) \leq 1.0 m (\leq 3' 3") [5 pts]  AVERAGE BANKFULL WIDTH (meters)	Wie
> 4.0 meters (> 13") [30 pts] > 3.0 m - 4.0 m (> 9" 7" - 13") [25 pts] > 1.5 m - 3.0 m (> 4" 8" - 9" 7") [20 pts	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]  \$\leq \text{1.0 m (\leq 3' 3") [5 pts]} \\  AVERAGE BANKFULL WIDTH (meters)  This information must also be completed	Windows Max 2
> 4.0 meters (> 13") [30 pts] > 3.0 m - 4.0 m (> 9" 7" - 13") [25 pts] > 1.5 m - 3.0 m (> 4" 8" - 9" 7") [20 pts  COMMENTS  RIPARIAN ZONE AND FLOOR RIPARIAN WIDTH	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]  ≤ 1.0 m (≤ 3' 3") [5 pts]  AVERAGE BANKFULL WIDTH (meters)  This information must also be completed  DODPLAIN QUALITY	Windows Max 2
> 4.0 meters (> 13") [30 pts] > 3.0 m - 4.0 m (> 9" 7" - 13") [25 pts] > 1.5 m - 3.0 m (> 4" 8" - 9" 7") [20 pts  COMMENTS  RIPARIAN ZONE AND FLO	> 1.0 m - 1.5 m (> 3' 3" - 4'8") [15 pts]  AVERAGE BANKFULL WIDTH (meters)  This information must also be completed  ODPLAIN QUALITY	wind Max
> 4.0 meters (> 13") [30 pts] > 3.0 m - 4.0 m (> 9" 7" - 13") [25 pts] > 1.5 m - 3.0 m (> 4" 8" - 9" 7") [20 pts  COMMENTS  RIPARIAN ZONE AND FLOR  RIPARIAN WIDTH  L R (Per Bank)  Wide > 10 m	This information must also be completed  NODPLAIN QUALITY  L R (Most Predominant per Bank)  Mature Forest, Wetland    Mature Forest, Shrub or Old	wind Max
> 4.0 meters (> 13") [30 pts] > 3.0 m - 4.0 m (> 9" 7" - 13") [25 pts] > 1.5 m - 3.0 m (> 4" 8" - 9" 7") [20 pts  COMMENTS  RIPARIAN ZONE AND FLOR  RIPARIAN WIDTH  L R (Per Bank)  Wide > 10 m  Moderate 5-10 m	AVERAGE BANKFULL WIDTH (meters)  L R (Modern Left (L) and Right (R) as looking downstream:  FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  Mature Forest, Wetland    Mature Forest, Wetland   Conservation Tillage   Immature Forest, Shrub or Old   Urban or Industrial Field   Onen Pasture Row	wind Max 2
> 4.0 meters (> 13") [30 pts]   > 3.0 m + 4.0 m (> 9" 7" - 13") [25 pts]   > 1.5 m - 3.0 m (> 4" 8" - 9" 7") [20 pts	This information must also be completed  NODPLAIN QUALITY  L R (Most Predominant per Bank)  Mature Forest, Wetland    Mature Forest, Shrub or Old   Urban or Industrial   Residential, Park, New Field   Open Pasture, Row Crop	Windows 2
> 4.0 meters (> 13") [30 pts] > 3.0 m - 4.0 m (> 9" 7" - 13") [25 pts] > 1.5 m - 3.0 m (> 4" 8" - 9" 7") [20 pts  COMMENTS  RIPARIAN ZONE AND FLOR  RIPARIAN WIDTH  L R (Per Bank)  Wide > 10 m  Moderate 5-10 m	This information must also be completed  NODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream   FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  Mature Forest, Wetland    Mature Forest, Wetland   Conservation Tillage   Immature Forest, Shrub or Old   Urban or Industrial	Windows 2
> 4.0 meters (> 13") [30 pts]   > 3.0 m + 4.0 m (> 9" 7" - 13") [25 pts]   > 1.5 m + 3.0 m (> 4" 8" - 9" 7") [20 pts	This information must also be completed  ODPLAIN QUALITY \$NOTE: River Left (L) and Right (R) as looking downstream\$  FLOODPLAIN QUALITY L (Most Predominant per Bank) L R  Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Crop  Residential, Park, New Field Crop  Fenced Pasture Moist Channel, isolated pools, no flow (Intermitical contents)  Moist Channel, isolated pools, no flow (Intermitical contents)	wind Max 2
> 4.0 meters (> 13") [30 pts] > 3.0 m - 4.0 m (> 9" 7" - 13") [25 pts] > 1.5 m - 3.0 m (> 4" 8" - 9" 7") [20 pts]  COMMENTS  RIPARIAN ZONE AND FLOGEN	This information must also be completed  NODPLAIN QUALITY	wind Max 2
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7' - 13') [25 pts] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]  COMMENTS  RIPARIAN ZONE AND FLOGRIPARIAN WIDTH  L R (Per Bank)  Wide > 10 m  Moderate 5-10 m  Narrow <5 m  None COMMENTS  FLOW REGIME (At Time of Stream Flowing) Subsurface flow with isolated COMMENTS  SINUOSITY (Number of bending)	This information must also be completed  ODPLAIN QUALITY \$NOTE: River Left (L) and Right (R) as looking downstreams  FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  Mature Forest, Wetland    Immature Forest, Wetland   Tield   Residential, Park, New Field   Residential, Park, New Field   Fenced Pasture   Moist Channel, isolated pools, no flow (Intermitial)	wind Max 2

DDITIONAL STREAM INFORMATION (This Information	Must Also be Completed):
QHEI PERFORMED? - Tyes X No QHEI S	Score(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	079 111 -
	Distance from Evaluated Stream
	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
n 1- 110 1	NG THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
SGS Quadrangle Name Chillicothe to St. Lovelon	NRCS Soil Map Page: NRCS Soil Map Stream Order
ounty: KOSS CO	Township/CitySpringfield Twp. Chillicothic
MISCELLANEOUS	
lase Flow Conditions? (Y/N): Date of last precipi	tation: 7 29 2017 Quantity: 4.25"
hotograph Information:	
levated Turbidity? (Y/N):	): <u>407.</u>
	(Note lab sample no. or id. and attach results) Lab Number
ield Measures: Temp (°C) Dissolved Oxygen	(mg/l) pH (S.U.) Conductivity (µmhos/cm)
	If not, please explain:
ID number. Include appropri sh Observed? (Y/N) \( \sum \) Voucher? (Y/N) \( \sum \) Sala ogs or Tadpoles Observed? (Y/N) \( \sum \) Voucher? (Y/N) omments Regarding Biology.	Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N) N
	RIPTION OF STREAM REACH (This <u>must</u> be completed): Interest for site evaluation and a narrative description of the stream's location
	Transporter of
(cast of 5	Maintained Transmission
(FOILED (3)	Maintained Transmission (Forest
(Forts)	Maintained Transmission (Forest
From S	Maintained Transmission (Forest
LOW - Forest (3)	Maintained Transmission Row
FLOW -	Maintained Transmission (Fourt
FLOW -	Maintained Transmission (Forest
ELOW TO THE REPORT OF THE PARTY	Maintained Transmission (Forest
LOW - CONTRACTOR OF THE PARTY O	Maintained Transmission (Fourth
LOW A CONTRACT OF THE PARTY OF	Maintained Transmission (Fourt
ow A Cover C	Maintained Transmission (Forest
ow A Company C	Maintained Transmission Row Forest

### Chiefp Primary Headwater Habitat Evaluation Form

22	
つつ	

SUBSTRATE (Estimate percent of ever (Max of 40). Add total number of significative percent of Epiper BLDR SLABS [16 pts]	TURAL CH.	ANNEL REG	COVERED RECO		/H Streams" for Instr	
SUBSTRATE (Estimate percent of eve (Max of 40). Add total number of signific TYPE PLD BLDR SLABS [16 pts]	ant substra				0.000	
(Max of 40). Add total number of signific TYPE P BLDR SLABS [16 pts]	ant substra					
BLDR SLABS [16 pts]	EPCENT	te types tound (M			of boxes A & B.	HHE Metri
	LICENT	TYPE	SILT [3 pt]		PERCENT	Point
BOULDER (>256 mm) [16 pts]			LEAF PACKWOODY	DEBRIS [3 pt	s] <u>15</u>	Out -4
☐ ☐ BEDROCK [16 pt] ☐ ☐ COBBLE (65-256 mm) [12 pts]			FINE DETRITUS [3 p	-		Substra Max = 4
☐ ☐ COBBLE (65-256 mm) [12 pts] _ GRAVEL (2-64 mm) [9 pts] _	25		CLAY or HARDPAN [ MUCK [0 pts]	(0 pt)		100
SAND (<2 mm) [6 pts]	40		ARTIFICIAL [3 pts]			18
Total of Percentages of		(A)	- 1		(B)	
Bldr Slabs, Boulder, Cobble, Bedrock		115			3	A+B
CORE OF TWO MOST PREDOMINATE SUBS	TRATE TY	PES:	TOTAL NUMBER	OF SUBSTR	ATE TYPES:	
Maximum Pool Depth (Measure the m					ach at the time of	Pool De
evaluation. Avoid plunge pools from road > 30 centimeters [20 pts]	d culverts o	r storm water pip	es) (Check ONLY of > 5 cm - 10 cm [15 p	White the state of		Max = :
> 22.5 - 30 cm [30 pts]		ğ	< 5 cm [5 pts]	rsi		0
> 10 - 22.5 cm [25 pts]		Ø	NO WATER OR MO	ST CHANNE	_[0 pts]	0
COMMENTS			MAXIMUM PO	OL DEPTH (d	centimeters):	-
BANK FULL WIDTH (Measured as the > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	average of	f 3-4 measureme	ents) (Check > 1.0 m - 1.5 m (> 3' 3' ≤ 1.0 m (≤ 3' 3") [5 pt			Bankfu Wldth Max=3
COMMENTS			AVERAGE BA	NKFULL WID	TH (meters)	10
RIPARIAN ZONE AND FLOODE	PLAIN QUA	LITY &NOT	ist also be completed E: River Left (L) and f		oking downstream☆	
RIPARIAN WIDTH  L R (Per Bank)	L R	PLAIN QUALITY (Most Predomi	inant per Bank)	L R		
☑ ☑ Wide >10m	ÒÒ	Mature Forest,	, Wetland	ŌΘ	Conservation Tillage	
☐ ☐ Moderate 5-10m	ØØ	Immature Fore Field	est, Shrub or Old		Urban or Industrial	
□ □ Narrow <5m		Residential, Pa	ark. New Field		Open Pasture, Row	
□ □ None		Fenced Pastur			Crop Mining or Construction	
COMMENTS						
FLOW REGIME (At Time of Eval Stream Flowing Subsurface flow with isolated poor			Moist Channe	el, isolated poo no water (Epl	ols, no flow (Intermittent) hemeral)	
SINUOSITY (Number of bends p	er 61 m (20	0 ft) of channel)	(Check ONLY one h	ox):		
☐ None ☐	1.0	, or originion)	2.0		3.0	
□ 0.5 □	1.5		2.5		>3	
STREAM GRADIENT ESTIMATE  Flat (0.5 ft/100 ft)  Flat to Moderate		erate (2 ft/100 ft)	☐ Moderate to		Severe (10 ft/10	

QHEI PERFORMED? - TYes No QHEI Score	_(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	0.70 The
WWH Name: Scroto River	
CWH Name:	
J EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE	
SGS Quadrangle Name Chillicothe Fast Landondery NR	
ounty: ROSS Co Township /	city. Springfield Twp/Chill cothe
MISCELLANEOUS	
ase Flow Conditions? (Y/N): Date of last precipitation: 7 29	2017 Quantity: <u>C. 25"</u>
notograph Information:	
evated Turbidity? (Y/N): Canopy (% open):	
ere samples collected for water chemistry? (Y/N): (Note lab sam	ple no. or id. and attach results) Lab Number:
eld Measures: Temp (°C) Dissolved Oxygen (mg/l)	pH (S.U.) Conductivity (µmhos/cm)
the sampling reach representative of the stream (Y/N) If not, pleas	e explain:
BIOTIC EVALUATION	
reformed? (Y/N): (If Yes, Record all observations. Voucher college	ets from the Primary Headwater Habitat Assessment Manual)
Performed? (Y/N): N (If Yes, Record all observations. Voucher colle	ets from the Primary Headwater Habitat Assessment Manual)  red? (Y/N)
Performed? (Y/N): (If Yes, Record all observations. Voucher colle ID number. Include appropriate field data sheet ish Observed? (Y/N) Voucher? (Y/N) Salamanders Observeds or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Maccomments Regarding Biology: DRAWING AND NARRATIVE DESCRIPTION OF Include Important landmarks and other features of interest for site	ets from the Primary Headwater Habitat Assessment Manual)  red? (Y/N)

### Chieff Primary Headwater Habitat Evaluation Form

Г	_	-
ı	20	П
L	21	

SITE NAME/LOCATION ROSS QUY OF	RIVER BASIN SCIOTO RIVER DRAINAGE AREA (mi²) D.	25mi <sup>2</sup>
DATE 8/2 17 SCORER KLV	LAT39.33141414 LONG 82,91393713 RIVER CODE 0506000 RIVER MILE	
	rm - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	
MODIFICATIONS:	ATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECO	VERY
	very type of substrate present. Check ONLY two predominant substrate TYPE boxes icant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HHEI Metric
TYPE  BLDR SLABS [16 pts]	PERCENT TYPE PERCENT SILT [3 pt]	Points
□ □ BOULDER (>256 mm) [16 pts]	LEAF PACKWOODY DEBRIS [3 pts]	Substrate
☐ ☐ BEDROCK [16 pt] ☐ ☐ COBBLE (65-256 mm) [12 pts]		Max = 40
GRAVEL (2-64 mm) [9 pts]	20 MUCK [0 pts]	19
SAND (<2 mm) [6 pts]	50 ARTIFICIAL [3 pts]	1-1
Total of Percentages of Bidr Slabs, Boulder, Cobble, Bedrock _ SCORE OF TWO MOST PREDOMINATE SUB-	15 (B) STRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES:	A + B
	maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of ad culverts or storm water pipes) (Check ONLY one box):	Pool Depth Max = 30
COMMENTS	MAXIMUM POOL DEPTH (centimeters):	
3. BANK FULL WIDTH (Measured as the > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	e average of 3-4 measurements) (Check <i>ONLY</i> one box):    > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]    < 1.0 m (< 3' 3") [5 pts]	Bankfull Width Max=30
COMMENTS	AVERAGE BANKFULL WIDTH (meters)	W
RIPARIAN ZONE AND FLOOD	This Information must also be completed  PLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆	
RIPARIAN WIDTH L R (Per Bank)	FLOODPLAIN QUALITY  L R (Most Predominant per Bank) L R	
☐ ☐ Wide >10m	Mature Forest, Wetland Conservation Tillage	
Moderate 5-10m	Immature Forest, Shrub or Old	
□ □ Narrow <5m	Residential Park New Field Open Pasture, Row	
None COMMENTS	☐ ☐ Fenced Pasture ☐ ☐ Mining or Construction	
FLOW REGIME (At Time of Exceeding Stream Flowing Subsurface flow with isolated por COMMENTS	waluation) (Check ONLY one box):  Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)	
SINUOSITY (Number of bends None 0.5	per 61 m (200 ft) of channel) (Check <i>ONLY</i> one box):  1.0	
STREAM GRADIENT ESTIMATE  Flat (0.5-ft/100.ft)  Flat to Moderate	Moderate (2 ft/100 ft)	Oft)

	_ (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	A. Q :
	Distance from Evaluated Stream
CWH Name:	
D EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE	
USGS Quadrangle Name. Chillicoth Clast Landonder VR	
County: Koss Co. Township /	city Springfield Twp. Chillicothe
MISCELLANEOUS	10.77
Base Flow Conditions? (Y/N): Date of last precipitation: 7 29	201   Quantity: 4.25
Photograph Information	
Elevated Turbidity? (Y/N): N Canopy (% open): 351.	
Vere samples collected for water chemistry? (Y/N): (Note lab sam	ple no. or id. and attach results) Lab Number:
ield Measures: Temp (°C) Dissolved Oxygen (mg/l)	pH (S.U.) Conductivity (µmhos/cm)
s the sampling reach representative of the stream (Y/N)	se explain:
, , , , ,	ections optional. NOTE: all voucher samples must be labeled with the site ets from the Primary Headwater Habitat Assessment Manual)
	ved? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N
	ved? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N
	ved? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N
	ved? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed (Y/N) Voucher? (Y/N) Aquatic Ma Comments Regarding Biology:  DRAWING AND NARRAT VE DESCRIPTION OF Include Important landmarks and other features of Interest for site	STREAM REACH (This <u>must</u> be completed):
DRAWING AND NARRATIVE DESCRIPTION OF	STREAM REACH (This <u>must</u> be completed):  e evaluation and a narrative description of the stream's location
DRAWING AND NARRATIVE DESCRIPTION OF	STREAM REACH (This <u>must</u> be completed):  e evaluation and a narrative description of the stream's location
DRAWING AND NARRATIVE DESCRIPTION OF	STREAM REACH (This <u>must</u> be completed):  e evaluation and a narrative description of the stream's location
DRAWING AND NARRATIVE DESCRIPTION OF	STREAM REACH (This <u>must</u> be completed):  e evaluation and a narrative description of the stream's location
DRAWING AND NARRATIVE DESCRIPTION OF	STREAM REACH (This <u>must</u> be completed):
DRAWING AND NARRATIVE DESCRIPTION OF Include Important landmarks and other features of Interest for site	STREAM REACH (This <u>must</u> be completed):  e evaluation and a narrative description of the stream's location
DRAWING AND NARRATIVE DESCRIPTION OF Include Important landmarks and other features of Interest for site	STREAM REACH (This <u>must</u> be completed):
DRAWING AND NARRATIVE DESCRIPTION OF Include Important landmarks and other features of Interest for site	STREAM REACH (This <u>must</u> be completed):
DRAWING AND NARRATIVE DESCRIPTION OF	STREAM REACH (This <u>must</u> be completed):
DRAWING AND NARRATIVE DESCRIPTION OF Include Important landmarks and other features of Interest for site	STREAM REACH (This <u>must</u> be completed):
DRAWING AND NARRATIVE DESCRIPTION OF Include Important landmarks and other features of Interest for site	STREAM REACH (This <u>must</u> be completed):
DRAWING AND NARRATIVE DESCRIPTION OF Include Important landmarks and other features of Interest for site	STREAM REACH (This <u>must</u> be completed):  e evaluation and a narrative description of the stream's location

### Primary Headwater Habitat Evaluation Form



SITE NAME/LOCATION AFF ROSS GINGLY  RIVER BASIN SUCTO RIVEY DRAINAGE AREA (mi²) 0.0	23mi2
LENGTH OF STREAM REACH (#) 106 LAT 31.33067111 LONG 82.9127753 RIVER CODE 05060002 FIVER MILE DATE 312 2017 SCORER KLV COMMENTS S017	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	ctions
STREAM CHANNEL STREAM CHANNEL RECOVERED RECOVERING RECENT OR NO RECENT OR NO RECENT OR NO RECOVERING RECENT OR NO RECOVERING RECENT OR NO RECOVERING RECENT OR NO RECOVERING RECENT OR NO RE	VERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE  BLDR SLABS [16 pts]  BOULDER (>256 mm) [16 pts]  COBBLE (65-256 mm) [12 pts]  GRAVEL (2-64 mm) [9 pts]  SAND (<2 mm) [6 pts]  Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock  SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:  TOTAL NUMBER OF SUBSTRATE TYPES:	HHEI Metric Points Substrate Max = 40
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 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
mroumom root per in teniumenas).	
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]   AVERAGE BANKFULL WIDTH (meters)	Bankfull Width Max=30
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]   ≤ 1.0 m (≤ 3' 3") [5 pts]  > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]  COMMENTS	Width
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts]	Width
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]   AVERAGE BANKFULL WIDTH (meters)    This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream ANOTE: River Left (L) and Right (R) and Right (R) as looking downstream ANOTE: Rive	Width
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts]	Width
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts]	Width
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pte]	Width
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts]	Width
BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13) [30 pts]	Width

QHEI PERFORMED? - Tyes No QHEI Score	_ (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	Oldonilas
	Distance from Evaluated Stream <u>U. Com. U.</u>
J EWH Name:	Distance from Evaluated Stream  Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE	
SGS Quadrangle Name: Chillicothe tast Landonderry NRC	
ounty: KOSS Co. Township /	City Springfield Tup Chillicothe
MISCELLANEOUS	
ase Flow Conditions? (Y/N): Date of last precipitation: 8 2	2017 Quantity: 4.25"
hotograph Information:	
Bevated Turbidity? (Y/N): N Canopy (% open): 10./.	
Vere samples collected for water chemistry? (Y/N): (Note lab samp	ole no. or id. and attach results) Lab Number:
	pH (S.U.) Conductivity (µmhos/cm)
the sampling reach representative of the stream (Y/N) If not, please	e explain:
dditional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N): (If Yes, Record all observations. Voucher colle	ets from the Primary Headwater Habitat Assessment Manual)  red? (Y/N)
Performed? (Y/N): (If Yes, Record all observations. Voucher colle ID number. Include appropriate field data shee Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Managements Regarding Biology: DRAWING AND NARRATIVE DESCRIPTION OF	voucher? (Y/N) Vouche

### Primary Headwater Habitat Evaluation Form

Г	0	1	7	7
12	1	4	4	
ш	-	)	- 1	

SITE NAME/LOCATION AEP ROSSGINGEY RIVER BASIN SUOTO PIVAL DRAINAGE AREA (MP) 0.02	-lmi <sup>2</sup>
LENGTH OF STREAM REACH (#) 580 LAT31.33105367 LONG 82.91463285 RIVER CODE 05060002450 MILE DATE 8 2 2017 SCORER KLV COMMENTS SO 18	_
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruc	tions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVER MODIFICATIONS:	ERY
BLDR SLABS [16 pts]  BOULDER (>256 mm) [16 pts]  BEDROCK [16 pt]	HHEI Metric Points Substrate Max = 40
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	ool Depth
	Max = 30
COMMENTSMAXIMUM POOL DEPTH (centimeters):	
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankfull Width Max=30
This information <u>must</u> also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆	
RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank) L R (Most Predominant per Bank) L R	
☐	
Field Urban or industrial	
□ □ Narrow <5m □ □ Residential. Park. New Field □ □ Open Pasture, Row Crop	
☐ None ☐ ☐ Fenced Pasture ☐ ☐ Mining or Construction COMMENTS	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) 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	
STREAM GRADIENT ESTIMATE  Flat (0.5 #/100 #) Flat to Moderate	1)

Distance from Evaluated Stream Distance from Evaluated Stream Distance from Evaluated Stream MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA CLEARLY MARK THE SITE LOCATION  SGS Quadrangie NameChillucth Cooking Map Page: NRCS Soil Map Page: NRCS Soil Map Stream Order Township / City. Springfield Tup. / Chillicothic  MISCELLANEOUS  ase Flow Conditions? (Y/N): Date of last precipitation: 8/2/2017 Quantity: 4.25" hotograph Information: levated Turbidity? (Y/N): Canopy (% open): 355.  fere samples collected for water chemistry? (Y/N): Vere samples collected for water chemistry? (Y/N): If (Note lab sample no. or id. and attach results) Lab Number: eld Measures: Temp (*C) Dissolved Oxygen (mg/l) If not, please explain:  BIOTIC EVALUATION  If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number: ID number: Include appropriate field data sheets from the Primary Headwater Habital Assessment Manual)  sh Observed? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N) Vo	DDITIONAL STREAM INFORMATION	ON (This Information Must Also be	Completed):		
Distance from Evaluated Stream Distance from Evaluated Stream  MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA CLEARLY MARK THE SITE LOCATION  ISGS Quadrangle NameChillicath Class   Order   NRCS Soil Map Page: NRCS Soil Map Stream Order  Township / City. Springfield Tup. / Chillicath  MISCELLANEOUS  ase Flow Conditions? (Y/N) Date of last precipitation: 8/2/20/7 Quantity. 4.25"  Indegraph Information:   Quantity   Order   Order   Order    Indegraph Information:   Order   Order   Order    Indegraph Information:   Order   Order   Order    Indegraph Information:   Order    Indegra	QHEI PERFORMED? -	Yes No QHEI Score	(If Yes, Attach Complete	d QHEI Form)	
Distance from Evaluated Stream Distance from Evaluated Stream Distance from Evaluated Stream  MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION  USGS Quadrangle NameChillicative foot   Water Soil Map Page:	DOWNSTREAM DESIGNA	TED USE(S)		54.4	
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA CLEARLY MARK THE SITE LOCATION  USGS Quadrangle Name Chillicath Class County: NRCS soil Map Page:	WWH Name: Scioto Ky	ver	Distance	from Evaluated Stream _ 0,50 m	iles
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION  USGS Quadrangle Name Chillicath Continuous Processis Map Page:	CWH Name:		Distance f	rom Evaluated Stream	_
NRCS Soil Map Page: NRCS Soil Map Stream Order   NRCS Soil Map Page: NRCS Soil Map Stream Order   NRCS Soil Map Page: NRCS Soil Map Stream Order   NRCS Soil Map Page: NRCS Soil Map Stream Order   NRCS Soil Map Page: NRCS Soil Map Stream Order   NRCS Soil Map Page: NRCS Soil Map Stream Order   NRCS Soil Map Page: NRCS Soil Map Stream Order   NRCS Soil Map Page: NRCS Soil Map Stream Order   NRCS Soil Map Page: NRCS Soil Map Stream Order   NRCS Soil Map Page: NRCS Soil Map Stream Order   NRCS Soil Map Page: NRCS Soil Map	EWH Name:		Distance for	rom Evaluated Stream	_
MISCELLANEOUS  asse Flow Conditions? (Y/N). \ Date of last precipitation: \( \frac{8}{2} \) \( \frac{2}{2} \) \\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \					
MISCELLANEOUS  ase Flow Conditions? (Y/N). \ Date of last precipitation: \& \frac{12}{20} \]  Date of last precipitation: \& \frac{12}{20} \]  Quantity: \( \frac{1}{2} \)  Quantity: \( \frac{1}{2} \)  Quantity: \( \frac{1}{2} \)  Quantity: \( \frac{1}{2} \)  Anotograph Information:    devated Turbidity? (Y/N): \( \frac{1}{2} \)  Canopy (% open): \( \frac{2}{2} \)  (Note lab sample no. or id. and attach results) Lab Number:    deld Measures: Temp (°C) \( \frac{1}{2} \)  Dissolved Oxygen (mg/l) \( \frac{1}{2} \)  If not, please explain:    delditional comments/description of pollution impacts:    BIOTIC EVALUATION    If yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  sh Observed? (Y/N) \( \frac{N}{2} \)  Voucher? (Y/N) \( \frac{N}{2} \)  Vo	SGS Quadrangle NameChillicot	hetast Londonderry Ni	RCS Soil Map Page:	NRCS Soil Map Stream Order	
MISCELLANEOUS  Jase Flow Conditions? (Y/N) Date of last precipitation: 8/2/2017 Quantity: 4.25"  Anotograph Information:	county: Boss Co.	Township	City Springfield Tu	up./Chillicothe	
Canopy (% open): 355/  Vere samples collected for water chemistry? (Y/N): \( \) (Note lab sample no. or id. and attach results) Lab Number: \( \) ield Measures: Temp (°C) \( \) Dissolved Oxygen (mg/l) \( \) pH (S.U.) \( \) Conductivity (µmhos/cm) \( \) is the sampling reach representative of the stream (Y/N) \( \) If not, please explain: \( \)  BIOTIC EVALUATION  BIOTIC EVALUATION  If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site iD number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) is h Observed? (Y/N) \( \) Voucher? (Y/N) \( \) Vo	MISCELLANEOUS				
Canopy (% open): 355/  Vere samples collected for water chemistry? (Y/N): \( \) (Note lab sample no. or id. and attach results) Lab Number: \( \) ield Measures: Temp (°C) \( \) Dissolved Oxygen (mg/l) \( \) pH (S.U.) \( \) Conductivity (µmhos/cm) \( \) is the sampling reach representative of the stream (Y/N) \( \) If not, please explain: \( \)  BIOTIC EVALUATION  BIOTIC EVALUATION  If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site iD number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) is h Observed? (Y/N) \( \) Voucher? (Y/N) \( \) Vo	Base Flow Conditions? (Y/N)	Date of last precipitation: 8/2	(2017 Quantit	y L. 25"	
All control (Note lab sample no. or id. and attach results) Lab Number:    Vere samples collected for water chemistry? (Y/N):					
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number: (ield Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm) is the sampling reach representative of the stream (Y/N) If not, please explain: additional comments/description of pollution impacts: additional comments/description of pollution impacts:	Elevated Turbidity? (Y/N):	Canopy (% open): 35/			
BIOTIC EVALUATION  Performed? (Y/N):				sults) Lab Number:	201
BIOTIC EVALUATION  Performed? (Y/N):	ield Measures: Temp (°C)	Dissolved Oxygen (mg/l)	pH (S.U.) Con	ductivity (µmhos/cm)	
BIOTIC EVALUATION  Performed? (Y/N):					
BIOTIC EVALUATION  Terformed? (Y/N):	s the sampling reach representative of	of the stream (Y/N)	ase explain:		-
	erformed? (Y/N): N (If Yes ID num ish Observed? (Y/N) N Vouch rogs or Tadpoles Observed? (Y/N)	mber. Include appropriate field data sh	eets from the Primary Headwa	ater Habitat Assessment Manual)	ne site
	Include impertant landmarks a	and other features of interest for sil	te evaluation and a narrativ	e description of the stream's location	on
Include impertant landmarks and other features of interest for site evaluation and a narrative description of the stream's location		maintained Tr	arsmission	100	1
Include impertant landmarks and other features of interest for site evaluation and a narrative description of the stream's location	4 1	12 MAI	-111-201-1		7
Include Impertant landmarks and other features of interest for site evaluation and a narrative description of the stream's location  Maintaine of Transmission		17000		5	4
Include Impertantiandmarks and other features of interest for site evaluation and a narrative description of the stream's location  Maintaine of Transmission  Row	Le 1			F 9	
Include impertant and marks and other features of interest for site evaluation and a narrative description of the stream's location  Maintaine of Transmission  ROW	1			1	
maintained Transmission ROW	LOW			1	9
Include impertant landmarks and other features of interest for site evaluation and a narrative description of the stream's location  Maintaine of Transmission  ROW  LOW				1//	
maintained Transmission ROW				1 5 1 1 M	X
maintained Transmission ROW	1 '			LOVESTE	1
maintained Transmission ROW	FNGT )			)(	-
maintained Transmission ROW	410-00				-
maintained Transmission ROW				4/4	
maintained Transmission ROW	1 7			7	

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



ENGTH OF STREAM REACH (ft) 235 ATE 812 12017 SCORER KU	LAT39.330161		VER CODE	AINAGE AREA (mi²) () () () () () () () () () () () () ()	
NOTE: Complete All Items On This			Ohio's PHW	/H Streams" for Instr	uction
1		☐ RECOVERED ☐ REC			
SUBSTRATE (Estimate percent of (Max of 40). Add total number of signature of the substrate	gnificant substrate types PERCENT TY		score is sum Y DEBRIS [3 p	of boxes A & B. PERCENT	HI- Me Poi Subs Max
GRAVEL (2-64 mm) [9 pts]		MUCK [0 pts]		-0	10
SAND (<2 mm) [6 pts]		ARTIFICIAL [3 pts]			
Total of Percentages of Bidr Slabs, Boulder, Cobble, Bedro CORE OF TWO MOST PREDOMINATE S		TOTAL NUMBE	R OF SUBST	(B)	A +
Maximum Pool Depth (Measure ti evaluation, Avoid plunge pools from > 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts]			one box): pts]		Pool Max
COMMENTS		MAXIMUM P	OOL DEPTH (	centimeters):	
BANK FULL WIDTH (Measured as > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] COMMENTS_	in the mi	> 1.0 m - 1.5 m (> 3 \( \) \(		ots)	Ban Wid Max
RIPARIAN ZONE AND FLO RIPARIAN WIDTH		ntion <u>must</u> also be complete ☆NOTE: River Left (L) and DUALITY		ooking downstream☆	
L R (Per Bank)	L R (Most	Predominant per Bank)	L R		
Wide >10m  Moderate 5-10m		e Forest, Wetland cure Forest, Shrub or Old		Conservation Tillage Urban or Industrial	
	Field		00	Open Pasture, Row	
□         □ Narrow <5m		ential, Park, New Field d Pasture		Crop Mining or Construction	
FLOW REGIME (At Time of Stream Flowing Subsurface flow with isolated COMMENTS	The state of the s	Moist Chan	nel, isolated po l, no water (Ep	ols, no flow (Intermittent) hemeral)	
	nds per 61 m (200 ft) of c	hannel) (Check ONLY one	box):	3.0	

ADDITIONAL STREAM INFORMATION (This Information Must Also be C	ompleted):
QHEI PERFORMED? - TYes No QHEI Score	(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Scioto KIVCC	Distance from Evaluated Stream Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
<b>I</b> EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE	WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Chillicothe Fast Londonderry NRC	CS Soil Map Page: NRCS Soil Map Stream Order
County: Ross Co. Township / County:	city Springfield Tup. Chillicothe
MISCELLANEOUS	
Base Flow Conditions? $(Y/N)$ : Date of last precipitation: $8/2/3$	207 Quantity: 4.25 "
Photograph Information:	
Elevated Turbidity? (Y/N): Canopy (% open):	
Were samples collected for water chemistry? (Y/N): 1 (Note lab samp	ple no. or id. and attach results) Lab Number:
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	e explain:
o the sumpling reach representative of the stream (111)	
· · · · · · · · · · · · · · · · · · ·	ections optional. NOTE: all voucher samples must be labeled with the site ets from the Primary Headwater Habitat Assessment Manual)  ved? (Y/N)
DRAWING AND NARRATIVE DESCRIPTION OF	STREAM REACH (This must be completed):
Include important landmarks and other features of interest for site	
(= adia)	
( Forester	
LOW	
> 1	/ V
( 2	
	- Favorted
	Forested )
	Fovested )

### Chief A Primary Headwater Habitat Evaluation Form

١.	-		_	
	IJ	1	- ]	
	/	U	J	

SITE NAME/LOCATION AFP-ROSSINGER  SITE NUMBER  RIVER BASIN SUITO PIVOR DRAINAGE AREA (mi²) 0.1  LENGTH OF STREAM REACH (ft) 18  LAT 31.33197143 LONG 82.9195712 TURIVER CODE 050.000 PRIVER MILE  DATE 8 2 2017 SCORER KLV COMMENTS SO 20  NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	ctions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING RECENT OR NO RECOVERED RECOVERED RECOVERING RECENT OR NO RECOVERED	√ERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40) Add total number of significant substrate types found (Max of 8) Final metric score is sum of boxes A & B.  TYPE  BLDR SLABS [16 pts]  BOULDER (>256 mm) [16 pts]  BEDROCK [16 pt]  COBBLE (65-256 mm) [12 pts]  GRAVEL (2-64 mm) [9 pts]  SAND (<2 mm) [6 pts]  Total of Percentages of Bidr Slabs, Boulder, Cobble, Bedrock  SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:  TOTAL NUMBER OF SUBSTRATE TYPES:	HHEI Metric Points Substrate Max = 40
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):    > 30 centimeters [20 pts]	Pool Depth Max = 30
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]  > 3.0 m - 4 0 m (> 9' 7" - 13') [25 pts] ≤ 1.0 m (≤ 3' 3") [5 pts]  > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]  COMMENTS AVERAGE BANKFULL WIDTH (meters)	Bankfull Width Max=30
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 Mature Forest, Wetland Immature Forest, Wetland Immature Forest, Shrub or Old Field Immature Forest, New	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS  Hoist 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	) ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be	e Completed):
QHEI PERFORMED? - Yes No QHEI Score	(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	Diamonto Diamonto
Swwh Name: Suoto Niva	Distance from Evaluated Stream D. 60 miles
CWH Name:	Distance from Evaluated Stream  Distance from Evaluated Stream
E EVVI Name.	Distance non Evaluated Stream
	RE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name Chillicothe Fust landondery	NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Koss Co. Township	p/city. Sprinafield Twp. / Chillicothe
MISCELLANEOUS	J
Base Flow Conditions? (Y/N): Date of last precipitation:	2 2017 Quantity: 4.25"
Photograph Information:	
Elevated Turbidity? (Y/N): N Canopy (% open): 101/.	
Were samples collected for water chemistry? (Y/N): (Note lab sa	
	pH (S.U.) Conductivity (µmhos/cm)
s the sampling reach representative of the stream (Y/N) If not, ple	
s the sampling reach representative of the stream (TN)	забе ехріані
****	
Additional comments/description of pollution impacts:	
iD number. Include appropriate field data si Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Obs Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Comments Regarding Biology:	collections optional. NOTE: all voucher samples must be labeled with the site sheets from the Primary Headwater Habitat Assessment Manual)  Served? (Y/N) \( \frac{N}{N} \) Voucher? (Y/N) \( \frac{N}
	site evaluation and amarrative description of the stream's location
(Forested)	
\ \ \ \	1 ) 7 )
$\mathcal{A}$	
FLOW	
$\sim 10^{\circ}$	100
( < / <	1 Limit
	1 100040 3

### ChieFPA Primary Headwater Habitat Evaluation Form



SITE NAME/LOCATION ARE KOSS GIVEN SITE NUMBER SITE SCORER KLV  NOTE: Complete All Items On This Form	RIVER BASIN SCIOLO PILVO LAT39.33209577 LONG PZ 9180402 RI COMMENTS SOZI	VER CODE 15060002 RIVER MILE	
	URAL CHANNEL    RECOVERED    REC		-
(Max of 40). Add total number of significa	y type of substrate present. Check ONLY two nt substrate types found (Max of 8). Final metric RCENT TYPE SILT [3 pt] LEAF PACKWOOD FINE DETRITUS [3 CLAY OF HARDPAN MUCK [0 pts] ARTIFICIAL [3 pts]	c score is sum of boxes A & B.  PERCENT  Y DEBRIS [3 pts]  pts]	HHEI Metric Point: Substrat Max = 4
. Maximum Pool Depth (Measure the ma	cximum pool depth within the 61 meter (200 find the culverts or storm water pipes) (Check ONLY   > 5 cm - 10 cm [15   < 5 cm [5 pts]	it) evaluation reach at the time of one box):	ool Dep Max = 3
BANK FULL WIDTH (Measured as the a > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] COMMENTS	verage of 3-4 measurements) (Chec > 1.0 m - 1.5 m (> 3 \$\leq \cdot \leq 1.0 m (\leq 3.37) [5]	'3" - 4'8") [15 pts]	Bankfu Width Max=30
	This information must also be complete		
RIPARIAN ZONE AND FLOODPI RIPARIAN WIDTH	AIN QUALITY	Right (R) as looking downstream ☆	
L R (Per Bank) Wide >10m Moderate 5-10m	L R (Most Predominant per Bank)  Mature Forest, Wetland  Immature Forest, Shrub or Old  Field	L R Conservation Tillage Urban or Industrial	
□ □ Narrow <5m □ □ None COMMENTS	Residential, Park, New Field Fenced Pasture	Open Pasture, Row Crop Mining or Construction	
FLOW REGIME (At Time of Evalu  Stream Flowing  Subsurface flow with isolated pools COMMENTS	Moist Chan	nel, isolated pools, no flow (Intermittent) I, no water (Ephemeral)	
SINUOSITY (Number of bends pe	r 61 m (200 ft) of channel) (Check <i>ONLY</i> one 1.0	box):	
STREAM GRADIENT ESTIMATE			

<u>DITIONAL STREAM INFORMATION (This Information Must Also be</u>	Completed).
QHEI PERFORMED? - Tyes No QHEI Score	(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	OF2 miles
	Distance from Evaluated Stream 0.52 miles
CWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIR	
GS Quadrangle Name Chillicothetast Lindurderry NI	
unty: Ross Co. Township	1011 Springfield Twp. / Chillicothe
MISCELLANEOUS	la " " " " " " " " " " " " " " " " " "
se Flow Conditions? (Y/N): Date of last precipitation: 82	201 Quantity: 4.25
otograph Information:	
vated Turbidity? (Y/N):	
re samples collected for water chemistry? (Y/N): (Note lab sai	mple no. or id. and attach results) Lab Number:
ld Measures: Temp (°C) Dissolved Oxygen (mg/l)	pH (S.U.) Conductivity (µmhos/cm)
he sampling reach representative of the stream (Y/N)	
in not, place	24,003,00
BIOTIC EVALUATION	
formed? (Y/N): (If Yes, Record all observations. Voucher co ID number. Include appropriate field data sh n Observed? (Y/N) Voucher? (Y/N) Salamanders Obse gs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic N	llections optional. NOTE: all voucher samples must be labeled with the si eets from the Primary Headwater Habitat Assessment Manual) served? (Y/N) N Voucher? (
formed? (Y/N): (If Yes, Record all observations. Voucher co	eets from the Primary Headwater Habitat Assessment Manual)
formed? (Y/N): (If Yes, Record all observations. Voucher co ID number. Include appropriate field data sh n Observed? (Y/N) Voucher? (Y/N) Salamanders Obse gs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic N	eets from the Primary Headwater Habitat Assessment Manual)
BIOTIC EVALUATION  (If Yes, Record all observations. Voucher co ID number. Include appropriate field data sh n Observed? (Y/N)	eets from the Primary Headwater Habitat Assessment Manual)  inved? (Y/N) Voucher?
BIOTIC EVALUATION  formed? (Y/N): (If Yes, Record all observations. Voucher co ID number. Include appropriate field data sh n Observed? (Y/N) Voucher? (Y/N) Salamanders Obse gs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic N nments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION O	rived? (Y/N) Voucher?
BIOTIC EVALUATION  (If Yes, Record all observations. Voucher co ID number. Include appropriate field data sh n Observed? (Y/N)	rived? (Y/N) Voucher?
BIOTIC EVALUATION  formed? (Y/N): (If Yes, Record all observations. Voucher co ID number. Include appropriate field data sh n Observed? (Y/N) Voucher? (Y/N) Salamanders Obse gs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic N nments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION O	rived? (Y/N) Voucher?
BIOTIC EVALUATION  (If Yes, Record all observations. Voucher co ID number. Include appropriate field data sh n Observed? (Y/N)	rived? (Y/N) Voucher?
BIOTIC EVALUATION  (If Yes, Record all observations. Voucher co ID number. Include appropriate field data sh Observed? (Y/N)	rived? (Y/N) Voucher?
Formed? (Y/N): (If Yes, Record all observations. Voucher co ID number. Include appropriate field data she observed? (Y/N) Salamanders Observed? (Y/N) Aquatic Mannents Regarding Biology.  DRAWING AND NARRATIVE DESCRIPTION O Include Important landmarks and other features of interest for sleeping and the second all observations. Voucher could be proported and the second all observations. Voucher could be proported and the second all observations. Voucher could be proported and the second all observations. Voucher could be proported and the second all observations. Voucher could be proported and the second all observations. Voucher could be proported and the second all observations. Voucher could be proported and the second all observations. Voucher could be proported and the second all observations. Voucher could be proported and the second all observations. Voucher could be proported and the second and the	rived? (Y/N) Voucher?
BIOTIC EVALUATION  formed? (Y/N): (If Yes, Record all observations. Voucher co ID number. Include appropriate field data sh n Observed? (Y/N) Voucher? (Y/N) Salamanders Obse gs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic N nments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION O	rived? (Y/N) Voucher?
Formed? (Y/N): (If Yes, Record all observations. Voucher co ID number. Include appropriate field data she observed? (Y/N) Salamanders Observed? (Y/N) Aquatic Mannents Regarding Biology.  DRAWING AND NARRATIVE DESCRIPTION O Include Important landmarks and other features of interest for sleeping and the second all observations. Voucher could be proported and the second all observations. Voucher could be proported and the second all observations. Voucher could be proported and the second all observations. Voucher could be proported and the second all observations. Voucher could be proported and the second all observations. Voucher could be proported and the second all observations. Voucher could be proported and the second all observations. Voucher could be proported and the second all observations. Voucher could be proported and the second all observations. Voucher could be proported and the second and the	rived? (Y/N) Voucher?
Formed? (Y/N): (If Yes, Record all observations. Voucher co ID number. Include appropriate field data she observed? (Y/N) Salamanders Observed? (Y/N) Aquatic Mannents Regarding Biology.  DRAWING AND NARRATIVE DESCRIPTION O Include Important landmarks and other features of interest for sleeping and the second all observations. Voucher could be proported and the second all observations. Voucher could be proported and the second all observations. Voucher could be proported and the second all observations. Voucher could be proported and the second all observations. Voucher could be proported and the second all observations. Voucher could be proported and the second all observations. Voucher could be proported and the second all observations. Voucher could be proported and the second all observations. Voucher could be proported and the second all observations. Voucher could be proported and the second and the	rived? (Y/N) Voucher?
Formed? (Y/N): (If Yes, Record all observations. Voucher co ID number. Include appropriate field data she observed? (Y/N) Salamanders Observed? (Y/N) Aquatic Mannents Regarding Biology.  DRAWING AND NARRATIVE DESCRIPTION O Include Important landmarks and other features of interest for sleeping and the second all observations. Voucher could be proported and the second all observations. Voucher could be proported and the second all observations. Voucher could be proported and the second all observations. Voucher could be proported and the second all observations. Voucher could be proported and the second all observations. Voucher could be proported and the second all observations. Voucher could be proported and the second all observations. Voucher could be proported and the second all observations. Voucher could be proported and the second all observations. Voucher could be proported and the second and the	rived? (Y/N) Voucher?
BIOTIC EVALUATION  (If Yes, Record all observations. Voucher co ID number. Include appropriate field data sh Observed? (Y/N)	rived? (Y/N) Voucher?

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

SITE NAME/LOCATION KOSS GING SITE NUMBER	RIVER BASIN SCIOTO RIVER	DRAINAGE AREA (mi²) 0.003m
DATE 8/2/2017 SCORER KLV	LAT39.33341684 LONG 2.92093841RN COMMENTS SO	/ER CODE/JUDIUS ANER MILE
NOTE: Complete All Items On This For	m - Refer to "Field Evaluation Manual for	Ohio's PHWH Streams" for Instruction
STREAM CHANNEL MODIFICATIONS:	TURAL CHANNEL TRECOVERED TREC	COVERING TRECENT OR NO RECOVERY
(Max of 40). Add total number of signific	ery type of substrate present. Check ONLY two cant substrate types found (Max of 8). Final metric PERCENT TYPE SILT [3 pt] LEAF PACKWOOD' FINE DETRITUS [3 CLAY or HARDPAN MUCK [0 pts] ARTIFICIAL [3 pts]	PERCENT  Y DEBRIS [3 pts]  pts]  HI  Me  PERCENT  O  Sub  Max
2. Maximum Pool Depth (Measure the nevaluation. Avoid plunge pools from roason > 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts]	maximum pool depth within the 61 meter (200 for ad culverts or storm water pipes) (Check ONLY > 5 cm - 10 cm [15 < 5 cm [5 pts]	one box): pts]  Max
> 10 - 22.5 cm [25 pts]	M NO WATER OR MO	DIST CHANNEL [0 pts]
COMMENTS	MAXIMUM P	OOL DEPTH (centimeters):
BANK FULL WIDTH (Measured as the > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	e average of 3-4 measurements) (Chec	
COMMENTS	AVERAGE B	ANKFULL WIDTH (meters)
RIPARIAN ZONE AND FLOOD RIPARIAN WIDTH	This information must also be complete PLAIN QUALITY	ed d Right (R) as looking downstream☆
(Per Bank) Wide >10m Moderate 5-10m	L R (Most Predominant per Bank)  Mature Forest, Wetland  Immature Forest, Shrub or Old Field	L R Conservation Tillage Urban or Industrial
☐ ☐ Narrow <5m ☐ ☐ None COMMENTS	Residential, Park, New Field Fenced Pasture	Open Pasture, Row Crop Mining or Construction
Stream Flowing Subsurface flow with isolated por		nel, isolated pools, no flow (Intermittent) i, no water (Ephemeral)
SINUOSITY (Number of bends   None	per 61 m (200 ft) of channel) (Check <i>ONLY</i> one 1.0 2.0 1.5 2.5	box):  3.0  >3
STREAM GRADIENT ESTIMATE		to Severe (10 ft/100 ft)

QHEI PERFORMED? - Yes A No QHEI Score(If	Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	051 -1.0
	Distance from Evaluated Stream 0.51 miles
CWH Name:	Distance from Evaluated Stream Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATE	
ISGS Quadrangle Name: Chillicothe Edit landonderry NRCS S	oil Map Page: NRCS Soil Map Stream Order
ounty: Ross Co. Township / City.	Springfield Tup / Chillicothe
MISCELLANEOUS	, ,
Base Flow Conditions? (Y/N): Date of last precipitation:8/2/201	7 Quantity 4 25"
	Guarany, S. V.
Photograph Information:	0.00
Elevated Turbidity? (Y/N): N Canopy (% open): 25/	
Vere samples collected for water chemistry? (Y/N): (Note lab sample no	o. or id. and attach results) Lab Number:
rield Measures: Temp (°C) Dissolved Oxygen (mg/l) pH	(S.U.) Conductivity (µmhos/cm)
the sampling reach representative of the stream (Y/N) If not, please exp	
the sumpting reach representative of the stream (TAN) 4 If the please exp	Man.
BIOTIC EVALUATION erformed? (Y/N): N (If Yes, Record all observations. Voucher collections)	s optional. NOTE: all voucher samples must be labeled with the sit
BIOTIC EVALUATION  Performed? (Y/N): (If Yes, Record all observations. Voucher collections ID number. Include appropriate field data sheets from the collection of the	s optional. NOTE: all voucher samples must be labeled with the sit om the Primary Headwater Habitat Assessment Manual) (Y/N) N Voucher? (Y/N) N
(If Yes, Record all observations. Voucher collections ID number. Include appropriate field data sheets from the Collection of the Collecti	s optional. NOTE: all voucher samples must be labeled with the sit om the Primary Headwater Habitat Assessment Manual) (Y/N) N Voucher? (Y/N) N
BIOTIC EVALUATION  Performed? (Y/N): (If Yes, Record all observations. Voucher collections ID number. Include appropriate field data sheets from the collections of the collectio	s optional. NOTE: all voucher samples must be labeled with the sit om the Primary Headwater Habitat Assessment Manual) (Y/N) N Voucher? (Y/N) N
BIOTIC EVALUATION  Performed? (Y/N): (If Yes, Record all observations. Voucher collections ID number. Include appropriate field data sheets from the collections of the collectio	s optional. NOTE: all voucher samples must be labeled with the sit om the Primary Headwater Habitat Assessment Manual) (Y/N) Voucher? (Y/N) vertebrates Observed? (Y/N) Voucher? (Y/N)
BIOTIC EVALUATION  Output  Out	s optional. NOTE: all voucher samples must be labeled with the sit on the Primary Headwater Habitat Assessment Manual)  (Y/N) \( \bigcup  Voucher? (Y/N) \( \bigcup  \text{Voucher? (Y/N) \\ \bigcup  \text{Voucher? (Y/N) \( \bigcup  \text{Voucher? (Y/N) \\ \bigcup  \text{Voucher? (Y/N) \( \bigcup  \text{Voucher? (Y/N) \\ \bigcup  \te
BIOTIC EVALUATION  Performed? (Y/N): (If Yes, Record all observations. Voucher collections ID number. Include appropriate field data sheets from the state of the state	s optional. NOTE: all voucher samples must be labeled with the sit on the Primary Headwater Habitat Assessment Manual)  (Y/N) \( \bigcup  Voucher? (Y/N) \( \bigcup  \text{Voucher? (Y/N) \\ \bigcup  \text{Voucher? (Y/N) \( \bigcup  \text{Voucher? (Y/N) \\ \bigcup  \text{Voucher? (Y/N) \( \bigcup  \text{Voucher? (Y/N) \\ \bigcup  \te
BIOTIC EVALUATION  Performed? (Y/N): (If Yes, Record all observations. Voucher collections ID number. Include appropriate field data sheets from the comments of the comments of the comments Regarding Biology DRAWING AND NARRATIVE DESCRIPTION OF STEING Under Important landmarks and other features of interest for site evaluations.	s optional. NOTE: all voucher samples must be labeled with the sit on the Primary Headwater Habitat Assessment Manual)  (Y/N) \( \text{Voucher? (Y/N) \( \text{N} \) \\ \ext{Voucher? (Y/N) \( \text{N} \) \\ \ex
BIOTIC EVALUATION  Performed? (Y/N): (If Yes, Record all observations. Voucher collections ID number. Include appropriate field data sheets from the ish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Aquatic Macroins Comments Regarding Biology.  DRAWING AND NARRATIVE DESCRIPTION OF STE	s optional. NOTE: all voucher samples must be labeled with the sit on the Primary Headwater Habitat Assessment Manual)  (Y/N) \( \bigcup  Voucher? (Y/N) \( \bigcup  \text{Voucher? (Y/N) \\ \bigcup  \text{Voucher? (Y/N) \( \bigcup  \text{Voucher? (Y/N) \\ \bigcup  \text{Voucher? (Y/N) \( \bigcup  \text{Voucher? (Y/N) \\ \bigcup  \te
BIOTIC EVALUATION  Performed? (Y/N): (If Yes, Record all observations. Voucher collections ID number. Include appropriate field data sheets from the comments of the comments of the comments Regarding Biology DRAWING AND NARRATIVE DESCRIPTION OF STEING Under Important landmarks and other features of interest for site evaluations.	s optional. NOTE: all voucher samples must be labeled with the sit on the Primary Headwater Habitat Assessment Manual)  (Y/N) \( \text{Voucher? (Y/N) \( \text{N} \) \\ \ext{Voucher? (Y/N) \( \text{N} \) \\ \ex
Performed? (Y/N): (If Yes, Record all observations. Voucher collections ID number. Include appropriate field data sheets from the collections of the collecti	s optional. NOTE: all voucher samples must be labeled with the sit on the Primary Headwater Habitat Assessment Manual)  (Y/N) \( \text{Voucher? (Y/N) \( \text{N} \) \\ \ext{Voucher? (Y/N) \( \text{N} \) \\ \ex
BIOTIC EVALUATION  Performed? (Y/N): (If Yes, Record all observations. Voucher collections ID number. Include appropriate field data sheets from the include a	s optional. NOTE: all voucher samples must be labeled with the sit on the Primary Headwater Habitat Assessment Manual)  (Y/N) \( \text{Voucher? (Y/N) \( \text{N} \) \\ \ext{Voucher? (Y/N) \( \text{N} \) \\ \ex
BIOTIC EVALUATION  Performed? (Y/N): (If Yes, Record all observations. Voucher collections ID number. Include appropriate field data sheets from the state of the state	s optional. NOTE: all voucher samples must be labeled with the sit on the Primary Headwater Habitat Assessment Manual)  (Y/N)
Performed? (Y/N): (If Yes, Record all observations. Voucher collections ID number. Include appropriate field data sheets from the collections of the collecti	s optional. NOTE: all voucher samples must be labeled with the sit on the Primary Headwater Habitat Assessment Manual)  (Y/N) \( \text{Voucher? (Y/N) \( \text{N} \) \\ \ext{Voucher? (Y/N) \( \text{N} \) \\ \ex
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections ID number. Include appropriate field data sheets from the collections of	s optional. NOTE: all voucher samples must be labeled with the sit on the Primary Headwater Habitat Assessment Manual)  (Y/N)
BIOTIC EVALUATION  erformed? (Y/N): (If Yes, Record all observations. Voucher collections ID number. Include appropriate field data sheets from the collection of the c	s optional. NOTE: all voucher samples must be labeled with the sit on the Primary Headwater Habitat Assessment Manual)  (Y/N)

June 20, 2008 Revision

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

39
----

LENGTH OF STREAM REACH (#) 1087  DATE 2 207 SCORER YLV	RIVER BASIN SCIOTO RIVEY DRAINAGE AREA (mi²)  LAT39.33486152 LONG 82.9134326 RIVER CODE OF COUNTY RIVER MILE  COMMENTS S 023	0.35mi <sup>2</sup>
	orm - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for In	structions
	IATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RI	
		HHE Metri Point Substra Max = 4
	maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of coad culverts or storm water pipes) (Check ONLY one box):  > 5 cm - 10 cm [15 pts]  < 5 cm [5 pts]  NO WATER OR MOIST CHANNEL [0 pts]	Pool Dep Max = 3
COMMENTS	MAXIMUM POOL DEPTH (centimeters):	
3. BANK FULL WIDTH (Measured as to > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] COMMENTS	ne average of 3-4 measurements) (Check <i>ONLY</i> one box):	Bankfu Width Max=30
		1
RIPARIAN ZONE AND FLOO RIPARIAN WIDTH	This Information <u>must</u> also be completed  DPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆  FLOODPLAIN QUALITY	
L R (Per Bank)	L R (Most Predominant per Bank) L R	
□ □ Wide >10m  Ø Ø Moderate 5-10m	☐ ☐ Mature Forest, Wetland ☐ ☐ Conservation Tillage ☐ ☐ Urban or Industrial	,
□ □ Narrow <5m	Field Open Pasture, Row	
None COMMENTS	Crop Fenced Pasture    Crop   Mining or Construction	on
FLOW REGIME (At Time of E  Stream Flowing  Subsurface flow with isolated p  COMMENTS	valuation) (Check ONLY one box):  Moist Channel, isolated pools, no flow (Intermitted pools (Interstitial)  Dry channel, no water (Ephemeral)	ent)
SINUOSITY (Number of bender None 0.5	Check ONLY one box):   1.0	

MISCELLANEOUS  lase Flow Conditions? (Y/N):		f Ves. Attach Completed OHEL Form)
CWH Name:   Distance from Evaluated Stream   Distance from Evaluation   Distance From Indiana   Distance From Indiana   Distance From Indiana   Distance From Indiana   Distance From Evaluation   Distance From Indiana   Distance From Evaluation   D		1 103, Fittadi Gompletod Grizer Griny
Distance from Evaluated Stream   Distance from   Distanc	DOWNSTREAM DESIGNATED USE(S)	Distance from Firebusted Streets 053 miles
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION  ISGS Quadrangle Name Chilluch Crust   Conductivity   NRCS Soil Map Page:   NRCS Soil Map Stream Order    NRCS Soil Map Page:   NRCS Soil Map Stream Order    NRCS Soil Map Stre		
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION  ISGS Quadrengle Name Chillucal Location   NRCS Soil Map Page: NRCS Soil Map Stream Order    County: ROSS Co. Township / City: Springfield Tup   Chillicothe    MISCELLANEOUS  Issee Flow Conditions? (YM): Date of last precipitation   8/2   17    Canopy (% open): 40    Leveled Turbidity? (YM): N. Canopy (% open): 40    Leveled Turbidity? (YM): N. Canopy (% open): 40    Leveled Turbidity? (YM): N. Conductivity (Liphos/cm)    Let was amplies collected for water chemistry? (YM): N. (Note lab sample no. or id. and attach results) Lab Number:    Let was ampling reach representative of the stream (YM). N. If not, please explain:    BIOTIC EVALUATION    Let you compare the primary headwater habitad Assessment Manual)    Let you compare the primary headwater habitad Assessment Manual)    Let you cher? (YM). N. Salamanders Observed? (YM). N. Voucher? (YM). N. Aquatic Macroinvertebrates Observed? (YM). N. Voucher? (YM). N. Aquatic Macroinvertebrates Observed? (YM). N. Voucher? (YM). N. Aquatic Macroinvertebrates Observed? (YM). N. Voucher? (YM). N. Comments Regarding Biology:    DRAWING AND NARRA TIVE DESCRIPTION OF STREAM REACH (This must be completed):    LOW   Taylor of the stream's location of the stream's loc		
SCS Quadrangle Name Chill(collectost Conductors) NRCS Soil Map Stream Order	D EWH Name:	Distance from Evaluated Site and
MISCELLANEOUS  Insee Flow Conditions? (Y/N): \( \) Date of last precipitation. \( \) \( \) \( \) Quantity. \( \) \( \) Quantity. \( \) \(	4- 11	
MISCELLANEOUS  Jase Flow Conditions? (Y/N): Date of last precipitation. 3/2 17 Quantity. 2.25"  Inhotograph Information:  Jeverded Turbidity? (Y/N): Canopy (% open): 40  Jeverded Turbidity? (Y/N): (Note lab sample no. or id. and attach results) Lab Number:  Jeverded Turbidity? (Y/N): (Note lab sample no. or id. and attach results) Lab Number:  Jeled Measures: Temp (°C). Dissolved Oxygen (mg/N). pH (S.U.). Conductivity (jumhos/cm).  Jeth sampling reach representative of the stream (Y/N). If not, please explain:  BIOTIC EVALUATION  enformed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the sit in number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  Ish Observed? (Y/N). Voucher? (Y/N). Salamanders Observed? (Y/N). Voucher? (Y/N). Voucher? (Y/N). Orders of Tadpoles Observed? (Y/N). Aquatic Macroinvertebrates Observed? (Y/N). Voucher? (Y/N). Orders of Tadpoles Observed? (Y/N). Aquatic Macroinvertebrates Observed? (Y/N). Voucher? (Y/N). Orders of Include Important Include Impo		
Date of last precipitation: 8/2 17 Quantity: 4.254  hotograph information: levated Turbidity? (Y/N): N Canopy (% open): 40 /  Vere samples collected for water chemistry? (Y/N): Y (Note lab sample no. or id. and attach results) Lab Number:  leid Measures: Temp ("C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)  the sampling reach representative of the stream (Y/N) N If not, please explain:  BIOTIC EVALUATION  erformed? (Y/N): Y (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the sit ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  Isin Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N Ownments 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  Transmission und	county: Koss Co Township / City	Springfield lwp Chillicothe
Include Important landmarks and other features of Interest for site evaluation and a narrative description of the stream; Include Important landmarks and other features of Interest for site evaluation and a narrative description of the stream; Include Important landmarks and other features of Interest for site evaluation and a narrative description of the stream; Include Important landmarks and other features of Interest for site evaluation and a narrative description of the stream; Include Important landmarks and other features of Interest for site evaluation and a narrative description of the stream; Include Important landmarks and other features of Interest for site evaluation and a narrative description of the stream's location.		
Include Important landmarks and other features of Interest for site evaluation and a narrative description of the stream; Include Important landmarks and other features of Interest for site evaluation and a narrative description of the stream; Include Important landmarks and other features of Interest for site evaluation and a narrative description of the stream; Include Important landmarks and other features of Interest for site evaluation and a narrative description of the stream; Include Important landmarks and other features of Interest for site evaluation and a narrative description of the stream; Include Important landmarks and other features of Interest for site evaluation and a narrative description of the stream's location.	Base Flow Conditions? (Y/N): Date of last precipitation: 8/2/17	Quantity: <u>L.25</u> 4
Note lab sample no. or id. and attach results) Lab Number:	Photograph Information:	
Note lab sample no. or id. and attach results) Lab Number:	Elevated Turbidity? (Y/N): N Canopy (% open): 401.	
idditional comments/description of pollution impacts:    BIOTIC EVALUATION		
BIOTIC EVALUATION  erformed? (Y/N):	·	
BIOTIC EVALUATION  erformed? (Y/N):	Additional comments/description of pollution impacts:	
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed): Include important landmarks and other features of Interest for site evaluation and a narrative description of the stream's location  Transmission Line  Row  Low	(If Yes, Record all observations. Voucher collection ID number. Include appropriate field data sheets to State Observed? (Y/N) Noucher? (Y/N) Noucher? (Y/N) Noucher?	from the Primary Headwater Habitat Assessment Manual)
Include important landmarks and other features of Interest for site evaluation and a narrative description of the stream's location  Transmission Line  Row  Low	rogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) N Aquatic Macro	invertebrates Observed? (Y/N) Voucher? (Y/N)
Include important landmarks and other features of Interest for site evaluation and a narrative description of the stream's location  Transmission Line  Row  Low	Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) V Aquatic Macro	invertebrates Observed? (Y/N) Voucher? (Y/N)
Include important landmarks and other features of Interest for site evaluation and a narrative description of the stream's location  Transmission Line  Row  Low	Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macro Comments Regarding Biology:	invertebrates Observed? (Y/N) N Voucher? (Y/N) N
Include important landmarks and other features of Interest for site evaluation and a narrative description of the stream's location  Transmission Line  Row  Low	rogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) V Aquatic Macro	invertebrates Observed? (Y/N) N Voucher? (Y/N) N
Include important landmarks and other features of Interest for site evaluation and a narrative description of the stream's location  Transmission Line  Row  Low	Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) V Aquatic Macro	invertebrates Observed? (Y/N) Voucher? (Y/N)
Transmission Line Row	Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) V Aquatic Macro	invertebrates Observed? (Y/N) N Voucher? (Y/N) N
Transmission Line Row	Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macro	invertebrates Observed? (Y/N) N Voucher? (Y/N)N
LOW-	Progs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macro Comments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF ST	IREAM REACH (This must be completed):
LOW-	DRAWING AND NARRATIVE DESCRIPTION OF ST	TREAM REACH (This must be completed): aluation and a narrative description of the stream's location
LOW-	DRAWING AND NARRATIVE DESCRIPTION OF ST	TREAM REACH (This must be completed): aluation and a narrative description of the stream's location
	DRAWING AND NARRATIVE DESCRIPTION OF ST	TREAM REACH (This must be completed): aluation and a narrative description of the stream's location
	DRAWING AND NARRATIVE DESCRIPTION OF ST	TREAM REACH (This must be completed): aluation and a narrative description of the stream's location
	Comments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF ST Include Important landmarks and other features of Interest for site even	TREAM REACH (This must be completed): aluation and a narrative description of the stream's location
Taristor Laristor	DRAWING AND NARRATIVE DESCRIPTION OF ST Include important landmarks and other features of interest for site evi-	TREAM REACH (This must be completed): aluation and a narrative description of the stream's location
3	DRAWING AND NARRATIVE DESCRIPTION OF ST Include important landmarks and other features of interest for site evi-	TREAM REACH (This must be completed): aluation and a narrative description of the stream's location  ROW
	DRAWING AND NARRATIVE DESCRIPTION OF ST	TREAM REACH (This must be completed): aluation and a narrative description of the stream's location  ROW
	DRAWING AND NARRATIVE DESCRIPTION OF ST Include important landmarks and other features of interest for site evi-	TREAM REACH (This must be completed): aluation and a narrative description of the stream's location  ROW
	DRAWING AND NARRATIVE DESCRIPTION OF ST Include important landmarks and other features of interest for site evi-	TREAM REACH (This must be completed): aluation and a narrative description of the stream's location  ROW
	DRAWING AND NARRATIVE DESCRIPTION OF ST Include important landmarks and other features of interest for site evi-	TREAM REACH (This must be completed): aluation and a narrative description of the stream's location  ROW
	DRAWING AND NARRATIVE DESCRIPTION OF ST Include Important landmarks and other features of Interest for site evi-	TREAM REACH (This must be completed): aluation and a narrative description of the stream's location  ROW
	DRAWING AND NARRATIVE DESCRIPTION OF ST Include important landmarks and other features of interest for site evi-	TREAM REACH (This must be completed): aluation and a narrative description of the stream's location  ROW



SITE NAME/LOCATION KOSS GIND	CV .	
LENGTH OF STREAM REACH (#) 469  DATE 8/2/17 SCORER KLV	LAT <u>91.39591461</u> LONG.92.924 COMMENTS	12/09 RIVER CODE (500.0005) OF WER MILE
NOTE: Complete All Items On This For	m - Refer to "Field Evaluation Ma	anual for Ohio's PHWH Streams" for Instructions
STREAM CHANNEL NONE / NA MODIFICATIONS:	TURAL CHANNEL    RECOVERED	☐ RECOVERING ☐ RECENT OR NO RECOVERY
(Max of 40). Add total number of significant properties of the significant properties of the significant properties of the significant properties of Bldr Slabs, Boulder, Cobble, Bedrock	ant substrate types found (Max of 8). F  ERCENT TYPE SILT [3 pt] LEAF PAC FINE DET CLAY or F ARTIFICIA  (A)  (A)	Substrate Max = 40  Pots]  L [3 pts]  (B)  A + B
2. Maximum Pool Depth (Measure the mevaluation. Avoid plunge pools from roal > 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts]	aximum pool depth within the 61 med culverts or storm water pipes) (Ch. > 5 cm - < 5 cm [5]	10 cm [15 pts] 5 pts] FR OR MOIST CHANNEL (0 pts)
COMMENTS_		XIMUM POOL DEPTH (centimeters):
3. BANK FULL WIDTH (Measured as the > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	□ > 1.0 m -	(Check ONLY one box): 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 3' 3") [5 pts]  Bankfull Width Max=30
COMMENTS	AV	ERAGE BANKFULL WIDTH (meters)
	This information must also be	e completed
RIPARIAN ZONE AND FLOODI RIPARIAN WIDTH	PLAIN QUALITY	eft (L) and Right (R) as looking downstream☆
L R (Per Bank) Wide >10m	L R (Most Predominant per B Mature Forest, Wetland Immature Forest, Shrub	Conservation Tillage
☐ ☐ Moderate 5-10m	Field	Open Desture Row
□ □ Narrow <5m □ □ None COMMENTS	Residential, Park, New F	crop  Mining or Construction
Stream Flowing Subsurface flow with isolated poc		loist Channel, isolated pools, no flow (Intermittent) by channel, no water (Ephemeral)
SINUOSITY (Number of bends position of bends pos	er 61 m (200 ft) of channel) (Check of 1.0 2.5	3.0
STREAM GRADIENT ESTIMATE  Flat (0.5 ft/100 ft) Flat to Moderate	Moderate (2 ft/100 ft)	Moderate to Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be o	Sompretedy.
QHEI PERFORMED? - Tyes X No QHEI Score	(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	200
	Distance from Evaluated StreamDistance from Evaluated Stream
CWH Name:	
SWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE	
USGS Quadrangle Name Chillicothe East London terry NR	- 0 · 1 - 1 - · · ·
county: Koss Co. Township /	city. Springfield Twp (Chillicothe
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Date of last precipitation: 8 2	Quantity: 4.25"
Photograph Information:	
Elevated Turbidity? (Y/N): N Canopy (% open): 20 (	
Were samples collected for water chemistry? (Y/N): N (Note lab sam	nple no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l)	pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N)	se explain:
Additional comments/description of pollution impacts:  BIOTIC EVALUATION	
BIOTIC EVALUATION  Performed? (Y/N): (If Yes, Record all observations. Voucher colling in the properties of the p	ections optional. NOTE: all voucher samples must be labeled with the site sets from the Primary Headwater Habitat Assessment Manual)  ved? (Y/N) \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collection in the performance of the performan	ets from the Primary Headwater Habitat Assessment Manual)
BIOTIC EVALUATION  Performed? (Y/N): (If Yes, Record all observations. Voucher colling in the properties of the p	ets from the Primary Headwater Habitat Assessment Manual)
BIOTIC EVALUATION  Performed? (Y/N): (If Yes, Record all observations. Voucher colling in the properties of the p	ets from the Primary Headwater Habitat Assessment Manual)
BIOTIC EVALUATION  Performed? (Y/N): (If Yes, Record all observations. Voucher collection of the properties of th	ved? (Y/N) N Voucher? (
BIOTIC EVALUATION  Performed? (Y/N): (If Yes, Record all observations. Voucher collection of the performed? (Y/N): Voucher. Include appropriate field data she fish Observed? (Y/N): Voucher? (Y/N): Salamanders Observeds or Tadpoles Observed? (Y/N): Voucher? (Y/N): Aquatic MacComments Regarding Biology: DRAWING AND NARRATIVE DESCRIPTION OF	ved? (Y/N) \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
BIOTIC EVALUATION  Performed? (Y/N): (If Yes, Record all observations. Voucher collection of the properties of th	ved? (Y/N) \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
BIOTIC EVALUATION  Performed? (Y/N):	ved? (Y/N) \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
BIOTIC EVALUATION  Performed? (Y/N): (If Yes, Record all observations. Voucher collection of the performed? (Y/N): Voucher. Include appropriate field data she fish Observed? (Y/N): Voucher? (Y/N): Salamanders Observeds or Tadpoles Observed? (Y/N): Voucher? (Y/N): Aquatic MacComments Regarding Biology: DRAWING AND NARRATIVE DESCRIPTION OF	ved? (Y/N) \( \sum_{\text{Voucher?}} \) Voucher? (Y/N) \( \sum_{\text{Voucher?}} \) Voucher? (Y/N) \( \sum_{\text{Voucher?}} \) Voucher? (Y/N) \( \sum_{\text{Voucher?}} \) \( \sum_{\text{Voucher?}} \) Voucher? (Y/N) \( \sum_{\text{Voucher?}} \) \(
BIOTIC EVALUATION  Performed? (Y/N):	ved? (Y/N) \( \sum_{\text{Voucher?}} \) Voucher? (Y/N) \( \sum_{\text{Voucher?}} \) Voucher? (Y/N) \( \sum_{\text{Voucher?}} \) Voucher? (Y/N) \( \sum_{\text{Voucher?}} \) \( \sum_{\text{Voucher?}} \) Voucher? (Y/N) \( \sum_{\text{Voucher?}} \) \(
BIOTIC EVALUATION  Performed? (Y/N):	ved? (Y/N) \( \sum_{\text{Voucher?}} \) Voucher? (Y/N) \( \sum_{\text{Voucher?}} \) Voucher? (Y/N) \( \sum_{\text{Voucher?}} \) Voucher? (Y/N) \( \sum_{\text{Voucher?}} \) \( \sum_{\text{Voucher?}} \) Voucher? (Y/N) \( \sum_{\text{Voucher?}} \) \(
BIOTIC EVALUATION  Performed? (Y/N):	ved? (Y/N) \( \sum_{\text{Voucher?}} \) Voucher? (Y/N) \( \sum_{\text{Voucher?}} \) Voucher? (Y/N) \( \sum_{\text{Voucher?}} \) Voucher? (Y/N) \( \sum_{\text{Voucher?}} \) \( \sum_{\text{Voucher?}} \) Voucher? (Y/N) \( \sum_{\text{Voucher?}} \) \(
BIOTIC EVALUATION  Performed? (Y/N):	ved? (Y/N) \( \sum_{\text{Voucher?}} \) Voucher? (Y/N) \( \sum_{\text{Voucher?}} \) Voucher? (Y/N) \( \sum_{\text{Voucher?}} \) Voucher? (Y/N) \( \sum_{\text{Voucher?}} \) \( \sum_{\text{Voucher?}} \) Voucher? (Y/N) \( \sum_{\text{Voucher?}} \) \(
BIOTIC EVALUATION  Performed? (Y/N):	ved? (Y/N) Voucher? (
BIOTIC EVALUATION  Performed? (Y/N):	ved? (Y/N) Voucher? (
BIOTIC EVALUATION  Performed? (Y/N):	ved? (Y/N) Voucher? (
BIOTIC EVALUATION  Performed? (Y/N):	ved? (Y/N) \( \sum_{\text{Voucher?}} \) Voucher? (Y/N) \( \sum_{\text{Voucher?}} \) Voucher? (Y/N) \( \sum_{\text{Voucher?}} \) Voucher? (Y/N) \( \sum_{\text{Voucher?}} \) \( \sum_{\text{Voucher?}} \) Voucher? (Y/N) \( \sum_{\text{Voucher?}} \) \(

### Chieff Primary Headwater Habitat Evaluation Form

ſ	-0	
ı	29	-1
L	01	

DATE 8/2/17 SCORER KLV	RIVER BASIN SCIOLO RIVER DRAINAGE AREA (mi²) 0.002 M I  AT 391. 33/04 84/91 ONG 82.92571982 RIVER CODE 050/2002/07 RVER MILE  COMMENTS  Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions
	RAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY
(Max of 40). Add total number of significant	type of substrate present. Check ONLY two predominant substrate TYPE boxes substrate types found (Max of 8). Final metric score is sum of boxes A & B.    CENT   TYPE   PERCENT   Metric score is sum of boxes A & B.
	Imum pool depth within the 61 meter (200 ft) evaluation reach at the time of ulverts or storm water pipes) (Check ONLY one box):
COMMENTS  BANK FULL WIDTH (Measured as the avecase) > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] COMMENTS	MAXIMUM POOL DEPTH (centimeters):  erage of 3-4 measurements) (Check ONLY one box):  > 1.0 m - 1.5 m (> 3'3" - 4'8") [15 pts]  ≤ 1.0 m (≤ 3'3") [5 pts]  AVERAGE BANKFULL WIDTH (meters)
RIPARIAN ZONE AND FLOODPLA RIPARIAN WIDTH L R (Per Bank)	This Information <u>must</u> also be completed  IN QUALITY
Wide >10m	Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Field Urban or Industrial
□ □ None COMMENTS	Residential, Park, New Field Open Pasture, Row Crop Fenced Pasture Mining or Construction
FLOW REGIME (At Time of Evaluate Stream Flowing Subsurface flow with isolated pools (COMMENTS	
SINUOSITY (Number of bends per on the subsection of the subsection	61 m (200 ft) of channel) (Check ONLY one box): 1.0
STREAM GRADIENT ESTIMATE  Flat (0.5 ft/100 ft)  Flat to Moderate	Moderate (2 ft/100 ft)

MISCELLANEOUS see Flow Conditions? (Y/N):	OHEI DEDECIDMENT TO VALUE OF	ore (If Yes, Attach Completed OHEL Form)
CWH Name: Distance from Evaluated Stream		ore (II fes, Attach Completed QHEI Form)
CWH Name: Distance from Evaluated Stream	DOWNSTREAM DESIGNATED USE(S)	Oldusto
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION  MISCS Quadrangle Name Chillicath. It all Control of Mark Control of Mark Chillicath.  MISCELLANEOUS  See Flow Conditions? (Y/N).  Date of last precipitation. 8/2/2017.  Quantity. C.25".  Conderph Information:  valed Turbidity? (Y/N):  Canopy (% open):  Conductivity (Y/N):  Canopy (% open):  Ph (S.U.)  Conductivity (umhos/om)  If not, please explain:  BIOTIC EVALUATION  formed? (Y/N):  If yee, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the sit ID number. Include appropriate field data sheets from the Primary Headwater Habital Assessment Manual)  In Observed? (Y/N):  Voucher? (Y/N):  DATE of last precipitation. 8/2/2017.  Quantity. C.25"		
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION  OF GO Guadrangle Name(Chillicath). Collision of Mapping		
ACS Quadrangle NameChilicath Cost Inductory NRCS Soil Map Page: NRCS Soil Map Stream Order Township / City. Springfield Twp. Chillicath County. Ross Co. Township / City. Springfield Twp. Chillicath County. Ross Co. Township / City. Springfield Twp. Chillicath County Ross Colorant Conditions? (Y/N): Date of last precipitation: 8/2/2011 Quantity. C.25' Cotograph Information: valed Turbidity? (Y/N): Canopy (% open): 20' Conductivity (Y/N): Canopy (% open): 20' Conductivity (Y/N): Canopy (% open): 20' Conductivity (Imhos/cm) Conduct	EWH Name:	Distance from Evaluated Stream
MISCELLANEOUS  See Flow Conditions? (Y/N):	- 11	
MISCELLANEOUS  se Flow Conditions? (Y/N): \ Date of last precipitation: \( \frac{8}{2} \) \( \frac{2}{20} \) \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		
Date of last precipitation: 8/2/201 Quantity. 4.25"  cotograph Information: 201  re samples collected for water chemistry? (Y/N): 1 (Note lab sample no. or id. and attach results) Lab Number: 1  Id Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm) he sampling reach representative of the stream (Y/N) If not, please explain: 1  BIOTIC EVALUATION  formed? (Y/N): 1 (if Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the sit iD number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  in Observed? (Y/N): 1 Voucher? (Y/N) Salamanders Observed? (Y/N): 1 Voucher? (Y/N	unty: Koss Co	Township/City. Springfield Tup. / Chillicothe
vated Turbidity? (Y/N): Canopy (% open):		
re samples collected for water chemistry? (Y/N):	se Flow Conditions? (Y/N): Date of last precipitat	tion: $8/2/201$ quantity: $4.25$
Include Important landmarks and other features of Interest for site evaluation and a name tive description of the stream's location of the stream of th	otograph Information:	201
Id Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm) he sampling reach representative of the stream (Y/N) If not, please explain: ditional comments/description of pollution impacts: life not, please explain:		
If not, please explain:    BIOTIC EVALUATION		
BIOTIC EVALUATION  formed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the sit ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  h Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N INTERPRETATION OF STREAM REACH (This must be completed):  Include Important landmarks and other features of Interest for site evaluation and a narrative description of the stream's location  HOWSta		
BIOTIC EVALUATION  (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the sit ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  h Observed? (Y/N)	he sampling reach representative of the stream (Y/N)	_ If not, please explain:
BIOTIC EVALUATION  (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the sit ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  h Observed? (Y/N)		
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed): Include Important landmarks and other features of Interest for site evaluation and a narrative description of the stream's location  OW  Fivestool		
Include Important landmarks and other features of Interest for site evaluation and a narrettive description of the stream's location  OW  Five Steel	BIOTIC EVALUATION  If Yes, Record all observations.  ID number. Include appropriate  th Observed? (Y/N) Voucher? (Y/N) Salama  ogs or Tadpoles Observed? (Y/N) Voucher? (Y/N)	anders Observed? (Y/N) \ Voucher? (Y/N)
Include Important landmarks and other features of Interest for site evaluation and a narrettive description of the stream's location  OW  Five Steel	BIOTIC EVALUATION  If Yes, Record all observations.  ID number. Include appropriate  th Observed? (Y/N) Voucher? (Y/N) Salama  ogs or Tadpoles Observed? (Y/N) Voucher? (Y/N)	anders Observed? (Y/N) \ Voucher? (Y/N)
Include Important landmarks and other features of Interest for site evaluation and a narrettive description of the stream's location  OW  Five Steel	BIOTIC EVALUATION  If Yes, Record all observations.  ID number. Include appropriate  th Observed? (Y/N) Voucher? (Y/N) Salama  ogs or Tadpoles Observed? (Y/N) Voucher? (Y/N)	anders Observed? (Y/N) \ Voucher? (Y/N)
Include Important landmarks and other features of Interest for site evaluation and a narrettive description of the stream's location  OW  Five Steel	BIOTIC EVALUATION  If Yes, Record all observations.  ID number. Include appropriate  th Observed? (Y/N) Voucher? (Y/N) Salama  ogs or Tadpoles Observed? (Y/N) Voucher? (Y/N)	anders Observed? (Y/N) \ Voucher? (Y/N)
Firested Firested	BIOTIC EVALUATION  If Yes, Record all observations.  ID number. Include appropriate  th Observed? (Y/N) Voucher? (Y/N) Salama  ogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) M  mments Regarding Biology.	anders Observed? (Y/N) N Voucher? (Y/N)
ow Fivested	BIOTIC EVALUATION  If Yes, Record all observations. ID number. Include appropriate th Observed? (Y/N) Voucher? (Y/N) Salama ags or Tadpoles Observed? (Y/N) Voucher? (Y/N) Number.  The Company of the Co	anders Observed? (Y/N) N Voucher? (Y/N)
ow Fivested	BIOTIC EVALUATION  If Yes, Record all observations. ID number. Include appropriate th Observed? (Y/N) Voucher? (Y/N) Salama ags or Tadpoles Observed? (Y/N) Voucher? (Y/N) Number.  The Company of the Co	anders Observed? (Y/N) N Voucher? (Y/N)
ow Fivested	BIOTIC EVALUATION  If Yes, Record all observations. ID number. Include appropriate th Observed? (Y/N) Voucher? (Y/N) Salama ags or Tadpoles Observed? (Y/N) Voucher? (Y/N) Number.  The Company of the Co	anders Observed? (Y/N) N Voucher? (Y/N)
Foresteel	BIOTIC EVALUATION  If Yes, Record all observations. ID number. Include appropriate th Observed? (Y/N) Voucher? (Y/N) Salama ags or Tadpoles Observed? (Y/N) Voucher? (Y/N) M  mments Regarding Biology.  DRAWING AND NARRATIVE DESCR Include Important landmarks and other features of in	anders Observed? (Y/N) N Voucher? (Y/N)
Foresteel	BIOTIC EVALUATION  If Yes, Record all observations. ID number. Include appropriate th Observed? (Y/N) Voucher? (Y/N) Salama ags or Tadpoles Observed? (Y/N) Voucher? (Y/N) M  mments Regarding Biology.  DRAWING AND NARRATIVE DESCR Include Important landmarks and other features of in	anders Observed? (Y/N) N Voucher? (Y/N)
Foresteel	BIOTIC EVALUATION  If Yes, Record all observations. ID number. Include appropriate th Observed? (Y/N) Voucher? (Y/N) Salama ags or Tadpoles Observed? (Y/N) Voucher? (Y/N) M  mments Regarding Biology.  DRAWING AND NARRATIVE DESCR Include Important landmarks and other features of in	anders Observed? (Y/N) N Voucher? (Y/N)
5 1	BIOTIC EVALUATION  If Yes, Record all observations. ID number. Include appropriate th Observed? (Y/N) Voucher? (Y/N) Salamand Sal	anders Observed? (Y/N) N Voucher? (Y/N)
5 1	BIOTIC EVALUATION  If Yes, Record all observations. ID number. Include appropriate th Observed? (Y/N) Voucher? (Y/N) Salama ags or Tadpoles Observed? (Y/N) Voucher? (Y/N) M  mments Regarding Biology.  DRAWING AND NARRATIVE DESCR Include Important landmarks and other features of in	anders Observed? (Y/N) N Voucher? (Y/N)
Transmission line	BIOTIC EVALUATION  If Yes, Record all observations. ID number. Include appropriate th Observed? (Y/N) Voucher? (Y/N) Salamand Sal	anders Observed? (Y/N) N Voucher? (Y/N)
Transmission line	BIOTIC EVALUATION  If Yes, Record all observations. ID number. Include appropriate th Observed? (Y/N) Voucher? (Y/N) Salamand Sal	anders Observed? (Y/N) N Voucher? (Y/N)
Rolling and	BIOTIC EVALUATION  If Yes, Record all observations. ID number. Include appropriate  th Observed? (Y/N)  Voucher? (Y/N)  Salama ogs or Tadpoles Observed? (Y/N)  Voucher? (Y/N)   mments Regarding Biology.  DRAWING AND NARRATIVE DESCR  Include Important landmarks and other features of in	anders Observed? (Y/N) Noucher? (Y/N
KALL	BIOTIC EVALUATION  If Yes, Record all observations. ID number. Include appropriate  th Observed? (Y/N)  Voucher? (Y/N)  Salama ogs or Tadpoles Observed? (Y/N)  Voucher? (Y/N)   mments Regarding Biology.  DRAWING AND NARRATIVE DESCR  Include Important landmarks and other features of in	anders Observed? (Y/N) Noucher? (Y/N
	BIOTIC EVALUATION  If Yes, Record all observations. ID number. Include appropriate  th Observed? (Y/N)  Voucher? (Y/N)  Salama ogs or Tadpoles Observed? (Y/N)  Voucher? (Y/N)   mments Regarding Biology.  DRAWING AND NARRATIVE DESCR  Include Important landmarks and other features of in	anders Observed? (Y/N) Noucher? (Y/N

### Primary Headwater Habitat Evaluation Form

Severe (10 ft/100 ft)

HHEI Score (sum of metrics 1, 2, 3): SITE NAME/LOCATION FUSS AMAC RIVER BASIN SCIOTO PIVER DRAINAGE AREA (mi2) 0.002 mi2 SITE NUMBER LAT39.3366/854LONG82.92569.099RIVER CODE/50300265RIVER MILE LENGTH OF STREAM REACH (ft) 80 DATE 8/2/17 SCORER KLV COMMENTS NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions MONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY STREAM CHANNEL **MODIFICATIONS:** SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes HHEI (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. Metric TYPE PERCENT **TYPE PERCENT Points** BLDR SLABS [16 pts] SILT [3 pt] LEAF PACKWOODY DEBRIS [3 pts] BOULDER (>256 mm) [16 pts] Substrate ПП BEDROCK [16 pt] FINE DETRITUS [3 pts] Max = 40CLAY or HARDPAN [0 pt] COBBLE (65-256 mm) [12 pts] 80 GRAVEL (2-64 mm) [9 pts] MUCK [0 pts] SAND (<2 mm) [6 pts] ARTIFICIAL [3 pts] Total of Percentages of (B) A+B Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES: Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of **Pool Depth** evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): Max = 30> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts] > 22.5 - 30 cm [30 pts] < 5 cm [5 pts] > 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts] COMMENTS MAXIMUM POOL DEPTH (centimeters): BANK FULL WIDTH (Measured as the average of 3-4 measurements) Bankfull (Check ONLY one box): Width > 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] Max=30 ≤ 1.0 m (≤ 3' 3") [5 pts] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] COMMENTS **AVERAGE BANKFULL WIDTH (meters)** This information <u>must</u> also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆ RIPARIAN WIDTH FLOODPLAIN QUALITY (Per Bank) (Most Predominant per Bank) Mature Forest, Wetland Conservation Tillage Wide >10m Immature Forest, Shrub or Old ZIZI Moderate 5-10m ПП Urban or Industrial Field Open Pasture, Row Residential, Park, New Field Narrow <5m 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) A 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

☐ Moderate to Severe

Moderate (2 ft/100 ft)

Flat (0.5 ft/100 ft)

☐ Flat to Moderate

QHEI PERFORMED? - Yes No QHEI Score	(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)  WWH Name:	Distance from Evaluated Stream 0.63miles
	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE W	
USGS Quadrangle Name Chillicothe Fost Londonderry NRCS	S Soil Map Page: NRCS Soil Map Stream Order
County: Ross to Township / Co	ity Springfield Two Chillicothe
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Date of last precipitation:812_[1	1 Quantity: L. 25"
Photograph Information:	
Elevated Turbidity? (Y/N): N Canopy (% open): 201	
Were samples collected for water chemistry? (Y/N): Note lab sample	e no. or id. and attach results) Lab Number:
	pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations, Voucher collect	tions ontional. NOTE: all voucher samples must be labeled with the sit
Performed? (Y/N): (If Yes, Record all observations. Voucher collect	tions optional. NOTE: all voucher samples must be labeled with the sit s from the Primary Headwater Habitat Assessment Manual)
Performed? (Y/N): (If Yes, Record all observations. Voucher collect ID number. Include appropriate field data sheets	s from the Primary Headwater Habitat Assessment Manual)
Performed? (Y/N): (If Yes, Record all observations. Voucher collect ID number. Include appropriate field data sheets  Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Aquatic Macri	s from the Primary Headwater Habitat Assessment Manual)
Performed? (Y/N): (If Yes, Record all observations. Voucher collect ID number. Include appropriate field data sheets  Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Aquatic Macri	s from the Primary Headwater Habitat Assessment Manual)
Performed? (Y/N): (If Yes, Record all observations. Voucher collect ID number. Include appropriate field data sheets  Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Aquatic Macri	s from the Primary Headwater Habitat Assessment Manual)
Performed? (Y/N): (If Yes, Record all observations. Voucher collect ID number. Include appropriate field data sheets  Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observer Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macr. Comments Regarding Biology	s from the Primary Headwater Habitat Assessment Manual)  ad? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N
Performed? (Y/N): (If Yes, Record all observations. Voucher collect ID number. Include appropriate field data sheets  Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Aquatic Macr	s from the Primary Headwater Habitat Assessment Manual)  ad? (Y/N) N Voucher? (Y/N) N Vouch
Performed? (Y/N): (If Yes, Record all observations. Voucher collect ID number. Include appropriate field data sheets Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macr Comments Regarding Biology.  DRAWING AND NARRATIVE DESCRIPTION OF Salamanders Observed? (Y/N) Aquatic Macr Comments Regarding Biology.	s from the Primary Headwater Habitat Assessment Manual)  ad? (Y/N) N Voucher? (Y/N) N Vouch
Performed? (Y/N): (If Yes, Record all observations. Voucher collect ID number. Include appropriate field data sheets   Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observer.   Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macro Comments Regarding Biology.  DRAWING AND NARRATIVE DESCRIPTION OF S	s from the Primary Headwater Habitat Assessment Manual)  ad? (Y/N) N Voucher? (Y/N) N Vouch
Performed? (Y/N): (If Yes, Record all observations. Voucher collect ID number. Include appropriate field data sheets Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed Finds or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macro Comments Regarding Biology.  DRAWING AND NARRATIVE DESCRIPTION OF Salamanders Observed? (Y/N) Aquatic Macro Comments Regarding Biology.	s from the Primary Headwater Habitat Assessment Manual)  ad? (Y/N) N Voucher? (Y/N) N Vouch
Performed? (Y/N): (If Yes, Record all observations. Voucher collect ID number. Include appropriate field data sheets Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observer. Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macr. Comments Regarding Biology.  DRAWING AND NARRATIVE DESCRIPTION OF Salamanders Observer.  Include Important landmarks and other features of interest for site e	s from the Primary Headwater Habitat Assessment Manual)  ad? (Y/N) N Voucher? (Y/N) N Vouch
Performed? (Y/N): (If Yes, Record all observations. Voucher collect ID number. Include appropriate field data sheets Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed. Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macr. Comments Regarding Biology.  DRAWING AND NARRATIVE DESCRIPTION OF Salamanders Observed.  Include Important landmarks and other features of interest for site et al. [1]	s from the Primary Headwater Habitat Assessment Manual)  ad? (Y/N) \( \frac{N}{N} \)
Performed? (Y/N): Noucher collect ID number. Include appropriate field data sheets Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observer Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macr Comments Regarding Biology.  DRAWING AND NARRATIVE DESCRIPTION OF S Include Important landmarks and other features of interest for site e	s from the Primary Headwater Habitat Assessment Manual)  ad? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N  roinvertebrates Observed? (Y/N) N Voucher? (Y/N) N  STREAM REACH (This must be completed):  evaluation and a narrative description of the stream's location
Performed? (Y/N): (If Yes, Record all observations. Voucher collect ID number. Include appropriate field data sheets Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed Finds or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macro Comments Regarding Biology.  DRAWING AND NARRATIVE DESCRIPTION OF Sinclude important landmarks and other features of interest for site ethics.	s from the Primary Headwater Habitat Assessment Manual)  ad? (Y/N) N Voucher? (Y/N) N Vouch
Performed? (Y/N): (If Yes, Record all observations. Voucher collect ID number. Include appropriate field data sheets Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed Finds or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macro Comments Regarding Biology.  DRAWING AND NARRATIVE DESCRIPTION OF Sinclude Important landmarks and other features of interest for site e	s from the Primary Headwater Habitat Assessment Manual)  ad? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N  roinvertebrates Observed? (Y/N) N Voucher? (Y/N) N  STREAM REACH (This must be completed):  evaluation and a narrative description of the stream's location
Performed? (Y/N): (If Yes, Record all observations. Voucher collect ID number. Include appropriate field data sheets Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed Finds or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macro Comments Regarding Biology DRAWING AND NARRATIVE DESCRIPTION OF Sinclude Important landmarks and other features of interest for site e	STREAM REACH (This must be completed):  Evaluation and a narrative description of the stream's location

72
2)

LENGTH OF STREAM REACH (#) 465 DATE 8/2 17 SCORER VLV	RIVER BASIN SCIOTO RIVER DRAINAGE AREA (mi²) 0.03  LATS 133140325 LONG 2.92871462 RIVER CODE COUNTY FIVER MILE  COMMENTS SO27	55mi <sup>2</sup>
NOTE: Complete All Items On This Form	m - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruct	tions
STREAM CHANNEL MONE / NAT MODIFICATIONS:	TURAL CHANNEL IN RECOVERED IN RECOVERING IN RECENT OR NO RECOVE	ERY
(Max of 40). Add total number of significa	TYPE	HHEI Metric Points Substrate Max = 40
		ool Depth Max = 30
COMMENTS	MAXIMUM POOL DEPTH (centimeters):	
3. BANK FULL WIDTH (Measured as the > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] COMMENTS	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankfull Width Max=30
RIPARIAN ZONE AND FLOODP  RIPARIAN WIDTH  L R (Per Bank)  Wide >10m	FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  Mature Forest, Wetland  Conservation Tillage	
	N O O O O O O O O O O O O O O O O O O O	
Moderate 5-10m  Narrow <5m  None  COMMENTS	Field Urban or Industrial  Open Pasture, Row Crop Mining or Construction	
Moderate 5-10m  Narrow <5m  None  COMMENTS	Field    Open Pasture, Row Crop Mining or Construction    Muation   Check ONLY one box  :	
Moderate 5-10m  Narrow <5m  None COMMENTS  FLOW REGIME (At Time of Eval Stream Flowing Subsurface flow with isolated pool	Field    Open Pasture, Row Crop Mining or Construction    Muation   Check ONLY one box  :	

CHELLERLOWNERS - TES VA NO C	HEI Score(If Yes, Attach Completed QI	HEI Form)
DOWNSTREAM DESIGNATED USE(S)		
WWH Name: Scioto HIVCO	Distance from	
	Distance from	
EWH Name:	Distance from	Evaluated Stream
	CLUDING THE ENTIRE WATERSHED AREA. CLEARL	
SGS Quadrangle NameOnThicative Fast Love	NRCS Soil Map Page:N	RCS Soil Map Stream Order
ounty: ROSS Co	Township/City: Springfield Twp-	Chillicothe
MISCELLANEOUS		
ase Flow Conditions? (Y/N): Date of last p	precipitation: 8/2/17 Quantity: 4	25"
notograph Information:		
evated Turbidity? (Y/N); N Canopy (%	open): 40/	
ere samples collected for water chemistry? (Y/N):		) Lab Number:
	rygen (mg/l) pH (S.U.) Conduct	ivity (umhos/cm)
the sampling reach representative of the stream (Ya	(N) If not, please explain:	
dditional comments/description of pollution impacts:		
BIOTIC EVALUATION		
erformed? (Y/N): N (If Yes, Record all obse	ervations. Voucher collections optional. NOTE: all voud	ner samples must be labeled with the s
ID number. Include ap	propriate field data sheets from the Primary Headwater I	Habitat Assessment Manual)
sh Observed? (Y/N) N Voucher? (Y/N) N	Salamanders Observed? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y	MIN
ogs or Tadpoles Observed? (Y/N) Voucher?	Y/N) N Aquatic Macroinvertebrates Observed? (Y	/N) N Voucher? (Y/N)
mments Regarding Biology:		
DRAWING AND NARRATIVE D	ESCRIPTION OF STREAM REACH (This	must be completed):
	ESCRIPTION OF STREAM REACH (This res of Interest for site evaluation and a narrative de	
Include Important landmarks and other feature	res of interest for site evaluation and a narrative de	
	res of interest for site evaluation and a narrative de	
Include Important landmarks and other feature	res of interest for site evaluation and a narrative de	
Include important landmarks and other feature		
Include Important landmarks and other feature	res of interest for site evaluation and a narrative de	
Include Important landmarks and other feature	res of interest for site evaluation and a narrative de	scription of the stream's location
Include Important landmarks and other feature	res of interest for site evaluation and a narrative de	
Include Important landmarks and other feature	res of interest for site evaluation and a narrative de	scription of the stream's location
Include Important landmarks and other feature	res of interest for site evaluation and a narrative de	scription of the stream's location
Include Important landmarks and other feature	res of interest for site evaluation and a narrative de	scription of the stream's location
Include Important landmarks and other feature	res of interest for site evaluation and a narrative de	scription of the stream's location

24
----

SITE NAME/LOCATION POST GIVOU RIVER BASIN SUCTO RIVER DRAINAGE AREA (mi²) 0.03	5m12
LENGTH OF STREAM REACH (ft) 82 LAT 31.3318531 LONG 82.928 LOT STREAM REACH (ft) 82 COMMENTS SO28	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruc	tions
STREAM CHANNEL MONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVER MODIFICATIONS:	ERY
BLDR SLABS [16 pts]  BOULDER (>256 mm) [16 pts]  BUDDER (>256 mm) [16 pts]	HHEI Metric Points Substrate Max = 40
El manifest to a popular and a manifest and a manif	ool Depth Max = 30
COMMENTSMAXIMUM POOL DEPTH (centimeters):	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13) [30 pts]	Bankfull Width Max=30
COMMENTSAVERAGE BANKFULL WIDTH (meters)	
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY	
Moderate 5-10m	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check <i>ONLY</i> one box):	

CHEI PERFORMED? -   Yes	ADDITIONA	AL STREAM INFORMATION	ON (This information Must Also	be Completed):		
Distance from Evaluated Stream    Distance from Evaluated Stream   Distance from Evaluated Stream	QI	HEI PERFORMED? - 🗍	Yes No QHEI Score	(If Yes, Attach Co	mpleted QHEI Form)	
Distance from Evaluated Stream  MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA CLEARLY MARK THE SITE LOCATION  USGS Quadrangle Name Chilly Office Text Conductivity NRCS Soil Map Page: NRCS Soil Map Stream Order County: NRCS Soil Map Page: NRCS Soil Map Stream Order Miscellaneous  Biscellaneous  Base Riow Conditions? (Y/N): Date of last precipitation: 8 2   Quantity Chillical New Miscellaneous Conductions? (Y/N): National Concept (% open): 25    Were samples collected for water chemistry? (Y/N): National Conductivity (Inhos/cm) (Nate lab sample no. or id. and attach results) Lab Number: lield Measures: Temp ("C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (umhos/cm)  Is the sampling reach representative of the stream (Y/N) If not, please explain:  MADITION OF The Soil Conductivity (Inhos/cm) If not, please explain:  BIOTIC EVALUATION  Were Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site in number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  Sish Observed? (Y/N) National Conductivity (Y/N) National Co	DO WWH Na	OWNSTREAM DESIGNA ame: Scroto Kivo	TED USE(S)	Dis	stance from Evaluated Stream	O. Ide miles
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION  USGS Quadrangle Name Chillic Office Total Cycloractivity NRCS Soil Map Page: NRCS Soil Map Stream Order County: Loss Co.  Township / City. Springfield Tury   Chillicathe Miscellane   Miscellaneous   Base Flow Conditions? (Y/N):   Date of last precipitation. 8 2 17   Quantity 25   Canopy (% open): 25   Vere samples collected for water chemistry? (Y/N):   (Note lab sample no. or id. and attach results) Lab Number:   Sieled Measures: Temp (*C)   Dissolved Oxygen (mg/l)   pH (S.U.)   Conductivity (umhos/cm)   If not, please explain:    Miditional comments/description of pollution impacts:    BIOTIC EVALUATION    Werformed? (Y/N):   (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site (In number: Include appropriate field data sheets from the Primary Headwater Holital Assessment Manual)  Ish Observed? (Y/N):   Voucher? (Y/N):	CWH Na	ame:		Dis	tance from Evaluated Stream	
Discovery (Y/N): Note that the treat of the stream (Y/N) is the sample no. or id. and attach results) Lab Number.    Biotic Evaluation   Conditions (Y/N): Note the stream (Y/N)   If not, please explain:	EWH Nai	me:		Dist	tance from Evaluated Stream	
Township / City. Spt ingfield Turp   Chillicothic Miscellaneous  Base Flow Conditions? (Y/N): \( \) Date of last precipitation: \( \) 8   2   17 \\  Chickprise County: \( \) Quantition 25 \( \) Quantition 25 \( \)  Chickprise County: \( \) Quantition 25 \( \) Quantition 25 \( \)  Chickprise County: \( \) Quantition 25 \( \)  Chickprise County: \( \) Quantition 25 \( \) Quantition 25 \( \)  Chickprise County: \( \) Quantition 25 \( \)  Chickprise County: \( \) Quantition 25 \( \) Quantition 25 \( \)  Chickprise County: \( \) Quantition 25 \( \) Quantition 25 \( \) Quantition 25 \( \)  Chickprise County: \( \) Quantition 25 \( \)						
BIOTIC EVALUATION  Were find description of pollution impacts:  BIOTIC EVALUATION  Were Record all observations. Voucher? (Y/N):  Worder? (Y/N):  BIOTIC EVALUATION  Were Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habital Assessment Manual)  Sign of Tadpoles Observed? (Y/N):  DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):  Include important landmarks and office features of Interest for site evaluation and a narrative description of the stream's location  Processory of the stream's location  DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):  Include important landmarks and office features of Interest for site evaluation and a narrative description of the stream's location  Fig. 1. The stream's location of the strea					1	
Date of last precipitation: 82  Quantity (2/N): Quantity (2/N)	County:	2055 Co.	Towns	hip/city.Springfle	d Tup! Chillicoth	ie
Canopy (% open): 25 /					1 2 4	
Canopy (% open): 25 / Were samples collected for water chemistry? (Y/N): Note lab sample no. or id. and attach results) Lab Number:    Canopy (% open): 25 / Were samples collected for water chemistry? (Y/N): Note lab sample no. or id. and attach results) Lab Number:	Base Flow C	Conditions? (Y/N):	Date of last precipitation:	2/17 (	Quantity 25	
Were samples collected for water chemistry? (Y/N): Note lab sample no. or id. and attach results) Lab Number:    Selection   Proceeding   Proceeding   Procedure						
BIOTIC EVALUATION  Performed? (Y/N):						
BIOTIC EVALUATION  Performed? (Y/N):	Were sample	es collected for water che	mistry? (Y/N): Note lab	sample no. or id. and att	ach results) Lab Number:	
BIOTIC EVALUATION  Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  sish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N)	Field Measu	ires: Temp (°C)	_ Dissolved Oxygen (mg/l)	pH (S.U.)	Conductivity (µmhos/cm)_	
BIOTIC EVALUATION  Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  sish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N)	ls the sampli	ling reach representative o	of the stream (Y/N) V If not.	please explain:		
Performed? (Y/N):						
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed): Include important landmarks and other features of Interest for site evaluation and a narrative description of the stream's location  HIVSTORY  LOW	Performed?	(Y/N): (If Yes ID num ed? (Y/N) N Vouch dpoles Observed? (Y/N)	nber. Include appropriate field data er? (Y/N) \( \frac{\lambda}{\lambda} \) Salamanders O \( \frac{\lambda}{\lambda} \) Voucher? (Y/N) \( \frac{\lambda}{\lambda} \) Aquat	sheets from the Primary I	Headwater Habitat Assessment oucher? (Y/N)	Manual)
Include important landmarks and other features of Interest for site evaluation and a narrative description of the stream's location						
Include important landmarks and other features of Interest for site evaluation and a narrative description of the stream's location						
Include important landmarks and other features of Interest for site evaluation and a narrative description of the stream's location	-	DDAMINO AND NA		OF OTDEAM DEA	OII (This would be some	=latad\v
Fevesteel )						
ELOW -	Includ	de important landmarks a		site evaluation and a n	arrative description of the s	ream's location
	1	( )	Stores.	1		1
		1 7 -	1	17	7	1)
		4		<b>V</b>		
Forested (	FLOW -	7/		1	1	~
Foresteel (		/_		) /	( ( )	/
()()()		11	>	/   E	ivestcol /	
(7 () 4)		/	1		7	
		1				
		1	1			
		\			1	

Г	
ı	-11
ı	104
и.	~

LENGTH OF STREAM REACH (#) 2250  DATE 8/3 17 SCORER KUV  NOTE: Complete All Items On This Fo	LAT39.342420 COMMEN	NTS S029	ER CODE O SONO CONTRACTOR MILE	
STREAM CHANNEL MODIFICATIONS:	ATURAL CHANNEL	RECOVERED RECO	OVERING TRECENT OR NO RECO	VERY
1. SUBSTRATE (Estimate percent of e (Max of 40). Add total number of signif  TYPE BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts] BEDROCK [16 pt] COBBLE (65-256 mm) [12 pts] GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts]  Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock	PERCENT I		DEBRIS [3 pts]	HHEI Metric Points Substrate Max = 40
2. Maximum Pool Depth (Measure the evaluation. Avoid plunge pools from rows)  30 centimeters [20 pts]  > 22.5 - 30 cm [30 pts]  > 10 - 22.5 cm [25 pts]	STRATE TYPES:	oth within the 61 meter (200 ft) water pipes) (Check ONLY or > 5 cm - 10 cm [15 pi	ne box):	Pool Dept Max = 30
COMMENTS		MAXIMUM PO	OL DEPTH (centimeters):	
3. BANK FULL WIDTH (Measured as the second s	ne average of 3-4 m	easurements) (Check	7'	Bankfull Width Max=30
3. BANK FULL WIDTH (Measured as th > 4.0 meters (> 13") [30 pts] > 3.0 m - 4.0 m (> 9" 7" - 13") [25 pts]	e average of 3-4 m	easurements) (Check	3" - 4' 8") [15 pts]	Width
3. BANK FULL WIDTH (Measured as th  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	This Inform	easurements) (Check  > 1.0 m - 1.5 m (> 3' 3') [5 pt  4 VERAGE BA  atlon must also be completed  ANOTE: River Left (L) and F	3"- 4'8") [15 pts] IS] NKFULL WIDTH (meters)	Width
3. BANK FULL WIDTH (Measured as the second s	This inform DPLAIN QUALITY FLOODPLAIN L R (Mos	easurements) (Check    > 1.0 m - 1.5 m (> 3' 3") [5 pt   ≤ 1.0 m (≤ 3' 3") [5 pt   AVERAGE BA   attlon must also be completed   ANOTE: River Left (L) and FOUALITY   st Predominant per Bank)   attraction must also be completed attraction must a	3"- 4'8") [15 pts] INKFULL WIDTH (meters)	Width
3. BANK FULL WIDTH (Measured as th  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]  COMMENTS  RIPARIAN ZONE AND FLOOR  RIPARIAN WIDTH  L R (Per Bank)  (Per Bank)  Wide > 10m	This Inform DPLAIN QUALITY FLOODPLAIN L R (Mos	easurements) (Check    > 1.0 m - 1.5 m (> 3' 3") [5 pt   ≤ 1.0 m (≤ 3' 3") [5 pt   AVERAGE BA   attlon must also be completed   ANOTE: River Left (L) and FOUALITY   st Predominant per Bank)   attraction must also be completed attraction must a	ANKFULL WIDTH (meters)  ANKFULL WIDTH (meters)  Clarification (R) as looking downstream☆  Clarification (R) as looking downstream☆	Width
3. BANK FULL WIDTH (Measured as the strength of the strength o	This Inform DPLAIN QUALITY  FLOODPLAIN L R (Mos Imm Field Resi	easurements) (Check    > 1.0 m - 1.5 m (> 3' 3")   5 pt    AVERAGE BA    AVERAGE BA	ANKFULL WIDTH (meters)  INKFULL WIDTH (meters)  I Right (R) as looking downstream and a conservation Tillage  Urban or Industrial  Open Pasture, Row Crop	Width Max=30

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Tyes No QHEI Score(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)  WWH Name:
Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name Chillicothe Fast London dem URCS Soil Map Page: NRCS Soil Map Stream Order  County: ROSS (10: Township / City: Sering field Two-/ Chillicothe
MISCELLANEOUS
Base Flow Conditions? (Y/N): Date of last precipitation: 8 2 201 Quantity: 4.254
Photograph Information:
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:
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N)
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):
Include Important landmarks and other features of interest for site evaluation and a narrative description of the stream's location  Transmission Row  Live
and the way
Forested
4) ~ ~



NGTH OF STREAM REACH (ft) 574 TE 8 3 2017 SCORER KLV	RIVER BASIN SCLOTO RIVER DRAINAGE AREA (mi²) ( LAT39.34) 33653 LONG 82.9353855 RIVER CODE 65000 CRIVER MILE COMMENTS SOSO	
OTE: Complete All Items On This For	rm - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Ins	tructions
REAM CHANNEL DINONE / NA ODIFICATIONS:	ATURAL CHANNEL    RECOVERED    RECOVERING    RECENT OR NO RE	COVERY
(Max of 40). Add total number of signific	rery type of substrate present. Check ONLY two predominant substrate TYPE boxes cant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  PERCENT  TYPE SILT [3 pt] LEAF PACKWOODLY DEBRIS [3 pts] FINE DETRITUS [3 pts]  CLAY or HARDPAN [0 pt]  MUCK [0 pts]  ARTIFICIAL [3 pts]	HHI Meti Poir Substi
Total of Percentages of Bidr Slabs, Boulder, Cobble, Bedrock	(B) STRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES:	A + E
	maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of ad culverts or storm water pipes) (Check ONLY one box):	Pool Do
> 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]	5
> 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts]	< 5 cm (5 pts)	5
> 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts]  COMMENTS  BANK FULL WIDTH (Measured as the > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 4'8" - 9' 7") [20 pts]	A   S   Cm   5 pts   NO WATER OR MOIST CHANNEL [0 pts]   S	Bankt Widt Max=
> 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts]  COMMENTS  BANK FULL WIDTH (Measured as the > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	A <5 cm [5 pts]  NO WATER OR MOIST CHANNEL [0 pts]  MAXIMUM POOL DEPTH (centimeters):  average of 3-4 measurements) (Check ONLY one box):  > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Widt
> 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts]  COMMENTS  BANK FULL WIDTH (Measured as the > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 4'.8" - 9' 7") [20 pts]  COMMENTS	AVERAGE BANKFULL WIDTH (meters)    Som   1.5 m   1.5 m   1.5 m   1.5 m   1.5 m   1.5 m	Widt
> 30 centimeters [20 pts]     > 22.5 - 30 cm [30 pts]     > 10 - 22.5 cm [25 pts]     COMMENTS     BANK FULL WIDTH (Measured as the standard stan	AVERAGE BANKFULL WIDTH (meters)	Widt
> 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts]  COMMENTS  BANK FULL WIDTH (Measured as the 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]  COMMENTS  RIPARIAN ZONE AND FLOOD RIPARIAN WIDTH  L R (Per Bank)	AVERAGE BANKFULL WIDTH (meters)    This Information must also be completed   PLAIN QUALITY	Wld
> 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts]  COMMENTS  BANK FULL WIDTH (Measured as the > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 4'.8" - 9' 7") [20 pts]  COMMENTS  RIPARIAN ZONE AND FLOOD RIPARIAN WIDTH	NO WATER OR MOIST CHANNEL [0 pts]   NO WATER OR MOIST CHANNEL [0 pts]   S   NO WATER	Widi
> 30 centimeters [20 pts]     > 22.5 - 30 cm [30 pts]     > 10 - 22.5 cm [25 pts]     COMMENTS     BANK FULL WIDTH (Measured as the	NO WATER OR MOIST CHANNEL [0 pts]   NO WATER OR MOIST CHANNEL [0 pts]   S   NO WATER	Widi
> 30 centimeters [20 pts]     > 22.5 - 30 cm [30 pts]     > 10 - 22.5 cm [25 pts]     COMMENTS     BANK FULL WIDTH (Measured as the standard of the standard	NO WATER OR MOIST CHANNEL [0 pts]   NO WATER OR MOIST CHANNEL [0 pts]   NO WATER OR MOIST CHANNEL [0 pts]   S   NO WATER OR	Wide Max= 20
> 30 centimeters [20 pts]     > 22.5 - 30 cm [30 pts]     > 10 - 22.5 cm [25 pts]     COMMENTS     BANK FULL WIDTH (Measured as the standard of the standard	MAXIMUM POOL DEPTH (centimeters):    MAXIMUM POOL DEPTH (centimeters):	Wide Max= 20

	No QHEI Score(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED	O USE(S)
WWH Name: Scioto River	
	Distance from Evaluated Stream
DEWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF	F MAPS, INCLUDING THE <u>entire</u> watershed area. Clearly mark the site location
USGS Quadrangle Name Chillicothe	Fast landondery NRCS Soil Map Page: NRCS Soil Map Stream Order
0 - 1	
County: MOSS CO	Township/city. Springfield Twp. / Chillicothe
MISCELLANEOUS	
Pass Flow Conditions? (VAI):	Date of last precipitation: $8/2/2017$ Quantity: $4.25$ "
base Flow Coliditions? (T/N).	vale of last precipitation. O 121201 The Quantity.
Photograph Information:	
Elevated Turbidity? (Y/N):	Canopy (% open):
	try? (Y/N): Note lab sample no. or id. and attach results) Lab Number
were samples collected for water chemisti	try! (1/N): 1 1 (Note lab sample no. or id. and attach results) Lab Number.
Field Measures: Temp (°C) Di	Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
s the sampling reach representative of the	e stream (Y/N) If not, please explain:
and camping reading representative of the	The place of the p
	scord all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the sit
Performed? (Y/N): (If Yes, Red ID number.	ecord all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the sit r. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Voucher
Performed? (Y/N): (If Yes, Red ID number.	r. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
Performed? (Y/N): (If Yes, Red ID number. Fish Observed? (Y/N) Voucher? Frogs or Tadpoles Observed? (Y/N) Comments Regarding Biology  DRAWING AND NARR	Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N)
Performed? (Y/N): (If Yes, Red ID number. Fish Observed? (Y/N) Voucher? Frogs or Tadpoles Observed? (Y/N) Comments Regarding Biology:  DRAWING AND NARR Include Important landmarks and of	r. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  (Y/N) N Salamanders Observed? (Y/N) N Voucher?
Performed? (Y/N): (If Yes, Red ID number. Fish Observed? (Y/N) Voucher? Frogs or Tadpoles Observed? (Y/N) Comments Regarding Biology  DRAWING AND NARR	Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N)
Performed? (Y/N): (If Yes, Red ID number. Fish Observed? (Y/N) Voucher? Frogs or Tadpoles Observed? (Y/N) Comments Regarding Biology:  DRAWING AND NARR Include Important landmarks and of	Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N)
Performed? (Y/N): (If Yes, Red ID number. Fish Observed? (Y/N) Voucher? Frogs or Tadpoles Observed? (Y/N) Comments Regarding Biology:  DRAWING AND NARR Include Important landmarks and of	Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N)
Performed? (Y/N): (If Yes, Red ID number. Fish Observed? (Y/N) Voucher? Frogs or Tadpoles Observed? (Y/N) Comments Regarding Biology:  DRAWING AND NARR Include Important landmarks and of	Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N)
Performed? (Y/N): (If Yes, Red ID number. Fish Observed? (Y/N) Voucher? Frogs or Tadpoles Observed? (Y/N) Comments Regarding Biology:  DRAWING AND NARR Include Important landmarks and of the comments and of the comments are comments.	Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N)
Performed? (Y/N): (If Yes, Red ID number. Fish Observed? (Y/N) Voucher? Frogs or Tadpoles Observed? (Y/N) Comments Regarding Biology:  DRAWING AND NARR Include Important landmarks and of	Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N)
Performed? (Y/N): (If Yes, Red ID number. Fish Observed? (Y/N) Voucher? Frogs or Tadpoles Observed? (Y/N) Comments Regarding Biology:  DRAWING AND NARR Include Important landmarks and of the comments and of the comments are comments.	Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N)
Performed? (Y/N): (If Yes, Red ID number. Fish Observed? (Y/N) Voucher? Frogs or Tadpoles Observed? (Y/N) Comments Regarding Biology:  DRAWING AND NARR Include Important landmarks and of the comments and of the comments are comments.	Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N)
Performed? (Y/N): (If Yes, Rei ID number. Fish Observed? (Y/N) Voucher? Frogs or Tadpoles Observed? (Y/N) Comments Regarding Biology  DRAWING AND NARR Include Important landmarks and of the comments of the comments and of the comments are commented in the comments and of the comments are commented in the comments are commented in the comm	Noucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher?
Performed? (Y/N): (If Yes, Recomposition   (If Yes, Recomposition	Noucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher?
erformed? (Y/N): (If Yes, Rei ID number. ish Observed? (Y/N) Voucher? rogs or Tadpoles Observed? (Y/N) comments Regarding Biology: DRAWING AND NARR Include Important landmarks and the second comments and the second comments are second comments.	Noucher? (Y/N) Nouche
Performed? (Y/N): (If Yes, Record ID number.  ish Observed? (Y/N) Voucher? (rogs or Tadpoles Observed? (Y/N) Comments Regarding Biology:   DRAWING AND NARR Include Important landmarks and (PS)	Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  (Y/N)
Performed? (Y/N): (If Yes, Rei ID number. Fish Observed? (Y/N) Voucher? Frogs or Tadpoles Observed? (Y/N) Comments Regarding Biology  DRAWING AND NARR Include Important landmarks and of the comments of the comments and of the comments are commented in the comments and of the comments are commented in the comments are commented in the comm	Noucher? (Y/N) Nouche



DATE 8 3 2017 SCORER KLV		1	
THE RESERVE OF THE PARTY OF THE	orm - Refer to "Field Evaluation Manual fo		55.00
STREAM CHANNEL NONE / N	NATURAL CHANNEL    RECOVERED    RE	COVERING RECENT OR NO RECO	OVERY
	A CONTRACTOR OF THE PARTY OF TH	TO SOUTH PROPERTY AND	
	every type of substrate present. Check ONLY two ificant substrate types found (Max of 8). Final metr PERCENT TYPE SILT [3 pt]		HHE Metri Point
BOULDER (>256 mm) [16 pts]	LEAF PACKWOOD	DY DEBRIS [3 pts]	Substra
BEDROCK [16 pt] COBBLE (65-256 mm) [12 pts]	5 00 clay or HARDPAN	Children and Child	Max =
GRAVEL (2-64 mm) [9 pts]	30 MUCK [0 pts]		20
SAND (<2 mm) [6 pts]	50 ARTIFICIAL [3 pts]		4
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock	5 (A) [G	(B)	A+B
SCORE OF TWO MOST PREDOMINATE SUI		ER OF SUBSTRATE TYPES:	
Maximum Pool Depth (Measure the	maximum pool depth within the 61 meter (200	ft) evaluation reach at the time of	Pool De
evaluation. Avoid plunge pools from re	oad culverts or storm water pipes) (Check ONL)	Y one box):	Max =
> 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts]	>5 cm - 10 cm [15]	5 pts]	15
> 10 - 22.5 cm [25 pts]		OIST CHANNEL [0 pts]	
COMMENTS	MAXIMUM !	POOL DEPTH (centimeters):	
BANK FULL WIDTH (Measured as to > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	> 1.0 m - 1.5 m (>	The second secon	Bankfi Width Max=3
COMMENTS	AVERAGE	BANKFULL WIDTH (meters)	20
	This information must also be comple	ted	
RIPARIAN ZONE AND FLOO	DPLAIN QUALITY ANOTE: River Left (L) an	d Right (R) as looking downstream \$	
RIPARIAN WIDTH L R (Per Bank)	FLOODPLAIN QUALITY  L R (Most Predominant per Bank)	LR	
☐ ☐ 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 COMMENTS	Fenced Pasture	Mining or Construction	
Stream Flowing Subsurface flow with isolated p		nnel, isolated pools, no flow (Intermittent) el, no water (Ephemeral)	
	s per 61 m (200 ft) of channel) (Check ONLY on		
None `	1.0 \(\begin{array}{c c} \begin{array}{c c} 2.0 \\ \end{array} \\ 2.5 \\ \end{array} \\ 2.5 \\ \end{array}	3.0 >3	

Distance from Evaluated Stream
Distance from Evaluated Stream  Distance from Evaluated Stream  AREA. CLEARLY MARK THE SITE LOCATION  Page: NRCS Soil Map Stream Order  Officed Twp / Chillicothe  Quantity:
AREA CLEARLY MARK THE SITE LOCATION  Page: NRCS Soil Map Stream Order  Official Twp / Chillicothe  Quantity: 4.25"
AREA CLEARLY MARK THE SITE LOCATION  Page: NRCS Soll Map Stream Order  Official Twp./Chillicothe  Quantity: 4.25"  and attach results) Lab Number:
Page: NRCS Soll Map Stream Order  official Twp / Chillicothe  Quantity: 4,25"
quantity: 4.25"  Quantity: 4.25"  and attach results) Lab Number:
Quantity: <u>4.25"</u>
and attach results) Lab Number:
and attach results) Lab Number:
Conductivity (µmhos/cm)
wary Headwater Habitat Assessment Manual)  Voucher? (Y/N) Voucher? (Y/N)
REACH (This <u>must</u> be completed):
REACH (This must be completed):  nd a narrative description of the stream's location
REACH (This <u>must</u> be completed):
REACH (This must be completed):  nd a narrative description of the stream's location
REACH (This must be completed):  nd a narrative description of the stream's location

### Onio EPA Primary Headwater Habitat Evaluation Form

F	
ı	22
L	22
н	

NOTE: Complete All Items On This Form	RIVER BASIN SCIOLO RIVER DRAINAGE AREA (mi²) D. C. LAT 31.3422491 LONG 82.936 16218 RIVER CODE OF COMMENTS SO 32  m - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	uctions
(Max of 40). Add total number of significa	ery type of substrate present. Check ONLY two predominant substrate TYPE boxes cant substrate types found (Max of 8). Final metric score is sum of boxes A & B  PERCENT  TYPE  SILT [3 pt]  LEAF PACKWOODY DEBRIS [3 pts]  FINE DETRITUS [3 pts]  CLAY or HARDPAN [0 pt]  MUCK [0 pts]  ARTIFICIAL [3 pts]  (B)  FINAL NUMBER OF SUBSTRATE TYPES:	HHEI Metric Points Substrate Max = 40  A + B
	paximum pool depth within the 61 meter (200 ft) evaluation reach at the time of d culverts or storm water pipes) (Check ONLY one box):	Pool Depth Max = 30
3. BANK FULL WIDTH (Measured as the second s	average of 3-4 measurements) (Check <i>ONLY</i> one box):  > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]  ≤ 1.0 m (≤ 3' 3") [5 pts]  AVERAGE BANKFULL WIDTH (meters)	Bankfull Width Max=30
RIPARIAN ZONE AND FLOODP RIPARIAN WIDTH	This Information must also be completed  PLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆  FLOODPLAIN QUALITY	
L R (Per Bank)  Wide >10m  Moderate 5-10m  Narrow <5m	L R (Most Predominant per Bank) Mature Forest, Wetland Immature Forest, Shrub or Old Field  Residential Park, New Field  Conservation Tillage Urban or Industrial Open Pasture, Row	
None COMMENTS	Residential, Park, New Field Crop Fenced Pasture	
Stream Flowing Subsurface flow with isolated pool	Iluation) (Check ONLY one box):  Moist Channel, isolated pools, no flow (Intermittent)  Dry channel, no water (Ephemeral)	
SINUOSITY (Number of bends per None 0.5	Deer 61 m (200 ft) of channel) (Check ONLY one box):  1.0	
STREAM GRADIENT ESTIMATE Flat (0.5 5/100 5) Flat to Moderate	☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/100	0 色)

QHEI PERFORMED? - Tyes No QHEI Score	(If Ves Attach Completed OHEL Form)
DOWNSTREAM DESIGNATED USE(S)  WWH Name: Stoto River	Distance from Evaluated Stream O.44mileS
	Distance from Evaluated Stream
DEWH Name:	Distance from Evaluated Stream
1 1 1 1	NRCS Soil Map Page: NRCS Soil Map Stream Order
	ship/city: Springfield Twp. Chillicothe
MISCELLANEOUS	, ,
sase Flow Conditions? (Y/N): Date of last precipitation: 8	2 2017 Quantity: 4.25"
hotograph Information;	
clevated Turbidity? (Y/N): Canopy (% open):	1.
4 1	b sample no, or id, and attach results) Lab Number:
ield Measures: Temp (°C) Dissolved Oxygen (mg/l)	pH (S U.) Conductivity (µmhos/cm)
the sampling reach representative of the stream (Y/N)	please explain:
dditional comments/description of pollution impacts:  BIOTIC EVALUATION	
BIOTIC EVALUATION  renformed? (Y/N):	a sheets from the Primary Headwater Habitat Assessment Manual)
BIOTIC EVALUATION  erformed? (Y/N): (If Yes, Record all observations. Voucher ID number. Include appropriate field data ish Observed? (Y/N) Voucher? (Y/N) Salamanders Corogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquata	a sheets from the Primary Headwater Habitat Assessment Manual)
BIOTIC EVALUATION  erformed? (Y/N): (If Yes, Record all observations. Voucher ID number. Include appropriate field data ish Observed? (Y/N) Voucher? (Y/N) Salamanders Corogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquai omments Regarding Biology	As sheets from the Primary Headwater Habitat Assessment Manual)  Observed? (Y/N) \( \frac{1}{N} \) Voucher? (Y/N) \( \frac{1}{N} \) OF STREAM REACH (This must be completed):
BIOTIC EVALUATION  erformed? (Y/N):	a sheets from the Primary Headwater Habitat Assessment Manual)  Observed? (Y/N) \( \frac{N}{N} \) \( \
BIOTIC EVALUATION  erformed? (Y/N):	Disserved? (Y/N) N Voucher? (Y/N) Vo
BIOTIC EVALUATION  Performed? (Y/N):	NOF STREAM REACH (This must be completed):  or site evaluation and a narrative description of the stream's location  cal Pasture.
BIOTIC EVALUATION  Performed? (Y/N):	N OF STREAM REACH (This must be completed):  or site evaluation and a narrative description of the stream's location

MODIFICATIONS: Active posture—  1. SUBSTRATE (Estimate percent of every type (Max of 40). Add total number of significant substraction of the property of the	TE TYPES:	Sent. Check ONLY two p (Max of 8). Final metric  SILT [3 pt] LEAF PACKWOODY FINE DETRITUS [3 pt CLAY or HARDPAN [ MUCK [0 pts] ARTIFICIAL [3 pts]  TOTAL NUMBER  TOTAL NUMBER  In the 61 meter (200 ft) Dipes) (Check ONLY or 15 pts)  S cm - 10 cm [15 pts] NO WATER OR MO	predominant sub score is sum of in DEBRIS [3 pts] pts] [0 pt]  R OF SUBSTRA i) evaluation reactions box):	ostrate TYPE boxes boxes A & B.  PERCENT  (B)  (TE TYPES:	
(Max of 40). Add total number of significant surpe  TYPE BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts] BEDROCK [16 pt] COBBLE (65-256 mm) [12 pts] GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts]  Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRAT  Maximum Pool Depth (Measure the maximum evaluation. Avoid plunge pools from road culv > 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts]  COMMENTS  BANK FULL WIDTH (Measured as the averal > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	Ubstrate types found  ENT TYPE  (A)  (A)  TE TYPES:  Dum pool depth with verts or storm water in the control of	(Max of 8). Final metric  SILT [3 pt]  LEAF PACKWOODY  FINE DETRITUS [3 pt]  CLAY or HARDPAN [  MUCK [0 pts]  ARTIFICIAL [3 pts]  TOTAL NUMBER  Fin the 61 meter (200 ft)  oipes) (Check ONLY of 5 cm - 10 cm [15 pts]  NO WATER OR MO  MAXIMUM PO	DEBRIS [3 pts] pts] [0 pt]  R OF SUBSTRA  ) evaluation reacone box): pts]	(B)  TE TYPES:	Metric Points Substrate Max = 40 A + B
2. Maximum Pool Depth (Measure the maximum evaluation. Avoid plunge pools from road culv > 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts]  COMMENTS  3. BANK FULL WIDTH (Measured as the averal > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	TE TYPES:	in the 61 meter (200 ft) pipes) (Check ONLY of pipes) 5 cm - 10 cm [15 pines of pipes] NO WATER OR MO	) evaluation reac one box): ots]	th at the time of	Pool Dept
3. BANK FULL WIDTH (Measured as the avera  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]	age of 3-4 measure	0.70	OOL DEPTH (ce	ntimeters):	
	×	ments) (Check > 1.0 m - 1.5 m (> 3'; ≤ 1.0 m (≤ 3' 3") [5 pi			Bankfull Width Max=30
COMMENTS		AVERAGE BA	ANKFULL WIDT	H (meters)	5
RIPARIAN ZONE AND FLOODPLAIN	N QUALITY ☆N	nust also be completed OTE: River Left (L) and		king downstream☆	
L R (Per Bank) L ☐ Wide >10m	☐ Mature Fore	ominant per Bank) est, Wetland orest, Shrub or Old		Conservation Tillage Urban or Industrial	
	Residential.	Park, New Field ture		Open Pasture, Row Crop Mining or Construction	
FLOW REGIME (At Time of Evaluation Stream Flowing Subsurface flow with isolated pools (Int COMMENTS		Moist Channe	el, isolated pools , no water (Ephe	s, no flow (Intermittent) emeral)	
SINUOSITY (Number of bends per 61  None 1.9 0.5 1.9	.0	(Check ONLY one b 2.0 2.5	box):	3.0 >3	

DOWNSTREAM DESIGNATED USE(S)  Distance from Evaluated Stream	QHEI PERFORMED? - Yes No QHEI Score	(If Yes, Attach Completed QHEI Form)
Distance from Evaluated Stream	DOWNSTREAM DESIGNATED USE(S)	
Distance from Evaluated Stream  MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION  SGS Quadrangle Name Chillicathe Local (Included NRCS Soil Map Page: NRCS Soil Map Stream Order ounly: Possible (Included NRCS Soil Map Page: NRCS Soil Map Stream Order ounly: Possible (Included NRCS Soil Map Page: NRCS Soil Map Stream Order ounly: Possible (Included NRCS Soil Map Page: NRCS Soil Map Stream Order ounly: Possible (Included NRCS Soil Map Page: NRCS Soil Map Stream Order ounly: Possible (Included NRCS Soil Map Page: NRCS Soil Map Page: NRCS Soil Map Page: NRCS Soil Map Stream Order ounly: Possible (Included NRCS Soil Map Page: NRCS So		
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION  SGS Quadrangle Name Chillicathe Lost (Indunded Marcs Soil Map Page: NRCS Soil Map Stream Order Ounly: Page 1. NRCS Soil Map Stream Order Nowship / City. Springfield Trup (Chillicathe Chillicathe Chillicath		
SGS Quadrangle Name Chillicath Lost Indindent NRCs Soil Map Page: NRCs Soil Map Stream Order County: Possico: Township / City: Springfield Turp Chillicath County: Possico: Name Page: NRCs Soil Map Stream Order County: Possico: Name Page: NRCs Soil Map Stream Order County: Possico: Name Page: NRCs Soil Map Stream Order County: Possico: Name Page: NRCs Soil Map Stream Order County: NRCs Soil Map		
Date of last precipitation: 8 2 20 Quantity Chillicaths  See Flow Conditions? (Y/N): Date of last precipitation: 8 2 20 Quantity C.F."  Indegraph Information: 2 Quantity C.F."  Levated Turbidity? (Y/N): Canopy (% open): 0 Quantity C.F."  Levated Turbidity? (Y/N): Canopy (% open): 0 Quantity C.F."  Levated Turbidity? (Y/N): Canopy (% open): 0 Quantity C.F."  Levated Turbidity? (Y/N): Canopy (% open): 0 Quantity C.F."  Levated Turbidity? (Y/N): Quantity (y/N):		
ase Flow Conditions? (Y/N): Date of last precipitation: Quantity Quantity Date of last precipitation: Quantity Quantity Date of last precipitation: Quantity		
Date of last precipitation: 8 2 20 Quantity. 2.75"  hotograph Information:	ounty: KOSCO. Township / C	ity: Springtteld lup/Chillicothe
Devated Turbidity? (Y/N):		
Devaluation   Canopy (% open):   D	ase Flow Conditions? (Y/N): Date of last precipitation: 8 2 12	2017 Quantity (2.25"
Per samples collected for water chemistry? (Y/N): \( \) (Note lab sample no. or id. and attach results) Lab Number:    If not, please explain:   Conductivity (µmhos/cm)   Conductivity (µmhos/cm)		
Rere samples collected for water chemistry? (Y/N):		
If not, please explain:  Since EVALUATION  erformed? (Y/N):  If yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  Sish Observed? (Y/N):  Voucher? (Y/N):  Voucher? (Y/N):  Voucher? (Y/N):  Aquatic Macroinvertebrates Observed? (Y/N):  DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):  Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location  For State  DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):		
BIOTIC EVALUATION  erformed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  Sh Observed? (Y/N): Voucher? (Y/N): Salamanders Observed? (Y/N): Voucher? (Y/N): Aquatic Macroinvertebrates Observed? (Y/N): Voucher? (Y/N):		
BIOTIC EVALUATION  erformed? (Y/N):	eld Measures: Temp (°C) Dissolved Oxygen (mg/l)	pH (S.U.) Conductivity (µmhos/cm)
BIOTIC EVALUATION  erformed? (Y/N):	the sampling reach representative of the stream (Y/N) \( \frac{1}{2} \) If not, please	explain:
BIOTIC EVALUATION  erformed? (Y/N):		
BIOTIC EVALUATION  erformed? (Y/N):	*	<del></del>
erformed? (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)  ish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N Outher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N Outher? (	A Principle of the second of t	
erformed? (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)  ish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N Outher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N Outher? (	aditional comments/description of pollution impacts:	
erformed? (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)  ish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N Outher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N Outher? (	additional comments/description of pollution impacts:	
ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  ish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N Onments 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  For State  For		
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):  Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location	BIOTIC 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  Forested  Foreste	BIOTIC EVALUATION  Performed? (Y/N): (If Yes, Record all observations. Voucher collections.)	tions optional. NOTE: all voucher samples must be labeled with the site
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed): Include Important landmarks and other features of interest for site evaluation and a narrative description of the stream's location  Forested  Foreste	BIOTIC EVALUATION  Performed? (Y/N): (If Yes, Record all observations. Voucher collect ID number. Include appropriate field data sheets	tions optional. NOTE: all voucher samples must be labeled with the site s from the Primary Headwater Habitat Assessment Manual)
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed): Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location  Forested  Forested  Forested  Forested  Forested	BIOTIC EVALUATION  erformed? (Y/N): (If Yes, Record all observations. Voucher collect ID number. Include appropriate field data sheets	tions optional. NOTE: all voucher samples must be labeled with the site s from the Primary Headwater Habitat Assessment Manual)
Include Important landmarks and other features of interest for site evaluation and a narrative description of the stream's location  Forested  For	BIOTIC EVALUATION  erformed? (Y/N): (If Yes, Record all observations. Voucher collect ID number. Include appropriate field data sheets ish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed of Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macri	tions optional. NOTE: all voucher samples must be labeled with the site s from the Primary Headwater Habitat Assessment Manual)
Include Important landmarks and other features of interest for site evaluation and a narrative description of the stream's location  Fences  Fences  Fences	BIOTIC EVALUATION  erformed? (Y/N): (If Yes, Record all observations. Voucher collect ID number. Include appropriate field data sheets sh Observed? (Y/N) Voucher? (Y/N) Salamanders Observed of Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macri	tions optional. NOTE: all voucher samples must be labeled with the site s from the Primary Headwater Habitat Assessment Manual)
Include Important landmarks and other features of interest for site evaluation and a narrative description of the stream's location  Forested  For	BIOTIC EVALUATION  erformed? (Y/N): (If Yes, Record all observations. Voucher collect ID number. Include appropriate field data sheets sh Observed? (Y/N) Voucher? (Y/N) Salamanders Observed of Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macri	tions optional. NOTE: all voucher samples must be labeled with the site s from the Primary Headwater Habitat Assessment Manual)
Include Important landmarks and other features of interest for site evaluation and a narrative description of the stream's location  Forested  For	BIOTIC EVALUATION  erformed? (Y/N): (If Yes, Record all observations. Voucher collect ID number. Include appropriate field data sheets sh Observed? (Y/N) Voucher? (Y/N) Salamanders Observed of Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macri	tions optional. NOTE: all voucher samples must be labeled with the site s from the Primary Headwater Habitat Assessment Manual)
Forested 3 Athre gravel gravel	BIOTIC EVALUATION  erformed? (Y/N): (If Yes, Record all observations. Voucher collect ID number. Include appropriate field data sheets ish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed rogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macromments Regarding Biology:	tions optional. NOTE: all voucher samples must be labeled with the site is from the Primary Headwater Habitat Assessment Manual)  d? (Y/N) \( \sqrt{Y} \) \(
Fenced Docture	BIOTIC EVALUATION  Terformed? (Y/N): (If Yes, Record all observations. Voucher collect ID number. Include appropriate field data sheets ish Observed? (Y/N) Voucher? (Y/N) Salamanders Observe rogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macromments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF S	tions optional. NOTE: all voucher samples must be labeled with the site is from the Primary Headwater Habitat Assessment Manual)  d? (Y/N) \( \text{V} \) Voucher? (Y/N) \( \text{V} \) Vo
Fenced Docture	BIOTIC EVALUATION  Terformed? (Y/N): (If Yes, Record all observations. Voucher collect ID number. Include appropriate field data sheets ish Observed? (Y/N) Voucher? (Y/N) Salamanders Observe rogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macromments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF S	tions optional. NOTE: all voucher samples must be labeled with the site is from the Primary Headwater Habitat Assessment Manual)  d? (Y/N) \( \text{V} \) Voucher? (Y/N) \( \text{V} \) Vo
LOW Febreed Cultivert Cult	BIOTIC EVALUATION  Performed? (Y/N):	tions optional. NOTE: all voucher samples must be labeled with the site is from the Primary Headwater Habitat Assessment Manual)  d? (Y/N) \( \text{V} \) Voucher? (Y/N) \( \text{V} \) Vo
LOW PORTURE CUltural	BIOTIC EVALUATION  Performed? (Y/N):	tions optional. NOTE: all voucher samples must be labeled with the site is from the Primary Headwater Habitat Assessment Manual)  d? (Y/N) \( \text{V} \) Voucher? (Y/N) \( \text{V} \) Vo
Contract Con	BIOTIC EVALUATION  erformed? (Y/N): (If Yes, Record all observations. Voucher collect ID number. Include appropriate field data sheets ish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed rogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macromments Regarding Biology.  DRAWING AND NARRATIVE DESCRIPTION OF Salamanders Observed? (Y/N) Voucher? (Y/N) Aquatic Macromments Regarding Biology.	tions optional. NOTE: all voucher samples must be labeled with the site is from the Primary Headwater Habitat Assessment Manual)  d? (Y/N) \( \text{V} \) Voucher? (Y/N) \( \text{V} \) Vo
(3) B (3)	BIOTIC EVALUATION  erformed? (Y/N): (If Yes, Record all observations. Voucher collect ID number. Include appropriate field data sheets ish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed rogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macromments Regarding Biology.  DRAWING AND NARRATIVE DESCRIPTION OF Salamanders Observed? (Y/N) Voucher? (Y/N) Aquatic Macromments Regarding Biology.	tions optional. NOTE: all voucher samples must be labeled with the site is from the Primary Headwater Habitat Assessment Manual)  d? (Y/N) \( \text{V} \) Voucher? (Y/N) \( \text{V} \) Vo
(3) B (3)	BIOTIC EVALUATION  erformed? (Y/N): (If Yes, Record all observations. Voucher collect ID number. Include appropriate field data sheets ish Observed? (Y/N) Voucher? (Y/N) Salamanders Observe rogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macromments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF Salamanders Observed? (Y/N) Voucher? (Y/N) Aquatic Macromments Regarding Biology: Voucher? (Y/N) Advantage of the properties of the pro	tions optional. NOTE: all voucher samples must be labeled with the site is from the Primary Headwater Habitat Assessment Manual)  d? (Y/N) \( \text{Voucher? (Y/N)} \( \text{Voucher? (Y/N)} \) Voucher? (Y/N) \( \text{Voucher? (Y/N)} \) \(
C2C3(3)	BIOTIC EVALUATION  Performed? (Y/N):	tions optional. NOTE: all voucher samples must be labeled with the site is from the Primary Headwater Habitat Assessment Manual)  d? (Y/N) \( \text{Voucher? (Y/N)} \( \text{Voucher? (Y/N)} \) Voucher? (Y/N) \( \text{Voucher? (Y/N)} \) \(
( ) ( ) ( ) ( )	BIOTIC EVALUATION  Performed? (Y/N): (If Yes, Record all observations. Voucher collect ID number. Include appropriate field data sheets ish Observed? (Y/N) Voucher? (Y/N) Salamanders Observe rogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macromments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF Salamanders Observed? (Y/N) Advantage of interest for site expected.	tions optional. NOTE: all voucher samples must be labeled with the site is from the Primary Headwater Habitat Assessment Manual)  d? (Y/N) \( \text{Voucher? (Y/N)} \( \text{Voucher? (Y/N)} \) Voucher? (Y/N) \( \text{Voucher? (Y/N)} \) \( Voucher
ho we le	BIOTIC EVALUATION  Performed? (Y/N): (If Yes, Record all observations. Voucher collect ID number. Include appropriate field data sheets ish Observed? (Y/N) Voucher? (Y/N) Salamanders Observe rogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macromments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF Salamanders Observed? (Y/N) Advantage of interest for site expected.	tions optional. NOTE: all voucher samples must be labeled with the site is from the Primary Headwater Habitat Assessment Manual)  d? (Y/N) \( \text{Voucher? (Y/N)} \( \text{Voucher? (Y/N)} \) Voucher? (Y/N) \( \text{Voucher? (Y/N)} \) \( Voucher
47 0 19	BIOTIC EVALUATION  Performed? (Y/N): (If Yes, Record all observations. Voucher collect ID number. Include appropriate field data sheets ish Observed? (Y/N) Voucher? (Y/N) Salamanders Observe rogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macromments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF Salamanders Observed? (Y/N) Advantage of interest for site expected.	tions optional. NOTE: all voucher samples must be labeled with the site is from the Primary Headwater Habitat Assessment Manual)  d? (Y/N) \( \text{Voucher? (Y/N)} \( \text{Voucher? (Y/N)} \) Voucher? (Y/N) \( \text{Voucher? (Y/N)} \) \( Voucher
	BIOTIC EVALUATION  erformed? (Y/N): (If Yes, Record all observations. Voucher collect ID number. Include appropriate field data sheets sh Observed? (Y/N) Voucher? (Y/N) Salamanders Observed on Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macromments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF Salamanders Observed? (Y/N) Voucher? (Y/N) Aquatic Macromments Regarding Biology: Voucher? (Y/N) Advantage of the properties of the propertie	tions optional. NOTE: all voucher samples must be labeled with the site is from the Primary Headwater Habitat Assessment Manual)  d? (Y/N) \( \text{Voucher? (Y/N)} \( \text{Voucher? (Y/N)} \) Voucher? (Y/N) \( \text{Voucher? (Y/N)} \) \( Voucher
	BIOTIC EVALUATION  If Yes, Record all observations. Voucher collect ID number. Include appropriate field data sheets the Observed? (Y/N) Voucher? (Y/N) Salamanders Observed ogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macromments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF Salamanders Observed? (Y/N) Nature of Include Important landmarks and other features of Interest for site each of the particles.	tions optional. NOTE: all voucher samples must be labeled with the site is from the Primary Headwater Habitat Assessment Manual)  d? (Y/N)

### Chieff Primary Headwater Habitat Evaluation Form

Г	_		
ı	1	1	
L	U	0-	

DATE 8/3/2017 SCORER KLV	RIVER BASIN SCIOTO FIVE DRAINAGE AREA (minus LATS 1.34 L262 LLONG 92.942.8702 RIVER CODE COMMENTS SO 34  m - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for	.E
	TURAL CHANNEL RECOVERED RECOVERING RECENT OR NO	
(Max of 40). Add total number of signific	ery type of substrate present. Check ONLY two predominant substrate TYPE boxe cant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  PERCENT TYPE SILT [3 pt] PERCENT	HHEI Metric Points Substrate Max = 40
	maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of d culverts or storm water pipes) (Check ONLY one box):	Pool Depti Max = 30
3. BANK FULL WIDTH (Measured as the > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] COMMENTS	MAXIMUM POOL DEPTH (centimeters):  average of 3-4 measurements) (Check ONLY one box):  > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]  ≤ 1.0 m (≤ 3' 3") [5 pts]  AVERAGE BANKFULL WIDTH (meters)	Bankfull Width Max=30
RIPARIAN ZONE AND FLOODF RIPARIAN WIDTH L R (Per Bank) Udd >10m	This information <u>must</u> also be completed  PLAIN QUALITY	
Moderate 5-10m  Moderate 5-10m  Narrow <5m  None  COMMENTS	Immature Forest, Shrub or Old	w
Stream Flowing Subsurface flow with isolated poor		ittent)
SINUOSITY (Number of bends p None 0.5	per 61 m (200 ft) of channel) (Check <i>ONLY</i> one box):  1.0	

QHEI PERFORMED? - Tyes	No QHEI Score(If Yes, Attach C	ompleted QHEI Form)
DOWNSTREAM DESIGNATED USE	(S)	
WWH Name: Sauto River	D	istance from Evaluated Stream <u>D. 22 milu</u> S
	Di	
	Di	
MAPPING: ATTACH COPIES OF MAI	PS, INCLUDING THE <u>ENTIRE</u> WATERSHED ARE	A. CLEARLY MARK THE SITE LOCATION
SGS Quadrangle NameChillicothe Fas	Hlandondemy NRCS Soil Map Page:	NRCS Soil Map Stream Order
county: Ross Co.	Township/City: Securafic	eld Twp / Chillicothe
MISCELLANEOUS	-	*
Base Flow Conditions? (Y/N): Date o	flast precipitation: 8/2/17	Quantity: L.25"
hotograph Information:		
Elevated Turbidity? (Y/N): Cand	py (% open):	
	//N): Note lab sample no. or id. and a	ttach results) Lab Number:
ield Measures: Temp (°C) Dissolv	red Oxygen (mg/l) pH (S.U.)	Conductivity (µmhos/cm)
s the sampling reach representative of the stre	am (Y/N) If not, please explain:	n
*		
BIOTIC EVALUATION		
ID number. Incl Fish Observed? (Y/N) \( \frac{\bar{N}}{N} \) Voucher? (Y/N) \( \frac{\bar{N}}{N} \) Voucher? (Y/N) \( \frac{\bar{N}}{N} \) Voucher?	all observations. Voucher collections optional. NO ude appropriate field data sheets from the Primary  Salamanders Observed? (Y/N)  Cher? (Y/N)  Aquatic Macroinvertebrates C	Voucher? (Y/N) N
ID number. Incl Fish Observed? (Y/N) \( \frac{\mathcal{N}}{\text{N}} \) Voucher? (Y/N) \( \frac{\mathcal{N}}{\text{N}} \) Voucher? (Y/N) \( \frac{\mathcal{N}}{\text{N}} \) Voucher?	ude appropriate field data sheets from the Primary  Salamanders Observed? (Y/N)	Headwater Habitat Assessment Manual)
ID number. Incl Fish Observed? (Y/N) N Voucher? (Y/N) Frogs or Tadpoles Observed? (Y/N) N Vouc Comments Regarding Biology.	ude appropriate field data sheets from the Primary  Salamanders Observed? (Y/N) N  cher? (Y/N) Aquatic Macroinvertebrates C	Headwater Habitat Assessment Manual)  Voucher? (Y/N) N Voucher? (Y/N) N
ID number. Inclining Fish Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Vouchers Regarding Biology:  DRAWING AND NARRATI	Lide appropriate field data sheets from the Primary  N Salamanders Observed? (Y/N)  Cher? (Y/N)  Aquatic Macroinvertebrates C	Voucher? (Y/N) N Vouche
ID number. Inclining Fish Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Vouchers Regarding Biology:  DRAWING AND NARRATI	Salamanders Observed? (Y/N) A cher? (Y/N) A Aquatic Macroinvertebrates Cover Description of STREAM REA features of Interest for site evaluation and a	Voucher? (Y/N) N Vouche
ID number. Inclining Fish Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Vouchers Regarding Biology:  DRAWING AND NARRATI	Salamanders Observed? (Y/N) A cher? (Y/N) A Aquatic Macroinvertebrates Cover Description of STREAM REA features of Interest for site evaluation and a	Voucher? (Y/N) N Vouche
ID number. Inclinish Observed? (Y/N) Voucher? (Y/N) voucher? (Y/N) Voucher? (Y/N) Vouchers Regarding Biology:  DRAWING AND NARRATI	Salamanders Observed? (Y/N) A cher? (Y/N) A Aquatic Macroinvertebrates Cover Description of STREAM REA features of Interest for site evaluation and a	Voucher? (Y/N) N Vouche
ID number. Includes the Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Vouchers on Tadpoles Observed? (Y/N) Vouchers Regarding Biology:  DRAWING AND NARRATI	Salamanders Observed? (Y/N) A cher? (Y/N) A Aquatic Macroinvertebrates Cover Description of STREAM REA features of Interest for site evaluation and a	Voucher? (Y/N) N Vouche
ID number. Inclinish Observed? (Y/N) Voucher? (Y/N) voucher? (Y/N) Voucher? (Y/N) Vouchers Regarding Biology:  DRAWING AND NARRATI	Salamanders Observed? (Y/N) A cher? (Y/N) A Aquatic Macroinvertebrates Cover Description of STREAM REA features of Interest for site evaluation and a	Voucher? (Y/N) N Vouche
ID number. Include Important landmarks and other	Lide appropriate field data sheets from the Primary  N Salamanders Observed? (Y/N)  Cher? (Y/N)  Aquatic Macroinvertebrates C	Voucher? (Y/N) N Vouche
ID number. Include Important landmarks and other	Salamanders Observed? (Y/N) A cher? (Y/N) A Aquatic Macroinvertebrates Cover Description of STREAM REA features of Interest for site evaluation and a	Voucher? (Y/N) N Vouche
ID number. Inclining Fish Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Vouchers Regarding Biology:  DRAWING AND NARRATI	Salamanders Observed? (Y/N) A cher? (Y/N) A Aquatic Macroinvertebrates Cover Description of STREAM REA features of Interest for site evaluation and a	Voucher? (Y/N) N Vouche
ID number. Incl Fish Observed? (Y/N) Voucher? (Y/N) Frogs or Tadpoles Observed? (Y/N) Vouc Comments Regarding Biology:  DRAWING AND NARRATI Include Important landmarks and other	Salamanders Observed? (Y/N) A cher? (Y/N) A Aquatic Macroinvertebrates Cover Description of STREAM REA features of Interest for site evaluation and a	Voucher? (Y/N) N Vouche
ID number. Incl Fish Observed? (Y/N) Voucher? (Y/N) Frogs or Tadpoles Observed? (Y/N) Vouc Comments Regarding Biology:  DRAWING AND NARRATI Include Important landmarks and other	Salamanders Observed? (Y/N) A cher? (Y/N) A Aquatic Macroinvertebrates Cover Description of STREAM REA features of Interest for site evaluation and a	Voucher? (Y/N) N Vouche
ID number. Incl Fish Observed? (Y/N) Voucher? (Y/N) Frogs or Tadpoles Observed? (Y/N) Vouc Comments Regarding Biology:  DRAWING AND NARRATI Include Important landmarks and other	Salamanders Observed? (Y/N) A cher? (Y/N) A	ACH (This must be completed): narrative description of the stream's location  Property
ID number. Incl Fish Observed? (Y/N) Voucher? (Y/N) Frogs or Tadpoles Observed? (Y/N) Vouc Comments Regarding Biology:  DRAWING AND NARRATI Include Important landmarks and other	Salamanders Observed? (Y/N) A cher? (Y/N) A Aquatic Macroinvertebrates Cover Description of STREAM REA features of Interest for site evaluation and a	ACH (This must be completed): narrative description of the stream's location  Property
ID number. Include Important landmarks and other	Salamanders Observed? (Y/N) A cher? (Y/N) A	ACH (This must be completed): narrative description of the stream's location  Property
ID number. Include Important landmarks and other	Salamanders Observed? (Y/N) A cher? (Y/N) A	ACH (This must be completed): narrative description of the stream's location  Property

## ChieFPA Primary Headwater Habitat Evaluation Form

	LAT31.34866041 LONG82.942733018 RIVER CODE SOLOUS RIVER MILE	ole12
DATE 83 T SCORER KLV	COMMENTS 5035	
NOTE: Complete All Items On This F	Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	ctions
STREAM CHANNEL MONE / I	NATURAL CHANNEL   RECOVERED   RECOVERING   RECENT OR NO RECOVERING   RECENT OR NO RECOVERING	VERY
	every type of substrate present. Check ONLY two predominant substrate TYPE boxes nificant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  PERCENT TYPE SILT [3 pt] PERCENT THO SILT [3 pt] THO SILT [3 pt] THO SILT [3 pts] THO SILT [3	HHI Metr Poin Substr Max =
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock	(A) 12 (B) 7	A + B
Maximum Pool Depth (Measure the evaluation. Avoid plunge pools from r > 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts]	e maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of road culverts or storm water pipes) (Check ONLY one box):	Pool De Max =
COMMENTS	MAXIMUM POOL DEPTH (centimeters):	
BANK FULL WIDTH (Measured as t > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7"- 13') [25 pts] > 1.5 m - 3.0 m (> 4' 8"- 9' 7") [20 pts]  COMMENTS	☐ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ☐ ≤ 1.0 m (≤ 3' 3") [5 pts]	Banki Widti Max=3
RIPARIAN ZONE AND FLOO RIPARIAN WIDTH	This information <u>must</u> also be completed  DDPLAIN QUALITY మNOTE: River Left (L) and Right (R) as looking downstream మ FLOODPLAIN QUALITY	
L R (Per Bank)	L R (Most Predominant per Bank) L R	
□ □ Wide >10m	Mature Forest, Wetland Conservation Tillage	
Moderate 5-10m	Field Open Pacture Pow	
☐ ☐ Narrow <5m ☐ ☐ None	Residential, Park, New Field Crop  Fenced Pasture Mining or Construction	
COMMENTS		
COMMENTS	Evaluation) (Check ONLY one box):  Moist Channel, isolated pools, no flow (Intermittent)  Dry channel, no water (Ephemeral)	
FLOW REGIME (At Time of E Stream Flowing Subsurface flow with isolated p COMMENTS SINUOSITY (Number of bend	Moist Channel, isolated pools, no flow (Intermittent)	

MISCELLANEOUS  ase Flow Conditions? (Y/N): Date of last precipitation:	ADDITIONAL STREAM INFORMATION (This Information Must Also be C	completed):
Obstance from Evaluated Stream	QHEI PERFORMED? - Tyes St. No QHEI Score	_(If Yes, Attach Completed QHEI Form)
Obstance from Evaluated Stream	DOWNSTREAM DESIGNATED USE(S)	
Distance from Evaluated Stream  MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION  SIGS Quadrangle Name Villicothe Lost Involved M. NRCS Soil Map Page:NRCS Soil Map Stream Order  FOUNDY:	WWH Name: Scioto Piver	Distance from Evaluated Stream ().16 miles
Distance from Evaluated Stream  MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION  MISCELLANEOUS  asse Flow Conditions? (*/#):  Date of last precipitation:  Evaluated Turbidity? (*/#):  Devated Turbidity? (*/#):  Canopy (% open):  Level of for water chemistry? (*/#):  Miscellaneous  Are samples collected for water chemistry? (*/#):  Miscellaneous  Are samples collected for water chemistry? (*/#):  Miscellaneous  Canopy (% open):  Level of the sampling reach representative of the stream (*/#):  If not, please explain:  BIOTIC EVALUATION  If not, please explain:  BIOTIC EVALUATION  (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site in number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  sh 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.  Transmission	CWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA CLEARLY MARK THE SITE LOCATION  SIGS Quadrangie Name ("Millicothe foot and water in the street of the		
Indication of the stream of the stream (Y/N): Note the stream (Y/N): Note the sample no. or id. and attach results) Lab Number:    Biotic Evaluation		
MISCELLANEOUS  asse Flow Conditions? (Y/N): \( \) Date of last precipitation: \( \) 8 2 2 2 1 \\  \text{miscellaneous} \)  asse Flow Conditions? (Y/N): \( \) Date of last precipitation: \( \) 8 2 2 2 1 \\  \text{def of conditions} \)  asse Flow Conditions? (Y/N): \( \) Canopy (% open): \( \) (Note lab sample no. or id. and attach results) Lab Number: \( \)  all def Measures: \( \) Temp (°C) \( \) Dissolved Oxygen (mg/l) \( \) pH (S.U.) \( \) Conductivity (umhos/cm) \( \)  the sampling reach representative of the stream (Y/N) \( \) If not, please explain: \( \)  dditional comments/description of pollution impacts: \( \)  BIOTIC EVALUATION  erformed? (Y/N): \( \) (if Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site in the primary Headwater Habitat Assessment Manual)  sh Observed? (Y/N): \( \) Voucher? (Y	0 1-11 1 1	
Augustion of the stream (YN). Detection of pollution impacts:  BIOTIC EVALUATION  If Yes, Record all observations, Voucher collections optional. NOTE: all voucher samples must be labeled with the size in Dumber. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) options or Tappies observed? (YN). A Qualitic Macroinvertebrates Observed? (YN). A Voucher? (YN). A Qualitic Macroinvertebrates Observed? (YN). A Qualitic Macroinv		
Date of last precipitation: 8 2 2 2	County: Township / County:	city. Springtied Twp. [ Chillicothe
Devated Turbidity? (YAN):   Canopy (% open):   Ca		0.5
Canopy (% open): US   Canopy (% open): US   Note lab sample no. or id. and attach results) Lab Number:   See samples collected for water chemistry? (Y/N): Manager (Y/N)   Note lab sample no. or id. and attach results) Lab Number:   See sampling reach representative of the stream (Y/N)   If not, please explain:   Conductivity (µmhos/cm)   Conductivity (	Base Flow Conditions? (Y/N): Date of last precipitation: 8 2 2	ZAT Quantity: 25"
Note iab samples collected for water chemistry? (Y/N):	Photograph Information:	
Note iab samples collected for water chemistry? (Y/N):	Elevated Turbidity? (Y/N): N Canopy (% open): 40 /	
BIOTIC EVALUATION  erformed? (Y/N): A (if Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  sh Observed? (Y/N): A Voucher? (Y/N): A Salamanders Observed? (Y/N): A Voucher? (Y/N): A Aquatic Macroinvertebrates Observed? (Y/N): A Voucher? (Y/N): A Voucher? (Y/N): A Quatic Macroinvertebrates Observed? (Y/N): A Voucher? (Y/N): A Voucher? (Y/N): A Aquatic Macroinvertebrates Observed? (Y/N): A Voucher? (Y/N): A Vouc		ole no. or id. and attach results) Lab Number:
BIOTIC EVALUATION  erformed? (Y/N):	Field Measures: Temp (°C) Dissolved Oxygen (mg/l)	pH (S.U.) Conductivity (µmhos/cm)
BIOTIC EVALUATION  erformed? (Y/N):	s the sampling reach representative of the stream (Y/N)	e explain:
BIOTIC EVALUATION  (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site iD number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  Ish Observed? (Y/N)	is the sampling rouse representative of the entering representative of the entering resident representative of the entering representative of the entering resident representative of the entering representative representati	
BIOTIC EVALUATION  (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site iD number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  Ish Observed? (Y/N)		
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):  Include important landmarks and other features of Interest for site evaluation and a narrative description of the stream's location  Fixed  Transmission  Row  LOW	Performed? (Y/N): (If Yes, Record all observations. Voucher colle- ID number. Include appropriate field data shee	ets from the Primary Headwater Habitat Assessment Manual)
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed): Include Important landmarks and other features of Interest for site evaluation and a narrative description of the stream's location  Transmission  LOW	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  Transmission  LOW		
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed): Include Important landmarks and other features of Interest for site evaluation and a narrative description of the stream's location  Transmission  LOW		
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location  Transmission  Low		
Forest Transmission Row		
LOW	include important randmarks and other readiles of interest for site	By and a man and
LOW	D. J. Tousmissiu	m ( ) (
LOW	Farest	1
LOW	Kon	
	M AA	
Fixest	FLOW	
Forest		1 / 1
Forest		
	1	Frest
		10001
		1 4

### Chieff Primary Headwater Habitat Evaluation Form

г	
ı	-
ı	50
ĸ.	00

ATE 8/3/17 SCORER KI	LV LAT39.34877085 LONG82.94736/72 RIVER CODE(05060000000000000000000000000000000000	148m
	his Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	uction
TREAM CHANNEL NO	DNE/NATURAL CHANNEL TRECOVERED TRECOVERING TRECENT OR NO RECO	VERY
		HI-Me Poi Subs Max
CORE OF TWO MOST PREDOMINAT		
	re the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of from road culverts or storm water pipes) (Check ONLY one box):	Pool Max
COMMENTS	MAXIMUM POOL DEPTH (centimeters):	
BANK FILL WIDTH /Massure	d as the average of 3-4 measurements) (Check ONLY one box):    3-4 measurements	Ban Wid
3.0 m - 4.0 m (> 9' 7" - 13') [25] 3.0 m - 4.0 m (> 9' 7" - 13') [25] 3.1.5 m - 3.0 m (> 4' 8" - 8' 7") [26]  COMMENTS	pts]	Max Z
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20	pts]	25.00
34.0 meters (> 13') [30 pts] >3.0 m - 4.0 m (> 9' 7" - 13') [25] >1.5 m - 3.0 m (> 4' 8" - 9' 7") [26]  COMMENTS	Pts]	25.00
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7"- 13') [25   > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [26    COMMENTS  RIPARIAN ZONE AND I  RIPARIAN WIDTH  L R (Per Bank)	AVERAGE BANKFULL WIDTH (meters)  AVERAGE BANKFULL WIDTH (meters)  This information must also be completed  FLOODPLAIN QUALITY \$\times \text{NOTE: River Left (L) and Right (R) as looking downstream} \text{FLOODPLAIN QUALITY}  L R (Most Predominant per Bank) L R	25.00
> 4.0 meters (> 13') [30 pts]   > 3.0 m - 4.0 m (> 9' 7"- 13') [25   > 1.5 m - 3.0 m (> 4' 8"- 9' 7") [26   COMMENTS	AVERAGE BANKFULL WIDTH (meters)  L R (Most Predominant per Bank)  L R (Most Predominant per Bank)  Mature Forest, Wetland  D Conservation Tillage  Immature Forest, Shrub or Old  Ultran or Industrial	25.00
> 4.0 meters (> 13') [30 pts]   > 3.0 m - 4.0 m (> 9'.7" - 13') [25   > 1.5 m - 3.0 m (> 4'.8" - 9'.7") [26   COMMENTS         RIPARIAN ZONE AND I	AVERAGE BANKFULL WIDTH (meters)  AVERAGE BANKFULL WIDTH (meters)  This Information must also be completed  FLOODPLAIN QUALITY	25.00
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7"- 13') [25] > 1.5 m - 3.0 m (> 4' 8"- 9' 7") [26]  COMMENTS  RIPARIAN ZONE AND I  RIPARIAN WIDTH  L R (Per Bank)  Wide > 10m	This information must also be completed  FLOODPLAIN QUALITY  MOTE: River Left (L) and Right (R) as looking downstream   FLOODPLAIN QUALITY  L R (Most Predominant per Bank) L R  Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Urban or Industrial	25.00
> 4.0 meters (> 13') [30 pts]   > 3.0 m - 4.0 m (> 9' 7" - 13') [25   > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [26     COMMENTS	AVERAGE BANKFULL WIDTH (meters)  AVERAGE BANKFULL WIDTH (meters)	25.00
> 4.0 meters (> 13') [30 pts]   > 3.0 m - 4.0 m (> 9' 7"- 13') [25   > 1.5 m - 3.0 m (> 4' 8"- 9' 7") [26   COMMENTS_	AVERAGE BANKFULL WIDTH (meters)  AVERAGE BANKFULL WIDTH (meters)	25.00

MISCELLANEOUS  ase Flow Conditions? (Y/N): Date of last precipitation: 8 2 1 Quantity:	CATION  Order
Distance from Evaluated Stream Distance from Evaluated Stream Distance from Evaluated Stream  MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCK SGS Quadrangle Name Chilly Street and County: ROSS CO Township / City: Spring field Tup   Chilly of the Ch	CATION  Order
Distance from Evaluated Stream Distance from Evaluated Stream Distance from Evaluated Stream  MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCK SGS Quadrangle Name Chilly Street and County. ROSS OU Township / City: Spring field Tup   Chilly of the Ch	CATION  Order
Distance from Evaluated Stream  Distance from Evaluated Stream  Distance from Evaluated Stream  MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOC.  USGS Quadrangle Name Chillicathe Fast Conductory NRCS soil Map Page: NRCS Soil Map Stream County: NRCS Soil Map Page: NRCS Soil Map Stream County: NRCS Soil Map Page: NRCS S	CATION  Order
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCAL USES Quadrangle Name Chillicathe Forth Annual Chillicathe Name Chillicathe Forth Annual Chillicathe Name County: ROSS (O) Township / City. Spring field Tunp   Chillicathe County: ROSS (O) Township / City. Spring field Tunp   Chillicathe Chillicathe Miscellaneous  Base Flow Conditions? (Y/N): Date of last precipitation: 8 2 1 Quantity:	Order
NRCS Soil Map Page: NRCS Soil Map Page: NRCS Soil Map Stream County: Ross (0)   Township / City: Spring-field Turp   Chillicothle	Order
MISCELLANEOUS  ase Flow Conditions? (Y/N): Date of last precipitation: 8 2 1 Quantity:	
Base Flow Conditions? (Y/N): Date of last precipitation: 8217 Quantity: .25"  Photograph Information:	
Date of last precipitation: 8 2 1 Quantity:	
Photograph Information:  Elevated Turbidity? (Y/N):  Canopy (% open):  (Note lab sample no. or id. and attach results) Lab Number:  Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  If not, please explain:  Additional comments/description of pollution impacts:  BIOTIC EVALUATION  Performed? (Y/N):  (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labe ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manifergs or Tadpoles Observed? (Y/N)  Voucher? (Y/N)  Voucher? (Y/N)  Voucher? (Y/N)  Aquatic Macroinvertebrates Observed? (Y/N)  Voucher? (Y/N)	
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm) s the sampling reach representative of the stream (Y/N) If not, please explain:	
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)  If not, please explain:  BIOTIC EVALUATION  Performed? (Y/N): New Year (Y/N): Note lab sample no. or id. and attach results) Lab Number:  BIOTIC EVALUATION  Or id and attach results) Lab Number:  If not, please explain:  BIOTIC EVALUATION  Or if Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled in number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manufactor (Y/N) Noucher? (	
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:  BIOTIC EVALUATION  Performed? (Y/N): Note is a sample no. or id. and attach results) Lab Number:  BIOTIC EVALUATION  Or if Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled in number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manufacture (Y/N) Voucher? (Y/N) Note is a sample no. or id. and attach results) Lab Number:  BIOTIC EVALUATION  Or if Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled in number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manufacture (Y/N) Note Note is a sample no. or id. and attach results) Lab Number:  Fish Observed? (Y/N) Note Note is a sample no. or id. and attach results) Lab Number:  Or id Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled in number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manufacture.  Fish Observed? (Y/N) Note is a sample no. or id. and attach results) Lab Number:  Or id Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled note.  Fish Observed? (Y/N) Note is a sample no. or id. and attach results) Lab Number:  Or id Yes	
Additional comments/description of pollution impacts:  BIOTIC EVALUATION  Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled in number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manufacture (Y/N) Voucher? (Y/N)	
BIOTIC EVALUATION  Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled in number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manufacture (Y/N) Voucher? (Y/N)	
Additional comments/description of pollution impacts:  BIOTIC EVALUATION  Performed? (Y/N):	
Performed? (Y/N): Note: all voucher samples must be laber in the Primary Headwater Habitat Assessment Manuschish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N) V	
comments Regarding Biology:	nual)
DRAWING AND MADDATINE DESCRIPTION OF STREAM DEACH (This must be complete	tad):
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed include important landmarks and other features of interest for site evaluation and a narrative description of the stream	
include important landmarks and other features of interest for site evaluation and a flat alive description of the stream	III S IUCALIUII
$\sim$	1
	1
	)
	) _
LOW	2
LOW -	3
	3
	3
(Tomature)	3
Timmature )	
Timmature Forest	

_	_
31	
1	ı

SITE NAMELOCATION GINGUY KOSS  SITE NUMBER RIVER BASIN SCIOTO RIVEY DRAINAGE AREA (mi²) 0.00	omi <sup>2</sup>
DATE 8 3 17 SCORER KLV COMMENTS SO37	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruc	tions
STREAM CHANNEL DINONE / NATURAL CHANNEL DIRECTOR RECOVERED DIRECTOR NO RECOVERED DIRECTOR DIRECTOR NO RECOVERED DIRECTOR NO RECOVERED DIRECTOR NO RECOVERE	ERY
BLDR SLABS [16 pts]  BOULDER (>256 mm) [16 pts]  BEDROCK [16 pt]  BEDROCK [16 pt]  SILT [3 pt]  LEAF PACKWOODY DEBRIS [3 pts]	HHEI Metric Points Substrate Max = 40
☐ ☐ COBBLE (65-256 mm) [12 pts] ☐ ☐ CLAY or HARDPAN [0 pt] ☐ ☐ MUCK [0 pts] ☐ ☐ MUCK [0 pts] ☐ ☐ ARTIFICIAL [3 pts] ☐ ☐ ARTIFICIAL [3 pts]	16
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 10 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:  TOTAL NUMBER OF SUBSTRATE TYPES:	A + B
	ool Depth Max = 30
COMMENTSMAXIMUM POOL DEPTH (centimeters):	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):    > 4.0 meters (> 13') [30 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [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]   ↓	Bankfull Width Max=30
COMMENTSAVERAGE BANKFULL WIDTH (meters)	10
This information <u>must</u> also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆	
RIPARIAN WIDTH  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 Urban or Industrial	
Open Pasture, Row	
None Fenced Pasture Mining or Construction	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS  Hoist 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	

### ADDITIONAL STREAM INFORMATION (This information Must Also be Completed): QHEI PERFORMED? - Yes No QHEI Score \_\_\_\_\_ (If Yes, Attach Completed QHEI Form) DOWNSTREAM DESIGNATED USE(S) WWH Name: SCIOTO RIVER \_\_ Distance from Evaluated Stream \_\_\_\_\_\_ D. ISmiles 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 Chilly othe Fost ordendeny NRCS Soil Map Page:\_\_\_\_\_ NRCS Soil Map Stream Order\_\_\_\_\_ Township/City. Springfield Twp. / Chilliathe County: MISCELLANEOUS Base Flow Conditions? (Y/N): Date of last precipitation: 8/2/7 Quantity: ...25 Photograph Information: Canopy (% open): 40 / Elevated Turbidity? (Y/N): \_\_\_\_\_\_ 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** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples 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) 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 Transmission ROW

# APPENDIX D Ohio Rapid Assessment Method for Wetlands (ORAM) Data Forms



Site: AEP	- Ross-Gina	ec Rater(s):	KW	Date:	5/23/17
		land Area (size	). WOOI-P	ENI-CATI	
max 6 pts. subtotal	10 to <25 acres 3 to <10 acres 0.3 to <3 acres	0.2ha) (6 pts) s (10.1 to <20.2ha) (5 pts) s (4 to <10.1ha) (4 pts) (1.2 to <4ha) (3 pts) (0.12 to <1.2ha) (2pts) es (0.04 to <0.12ha) (1 pt)			
3 4	Metric 2. Upl	and buffers and	surrounding	g land use.	
max 14 pts. subtotal	WIDE. Buffers MEDIUM. Buff NARROW. Bu VERY NARRO  2b. Intensity of surroundi VERY LOW. 2 LOW. Old field MODERATELY	uffer width. Select only one average 50m (164ft) or morers average 25m to <50m (8 ffers average 10m to <25m W. Buffers average <10m (and use. Select one or not growth or older forest, proceed to the select one of the select one	e around wetland perim 2 to <164ft) around wet (32ft to <82ft) around w <32ft) around wetland p double check and avera airie, savannah, wildlife ung second growth fore pasture, park, conserva	neter (7) Itland perimeter (4) Petland perimeter (1) Perimeter (0) Perimeter (0) Perimeter (7) Perimeter (7) Perimeter (7) Perimeter (7) Perimeter (8) Perimeter (8) Perimeter (9) Perim	
10 14	Metric 3. Hyd	rology.			
max 30 pts. subtatal	3c. Maximum water dept 3c. 0.4 to 0.7m (15 3c. 0.4 to 0.7m (15 3c. 0.4m (<15.7in	dwater (5) ater (3) ) nittent surface water (3) ce water (lake or stream) (5) h. Select only one and assi ) .7 to 27.6in) (2)	gn score.	nnectivity. Score all that apply 100 year floodplain (1) Between stream/lake and ot Part of wetland/upland (e.g. Part of riparian or upland coration inundation/saturation. Sc Semi- to permanently inundated Regularly inundated/saturate Seasonally inundated (2) Seasonally saturated in uppend average.	forest), complex (1) rridor (1) ore one or dbl check ated/saturated (4) ed (3)
	None or none at Recovered (7) Recovering (3) Recent or no re	ditch tile dike weir	urbances observed	point source (nonstormwater filling/grading road bed/RR track dredging other	•)
5 19	Metric 4. Hab	itat Alteration			
max 20 pts. subtotal	4a. Substrate disturbance None or none at Recovered (3) Recovering (2) Recent or no recent and Recovering (2) Recent or no recent and Recovering (2) Recent or no recent and Recovering (2) Recovering (2) Recovering (2) Fair (3) Poor to fair (2) Poor (1) Ac. Habitat alteration. So	e. Score one or double check and the covery (1) Select only one and assign (4)	ck and average.  score.		
subtotal this pa		mowing grazing clearcut selectivi	ting e cutting debris removal	shrub/sapling removal herbaceous/aquatic bed rem sedimentation dredging farming nutrient enrichment	ioval

Site: A	EP	- Ross-Ginger	Rater(s): KL	Date: 5/	23/17
	Q tal first pa		W001-PEn	1-CATI	
0	19	Metric 5. Special W	etlands.		
max 10 pts. s	subtotal	Check all that apply and score as indicated by the score as indicated	) wetland-unrestricted hy wetland-restricted hydr Dak Openings) (10) deral threatened or end bird/water fowl habitat of	dangered species (10) or usage (10) Rating (-10)	
2	21			terspersion, microtopography	<b>'</b> -
max 20 pts s	ubtotal	6a. Wetland Vegetation Communities		1 Community Cover Scale	
		Score all present using 0 to 3 scale.  Aquatic bed Emergent	1	Absent or comprises <0.1ha (0.2471 acres) contigue Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprise	5
		Shrub	-	significant part but is of low quality	
		Open water	2	Present and either comprises significant part of wetl vegetation and is of moderate quality or comprises part and is of high quality	
		Other  6b. horizontal (plan view) Interspersion	3 on.	Present and comprises significant part, or more, of wetla vegetation and is of high quality	
		Select only one.			
		High (5)	_	Description of Vegetation Quality	
		Moderately high(4) Moderate (3)	low	Low spp diversity and/or predominance of nonnative disturbance tolerant native species	1 01
		Moderately low (2) Low (1) None (0) 6c. Coverage of invasive plants. Ref		Native spp are dominant component of the vegetational although nonnative and/or disturbance tolerant national can also be present, and species diversity moderated moderately high, but generally w/o presence of raise.	tive spp ate to
		to Table 1 ORAM long form for list. A or deduct points for coverage	high	A predominance of native species, with nonnative species.	D.D.
		Extensive >75% cover (-5) Moderate 25-75% cover (-3) Sparse 5-25% cover (-1)		and/or disturbance tolerant native spp absent or vi absent, and high spp diversity and often, but not a the presence of rare, threatened, or endangered s	irtually ilways,
		Nearly absent <5% cover (	•	od Onen Water Class Ouglitus	
		Absent (1) 6d. Microtopography	0	Absent <0.1ha (0.247 acres)	
		Score all present using 0 to 3 scale.	1	Low 0.1 to <1ha (0.247 to 2.47 acres)	
		Vegetated hummucks/tussu		Moderate 1 to <4ha (2.47 to 9.88 acres)	
		Coarse woody debris >15cl		High 4ha (9.88 acres) or more	
		Standing dead >25cm (10ir  Amphibian breeding pools		graphy Cover Scale	
		100	0	Absent Present very small amounts or if more common	
			- 2	of marginal quality  Present in moderate amounts, but not of highest	-
				quality or in small amounts of highest quality	
			3	Present in moderate or greater amounts and of highest quality	

End of Quantitative Rating. Complete Categorization Worksheets.

Site:	AEP	- Ross-Ginger Rater(s): KLV	Date: 5/18/17
	10	Metric 1. Wetland Area (size). W002-PEM -CATI	
max 6 pts.	sublotal	Select one size class and assign score.  >50 acres (>20.2ha) (6 pts)  25 to <50 acres (10.1 to <20.2ha) (5 pts)  10 to <25 acres (4 to <10.1ha) (4 pts)  3 to <10 acres (1.2 to <4ha) (3 pts)  0.3 to <3 acres (0.12 to <1.2ha) (2pts)  0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)  <0.1 acres (0.04ha) (0 pts)	
3	3	Metric 2. Upland buffers and surrounding land use.	
max 14 pts.	subtotal	2a. Calculate average buffer width. Select only one and assign score. Do not double check.  WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)  MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)  NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)  VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)  2b. Intensity of surrounding land use. Select one or double check and average.  VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)  LOW. Old field (>10 years), shrub land, young second growth forest. (5)  MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new falled HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)	ow field. (3)
16	19	Metric 3. Hydrology.	
max 30 pts.	subtotal	Precipitation (1) Seasonal/Intermittent surface water (3) Perennial surface water (lake or stream) (5)  3c. Maximum water depth. Select only one and assign score.  >0.7 (27.6in) (3)  0.4 to 0.7m (15.7 to 27.6in) (2)  Part of wetland/u Part of riparian o Duration inundation/sat Semi- to perman Regularly inunda	ain (1)  lake and other human use (1)  pland (e.g. forest), complex (1)  r upland corridor (1)  uration. Score one or dbl check  ently inundated/saturated (4)  ted/saturated (3)
		None or none apparent (12) Recovered (7) Recovering (3) Recent or no recovery (1)	
8	27	Metric 4. Habitat Alteration and Development.	*
max 20 pts	subtotal	4a. Substrate disturbance. Score one or double check and average.  None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1)  4b. Habitat development. Select only one and assign score.  Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) Poor (1)  4c. Habitat alteration. Score one or double check and average.  None or none apparent (9) Check all disturbances observed	
SI Lock roviged	27	Recovered (6) Recovering (3) Recent or no recovery (1) Recovering (3) Recent or no recovery (1)	atic bed removal

Site: AE	P- Ross-Ginger	Rater(s): K	LV	Date: 5/18/17
2 subtotel	7 first page Metric 5. Specia	W ∞2-PE	EM-CATI	
0 2	7			
max 10 pts. sub	Lake Erie coastal/trib Lake Plain Sand Prai Relict Wet Prairies (1 Known occurrence st Significant migratory	) and (5) utary wetland-unrestricted utary wetland-restricted hy ries (Oak Openings) (10)	drology (5) ndangered species (10) or usage (10)	
2 2	Metric 6. Plant c	ommunities, i	nterspersion, micro	otopography.
max 20 pts. subt	ou. Wouldn't vogotation commi		on Community Cover Scale	
	Score all present using 0 to 3 so Aquatic bed Emergent		Absent or comprises <0.1ha (I Present and either comprises vegetation and is of modera	small part of wetland's te quality, or comprises a
	O Shrub		significant part but is of low	
	O Forest O Mudflats O Open water	2	Present and either comprises vegetation and is of moderar part and is of high quality	significant part of wetland's te quality or comprises a small
	Other_ 6b. horizontal (plan view) Inters	spersion 3	Present and comprises signific vegetation and is of high quantities.	cant part, or more, of wetland's ality
	Select only one. High (5)	Narrative	Description of Vegetation Qualit	nv.
	Moderately high(4) Moderate (3)	low	Low spp diversity and/or predo disturbance tolerant native s	ominance of nonnative or
	Moderately low (2) Low (1) None (0) 6c. Coverage of invasive plants to Table 1 ORAM long form for			isturbance tolerant native spp ecies diversity moderate to lly w/o presence of rare
	or deduct points for coverage	high	A predominance of native spe	
	Extensive >75% cove  Moderate 25-75% cove  Sparse 5-25% cover	ver (-3) (-1)		ity and often, but not always,
	Nearly absent <5% co	, ,		
	Absent (1) 6d. Microtopography	Muotiat :	Absent <0.1ha (0.247 acres)	-
	Score all present using 0 to 3 so		Low 0.1 to <1ha (0.247 to 2.47	7 acres)
	Vegetated hummucks		Moderate 1 to <4ha (2.47 to 9	
	O Coarse woody debris		High 4ha (9.88 acres) or more	and the second s
	Standing dead >25cm O Amphibian breeding p	n (10in) dbh	ography Cover Scale	
		0	Absent	
		1	Present very small amounts o of marginal quality	
		2	Present in moderate amounts quality or in small amounts of	
		3	Present in moderate or greate and of highest quality	er amounts

End of Quantitative Rating. Complete Categorization Worksheets.

Site: AP-Pos	5 Ginger		Rater(s): 人し	V	Date: 8/1 201	1
2 7	Metric 1.	Wetland A	rea (size).	W003-	PEM-CATI	
	Select one size o	class and assign sco	re.			
		res (>20.2ha) (6 pts				
		50 acres (10.1 to <2 25 acres (4 to <10.1				
		0 acres (1.2 to <4ha				
		<3 acres (0.12 to <1 <0.3 acres (0.04 to <				
	<0.1 a	cres (0.04ha) (0 pts)	)			
3 5	Metric 2.	Upland bu	ıffers and sı	ırroundii	ng land use.	
max 14 pts subtotal 2			Select only one and as Im (164ft) or more arou			
			25m to <50m (82 to <			
			e 10m to <25m (32ft)			
2			average <10m (<32ft)  . Select one or double			
	VERY	LOW. 2nd growth o	r older forest, prairie,	savannah, wildlii	e area, etc. (7)	
			), shrub land, young sidential, fenced past		rest. (5) vation tillage, new fallow field. (3)	
			pen pasture, row crop			
18,5 23,5	Metric 3.	Hydrology	/-			
	la Sources of V	Vater. Score all that	apply	3h (	connectivity. Score all that apply.	
Mexica plan		H groundwater (5)	арріу	30, 0	100 year floodplain (1)	
		groundwater (3)			Between stream/lake and other human use	
		tation (1) nal/Intermittent surfa	ce water (3)		Part of wetland/upland (e.g. forest), complete Part of riparian or upland corridor (1)	iex (1)
	Perenr	ial surface water (la	ke or stream) (5)		uration inundation/saturation. Score one or dbl	
3		ater depth.  Select or 27.6in) (3)	nly one and assign sco	ore.	Semi- to permanently inundated/saturated Regularly inundated/saturated (3)	1 (4)
		0.7m (15.7 to 27.6in)	) (2)		Seasonally inundated (2)	
2		(<15.7in) (1)	ic regime. Score one	ar dauble abaak	Seasonally saturated in upper 30cm (12in)	) (1)
3	-	or none apparent (12			and average.	
	Recove	ered (7)	ditch	Ces observed	point source (nonstormwater)	
		ering (3)	tile	1.3	filling/grading	
	Recen	or no recovery (1)	dike		road bed/RR track dredging	
			stormwater in	iput [	other	
5 285	Metric 4.	Habitat Al	teration and	Develop	oment.	
	a Substrate dis	turbanca Score on	ne or double check and	d average		
4		r none apparent (4)		average.		
		ered (3)				
		ering (2) or no recovery (1)				
4	<ul> <li>b. Habitat deve</li> </ul>	lopment. Select only	y one and assign scor	e.		
	L Excelle	, ,				
	Good (	5)				
	Modera Fair (3)	ately good (4)				
	Poor to					
	Poor (1		atture tracks and the	X		
4			double check and ave			
		r none apparent (9) ered (6)	Check all disturban	ces observed	shrub/sapling removal	
	Recove	ering (3)	grazing		herbaceous/aquatic bed removal	
	Recent	or no recovery (1)	clearcutting selective cutt	ing	sedimentation dredging	
70 =			woody debris		farming	
subtotal this page			toxic pollutan		nutrient enrichment	
			Toxic political	L	The state of the s	

Site: AEP	-Ross Ginger	Rater(s): K	V	Date: 8     2017
Z8	3.5		W003-PEM-C	AT/
0 28	Metric 5. Speci	al Wetlands.		
max 10 pts. subt	Check all that apply and score Bog (10) Fen (10) Old growth forest (1 Mature forested we Lake Erie coastal/tr Lake Plain Sand Pr Relict Wet Prairies Known occurrence Significant migrator Category 1 Wetland	tland (5) ibutary wetland-unrestricter ibutary wetland-restricted h airies (Oak Openings) (10) (10) state/federal threatened or y songbird/water fowl habit d. See Question 1 Qualitati	endangered species (10) at or usage (10) ive Rating (-10)	
			interspersion, m	
max 20 pts. subt	ou. Trouding regulation com		tion Community Cover Scale	
	Score all present using 0 to 3  Aquatic bed Emergent	scale. 0	Present and either com vegetation and is of m	0.1ha (0.2471 acres) contiguous area prises small part of wetland's moderate quality, or comprises a
	Shrub Forest Mudflats Open water	2		prises significant part of wetland's noderate quality or comprises a small
	Other6b. horizontal (plan view) Inte	erspersion.		significant part, or more, of wetland's
	Select only one.	814	Book of the Law Contract	O. willer
	High (5)		ve Description of Vegetation	or predominance of nonnative or
	Moderately high(4) Moderate (3)	lo	disturbance tolerant	
	Moderate (3) Moderately low (2) Low (1) None (0) 6c. Coverage of invasive plar to Table 1 ORAM long form for		Native spp are dominar although nonnative a can also be present, a	nt component of the vegetation, and/or disturbance tolerant native spp and species diversity moderate to generally w/o presence of rare
	or deduct points for coverage  Extensive >75% co  Moderate 25-75% cove	ver (-5) cover (-3) er (-1)	and/or disturbance to absent, and high spp	ve species, with nonnative spp lerant native spp absent or virtually diversity and often, but not always, threatened, or endangered spp
	Nearly absent <5%		t and Ones Mater Class Out	lière
	Absent (1) 6d. Microtopography	Mudiia	Absent <0.1ha (0.247	
	Score all present using 0 to 3			
	Vegetated hummuc			
	Coarse woody debr			
	Standing dead >250 Amphibian breeding	cm (10in) dbh	opography Cover Scale	
		C		
		1	of marginal quality	ounts or if more common
0/0		2	quality or in small am	nounts, but not of highest ounts of highest quality
-vueopry 1		3	Present in moderate or and of highest quality	_

End of Quantitative Rating. Complete Categorization Worksheets.

grazing

clearcutting

selective cutting

woody debris removal toxic pollutants

herbaceous/aquatic bed removal

sedimentation

nutrient enrichment

dredging farming

subtotal this page

last revised 1 February 2001 jjm

Recovering (3)

Recent or no recovery (1)

Site: AP	hoss Ginger	Rater(s): KLV	Date: 8/1/2017
2.0		PEM-CATI	
0 20	Metric 5. Special \	Netlands.	
max 10 pts. subto	Check all that apply and score as in Bog (10) Fen (10) Old growth forest (10) Mature forested wetland Lake Erie coastal/tributan Lake Erie coastal/tributan Lake Plain Sand Prairies Relict Wet Prairies (10) Known occurrence state/ Significant migratory son Category 1 Wetland. Se	(5)  ny wetland-unrestricted hydrology wetland-restricted hydrology (0ak Openings) (10)  federal threatened or endagbird/water fowl habitat or e Question 1 Qualitative R	ingered species (10) usage (10)
2 28			
max 20 pts. subto	ou. Trouding regulation committee		Community Cover Scale
	Score all present using 0 to 3 scale  Aquatic bed Emergent	o01	Absent or comprises <0.1ha (0.2471 acres) contiguous area  Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a
	0 Shrub		significant part but is of low quality
	Forest Mudflats Open water	2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
	Other6b. horizontal (plan view) Interspet	rsion.	Present and comprises significant part, or more, of wetland's vegetation and is of high quality
	Select only one.		Contract of the Contract of th
	High (5)		escription of Vegetation Quality
	Moderately high(4) Moderate (3)	low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
	Moderate (3)  Moderately low (2)  Low (1)  None (0)  6c. Coverage of invasive plants. F	mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare
	to Table 1 ORAM long form for list.		threatened or endangered spp
	or deduct points for coverage  Extensive >75% cover (-  Moderate 25-75% cover  Sparse 5-25% cover (-1)	high (-3)	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp
	Nearly absent <5% cove		
	Absent (1)		Open Water Class Quality
	6d. Microtopography Score all present using 0 to 3 scale	0	Absent <0.1ha (0.247 acres)  Low 0.1 to <1ha (0.247 to 2.47 acres)
	Vegetated hummucks/tus	_	Moderate 1 to <4ha (2.47 to 9.88 acres)
	Coarse woody debris >1		High 4ha (9.88 acres) or more
	Standing dead >25cm (1	0in) dbh	raphy Cover Scale
		0	Absent
		1	Present very small amounts or if more common of marginal quality
1		2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
ategory 1		3	Present in moderate or greater amounts and of highest quality

End of Quantitative Rating. Complete Categorization Worksheets.

Site: AEP-	Ross Ginger	Rater(s): KUV	Date:8 2 201	17
	Metric 1. Wetlan	d Area (size).	WOOS-PUB-CATMOD2	
max 6 pts. subtota	Select one size class and assig >50 acres (>20.2ha) of 25 to <50 acres (10.1	6 pts)		
	10 to <25 acres (4 to 3 to <10 acres (1.2 to 0.3 to <3 acres (0.12	<10.1ha) (4 pts) <4ha) (3 pts)		
	0.1 to <0.3 acres (0.0 <0.1 acres (0.04ha) (0.1 acres (0.04ha) (0.1 acres (0.04ha)	4 to <0.12ha) (1 pt)	ounding land use	
3 4				
max 14 pts subtota	WIDE. Buffers averal MEDIUM. Buffers av. NARROW. Buffers av. VERY NARROW. Bu 2b. Intensity of surrounding lan VERY LOW. 2nd gro LOW. Old field (>10 MODERATELY HIGH	ofth. Select only one and assign ge 50m (164ft) or more around we rage 25m to <50m (82 to <164ft) verage 10m to <25m (32ft to <82ffers average <10m (<32ft) arour d use. Select one or double che with or older forest, prairie, savan years), shrub land, young second. Residential, fenced pasture, paial, open pasture, row cropping, i	etland perimeter (7) ) around wetland perimeter (4) ift) around wetland perimeter (1) id wetland perimeter (0) ck and average. nah, wildlife area, etc. (7) growth forest. (5) irk, conservation tillage, new fallow field. (3)	
19 23	Metric 3. Hydrolo	ogy.		
max 30 pts subtota	High pH groundwater Other groundwater (3 Precipitation (1) Seasonal/Intermittent	(5)	3b. Connectivity. Score all that apply.  100 year floodplain (1)  Between stream/lake and other human of Part of wetland/upland (e.g. forest), compart of riparian or upland corridor (1)  3d. Duration inundation/saturation. Score one or constant in the provided in the pr	nplex (1)
	3c. Maximum water depth. Sel >0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to 2 <0.4m (<15.7in) (1) 3e. Modifications to natural hydrox		Semi- to permanently inundated/saturated (3) Regularly inundated/saturated (3) Seasonally inundated (2) Seasonally saturated in upper 30cm (12) Apple check and average.	
	None or none appare Recovered (7) Recovering (3) Recent or no recover	nt (12) Check all disturbances of ditch tile		
9.5 32	Metric 4. Habitat	Alteration and De	evelopment.	
max 20 pts. subtota	4a. Substrate disturbance. Sco None or none appare Recovered (3) Recovering (2)	ore one or double check and aver nt (4)	age.	
	Ab. Habital development. Sele Excellent (7) Very good (6)			
	Good (5) Moderately good (4) Fair (3) Poor to fair (2)			
	Poor (1) 4c. Habitat alteration. Score or			
32.	None or none appare Recovered (6) 45 Recovering (3) Recent or no recoven	mowing grazing	shrub/sapling removal herbaceous/aquatic bed removal sedimentation dredging	
subtotal this last revised 1 Febru			+	

Site: AEP-P	1055 Ginger	Rater(s):	KLI	Date: 8 2 2017
32.5 subtotal first p	page		Woo	5-PUB-CATMOD2
0 32.5	Metric 5. Special V	Vetlands.		
max 10 pts. subtotal	Check all that apply and score as in Bog (10) Fen (10) Old growth forest (10) Mature forested wetland Lake Erie coastal/tributar Lake Erie coastal/tributar Lake Plain Sand Prairies Relict Wet Prairies (10) Known occurrence state/ Significant migratory song Category 1 Wetland. See	(5) y wetland-unrestr y wetland-restrict (Oak Openings) federal threatened gbird/water fowl h e Question 1 Qua	ed hydro (10) d or enda abitat or litative R	angered species (10) usage (10) ating (-10)
3 35.5	Metric 6. Plant cor	nmunities	s, int	erspersion, microtopography.
max 20 pts. subtotal	6a. Wetland Vegetation Communiti	ies. Veg	etation	Community Cover Scale
	Score all present using 0 to 3 scale		0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
	Aquatic bed Emergent Shrub		1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
	Forest Mudflats Open water		2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
	Other6b. horizontal (plan view) Intersper	sion	3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality
	Select only one. High (5)	Nar	rative D	escription of Vegetation Quality
	Moderately high(4) Moderate (3)		low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
	Moderately low (2) Low (1) None (0) 6c. Coverage of invasive plants. R to Table 1 ORAM long form for list.	efer Add	mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
	or deduct points for coverage  Extensive >75% cover (-5  Moderate 25-75% cover (-1)		high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp
	Nearly absent <5% cover  Absent (1)		dflat and	Open Water Class Quality
	6d. Microtopography		0	Absent <0.1ha (0.247 acres)
	Score all present using 0 to 3 scale		1	Low 0.1 to <1ha (0.247 to 2.47 acres)
	Vegetated hummucks/tus		2	Moderate 1 to <4ha (2.47 to 9.88 acres)
	Coarse woody debris >15  Standing dead >25cm (10		3	High 4ha (9.88 acres) or more
	Amphibian breeding pools	s Mic	rotopog	raphy Cover Scale
			0	Absent
			1	Present very small amounts or if more common of marginal quality
			2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
25 5-1			3	Present in moderate or greater amounts and of highest quality
35.5				

End of Quantitative Rating. Complete Categorization Worksheets.

Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) Poor (1)

Habitat alteration. Score one or double check and average

	None or none apparent (9)
	Recovered (6)
X	Recovering (3) 2
	Recent or no recovery (1)

Check all disturbances observed	42.2
mowing	shrub/sapling removal .
grazing	herbaceous/aquatic bed removal
clearcutting	sedimentation
selective cutting	dredging
woody debris removal	farming
toxic pollutants	nutrient enrichment

subtotal this page last revised 1 February 2001 jjm

Site: ACP	Boss Ginger	Rater(s): KU	V	Date: 8 3 2017
2 subtotal f		006-PEM-CATI/h	1006 -PUB- CAT	
0 2	Metric 5. Spe	ecial Wetlands.		
max 10 pts. subt	Check all that apply and s Bog (10) Fen (10) Old growth fore Mature forested Lake Erie coast	est (10)		
2 2	Lake Plain Sand Relict Wet Prair Known occurrer Significant migra Category 1 Wet	d Prairies (Oak Openings) (10) ries (10) nce state/federal threatened or e ratory songbird/water fowl habita tland. See Question 1 Qualitativ	endangered species (10) at or usage (10) ve Rating (-10)	nicrotopography.
max 20 pts. subt		Communities Varieties	ion Community Cover Sca	ala.
mox 20 pto.	6a. Wetland Vegetation C Score all present using 0 th Aquatic bed Emergent		Absent or comprises Present and either co	<0.1ha (0.2471 acres) contiguous area omprises small part of wetland's f moderate quality, or comprises a
	O Shrub Forest O Mudflats	- 2	vegetation and is of	mprises significant part of wetland's f moderate quality or comprises a small
	Open water Other 6b. horizontal (plan view)	Interspersion.	part and is of high of Present and comprise vegetation and is o	es significant part, or more, of wetland's
	Select only one. High (5)	Narrativ	ve Description of Vegetation	on Quality
	Moderately high Moderate (3)		Low spp diversity and disturbance toleran	d/or predominance of nonnative or t native species
	Moderately low Low (1) None (0) 6c. Coverage of invasive to Table 1 ORAM long for	plants. Refer	although nonnative can also be presen	ant component of the vegetation, and/or disturbance tolerant native spp t, and species diversity moderate to ut generally w/o presence of rare ngered spp
	or deduct points for covera  Extensive >75%  Moderate 25-75  Sparse 5-25% c	age high 6 cover (-5) 5% cover (-3) cover (-1)	h A predominance of n and/or disturbance absent, and high sp	ative species, with nonnative spp tolerant native spp absent or virtually op diversity and often, but not always, e, threatened, or endangered spp
	Nearly absent < Absent (1)		and Open Water Class Qu	aality
	6d. Microtopography.	0	Absent <0.1ha (0.24	7 acres)
	Score all present using 0 t		Low 0.1 to <1ha (0.2	
	O Vegetated humi		Moderate 1 to <4ha High 4ha (9.88 acres	
		>25cm (10in) dbh	pography Cover Scale	) or more
		0		
	4.	1	of marginal quality	mounts or if more common
C 1	1	2		amounts, but not of highest mounts of highest quality
category		3		or greater amounts

End of Quantitative Rating. Complete Categorization Worksheets.

Site:AP 7	3055 Ginger	Rater(s): KLV	Date: 8 3 2017
,	Metric 1. Wetlar	nd Area (size).	FO-CAT2
		(0.20)	
max 6 pts. subtot	Delegi one olege and dos		
	>50 acres (>20.2ha	) (6 pts) .1 to <20.2ha) (5 pts)	
	10 to <25 acres (4 t		
	3 to <10 acres (1.2		
	0.3 to <3 acres (0.1	2 to <1.2ha) (2pts) .04 to <0.12ha) (1 pt)	
	<0.1 acres (0.04ha)		
	Metric 2. Uplan	d buffers and surrounding	land use.
9 10	)		
nax 14 pts. subtota	2a Calculate average buffer	width. Select only one and assign score. Do not o	double check.
		rage 50m (164ft) or more around wetland perimete	
		verage 25m to <50m (82 to <164ft) around wetlan average 10m to <25m (32ft to <82ft) around wetla	
	VERY NARROW.	Buffers average <10m (<32ft) around wetland pering	meter (0)
		and use. Select one or double check and average rowth or older forest, prairie, savannah, wildlife are	
		years), shrub land, young second growth forest.	
		H. Residential, fenced pasture, park, conservatio	
- 1		strial, open pasture, row cropping, mining, construc	ction. (1)
20 30	Metric 3. Hydro	logy.	
			0
ax 30 pts. subtota	3a. Sources of Water. Score High pH groundwate		ectivity. Score all that apply. 100 year floodplain (1)
	Other groundwater	(3)	Between stream/lake and other human use
	Precipitation (1)		Part of wetland/upland (e.g. forest), complex Part of riparian or upland corridor (1)
	Seasonal/Intermitte Perennial surface w		on inundation/saturation. Score one or dbt
	3c. Maximum water depth. S	elect only one and assign score.	Semi- to permanently inundated/saturated (
	>0.7 (27.6in) (3) 0.4 to 0.7m (15.7 to	27 Sin) (2)	Regularly inundated/saturated (3) Seasonally inundated (2)
	<0.4 to 0.711 (13.7 to	27.011) (2)	Seasonally saturated in upper 30cm (12in) (
		drologic regime. Score one or double check and	
	None or none appar		
	Recovered (7) Recovering (3)	ditch	point source (nonstormwater) filling/grading
	Recent or no recove	ery (1) dike	road bed/RR track
			dredging
	7	stormwater input	other
4 44	Metric 4. Habita	t Alteration and Developm	ent.
1 11			
ax 20 pts. subtota	4a. Substrate disturbance. Some None or none apparent	core one or double check and average.	
	Recovered (3)	ent (4)	
	Recovering (2)		
	Ab Habitat development Se	ery (1) lect only one and assign score.	
	Excellent (7)	ect only one and assign acore.	
	Very good (6)		
	Good (5)  Moderately good (4)		
	Fair (3)		
	Poor to fair (2)		
	Poor (1) 4c. Habitat alteration. Score	one or double check and average.	
	None or none appar		
	Recovered (6)	mowing	shrub/sapling removal
	Recovering (3)	grazing	herbaceous/aquatic bed removal
	Recent or no recove	ery (1) clearcutting selective cutting	sedimentation dredging
44		woody debris removal	farming
subtotal this	1990	toxic pollutants	nutrient enrichment
Suuloidi Mis	uary 2001 jjm		

7

Site: AP Ross Ginger	Rater(s): KU	V	Date:8/3/2017		
subtotal first page	Wo	07-PFO-CAT2			
O 44 Metric 5. Spe	cial Wetlands.				
Lake Erie coast Lake Plain Sand Relict Wet Prair Known occurrer Significant migra	st (10) wetland (5) al/tributary wetland-unrestricted al/tributary wetland-restricted hy I Prairies (Oak Openings) (10)	ndangered species (10) t or usage (10)			
	nt communities, i		icrotopography.		
max 20 pts. subtotal 6a. Wetland Vegetation C		on Community Cover Scale			
Score all present using 0 t	o 3 scale. 0		0.1ha (0.2471 acres) contiguous area		
Aquatic bed Emergent Shrub	1		nprises small part of wetland's moderate quality, or comprises a of low quality		
Forest Mudflats Open water	2	Present and either con	nprises significant part of wetland's moderate quality or comprises a small		
Other  6b. horizontal (plan view)	Interspersion.	Present and comprises vegetation and is of I	s significant part, or more, of wetland's nigh quality		
	Select only one.  High (5)  Narrative Description of Vegetation Quality				
High (5) Moderately high			or predominance of nonnative or		
Moderate (3)	(4)	disturbance tolerant			
Moderately low Low (1) None (0) 6c. Coverage of invasive to Table 1 ORAM long for	plants. Refer	although nonnative a can also be present,	nt component of the vegetation, and/or disturbance tolerant native spp and species diversity moderate to generally w/o presence of rare gered spp		
or deduct points for covera  Extensive >75%  Moderate 25-75  Sparse 5-25% c	oge high cover (-5) % cover (-3)	A predominance of nat and/or disturbance to absent, and high spp	ive species, with nonnative spp plerant native spp absent or virtually or diversity and often, but not always, threatened, or endangered spp		
Nearly absent <		10	114.		
Absent (1) 6d. Microtopography	Mudilat	Absent <0.1ha (0.247			
Score all present using 0 t		Low 0.1 to <1ha (0.24)			
U Vegetated humr		Moderate 1 to <4ha (2			
	ebris >15cm (6in) 3 25cm (10in) dbh	High 4ha (9.88 acres)	or more		
Amphibian bree		ography Cover Scale			
-	0	Absent			
	-	of marginal quality	ounts or if more common		
	2		mounts, but not of highest nounts of highest quality		
alegory 2	3	4	r greater amounts		

End of Quantitative Rating. Complete Categorization Worksheets.

# APPENDIX E ODNR and USFWS Correspondence



Office of Real Estate Paul R. Baldridge, Chief 2045 Morse Road – Bldg. E-2 Columbus, OH 43229

> Phone: (614) 265-6649 Fax: (614) 267-4764

August 25, 2017

Allison Wheaton GAI Consultants 3720 Dressler Road NW Canton, Ohio 44718

Re: 17-403; AEP Ginger-Ross 138kV Line Rebuild Project

**Project:** The proposed Project involves the rebuild of approximately six miles of the existing Ginger – Ross transmission line, upgrading from a 69kV line to a 138kV line.

**Location:** The proposed project is located in Springfield, Harrison, Liberty, and Jefferson Townships, Ross County, Ohio.

The Ohio Department of Natural Resources (ODNR) has completed a review of the above referenced project. These comments were generated by an inter-disciplinary review within the Department. These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), the National Environmental Policy Act, the Coastal Zone Management Act, Ohio Revised Code and other applicable laws and regulations. These comments are also based on ODNR's experience as the state natural resource management agency and do not supersede or replace the regulatory authority of any local, state or federal agency nor relieve the applicant of the obligation to comply with any local, state or federal laws or regulations.

**Natural Heritage Database:** The Natural Heritage Database has the following records at or within a one-mile radius of the project area:

Elliott's bent grass (Agrostis elliottiana), E
Pale umbrella-sedge (Cyperus acuminatus), P
Burhead (Echinodorus berteroi), P
Small fringed gentian (Gentianopsis procera), P
Cobblestone tiger beetle (Cicindela marginipennis), T, FSC
Plains clubtail (Gomphus externus), E
Tippecanoe darter (Etheostoma tippecanoe), T
Bald eagle (Haliaeetus leucocephalus), FSC
Ross Lake Wildlife Area – ODNR Division of Wildlife
Great Seal State Park – ODNR Division of Parks & Watercraft

The review was performed on the project area you specified in your request as well as an additional one-mile radius. Records searched date from 1980. This information is provided to inform you of features present within your project area and vicinity

Please note that Ohio has not been completely surveyed and we rely on receiving information from many sources. Therefore, a lack of records for any particular area is not a statement that rare species or unique features are absent from that area. Although all types of plant communities have been surveyed, we only maintain records on the highest quality areas.

Statuses are defined as: E = state endangered; T = state threatened; P = state potentially threatened; SC = state species of concern; SI = state special interest; A = species recently added to state inventory, status not yet determined; X = presumed extirpated in Ohio; FE = federal endangered, FT = federal threatened, FSC = federal species of concern, FC = federal candidate species.

**Fish and Wildlife:** The Division of Wildlife (DOW) has the following comments.

The DOW recommends that impacts to streams, wetlands and other water resources be avoided and minimized to the fullest extent possible, and that best management practices be utilized to minimize erosion and sedimentation.

The project route crosses the southwestern corner of Ross Lake Wildlife Area, owned and managed by the Division of Wildlife. If access to the wildlife area outside of the existing easement is necessary, please contact John Sambuco, Federal Lands Coordinator at <a href="mailto:john.sambuco@dnr.state.oh.us">john.sambuco@dnr.state.oh.us</a> or 614-265-6613. Please coordinate any access to the wildlife area with the Wildlife Area Manager, John Jenkins at 740-682-7524.

The project is within the range of the Indiana bat (Myotis sodalis), a state endangered and federally endangered species. The following species of trees have relatively high value as potential Indiana bat roost trees to include: shagbark hickory (Carya ovata), shellbark hickory (Carya laciniosa), bitternut hickory (Carya cordiformis), black ash (Fraxinus nigra), green ash (Fraxinus pennsylvanica), white ash (Fraxinus americana), shingle oak (Quercus imbricaria), northern red oak (Quercus rubra), slippery elm (Ulmus rubra), American elm (Ulmus americana), eastern cottonwood (Populus deltoides), silver maple (Acer saccharinum), sassafras (Sassafras albidum), post oak (Quercus stellata), and white oak (Quercus alba). Indiana bat roost trees consists of trees that include dead and dying trees with exfoliating bark, crevices, or cavities in upland areas or riparian corridors and living trees with exfoliating bark, cavities, or hollow areas formed from broken branches or tops. However, Indiana bats are also dependent on the forest structure surrounding roost trees. If suitable habitat occurs within the project area, the DOW recommends trees be conserved. If suitable habitat occurs within the project area and trees must be cut, the DOW recommends cutting occur between October 1 and March 31. If suitable trees must be cut during the summer months, the DOW recommends a net survey be conducted between June 1 and August 15, prior to any cutting. Net surveys should incorporate either nine net nights per square 0.5 kilometer of project area, or four net nights per kilometer for linear projects. If no tree removal is proposed, this project is not likely to impact this species.

The project is within the range of the snuffbox (*Epioblasma triquetra*), a state endangered and federally endangered mussel, the sheepnose (*Plethobasus cyphyus*), a state endangered and federally endangered mussel, the clubshell (*Pleurobema clava*), a state endangered and federally endangered mussel, the fanshell (*Cyprogenia stegaria*), a state endangered and federally endangered mussel, the northern riffleshell (*Epioblasma torulosa rangiana*), a state endangered and federally endangered mussel, the rayed bean (*Villosa fabalis*), a state endangered and federally endangered mussel, the rabbitsfoot (*Quadrula cylindrica cylindrica*), a state endangered and federal candidate mussel, the long-solid (*Fusconaia maculata maculata*), a state endangered mussel, the sharp-ridged pocketbook (*Lampsilis ovata*), a state endangered mussel, the little spectaclecase (*Villosa lienosa*), a state endangered mussel, the black sandshell (*Ligumia recta*), a

state threatened mussel, the fawnsfoot (*Truncilla donaciformis*), a state threatened mussel, and the threehorn wartyback (*Obliquaria reflexa*), a state threatened mussel.

This project must not have an impact on freshwater native mussels at the project site. This applies to both listed and non-listed species. Per the Ohio Mussel Survey Protocol (2016), all Group 2, 3, and 4 streams (Appendix A) require a mussel survey. Per the Ohio Mussel Survey Protocol, Group 1 streams (Appendix A) and unlisted streams with a watershed of 10 square miles or larger above the point of impact should be assessed using the Reconnaissance Survey for Unionid Mussels (Appendix B) to determine if mussels are present. Mussel surveys may be recommended for these streams as well. This is further explained within the Ohio Mussel Survey Protocol. Therefore, if in-water work is planned in any stream that meets any of the above criteria, the DOW recommends the applicant provide information to indicate no mussel impacts will occur. If this is not possible, the DOW recommends a professional malacologist conduct a mussel survey in the project area. If mussels that cannot be avoided are found in the project area, as a last resort, the DOW recommends a professional malacologist collect and relocate the mussels to suitable and similar habitat upstream of the project site. Mussel surveys and any subsequent mussel relocation should be done in accordance with the Ohio Mussel Survey Protocol. The Ohio Mussel Survey Protocol (2016) can be found at:

 $\frac{http://wildlife.ohiodnr.gov/portals/wildlife/pdfs/licenses\%20\&\%20permits/OH\%20Mussel\%20Survey\%20Protocol.pdf}{}$ 

The project is within the range of the Ohio lamprey (*Ichthyomyzon bdellium*), a state endangered fish, the shovelnose sturgeon (*Scaphirhynchus platorynchus*), a state endangered fish, the blue sucker (*Cycleptus elongatus*), a state endangered fish and a Federal species of concern, the spotted darter (*Etheostoma maculatum*), a state endangered fish and a federal species of concern, the shortnose gar (*Lepisosteus platostomus*), a state endangered fish, the northern madtom (*Noturus stigmosus*), a state endangered fish, the Tippecanoe darter (*Etheostoma Tippecanoe*), a state threatened fish, the channel darter (*Percina copelandi*), a state threatened fish, the American eel (*Anguilla rostrata*), a state threatened fish, the river darter (*Percina shumardi*), a state threatened fish, and the lake chubsucker (*Erimyzon sucetta*) a state threatened fish. The DOW recommends no in-water work in perennial streams from April 15 through June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed in a perennial stream, this project is not likely to impact these or other aquatic species.

The project is within the range of the timber rattlesnake (*Crotalus horridus horridus*), a state endangered species, and a federal species of concern. The timber rattlesnake is a woodland species. In addition to using wooded areas, the timber rattlesnake also utilizes sunlit gaps in the canopy for basking and deep rock crevices known as den sites for overwintering. Due to the location, this project is not likely to impact this species.

The project is within the range of the eastern hellbender (*Cryptobranchus alleganiensis* alleganiensis), a state endangered species and a federal species of concern. Due to the location, the type of habitat present at the project site, this project is not likely to impact this species.

The project is within the range of the black bear (*Ursus americanus*), a state endangered species. Due to the mobility of this species, this project is not likely to impact this species.

Due to the potential of impacts to federally listed species, as well as to state listed species, we recommend that this project be coordinated with the U.S. Fish & Wildlife Service.

Water Resources: The Division of Water Resources has the following comment.

The local floodplain administrator should be contacted concerning the possible need for any floodplain permits or approvals for this project. Your local floodplain administrator contact information can be found at the website below.

http://water.ohiodnr.gov/portals/soilwater/pdf/floodplain/Floodplain%20Manager%20Community%20Contact%20List\_8\_16.pdf

ODNR appreciates the opportunity to provide these comments. Please contact John Kessler at (614) 265-6621 if you have questions about these comments or need additional information.

John Kessler ODNR Office of Real Estate 2045 Morse Road, Building E-2 Columbus, Ohio 43229-6693 John.Kessler@dnr.state.oh.us



May 16, 2017 Project C170352.10

Environmental Review Staff
Ohio Department of Natural Resources
Division of Wildlife - Ohio Natural Heritage Program
2045 Morse Road, Building G-3
Columbus, Ohio 43229-6693

American Electric Power
Ginger – Ross 138kV Line Rebuild Project
Request for Technical Assistance Regarding Threatened
and Endangered Species and Critical Habitat
Ross County, Ohio

#### Dear Staff:

GAI Consultants, Inc. (GAI), on behalf of American Electric Power (AEP), is requesting information regarding state- and federally-listed threatened and endangered species in the vicinity of the Ginger – Ross 138kV Line Rebuild Project (Project) in Ross County, Ohio. As part of this request, please provide information specific to any threatened and endangered bats. GAI is also requesting the locations of any known golden or bald eagle nests in the area.

The proposed Project involves the rebuild of approximately six miles of the existing Ginger – Ross transmission line, upgrading from a 69kV line to a 138kV line.

The study area for the Project is shown on the attached map (Figure 1). The habitat within the study area consists of maintained right-of-way with bordering agricultural land, mixed deciduous forests, and residential properties. Project shapefiles have been included to aid in your review.

GAI and AEP thank you in advance for your assistance. Please contact me at 330.324.9148 or via email at a.wheaton@gaiconsultants.com if you have any questions or require further information.

Sincerely,

GAI Consultants, Inc.

Allison R. Wheaton, WPIT

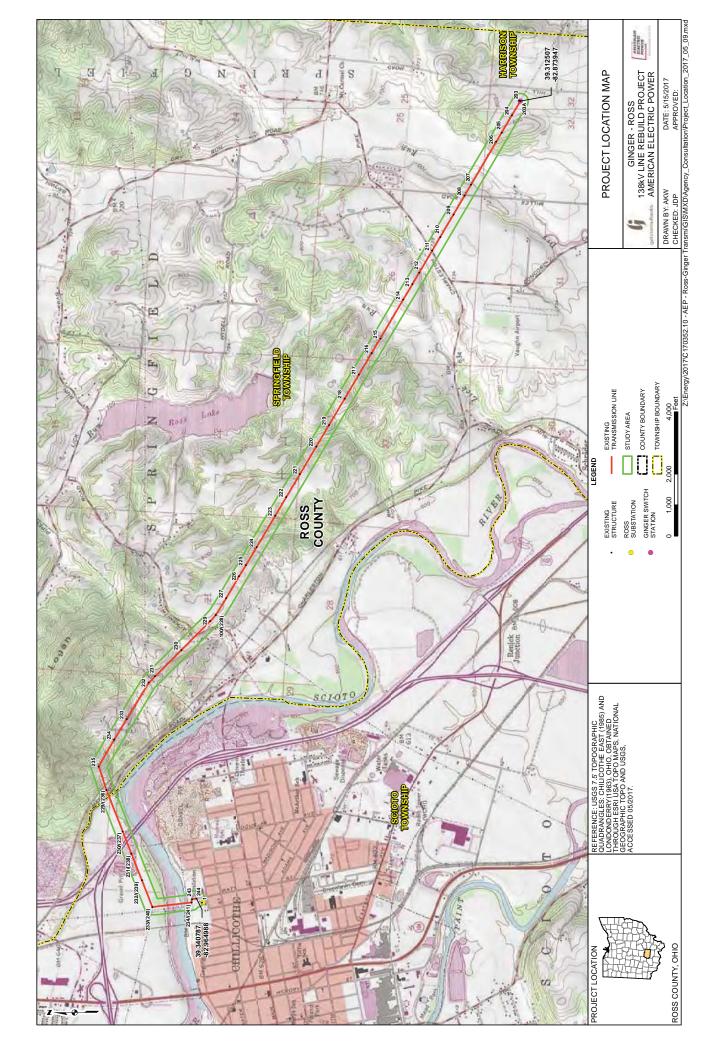
Senior Project Environmental Specialist

ARW/kea

Attachments: Attachment 1 (Project Location Map)

**Project Shapefiles** 

### ATTACHMENT 1 PROJECT LOCATION MAP



From: Finfera, Jennifer

To: Allison Wheaton

Subject: AEP Ginger-Ross 138 kV Line rebuild Project Date: Monday, June 05, 2017 3:51:12 PM

TAILS: 03E15000-2017-TA-1332

Dear Ms. Wheaton:

This is in response to your May 16, 2017 email letter requesting information on threatened and endangered species within the vicinity of the proposed AEP Ginger-Ross 138 kV line rebuild project. There are no Federal wildlife refuges, wilderness areas, or Critical Habitat within the vicinity of this site. The following comments and recommendations will assist you in fulfilling the requirements for consultation under section 7 of the Endangered Species Act of 1973, as amended (ESA).

The U.S. Fish and Wildlife Service (Service) recommends that proposed developments avoid and minimize water quality impacts and impacts to high quality fish and wildlife habitat (e.g., forests, streams, wetlands). Additionally, natural buffers around streams and wetlands should be preserved to enhance beneficial functions. If streams or wetlands will be impacted, the Corps of Engineers should be contacted to determine whether a Clean Water Act section 404 permit is required. Best management practices should be used to minimize erosion, especially on slopes. All disturbed areas should be mulched and revegetated with native plant species. Prevention of non-native, invasive plant establishment is critical in maintaining high quality habitats.

MIGRATORY BIRD COMMENTS: The project lies within the range of the **bald eagle** (*Haliaeetus leucocephalus*). Bald eagles are protected under the Migratory Bird Treaty Act (16 U.S.C. 703-712; MBTA), and are afforded additional legal protection under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d, BGEPA).

Our database of nest locations may not be complete because new nests are built each year. We have information on two nests documented along the Scioto River. Both of these nests are located further than half a mile from the project area. Due to the project type and location, this species would not be expected within the project area, and no impact to this species is expected. Relative to this species, this precludes the need for further action on this project as required by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act.

FEDERALLY LISTED SPECIES COMMENTS: All projects in the State of Ohio lie within the range of the federally endangered **Indiana bat** (*Myotis sodalis*) and the federally threatened **northern long-eared bat** (*Myotis septentrionalis*). In Ohio, presence of the Indiana bat and northern long-eared bat is assumed wherever suitable habitat occurs unless a presence/absence survey has been performed to document absence. Suitable summer habitat for Indiana bats and northern long-eared bats consists of a wide variety of forested/wooded habitats where

they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags =3 inches diameter at breast height (dbh) that have any exfoliating bark, cracks, crevices, hollows and/or cavities), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet (305 meters) of other forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat. In the winter, Indiana bats and northern long-eared bats hibernate in caves and abandoned mines.

Should the proposed site contain trees =3 inches dbh, we recommend that trees be saved wherever possible. If any caves or abandoned mines may be disturbed, further coordination with this office is requested to determine if fall or spring portal surveys are warranted. If no caves or abandoned mines are present and trees =3 inches dbh cannot be avoided, we recommend that removal of any trees =3 inches dbh only occur between October 1 and March 31. Seasonal clearing is being recommended to avoid adverse effects to Indiana bats and northern long-eared bats. While incidental take of northern long-eared bats from most tree clearing is exempted by a 4(d) rule (see

http://www.fws.gov/midwest/endangered/mammals/nleb/index.html), incidental take of Indiana bats is still prohibited without a project-specific exemption. Thus, seasonal clearing is recommended where Indiana bats are assumed present.

If implementation of this seasonal tree cutting recommendation is not possible, summer surveys may be conducted to document the presence or probable absence of Indiana bats within the project area during the summer. If a summer survey documents probable absence of Indiana bats, the 4(d) rule for the northern long-eared bat could be applied. Surveys must be conducted by an approved surveyor and be designed and conducted in coordination with the Endangered Species Coordinator for this office. Surveyors must have a valid federal permit. Please note that summer surveys may only be conducted between June 1 and August 15.

The proposed project lies within the range of the **rayed bean** (*Villosa fabalis*), **clubshell** (*Pleurobema clava*), and **northern riffleshell** (*Epioblasma torulosa rangiana*), federally listed endangered species. Potential habitat for these species is located in the Scioto River which the proposed project will cross. **If any activity is expected to occur within the Scioto River, then a mussel survey is recommended.** 

The Service recommends that impacts to the Scioto River be avoided and vegetative buffers surrounding this stream be preserved. Buffers of native vegetation surrounding

aquatic systems are important in preserving their wildlife-habitat and water quality-enhancement properties. We recommend that best construction techniques be used to minimize erosion. Prevention of non-native, invasive plant establishment is critical in maintaining quality habitats. All disturbed areas should be mulched and re-vegetated with native plants. Implementation of best management practices should occur to minimize siltation during and after construction.

Due to the project type, size, and location, we do not anticipate adverse effects to any other federally endangered, threatened, proposed, or candidate species. Should the project design change, or during the term of this action, additional information on listed or proposed species or their critical habitat become available, or if new information reveals effects of the action that were not previously considered, consultation with the Service should be initiated to assess any potential impacts.

These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), the Endangered Species Act of 1973, as amended, and are consistent with the intent of the National Environmental Policy Act of 1969 and the U.S. Fish and Wildlife Service's Mitigation Policy. Please note that consultation under section 7 of the ESA may be warranted for this project if suitable habitat for federally listed species may be impacted by this project. This letter provides technical assistance only and does not serve as a completed section 7 consultation document.

If you have any questions regarding our response or if you need additional information, please contact me.

--

Jenny Finfera Wildlife Biologist Ecological Services 4625 Morse Road, Suite 104 Columbus, Ohio 43230

Phone: 614-416-8993 ext.13

Fax: 614-416-8994



May 16, 2017 Project C170352.10

Mr. Dan Everson United States Fish and Wildlife Service Ohio Ecological Services Field Office 4625 Morse Road, Suite 104 Columbus, Ohio 43230

American Electric Power
Ginger – Ross 138kV Line Rebuild Project
Request for Technical Assistance Regarding Threatened
and Endangered Species and Critical Habitat
Ross County, Ohio

Dear Mr. Everson:

GAI Consultants, Inc. (GAI), on behalf of American Electric Power (AEP), is requesting information regarding state- and federally-listed threatened and endangered species in the vicinity of the Ginger – Ross 138kV Line Rebuild Project (Project) in Ross County, Ohio. As part of this request, please provide information specific to any threatened and endangered bats. GAI is also requesting the locations of any known golden or bald eagle nests in the area.

The proposed Project involves the rebuild of approximately six miles of the existing Ginger – Ross transmission line, upgrading from a 69kV line to a 138kV line.

The study area for the Project is shown on the attached map (Figure 1). The habitat within the study area consists of maintained right-of-way with bordering agricultural land, mixed deciduous forests, and residential properties. Project shapefiles have been included to aid in your review.

GAI and AEP thank you in advance for your assistance. Please contact me at 330.324.9148 or via email at a.wheaton@gaiconsultants.com if you have any questions or require further information.

Sincerely,

GAI Consultants, Inc.

Allison R. Wheaton, WPIT

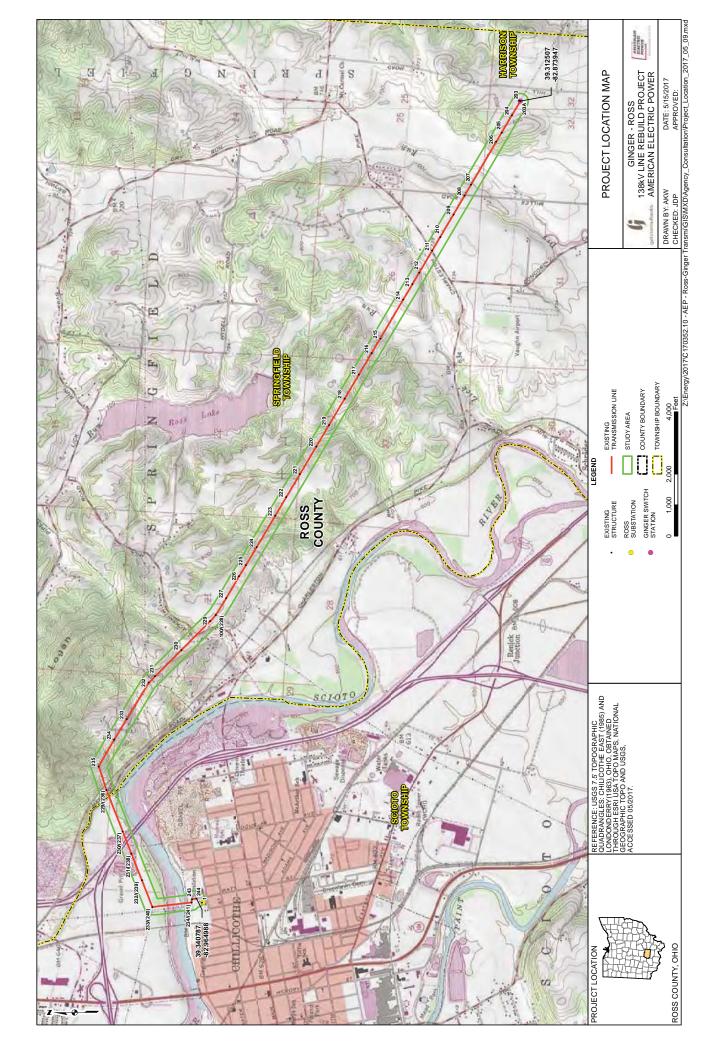
Senior Project Environmental Specialist

ARW/kea

Attachments: Attachment 1 (Project Location Map)

**Project Shapefiles** 

# ATTACHMENT 1 PROJECT LOCATION MAP



Office of Real Estate
Paul R. Baldridge, Chief
2045 Morse Road – Bldg. E-2
Columbus, OH 43229
Phone: (614) 265-6649
Fax: (614) 267-4764

August 25, 2017

Allison Wheaton GAI Consultants 3720 Dressler Road NW Canton, Ohio 44718

Re: 17-403; AEP Ginger-Ross 138kV Line Rebuild Project

**Project:** The proposed Project involves the rebuild of approximately six miles of the existing Ginger – Ross transmission line, upgrading from a 69kV line to a 138kV line.

**Location:** The proposed project is located in Springfield, Harrison, Liberty, and Jefferson Townships, Ross County, Ohio.

The Ohio Department of Natural Resources (ODNR) has completed a review of the above referenced project. These comments were generated by an inter-disciplinary review within the Department. These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), the National Environmental Policy Act, the Coastal Zone Management Act, Ohio Revised Code and other applicable laws and regulations. These comments are also based on ODNR's experience as the state natural resource management agency and do not supersede or replace the regulatory authority of any local, state or federal agency nor relieve the applicant of the obligation to comply with any local, state or federal laws or regulations.

**Natural Heritage Database:** The Natural Heritage Database has the following records at or within a one-mile radius of the project area:

Elliott's bent grass (Agrostis elliottiana), E
Pale umbrella-sedge (Cyperus acuminatus), P
Burhead (Echinodorus berteroi), P
Small fringed gentian (Gentianopsis procera), P
Cobblestone tiger beetle (Cicindela marginipennis), T, FSC
Plains clubtail (Gomphus externus), E
Tippecanoe darter (Etheostoma tippecanoe), T
Bald eagle (Haliaeetus leucocephalus), FSC
Ross Lake Wildlife Area – ODNR Division of Wildlife
Great Seal State Park – ODNR Division of Parks & Watercraft

The review was performed on the project area you specified in your request as well as an additional one-mile radius. Records searched date from 1980. This information is provided to inform you of features present within your project area and vicinity

Please note that Ohio has not been completely surveyed and we rely on receiving information from many sources. Therefore, a lack of records for any particular area is not a statement that rare species or unique features are absent from that area. Although all types of plant communities have been surveyed, we only maintain records on the highest quality areas.

Statuses are defined as: E = state endangered; T = state threatened; P = state potentially threatened; SC = state species of concern; SI = state special interest; A = species recently added to state inventory, status not yet determined; X = presumed extirpated in Ohio; FE = federal endangered, FT = federal threatened, FSC = federal species of concern, FC = federal candidate species.

**Fish and Wildlife:** The Division of Wildlife (DOW) has the following comments.

The DOW recommends that impacts to streams, wetlands and other water resources be avoided and minimized to the fullest extent possible, and that best management practices be utilized to minimize erosion and sedimentation.

The project route crosses the southwestern corner of Ross Lake Wildlife Area, owned and managed by the Division of Wildlife. If access to the wildlife area outside of the existing easement is necessary, please contact John Sambuco, Federal Lands Coordinator at <a href="mailto:john.sambuco@dnr.state.oh.us">john.sambuco@dnr.state.oh.us</a> or 614-265-6613. Please coordinate any access to the wildlife area with the Wildlife Area Manager, John Jenkins at 740-682-7524.

The project is within the range of the Indiana bat (Myotis sodalis), a state endangered and federally endangered species. The following species of trees have relatively high value as potential Indiana bat roost trees to include: shagbark hickory (Carya ovata), shellbark hickory (Carya laciniosa), bitternut hickory (Carya cordiformis), black ash (Fraxinus nigra), green ash (Fraxinus pennsylvanica), white ash (Fraxinus americana), shingle oak (Quercus imbricaria), northern red oak (Quercus rubra), slippery elm (Ulmus rubra), American elm (Ulmus americana), eastern cottonwood (Populus deltoides), silver maple (Acer saccharinum), sassafras (Sassafras albidum), post oak (Quercus stellata), and white oak (Quercus alba). Indiana bat roost trees consists of trees that include dead and dying trees with exfoliating bark, crevices, or cavities in upland areas or riparian corridors and living trees with exfoliating bark, cavities, or hollow areas formed from broken branches or tops. However, Indiana bats are also dependent on the forest structure surrounding roost trees. If suitable habitat occurs within the project area, the DOW recommends trees be conserved. If suitable habitat occurs within the project area and trees must be cut, the DOW recommends cutting occur between October 1 and March 31. If suitable trees must be cut during the summer months, the DOW recommends a net survey be conducted between June 1 and August 15, prior to any cutting. Net surveys should incorporate either nine net nights per square 0.5 kilometer of project area, or four net nights per kilometer for linear projects. If no tree removal is proposed, this project is not likely to impact this species.

The project is within the range of the snuffbox (*Epioblasma triquetra*), a state endangered and federally endangered mussel, the sheepnose (*Plethobasus cyphyus*), a state endangered and federally endangered mussel, the clubshell (*Pleurobema clava*), a state endangered and federally endangered mussel, the fanshell (*Cyprogenia stegaria*), a state endangered and federally endangered mussel, the northern riffleshell (*Epioblasma torulosa rangiana*), a state endangered and federally endangered mussel, the rayed bean (*Villosa fabalis*), a state endangered and federally endangered mussel, the rabbitsfoot (*Quadrula cylindrica cylindrica*), a state endangered and federal candidate mussel, the long-solid (*Fusconaia maculata maculata*), a state endangered mussel, the sharp-ridged pocketbook (*Lampsilis ovata*), a state endangered mussel, the little spectaclecase (*Villosa lienosa*), a state endangered mussel, the black sandshell (*Ligumia recta*), a

state threatened mussel, the fawnsfoot (*Truncilla donaciformis*), a state threatened mussel, and the threehorn wartyback (*Obliquaria reflexa*), a state threatened mussel.

This project must not have an impact on freshwater native mussels at the project site. This applies to both listed and non-listed species. Per the Ohio Mussel Survey Protocol (2016), all Group 2, 3, and 4 streams (Appendix A) require a mussel survey. Per the Ohio Mussel Survey Protocol, Group 1 streams (Appendix A) and unlisted streams with a watershed of 10 square miles or larger above the point of impact should be assessed using the Reconnaissance Survey for Unionid Mussels (Appendix B) to determine if mussels are present. Mussel surveys may be recommended for these streams as well. This is further explained within the Ohio Mussel Survey Protocol. Therefore, if in-water work is planned in any stream that meets any of the above criteria, the DOW recommends the applicant provide information to indicate no mussel impacts will occur. If this is not possible, the DOW recommends a professional malacologist conduct a mussel survey in the project area. If mussels that cannot be avoided are found in the project area, as a last resort, the DOW recommends a professional malacologist collect and relocate the mussels to suitable and similar habitat upstream of the project site. Mussel surveys and any subsequent mussel relocation should be done in accordance with the Ohio Mussel Survey Protocol. The Ohio Mussel Survey Protocol (2016) can be found at:

 $\frac{http://wildlife.ohiodnr.gov/portals/wildlife/pdfs/licenses\%20\&\%20permits/OH\%20Mussel\%20Survey\%20Protocol.pdf}{}$ 

The project is within the range of the Ohio lamprey (*Ichthyomyzon bdellium*), a state endangered fish, the shovelnose sturgeon (*Scaphirhynchus platorynchus*), a state endangered fish, the blue sucker (*Cycleptus elongatus*), a state endangered fish and a Federal species of concern, the spotted darter (*Etheostoma maculatum*), a state endangered fish and a federal species of concern, the shortnose gar (*Lepisosteus platostomus*), a state endangered fish, the northern madtom (*Noturus stigmosus*), a state endangered fish, the Tippecanoe darter (*Etheostoma Tippecanoe*), a state threatened fish, the channel darter (*Percina copelandi*), a state threatened fish, the American eel (*Anguilla rostrata*), a state threatened fish, the river darter (*Percina shumardi*), a state threatened fish, and the lake chubsucker (*Erimyzon sucetta*) a state threatened fish. The DOW recommends no in-water work in perennial streams from April 15 through June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed in a perennial stream, this project is not likely to impact these or other aquatic species.

The project is within the range of the timber rattlesnake (*Crotalus horridus horridus*), a state endangered species, and a federal species of concern. The timber rattlesnake is a woodland species. In addition to using wooded areas, the timber rattlesnake also utilizes sunlit gaps in the canopy for basking and deep rock crevices known as den sites for overwintering. Due to the location, this project is not likely to impact this species.

The project is within the range of the eastern hellbender (*Cryptobranchus alleganiensis alleganiensis*), a state endangered species and a federal species of concern. Due to the location, the type of habitat present at the project site, this project is not likely to impact this species.

The project is within the range of the black bear (*Ursus americanus*), a state endangered species. Due to the mobility of this species, this project is not likely to impact this species.

Due to the potential of impacts to federally listed species, as well as to state listed species, we recommend that this project be coordinated with the U.S. Fish & Wildlife Service.

Water Resources: The Division of Water Resources has the following comment.

The local floodplain administrator should be contacted concerning the possible need for any floodplain permits or approvals for this project. Your local floodplain administrator contact information can be found at the website below.

http://water.ohiodnr.gov/portals/soilwater/pdf/floodplain/Floodplain%20Manager%20Community%20Contact%20List\_8\_16.pdf

ODNR appreciates the opportunity to provide these comments. Please contact John Kessler at (614) 265-6621 if you have questions about these comments or need additional information.

John Kessler ODNR Office of Real Estate 2045 Morse Road, Building E-2 Columbus, Ohio 43229-6693 John.Kessler@dnr.state.oh.us



May 16, 2017 Project C170352.10

Environmental Review Staff
Ohio Department of Natural Resources
Division of Wildlife - Ohio Natural Heritage Program
2045 Morse Road, Building G-3
Columbus, Ohio 43229-6693

American Electric Power
Ginger – Ross 138kV Line Rebuild Project
Request for Technical Assistance Regarding Threatened
and Endangered Species and Critical Habitat
Ross County, Ohio

#### Dear Staff:

GAI Consultants, Inc. (GAI), on behalf of American Electric Power (AEP), is requesting information regarding state- and federally-listed threatened and endangered species in the vicinity of the Ginger – Ross 138kV Line Rebuild Project (Project) in Ross County, Ohio. As part of this request, please provide information specific to any threatened and endangered bats. GAI is also requesting the locations of any known golden or bald eagle nests in the area.

The proposed Project involves the rebuild of approximately six miles of the existing Ginger – Ross transmission line, upgrading from a 69kV line to a 138kV line.

The study area for the Project is shown on the attached map (Figure 1). The habitat within the study area consists of maintained right-of-way with bordering agricultural land, mixed deciduous forests, and residential properties. Project shapefiles have been included to aid in your review.

GAI and AEP thank you in advance for your assistance. Please contact me at 330.324.9148 or via email at a.wheaton@gaiconsultants.com if you have any questions or require further information.

Sincerely,

GAI Consultants, Inc.

Allison R. Wheaton, WPIT

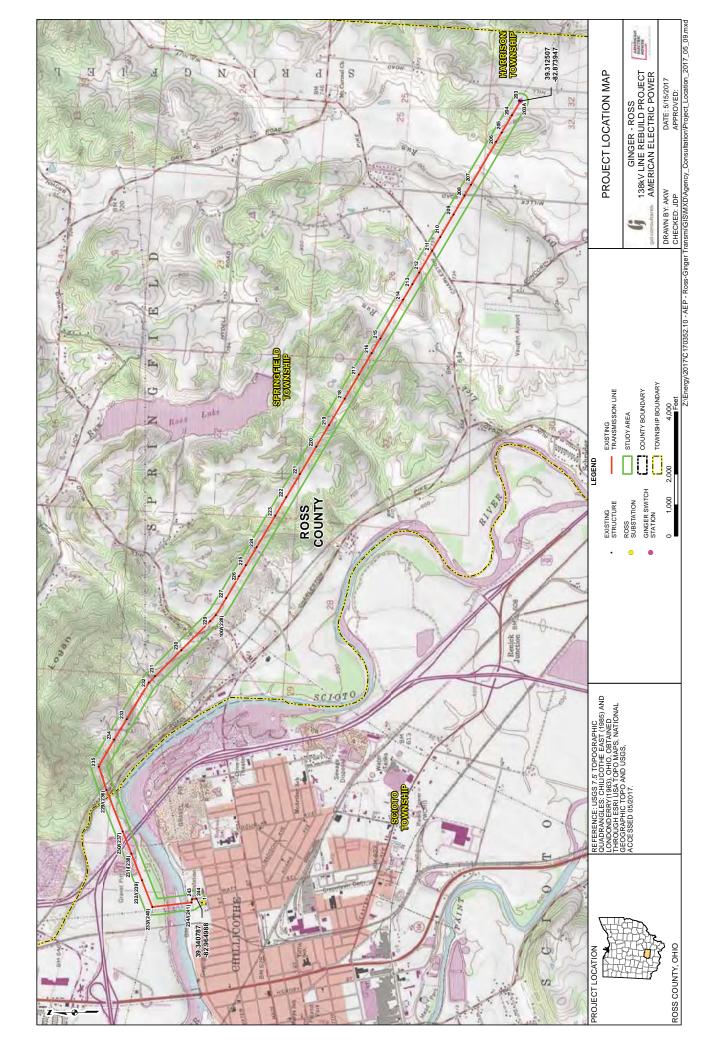
Senior Project Environmental Specialist

ARW/kea

Attachments: Attachment 1 (Project Location Map)

**Project Shapefiles** 

### ATTACHMENT 1 PROJECT LOCATION MAP



From: Finfera, Jennifer

To: Allison Wheaton

Subject: AEP Ginger-Ross 138 kV Line rebuild Project Date: Monday, June 05, 2017 3:51:12 PM

TAILS: 03E15000-2017-TA-1332

Dear Ms. Wheaton:

This is in response to your May 16, 2017 email letter requesting information on threatened and endangered species within the vicinity of the proposed AEP Ginger-Ross 138 kV line rebuild project. There are no Federal wildlife refuges, wilderness areas, or Critical Habitat within the vicinity of this site. The following comments and recommendations will assist you in fulfilling the requirements for consultation under section 7 of the Endangered Species Act of 1973, as amended (ESA).

The U.S. Fish and Wildlife Service (Service) recommends that proposed developments avoid and minimize water quality impacts and impacts to high quality fish and wildlife habitat (e.g., forests, streams, wetlands). Additionally, natural buffers around streams and wetlands should be preserved to enhance beneficial functions. If streams or wetlands will be impacted, the Corps of Engineers should be contacted to determine whether a Clean Water Act section 404 permit is required. Best management practices should be used to minimize erosion, especially on slopes. All disturbed areas should be mulched and revegetated with native plant species. Prevention of non-native, invasive plant establishment is critical in maintaining high quality habitats.

MIGRATORY BIRD COMMENTS: The project lies within the range of the **bald eagle** (*Haliaeetus leucocephalus*). Bald eagles are protected under the Migratory Bird Treaty Act (16 U.S.C. 703-712; MBTA), and are afforded additional legal protection under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d, BGEPA).

Our database of nest locations may not be complete because new nests are built each year. We have information on two nests documented along the Scioto River. Both of these nests are located further than half a mile from the project area. Due to the project type and location, this species would not be expected within the project area, and no impact to this species is expected. Relative to this species, this precludes the need for further action on this project as required by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act.

FEDERALLY LISTED SPECIES COMMENTS: All projects in the State of Ohio lie within the range of the federally endangered **Indiana bat** (*Myotis sodalis*) and the federally threatened **northern long-eared bat** (*Myotis septentrionalis*). In Ohio, presence of the Indiana bat and northern long-eared bat is assumed wherever suitable habitat occurs unless a presence/absence survey has been performed to document absence. Suitable summer habitat for Indiana bats and northern long-eared bats consists of a wide variety of forested/wooded habitats where

they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags =3 inches diameter at breast height (dbh) that have any exfoliating bark, cracks, crevices, hollows and/or cavities), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet (305 meters) of other forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat. In the winter, Indiana bats and northern long-eared bats hibernate in caves and abandoned mines.

Should the proposed site contain trees =3 inches dbh, we recommend that trees be saved wherever possible. If any caves or abandoned mines may be disturbed, further coordination with this office is requested to determine if fall or spring portal surveys are warranted. If no caves or abandoned mines are present and trees =3 inches dbh cannot be avoided, we recommend that removal of any trees =3 inches dbh only occur between October 1 and March 31. Seasonal clearing is being recommended to avoid adverse effects to Indiana bats and northern long-eared bats. While incidental take of northern long-eared bats from most tree clearing is exempted by a 4(d) rule (see

http://www.fws.gov/midwest/endangered/mammals/nleb/index.html), incidental take of Indiana bats is still prohibited without a project-specific exemption. Thus, seasonal clearing is recommended where Indiana bats are assumed present.

If implementation of this seasonal tree cutting recommendation is not possible, summer surveys may be conducted to document the presence or probable absence of Indiana bats within the project area during the summer. If a summer survey documents probable absence of Indiana bats, the 4(d) rule for the northern long-eared bat could be applied. Surveys must be conducted by an approved surveyor and be designed and conducted in coordination with the Endangered Species Coordinator for this office. Surveyors must have a valid federal permit. Please note that summer surveys may only be conducted between June 1 and August 15.

The proposed project lies within the range of the **rayed bean** (*Villosa fabalis*), **clubshell** (*Pleurobema clava*), and **northern riffleshell** (*Epioblasma torulosa rangiana*), federally listed endangered species. Potential habitat for these species is located in the Scioto River which the proposed project will cross. **If any activity is expected to occur within the Scioto River, then a mussel survey is recommended.** 

The Service recommends that impacts to the Scioto River be avoided and vegetative buffers surrounding this stream be preserved. Buffers of native vegetation surrounding

aquatic systems are important in preserving their wildlife-habitat and water quality-enhancement properties. We recommend that best construction techniques be used to minimize erosion. Prevention of non-native, invasive plant establishment is critical in maintaining quality habitats. All disturbed areas should be mulched and re-vegetated with native plants. Implementation of best management practices should occur to minimize siltation during and after construction.

Due to the project type, size, and location, we do not anticipate adverse effects to any other federally endangered, threatened, proposed, or candidate species. Should the project design change, or during the term of this action, additional information on listed or proposed species or their critical habitat become available, or if new information reveals effects of the action that were not previously considered, consultation with the Service should be initiated to assess any potential impacts.

These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), the Endangered Species Act of 1973, as amended, and are consistent with the intent of the National Environmental Policy Act of 1969 and the U.S. Fish and Wildlife Service's Mitigation Policy. Please note that consultation under section 7 of the ESA may be warranted for this project if suitable habitat for federally listed species may be impacted by this project. This letter provides technical assistance only and does not serve as a completed section 7 consultation document.

If you have any questions regarding our response or if you need additional information, please contact me.

--

Jenny Finfera Wildlife Biologist Ecological Services 4625 Morse Road, Suite 104 Columbus, Ohio 43230

Phone: 614-416-8993 ext.13

Fax: 614-416-8994



May 16, 2017 Project C170352.10

Mr. Dan Everson United States Fish and Wildlife Service Ohio Ecological Services Field Office 4625 Morse Road, Suite 104 Columbus, Ohio 43230

American Electric Power
Ginger – Ross 138kV Line Rebuild Project
Request for Technical Assistance Regarding Threatened
and Endangered Species and Critical Habitat
Ross County, Ohio

Dear Mr. Everson:

GAI Consultants, Inc. (GAI), on behalf of American Electric Power (AEP), is requesting information regarding state- and federally-listed threatened and endangered species in the vicinity of the Ginger – Ross 138kV Line Rebuild Project (Project) in Ross County, Ohio. As part of this request, please provide information specific to any threatened and endangered bats. GAI is also requesting the locations of any known golden or bald eagle nests in the area.

The proposed Project involves the rebuild of approximately six miles of the existing Ginger – Ross transmission line, upgrading from a 69kV line to a 138kV line.

The study area for the Project is shown on the attached map (Figure 1). The habitat within the study area consists of maintained right-of-way with bordering agricultural land, mixed deciduous forests, and residential properties. Project shapefiles have been included to aid in your review.

GAI and AEP thank you in advance for your assistance. Please contact me at 330.324.9148 or via email at a.wheaton@gaiconsultants.com if you have any questions or require further information.

Sincerely,

GAI Consultants, Inc.

Allison R. Wheaton, WPIT

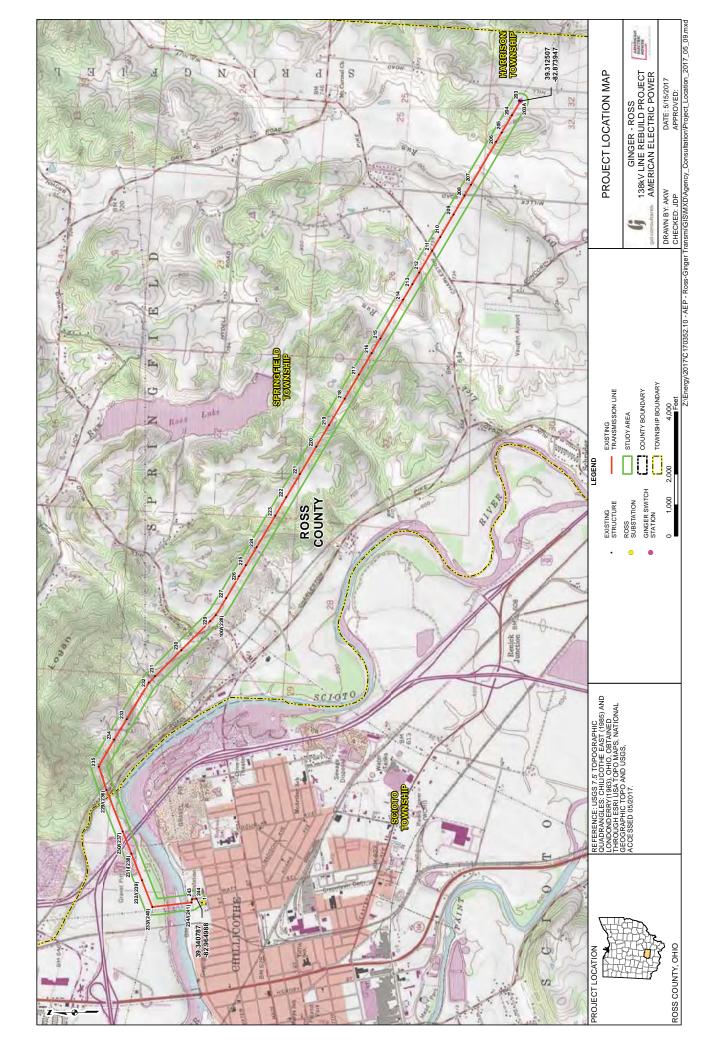
Senior Project Environmental Specialist

ARW/kea

Attachments: Attachment 1 (Project Location Map)

**Project Shapefiles** 

# ATTACHMENT 1 PROJECT LOCATION MAP



This foregoing document was electronically filed with the Public Utilities

**Commission of Ohio Docketing Information System on** 

12/13/2017 5:10:26 PM

in

Case No(s). 17-0637-EL-BTX

Summary: Application (5 of 5 Parts) electronically filed by Ms. Christen M. Blend on behalf of AEP Ohio Transmission Power Company, Inc.