

**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 007

Date:

October 9, 2020

**Description:** 

Perennial

Warmwater Habitat -

Fair

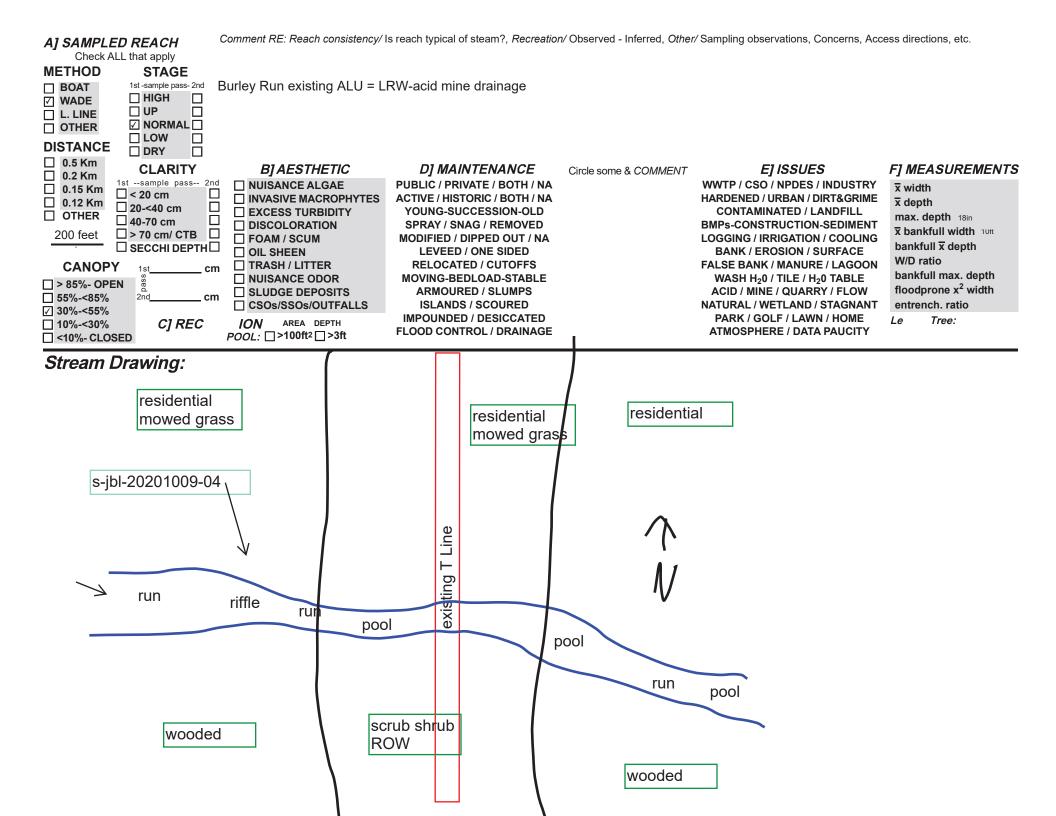




# **Qualitative Habitat Evaluation Index and Use Assessment Field Sheet**

QHEI Score: 48.5

Stream & Location:	Burley Run	/ AEP Crooksv	ille-North	Newark 13	88 kV	_ <i>RM</i> :1	_2 Date:	10/09/2020
s-jbl-20201009-04			_Scorers	Full Name	e & Affiliation:			
River Code:		STORET #:_		Lat./Lon	39.776481	, -82.115	23	Office verified location
BEST TYPES  BLDR /SLABS [10] BOULDER [9] GOBBLE [8] GRAVEL [7] GRAVEL [7] BEDROCK [5]  NUMBER OF BEST  Comments	o 25 10 15 50 10 TYPES: ☑ 4	OTHER TY  HARDPAN DETRITUS SILT [2] SILT [2] SCore nai or more [2] SIUD	PES POOL  [4]  [5]  [3]  [10]  [20]  AL [0]  [10]  tural substrate e from point-	RIFFLE  25  25  25  25  es; ignore  sources)	Check ( ORIGIN LIMESTONE [1] TILLS [1] WETLANDS [0] HARDPAN [0] SANDSTONE [0] RIP/RAP [0] LACUSTURINE [0 SHALE [-1] COAL FINES [-2]	SILT	& average) QUAI HEAVY MODER NORMA FREE [1 EXTENS MODER NORMA	LITY [-2] ATE [-1] Substrate
2] INSTREAM COVE quality; 3-Highest quality diameter log that is stable  1 UNDERCUT BANK OVERHANGING VI 1 SHALLOWS (IN SL 1 ROOTMATS [1]  Comments	quality; 2-Mo in moderate or g , well developed S [1] EGETATION [1]	greater amounts, it greater amounts (ed rootwad in deep	e.g., very larg / fast water, > 70cm [2] /ADS [1]	ge boulders in or deep, well-	r in small amounts deep or fast wate	r, large I pools. ERS [1]	Check ONE (  EXTENSIVI  MODERATI  SPARSE 5-	E 25-75% [7]
☐ HIGH [4] ☐ E ☐ MODERATE [3] ☑ G ☐ LOW [2] ☑ F	HOLOGY Che VELOPMENT EXCELLENT [7] GOOD [5] FAIR [3] POOR [1]	CHANN  NONE [6] RECOVER RECOVER	ELIZATIO RED [4]	N				Channel Maximum 20
4] BANK EROSION ARIVER right looking downstre  EROSION  NONE / LITTLE [3]  MODERATE [2]  HEAVY / SEVERE [1]  Comments  1.5 + 3	RIPA RIPA RIPA RIPA RIPA RIPA RIPA RIPA	RIAN WIDTH > 50m [4] RATE 10-50m [3] OW 5-10m [2] NARROW < 5m [	R     FO   SH     RE       FE	FLOOD PREST, SWAM IRUB OR OLI ESIDENTIAL, I ENCED PAST	PLAIN QUALI MP [3] D FIELD [2] PARK, NEW FIELD	ITY	CONSERVATION OR IN	ON TILLAGE [1] IDUSTRIAL [0] STRUCTION [0] land use(s) Riparian Maximum 10
5] POOL / GLIDE AN MAXIMUM DEPTH Check ONE (ONLY!)  > 1m [6] 0.7-<1m [4] 0.4-<0.7m [2] 0.2-<0.4m [1] < 0.2m [0]  Comments 18"deep	CHA Check C POOL WID POOL WID POOL WID	RUN QUALITY ANNEL WIDTH ONE (Or 2 & avera TH > RIFFLE WIDTH TH = RIFFLE WIDTH TH > RIFFLE WIDTH	 ge) TH[2] □ T TH[1] □ V TH[0] □ F	Check ORRENTIAL ERY FAST [1 AST [1] ODERATE [		TIAL [-1] TENT [-2] 1]	Seconda	Pool / Current Maximum
Indicate for function of riffle-obligate RIFFLE DEPTH  BEST AREAS > 10cm [2]  BEST AREAS < 5cm [metric=0]	tional riffles species: RUN ☑ □ MAXIMU ☑ MAXIMU	DEPTH  M > 50cm [2]      M < 50cm [1]	heck ONE (C RIFFLE / STABLE (e. <sub>!</sub> MOD. STAB	Or 2 & average RUN SUBS g., Cobble, B LE (e.g., Lar	e). STRATE RIF Boulder) [2]	FLE / RU	Ation NO	Riffle /
6] GRADIENT (90 DRAINAGE AREA	` <u> </u>	ERY LOW - LOW ODERATE [6-10] GH - VERY HIGH			POOL: 50 RUN: 30	%GLID	=	Gradient 8





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#### Stream 008

Date:

October 9, 2020

**Description:** 

Perennial

Limited Resource Water

Burley Run

Facing Upstream



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#### Stream 008

Date:

October 9, 2020

**Description:** 

Perennial

Limited Resource

Water

Burley Run





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

SITE NAME/LOCATION   AEP-Crooksville-North Newark 138 kV Transmissio	n Line Rebuild Project
s-aeh-20200611-11 SITE NUMBER RIVER BASIN Muskingun	
LENGTH OF STREAM REACH (ft) 35 LAT. 39.78290 LONG82.11716	RIVER CODE RIVER MILE 0.05
DATE 06/11/20 SCORER AEH COMMENTS Ephemeral	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual f	or Ohio's PHWH Streams" for Instructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERED RECOVERED RECOVERED RECOVERED NONE / NATURAL CHANNEL RECOVERED RECOV	ECOVERING RECENT OR NO RECOVERY
SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY to the control of the control o	<del></del> ·
(Max of 32). Add total number of significant substrate types found (Max of 8). Final me  TYPE  PERCENT  TYPE	tric score is sum of boxes A & B.  PERCENT  HHEI  Metric
BLDR SLABS [16 pts] 0% SILT [3 pt]	50% Points
	DDY DEBRIS [3 pts] 10% Substrate
BEDROCK [16 pt] 0% FINE DETRITUS  COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPA	Max = 40
GRAVEL (2-64 mm) [9 pts] 40% MUCK [0 pts]	0%
SAND (<2 mm) [6 pts] ARTIFICIAL [3 pts	0%
Total of Percentages of 0.00% (A) Substrate Percentage Check	100% (B) A+B
Bidi Siabs, Bodider, Cobble, Bedrock	BER OF SUBSTRATE TYPES: 3
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (20	10 ft) evaluation reach at the time of Pool Depth
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check <i>ON</i> > 30 centimeters [20 pts] > 5 cm - 10 cm [7]	
> 22.5 - 30 cm [30 pts] < 5 cm [5 pts]	
> 10 - 22.5 cm [25 pts] NO WATER OR	MOIST CHANNEL [0 pts] 5
COMMENTS MAXIMUM	POOL DEPTH (Inches): 0.00
	(mones). (mones)
BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Ch	eck ONLY one box):  Bankfull
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (2	eck ONLY one box): Bankfull Vidth
	eck ONLY one box): Bankfull Vidth
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  > 1.0 m (<=3' 3")	eck ONLY one box): Bankfull Vidth
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	eck ONLY one box):  3' 3" - 4' 8") [15 pts]  Bankfull Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE  This information must also be con	eck ONLY one box): - 3' 3" - 4' 8") [15 pts]  BANKFULL WIDTH (Feet): 1.00  5
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE  This information must also be con	eck ONLY one box): - 3' 3" - 4' 8") [15 pts]  Bankfull Width Max=30  BANKFULL WIDTH (Feet): 1.00
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be core RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and RIPARIAN WIDTH  L R (Per Bank)  L R (Most Predominant per Bank)	eck ONLY one box): 3' 3" - 4' 8") [15 pts]  BANKFULL WIDTH (Feet): 1.00  Bankfull Width Max=30   5  Inpleted  Ind Right (R) as looking downstream☆
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be considered and property of the pro	Bankfull Width Max=30  BANKFULL WIDTH (Feet): 1.00  L R Conservation Tillage
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be core  RIPARIAN ZONE AND FLOODPLAIN QUALITY  □ RIPARIAN WIDTH □ RIPARIAN	eck ONLY one box):  3' 3" - 4' 8") [15 pts]  BANKFULL WIDTH (Feet): 1.00  Bankfull Width Max=30   5  Inpleted and Right (R) as looking downstream ☆  LR Conservation Tillage  Urban or Industrial
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be core RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) at RIPARIAN WIDTH  L R (Per Bank) Wide >10m Moderate 5-10m  Moderate 5-10m  Residential, Park, New Field	eck ONLY one box):  3' 3" - 4' 8") [15 pts]  BANKFULL WIDTH (Feet): 1.00  5  Inpleted  Ind Right (R) as looking downstream ☆  LR Conservation Tillage  Urban or Industrial  Open Pasture, Row Crop
> 4.0 meters (> 13') [30 pts]   > 1.0 m - 1.5 m (< ≤ 1.0 m (<=3' 3")     > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	eck ONLY one box):  3' 3" - 4' 8") [15 pts]  BANKFULL WIDTH (Feet): 1.00  Bankfull Width Max=30   5  Inpleted and Right (R) as looking downstream ☆  LR Conservation Tillage  Urban or Industrial
> 4.0 meters (> 13') [30 pts]   > 1.0 m - 1.5 m (< ≤ 1.0 m (<=3' 3")     > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]     COMMENTS	eck ONLY one box):  3' 3" - 4' 8") [15 pts]  BANKFULL WIDTH (Feet): 1.00  5  Inpleted  Ind Right (R) as looking downstream ☆  LR Conservation Tillage  Urban or Industrial  Open Pasture, Row Crop
> 4.0 meters (> 13') [30 pts]	eck ONLY one box):  3' 3" - 4' 8") [15 pts]  BANKFULL WIDTH (Feet): 1.00  Bankfull Width Max=30   Max=30   Solution of the property of the pr
> 4.0 meters (> 13') [30 pts]	eck ONLY one box):  3' 3" - 4' 8") [15 pts]  BANKFULL WIDTH (Feet): 1.00  Bankfull Width Max=30   Max=30   L R Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction
> 4.0 meters (> 13') [30 pts]   > 1.0 m - 1.5 m (≥ 3' 3")   > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	eck ONLY one box):  3' 3" - 4' 8") [15 pts]  BANKFULL WIDTH (Feet): 1.00  Bankfull Width Max=30   Max=30   Solution of the properties of
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be core RIPARIAN ZONE AND FLOODPLAIN QUALITY  ∴ NOTE: River Left (L) and RIPARIAN WIDTH  L R (Per Bank)	Bankfull Width Max=30  BANKFULL WIDTH (Feet): 1.00  BANKFULL WIDTH (Feet): 1.00  Solution of the property of t
> 4.0 meters (> 13') [30 pts]   > 1.0 m - 1.5 m (≈ 3' 3")   > 1.5 m - 3.0 m (> 9' 7" - 13') [25 pts]   > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	eck ONLY one box):  3' 3" - 4' 8") [15 pts]  BANKFULL WIDTH (Feet): 1.00  BANKFULL WIDTH (Feet): 1.00  Mining or Construction  Conservation Tillage  Urban or Industrial  Open Pasture, Row Crop  Mining or Construction  Mining or Construction  Conservation Tillage  Urban or Industrial  Open Pasture, Row Crop  Mining or Construction
> 4.0 meters (> 13') [30 pts]	Bankfull Width Max=30  BANKFULL WIDTH (Feet): 1.00  BANKFULL WIDTH (Feet): 1.00  Solution of the property of t

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Att.	ach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)  WWH Name: Burley Run (LRW, acid mine drainage)  CWH Name: EWH Name:	Distance from Evaluated Stream  Distance from Evaluated Stream  Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHE	D AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Crooksville NRCS Soil Map I	Page: NRCS Soil Map Stream Order
County: Perry Township / City: Harris	son
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Date of last precipitation:06/04/20	Quantity: 0.75
Photograph Information:	
Elevated Turbidity? (Y/N): N Canopy (% open): 20%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id.	and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.)	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	
BANK Stability LOW M	NODERATE HIGH
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Prince of Tadpoles Observed? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebra Comments Regarding Biology:	rimary Headwater Habitat Assessment Manual)  Voucher? (Y/N)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Program of Tadpoles Observed? (Y/N) N Salamanders Observed? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology:	voucher? (Y/N) N Vouche
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Program of Tadpoles Observed? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology: None observed	Voucher? (Y/N) N Vouche
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Price of Tadpoles Observed? (Y/N) N Salamanders Observed? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebra Comments Regarding Biology: none observed	Voucher? (Y/N) N Vouche
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Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Prish Observed? (Y/N) N Salamanders Observed? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebra Comments Regarding Biology: none observed  DRAWING AND NARRATIVE DESCRIPTION OF STREAM Include important landmarks and other features of interest for site evaluation a	Voucher? (Y/N) N Vouche

Save as pdf

Reset Form



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Project No.

60616110, 60618779, 60616126

#### Stream 009

Date:

June 11, 2020

**Description:** 

Ephemeral

Modified Ephemeral Stream

Facing Upstream



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Date:

June 11, 2020

**Description:** 

Ephemeral

Modified Ephemeral

Stream





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

SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Proj s-aeh-20200611-10 SITE NUMBER RIVER BASIN Muskingum DRAINAGE	ect
TIVER DASIN DIVANAGE	E AREA (mi²) 0.01
LENGTH OF STREAM REACH (ft) 150 LAT. 39.78408 LONG82.11720 RIVER CODE	
DATE 06/11/20 SCORER AEH COMMENTS ephemeral	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Stream	ams" for Instructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECE MODIFICATIONS: piles of trash	NT OR NO RECOVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate	
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes  TYPE  PERCENT  TYPE  PI	<b>ERCENT</b>   Metric
BLDR SLABS [16 pts] 0% SILT [3 pt]	50% Points
BOULDER (>256 mm) [16 pts]  BEDROCK [16 pt]  BEDROCK [16 pt]  LEAF PACK/WOODY DEBRIS [3 pts]  FINE DETRITUS [3 pts]	15% Substrate
COBBLE (65-256 mm) [12 pts]	0% Max = 40
GRAVEL (2-64 mm) [9 pts]	0% 15
SAND (<2 mm) [6 pts]	0%
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock (A) Substrate Percentage Check 100%	(B) A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 TOTAL NUMBER OF SUBSTRATE TY	PES: 3
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at t	he time of Pool Depth
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]	Max = 30
> 22.5 - 30 cm [30 pts] < 5 cm [5 pts]	
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	0
COMMENTS MAXIMUM POOL DEPTH (Inc	ches): 0.00
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width Max=30
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	IVIAX-30
COMMENTS AVERAGE BANKFULL WIDTH	(Feet): 2.00 5
COMMENTS AVERAGE BANKFULL WIDTH	(Feet): 2.00 5
This information <u>must</u> also be completed	
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking do	
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking do  RIPARIAN WIDTH FLOODPLAIN QUALITY  LR (Per Bank) LR (Most Predominant per Bank) LR	ownstream☆
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking do  RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank) L R (Most Predominant per Bank) L R  Wide >10m Mature Forest, Wetland Conser	ownstream☆ vation Tillage
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ♣NOTE: River Left (L) and Right (R) as looking do  RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank) L R (Most Predominant per Bank) L R  Wide >10m Mature Forest, Wetland Consert  Immature Forest, Shrub or Old Urban of Field	ownstream☆ vation Tillage or Industrial
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ♣NOTE: River Left (L) and Right (R) as looking do  RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank) L R (Most Predominant per Bank) L R  Wide >10m Mature Forest, Wetland Consert  Immature Forest, Shrub or Old Urban of Field	ownstream☆ vation Tillage
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This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking do  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Residential, Park, New Field  Open F  None  COMMENTS	ownstream☆  vation Tillage or Industrial  Pasture, Row Crop
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ∴ NOTE: River Left (L) and Right (R) as looking do  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Conser  Immature Forest, Shrub or Old  Field  V Narrow <5m  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Moderate 5-10m  This information must also be completed  NOTE: River Left (L) and Right (R) as looking do  RipARIAN WIDTH  FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  L R  (Most Predominant per Bank)  L R  (Most Predominant per Bank)  L R  (Per Bank)  L R  (Per Bank)  L R  (Most Predominant per Bank)  L R  (Por Bank)  Conser  Immature Forest, Shrub or Old  Field  Open F  None  COMMENTS  Fenced Pasture  Mining  COMMENTS  Moist Channel, isolated pools, no field	ownstream☆  vation Tillage or Industrial  Pasture, Row Crop or Construction
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking do  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Conser  Immature Forest, Shrub or Old  Field  V Narrow <5m  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  This information must also be completed  NOTE: River Left (L) and Right (R) as looking do  Riparian also be completed  NOTE: River Left (L) and Right (R) as looking do  Riparian also be completed  NOTE: River Left (L) and Right (R) as looking do  RIPARIAN ZONE AND FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  L R (Most Predominant p	ownstream &  vation Tillage or Industrial Pasture, Row Crop or Construction
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY	ownstream &  vation Tillage or Industrial Pasture, Row Crop or Construction
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  PROODPLAIN QUALITY  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Residential, Park, New Field  Penced Pasture  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)	ownstream &  vation Tillage or Industrial Pasture, Row Crop or Construction
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking do RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Conser  Immature Forest, Shrub or Old  Immature Forest, Shrub or Old  V Narrow <5m  Residential, Park, New Field  Open F  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	ownstream &  vation Tillage or Industrial Pasture, Row Crop or Construction
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Conser  Moderate 5-10m  None  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation)  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  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	ownstream☆  vation Tillage or Industrial  Pasture, Row Crop or Construction  low (Intermittent)
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  Wide >10m  Mature Forest, Wetland  Consert  Immature Forest, Shrub or Old  Field  V Narrow <5m  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None  1.0  2.0  3.0  3.0  3.0  3.0  3.0	ownstream &  vation Tillage or Industrial Pasture, Row Crop or Construction

ADDITIONAL STREAM INF	FORMATION (This Information M	ust Also	be Completed):			
QHEI PERFORM	ED? - Yes ✓ No QHEI Sco	re	(If Yes, A	tach Completed	d QHEI Form)	
	DESIGNATED USE(S)			_	_	
	un (LRW, acid mine drainage)			<del>-</del>	om Evaluated Stream	0.50
CWH Name:					om Evaluated Stream	
EWH Name:				Distance fro	om Evaluated Stream _	
Г	CH COPIES OF MAPS, INCLUDING	THE ENT	TIRE WATERSH	ED AREA. CLE	ARLY MARK THE SITE L	OCATION
USGS Quadrangle Name:	Crooksville		NRCS Soil Map	Page:	NRCS Soil Map Stream	n Order
County: Perry		Townsh	ip / City:Harr	son		
MISCELLANEOU	JS					
Base Flow Conditions? (Y/N	N): Y Date of last precipitati	ion:	06/04/20	Quantity	0.75	
Photograph Information:						
Elevated Turbidity? (Y/N): _	N Canopy (% open):	20%				
Were samples collected for	water chemistry? (Y/N):	(Note lab	sample no. or id	. and attach res	ults) Lab Number:	
Field Measures: Temp (	°C) Dissolved Oxygen (mo	a/l)	pH (S.U.)	Cond	uctivity (µmhos/cm)	
Is the sampling reach repre	sentative of the stream (Y/N)	If not, p	lease explain:_			
Additional comments/decor	intion of pollution impacts:					
Additional comments/descr		ow 🗸		MODERATE	HIGH	н
Performed? (Y/N): N  Fish Observed? (Y/N)  Frogs or Tadpoles Observe  Comments Regarding Biolo  none observed	d? (Y/N) N Voucher? (Y/N) N	field data		rimary Headwat  Voucher?	er Habitat Assessment M	anual)
DRAWING	AND NARRATIVE DESCRI	PTION (	OF STREAM	REACH (Th	is <u>must</u> be comple	eted):
Include important la	ndmarks and other features of int	terest for	site evaluation	and a narrative	description of the stream	am's location
	VVV sh	rubs				
						_
•						
FLOW						
	$\wedge$				pile of tras	sh
	1// /					
cow p	a a fura	Ī				
	pasture					



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 010

Date:

June 11, 2020

**Description:** 

Ephemeral

Modified Ephemeral Stream

Facing Upstream



#### Stream 010

Date:

June 11, 2020

**Description:** 

Ephemeral

Modified Ephemeral Stream





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 010

Date:

June 11, 2020

**Description:** 

Ephemeral

Modified Ephemeral Stream





### Primary Headwater Habitat Evaluation Form

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

		31
--	--	----

s-jbl-20201008-01 SITE NUMBER S-01 RIVER BASIN Muskingum DRAINAGE AREA (mi²)	.08
LENGTH OF STREAM REACH (ft) 200 LAT. 39.78919 LONG82.11890 RIVER CODE RIVER MILE 0	.12
DATE 10/08/20 SCORER jbl,rcm COMMENTS intermittent	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instr	uctions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO REC	OVERY
MODIFICATIONS: mining earthwork	
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HHEI   Metric
TYPE         PERCENT         TYPE         PERCENT           □ □ □ □ BLDR SLABS [16 pts]         0% □ □ □ SILT [3 pt]         30% □	Points
BOULDER (>256 mm) [16 pts]  0%  LEAF PACK/WOODY DEBRIS [3 pts]  40%	
BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] 0%	Substrate Max = 40
COBBLE (65-256 mm) [12 pts]	IMAX - 40
GRAVEL (2-64 mm) [9 pts] 5% MUCK [0 pts] 0%  SAND (<2 mm) [6 pts] 15% ARTIFICIAL [3 pts] 0%	11
SAND (<2 mm) [6 pts]	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock (A) Substrate Percentage Check (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 TOTAL NUMBER OF SUBSTRATE TYPES: 5	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dept
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]	Max = 30
> 22.5 - 30 cm [30 pts] < 5 cm [5 pts]	
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	15
COMMENTS MAXIMUM POOL DEPTH (Inches): 3.00	
<ol> <li>BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):</li> </ol>	Bankfull
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Width Max=30
> 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] \( \leq 1.0 m (<=3' 3") [5 pts]	Width
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet): 3.00  This information must also be completed	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet): 3.00  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ★NOTE: River Left (L) and Right (R) as looking downstream ★	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  AVERAGE BANKFULL WIDTH  (Feet): 3.00  This information must also be completed  RIPARIAN WIDTH  FLOODPLAIN QUALITY  FLOODPLAIN QUALITY  FLOODPLAIN QUALITY	Width Max=30
> 4.0 meters (> 13') [30 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  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)  V Wide >10m  Moderate 5-10m  Moderate 5-10m  V 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]  > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]  > 1.0 m (<=3' 3") [5 pts]  AVERAGE BANKFULL WIDTH (Feet):  3.00  L R  (Most Predominant per Bank)  L R  Conservation Tillage  Immature Forest, Shrub or Old  Urban or Industrial	Width Max=30
> 4.0 meters (> 13') [30 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m (<=3' 3") [5 pts]   > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]     > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]     > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m (<=3' 3") [5 pts]   > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream AND FLOODPLAIN QUALITY  L R (Per Bank)  L R (Most Predominant per Bank)  Wide >10 m  Mature Forest, Wetland  Moderate 5-10 m  Narrow <5 m  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Moist Channel, isolated pools, no flow (Intermittent)	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  V Wide >10 m   V Mature Forest, Wetland   Conservation Tillage   Immature Forest, Shrub or Old   Urban or Industrial    Moderate 5-10m   Residential, Park, New Field   Open Pasture, Row Crown Residential, Park, New Field   Open Pasture, Row Crown Residential, Park, New Field   Mining or Construction    FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing Subsurface flow with isolated pools (Interstitial)   Dry channel, no water (Ephemeral)	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  Wide >10 m  Mature Forest, Wetland  Moderate 5-10m  Mature Forest, Shrub or Old  Immature Forest, Shrub or Old  Immature Forest, Shrub or Old  Narrow <5m  Narrow <5m  Residential, Park, New Field  Penced 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)	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  NOTE: River Left (L) and Right (R) as looking downstream ↑  RIPARIAN WIDTH  FLOODPLAIN QUALITY  Wide >10m  Moderate 5-10m  Moderate 5-10m  Narrow <5m  Narrow <5m  Residential, Park, New Field  Narrow <5m  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  Wide >10 m  Mature Forest, Wetland  Moderate 5-10m  Mature Forest, Shrub or Old  Immature Forest, Shrub or Old  Immature Forest, Shrub or Old  Narrow <5m  Narrow <5m  Residential, Park, New Field  Penced 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)	Width Max=30
> 4.0 meters (> 13') [30 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m - 4.0 m (≈ 9' 7" - 13') [25 pts]   > 1.5 m - 3.0 m (≈ 9' 7" - 14' 8") [20 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  **NOTE: River Left (L) and Right (R) as looking downstream **  RIPARIAN WIDTH  L R (Per Bank)  Wide >10m  Moderate 5-10m  Moderate 5-10m  Narrow <5m  None  COMMENTS  FLOW REGIME (At Time of Evaluation)  COMMENTS  Sinuosity (Number of bends per 61 m (200 ft) of channel)  None  Sinuosity (Number of bends per 61 m (200 ft) of channel)  None  1.0  COHACK ONLY one box):  None  1.0  Check ONLY one box):  None  1.0  3.0	Width Max=30

ADDITIONAL STR	EAM INFORMA	TION (This Informa	tion Must Also	be Comp	leted):			
QHEI PE	RFORMED? -	Yes ✓ No QH	El Score	(If	Yes, Attac	ch Completed C	HEI Form)	
DOWNS	TREAM DESIG	NATED USE(S)						
WWH Name:	/loxahala Cree	k				_ Distance from	Evaluated Stream	2.30
CWH Name: _						Distance from	Evaluated Stream _	
EWH Name:						Distance from	Evaluated Stream _	
MAPPIN	G: АТТАСН СО	PIES OF MAPS, INCL	.UDING THE <u>EI</u>	NTIRE WAT	ERSHED	AREA. CLEAR	LY MARK THE SITE	LOCATION
USGS Quadrangle	Name: Crook	sville		NRCS S	oil Map Pa	age:N	RCS Soil Map Strea	ım Order
County: Perry			Towns	ship / City:	Harriso	n		
MISCELI	ANEOUS							
Base Flow Condition	ons? (Y/N): <b>Y</b>	Date of last pre	cipitation:_	10/06/2	20	Quantity:	0.25	
	` /	s, upstream, downs		strate		,		
Elevated Turbidity?	N N	Canopy (% o	F00					
-				h comple n	a arid a	ad attack recult	s) Lab Number:	
		chemistry? (Y/N):						
Field Measures:	Temp (°C)	Dissolved Oxyg	Υ	•	(S.U.)	Conduc	tivity (µmhos/cm)	
Is the sampling rea	ch representati	ve of the stream (Y/N	) If not	, please ex	plain:			
Additional commer	ts/description o	f pollution impacts:						
		n Banks (check one	): Stable		Moderate	ely Stable	Unstab	ole /
Fish Observed? (Y. Frogs or Tadpoles Comments Regard	Observed? (Y/I	ucher? (Y/N) N S	Salamanders C /N) N Aqua	Observed? tic Macroin	(Y/N) N vertebrate	Voucher? (\es Observed? ('		? (Y/N) N
none observed								
DRA Include impo	WING AND	NARRATIVE DES	SCRIPTION s of interest fo	OF STR	REAM RI	EACH (This	must be comp	•
oded		s-jbl-202010	08-01			ROW	ıp di	
-					K	side chai	nnel	
FLOW →	Wé	01	A					
scrub shrub ROW						1	V.	~
				_	(	steep /		
			wooded	- P =				
October 24, 2002 Revis	ion			m Page	; - Z			



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 011

Date:

October 8, 2020

**Description:** 

Intermittent

Modified Small Drainage Warmwater Stream

Facing Upstream



#### Stream 011

Date:

October 8, 2020

**Description:** 

Intermittent

Modified Small Drainage Warmwater Stream





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 011

Date:

October 8, 2020

**Description:** 

Intermittent

Modified Small Drainage Warmwater Stream





### **Chief P** Primary Headwater Habitat Evaluation Form

	HHEI Score (sum of metrics 1, 2, 3):	
SITE NAME/LOCATION AEP Crooksville	-North Newark 138 kV Transmission Line Rebiuld Project	
s-jbl-20201008-02 SITE NUMBER	RIVER BASIN Muskingum DRAINAGE AREA (mi²)	.03
LENGTH OF STREAM REACH (ft) 200	LAT. 39.79067 LONG82.11950 RIVER CODE RIVER MILE	
DATE 10/08/20 SCORER jbl,rcm	COMMENTS intermittent	
NOTE: Complete All Items On This For	m - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instr	uctions
CTDEAM CHANNEL - DNONE (NA	ATHRAL CHANNEL PRESSVERED PRESSVERING PRESENT OF NO REC	OVEDV
STREAM CHANNEL NONE / NA MODIFICATIONS: mining	ATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO REC	OVERY
	very 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.	HHEI
,	PERCENT TYPE PERCENT	Metric
BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts]	0%   SILT [3 pt]   30%	Points
BEDROCK [16 pt]	0% LEAF PACK/WOODY DEBRIS [3 pts] 40% 0%	Substrate
COBBLE (65-256 mm) [12 pts]	0% CLAY or HARDPAN [0 pt] 10%	Max = 40
GRAVEL (2-64 mm) [9 pts]	5% MUCK [0 pts] 0%	11
SAND (<2 mm) [6 pts]	15% ARTIFICIAL [3 pts] 0%	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock	0.00% (A) Substrate Percentage 100% (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBS		
2. Maximum Pool Depth (Measure the n	maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dept
	ad culverts or storm water pipes) (Check ONLY one box):	Max = 30
> 30 centimeters [20 pts]	> 5 cm - 10 cm [15 pts]	l
> 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts]	< 5 cm [5 pts] NO WATER OR MOIST CHANNEL [0 pts]	15
COMMENTS	MAXIMUM POOL DEPTH (Inches): 2.00	
3. BANK FULL WIDTH (Measured as the > 4.0 meters (> 13') [30 pts]	e average of 3-4 measurements) (Check ONLY one box):  > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankfull Width
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	≤ 1.0 m (<=3' 3") [5 pts]	Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]		
COMMENTS	AVERAGE BANKFULL WIDTH (Feet): 3.00	5
RIPARIAN ZONE AND FLOOD	This information <u>must</u> also be completed  PLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆	
RIPARIAN WIDTH	FLOODPLAIN QUALITY	
L R (Per Bank)	L R (Most Predominant per Bank) L R	
✓ ✓ Wide >10m	Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old	
Moderate 5-10m	Field Urban or industrial	
Narrow <5m	Residential, Park, New Field Open Pasture, Row Cr	op
None	Fenced Pasture Mining or Construction	
COMMENTS		_
FLOW REGIME (At Time of Eva	raluation) (Check ONLY one box):  Moist Channel, isolated pools, no flow (Intermittent	)
Subsurface flow with isolated po		, 1
COMMENTS_		L
	per 61 m (200 ft) of channel) (Check ONLY one box):	
None 0.5	1.0 2.0 3.0 1.5 2.5 >3	
STREAM GRADIENT ESTIMATE  Flat (0.5 ft/100 ft)  Flat to Moderate	Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/1	00 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)  VWWH Name: Moxahala Creek  CWH Name: Distance from Evaluated Stream  EWH 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
USGS Quadrangle Name: Crooksville NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Perry Township / City: Harrison
MISCELLANEOUS  Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/06/20 Quantity: 0.25  Photograph Information: 3 photos, upstream, downsteam and substrate
Elevated Turbidity? (Y/N): N Canopy (% open): 50%
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) PH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
Overall Stability of BOTH Stream Banks (check one): Stable Moderately Stable Unstable
Performed? (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)  Fish Observed? (Y/N) N Voucher? (Y/
DRAWING AND NADDATIVE DESCRIPTION OF STREAM REACH (This most be seem letted):
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):  Include important land marks and other features of interest for site evaluation and a narrative description of the stream's location wooded
s-jbl-20201008-02
wooded
scrub shrub ROW steep
October 24, 2002 Revision  PHWH Form Page - 2  Save as pdf  Reset Form



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 012

Date:

October 8, 2020

**Description:** 

Intermittent

Modified Small Drainage Warmwater Stream

Facing Upstream



#### Stream 012

Date:

October 8, 2020

**Description:** 

Intermittent

Modified Small Drainage Warmwater Stream





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 012

Date:

October 8, 2020

**Description:** 

Intermittent

Modfied Small Drainage Warmwater Stream





## Primary Headwater Habitat Evaluation Form

41

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

s-jbl-20201008-03 SITE NUMBER S-03 RIVER BASIN Muskingum DRAINAGE AREA (mi²)	0.56
LENGTH OF STREAM REACH (ft) 200 LAT. 39.79120 LONG82.11970 RIVER CODE RIVER MILE	2.6
DATE 10/08/20 SCORER jbl,rcm COMMENTS intermittent	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instr	ructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING Former mining	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	HHEI
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts] BEDROCK [16 pt] COBBLE (65-256 mm) [12 pts]  O% SILT [3 pt] LEAF PACK/WOODY DEBRIS [3 pts] O% FINE DETRITUS [3 pts] O% CLAY or HARDPAN [0 pt]	Metric Points Substrate Max = 40
GRAVEL (2-64 mm) [9 pts]  SAND (<2 mm) [6 pts]  O%  ARTIFICIAL [3 pts]  O%	11
Total of Percentages of 0.00% (A) Bldr Slabs, Boulder, Cobble, Bedrock 6  SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6  Substrate Percentage 100% Check 100% TOTAL NUMBER OF SUBSTRATE TYPES: 5	A+B
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dep
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]	Max = 30
> 22.5 - 30 cm [30 pts]	25
COMMENTS MAXIMUM POOL DEPTH (Inches): 5.00	25
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankful
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  (Check ONLY one box):  > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]  ≤ 1.0 m (<=3' 3") [5 pts]	Bankful Width Max=30
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  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  Wide >10 m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Narrow <5m  Narrow <5m  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	Width Max=30
AVERAGE BANKFULL WIDTH (Feet): 3.00  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  Wide >10m  Wide >10m  Moderate 5-10m  Narrow <5m  Narrow <5m  Narrow <5m  Residential, Park, New Field  Narrow <5m  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS   This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream A RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  Vide >10 m (<=3' 3") [5 pts]   AVERAGE BANKFULL WIDTH (Feet): 3.00   This information must also be completed  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  Vide >10 m Vi Mature Forest, Wetland  Moderate 5-10m  Residential, Park, New Field  Narrow <5m  None  Residential, Park, New Field  Penced Pasture  Mining or Construction  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  Dry channel, no water (Ephemeral)	Width Max=30

ADDITIONAL STREAM INFORMAT	ION (This Information Must A	lso be Completed):			
QHEI PERFORMED? -	Yes No QHEI Score	(If Yes, Atta	ch Completed Q	HEI Form)	
DOWNSTREAM DESIGN	ATED USE(S)				0.50
WWH Name: Moxahala Creek				Evaluated Stream	2.50
CWH Name:EWH Name:			Γ	Evaluated Stream Evaluated Stream	
	ES OF MAPS, INCLUDING THE	ENTIRE WATERSHED	AREA. CLEARI	Y MARK THE SITE L	OCATION
USGS Quadrangle Name: Crooksv	ille	NRCS Soil Map P	age: NI	RCS Soil Map Stream	ı Order
County: Perry		wnship / City: Harriso	on	·	
MISCELLANEOUS		, ,			
Base Flow Conditions? (Y/N):_Y	Date of last precipitation:	10/06/20	Quantity:_	0.25	
Photograph Information: 3 photos,		ubstrate	- , -		
Elevated Turbidity? (Y/N):		5%			
Were samples collected for water ch	N	lab sample no. or id. a	and attach results	s) Lab Number:	
Field Measures: Temp (°C)		pH (S.U.)			
Is the sampling reach representative	Y			туту (µттоо/от) <u>——</u>	
	: :::: :::::::::::::::::::::::::::::::	от, ргодос одржин.			
Additional comments/description of p	pollution impacts:				
Overall Stability of BOTH Stream	Banks (check one): Stable	Moderat	ely Stable	Unstable	÷
ID nu		•	mary Headwater H	Habitat Assessment Ma	anual)
DRAWING AND NA	ARRATIVE DESCRIPTIO	N OF STREAM R	EACH (This	must be comple	ted):
Include important landmarks Wooded	and other features of interest	scrub sh	nrub rrative de	scription of the strea	ooded
	s-jbl-20201008-03				
FLOW					
	Pfo wetland				
	l	W-3 PF	20		<u> </u>
October 24, 2002 Revision		H Form Page - 2			
			Save as pd	Reset	Form



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 013

Date:

October 8, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream

Facing Upstream



#### Stream 013

Date:

October 8, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 013

Date:

October 8, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream





### Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION AEP Crooksville-North Newark 138 kV Transmission Line Rebuild Project						
s-jbl-20201008-04 SITE NUMBER S-04 RIVER BASIN Muskingum DRAINAGE AREA (mi²) 0.02						
LENGTH OF STREAM REACH (ft) 200 LAT. 39.79220 LONG82.11993 RIVER CODE RIVER	MILE 0.01					
DATE 10/08/20 SCORER jbl,rcm COMMENTS intermittent						
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" fo	r Instructions					
STREAM CHANNEL	IO RECOVERY					
<ol> <li>SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE be (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A &amp; B.</li> </ol>	HHEI					
TYPE PERCENT TYPE PERCENT	Metric   Points					
BLDR SLABS [16 pts]	1 Onits					
BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] 0%	Substrate Max = 40					
COBBLE (65-256 mm) [12 pts]						
GRAVEL (2-64 mm) [9 pts]  SAND (<2 mm) [6 pts]  MUCK [0 pts]  ARTIFICIAL [3 pts]  0%  0%	18					
Total of Percentages of AF 000/ (A) Substrate Percentage (B)						
Bldr Slabs, Boulder, Cobble, Bedrock Check	A + B					
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 TOTAL NUMBER OF SUBSTRATE TYPES: 6						
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of						
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):  > 30 centimeters [20 pts]  > 5 cm - 10 cm [15 pts]	Max = 30					
> 22.5 - 30 cm [30 pts]	15					
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	11 15 1					
COMMENTS MAXIMUM POOL DEPTH (Inches): 2	2.00					
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	2.00 Bankfull					
	2.00					
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]	2.00  Bankfull Width					
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONL Y one box):  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  (Check ONL Y one box):  > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]  \(\leq 1.0 \text{ m} (<=3' 3") [5 pts]	2.00  Bankfull 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]	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]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet):  This information must also be completed	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]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet):  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstreal	Bankfull Width Max=30					
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONL Y one box):  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet):  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ♣NOTE: River Left (L) and Right (R) as looking downstreat  RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank) L R (Most Predominant per Bank) L R	Bankfull Width Max=30					
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONL Y one box):  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS   This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstrean RIPARIAN WIDTH  L R (Per Bank)  L R (Most Predominant per Bank)  L R (Most Predominant per Bank)  Wide >10m    Mature Forest, Wetland   Conservation Tiles   Immediume Forest, Shrub or Old   Immediume Forest	Bankfull Width Max=30  3.00  5					
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS   This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ☆ NOTE: River Left (L) and Right (R) as looking downstrean RIPARIAN WIDTH  L R (Per Bank)  ✓ Wide > 10m  ✓ Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Check ONLY one box):  > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]  > 2 1.0 m (<=3' 3") [5 pts]   > 1.0 m (<=3' 3") [5 pts]  ✓ NOTE: River Left (L) and Right (R) as looking downstrean RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  ✓ Wide > 10m  Mature Forest, Wetland  Conservation Till  Immature Forest, Shrub or Old  Immature Forest, Shrub or Old  Urban or Industrean RIPARIAN WIDTH  Immature Forest, Shrub or Old  Urban or Industrean RIPARIAN WIDTH  Immature Forest, Shrub or Old  Urban or Industrean RIPARIAN WIDTH  Immature Forest, Shrub or Old  Urban or Industrean RIPARIAN WIDTH  Immature Forest, Shrub or Old  Urban or Industrean RIPARIAN WIDTH	Bankfull Width Max=30 3.00 5					
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstreat  RIPARIAN WIDTH  L R (Per Bank)  V Wide >10m  Moderate 5-10m  Moderate 5-10m  Residential, Park, New Field  Open Pasture, F	Bankfull Width Max=30 3.00 5					
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONL Y one box):  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet):  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  NOTE: River Left (L) and Right (R) as looking downstreat  RIPARIAN WIDTH  L R (Most Predominant per Bank)  V Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Narrow <5m  Narrow <5m  Residential, Park, New Field  Mining or Construction  Mining or Constr	Bankfull Width Max=30  3.00 5					
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  AVERAGE BANKFULL WIDTH (Feet):  This information must also be completed  RIPARIAN WIDTH  FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstreat  RIPARIAN WIDTH  FLOODPLAIN QUALITY  Wide >10 m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Residential, Park, New Field  None  COMMENTS  Mining or Construction till  Mining or Construction till  Perced Pasture  Mining or Construction till  Mining or Construction ti	Bankfull Width Max=30  3.00 5					
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet):  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstreated RIPARIAN WIDTH  L R (Per Bank) V Wide > 10m Mature Forest, Wetland Moderate 5-10m Moderate 5-10m Residential, Park, New Field  Narrow < 5m Residential, Park, New Field Mining or Construction Flood Plant of Complete (Complete)  Residential, Park, New Field Mining or Construction Flood Plant of Complete (Complete)  Residential, Park, New Field Mining or Construction Flood Plant of Complete (Complete)  Residential, Park, New Field Mining or Construction Flood Plant of Complete (Complete)  Residential, Park, New Field Mining or Construction Flood Plant of Complete (Complete)  Residential, Park, New Field Mining or Construction Flood Plant of Complete (Complete)  Residential, Park, New Field Mining or Construction Flood Plant of Complete (Complete)  Residential, Park, New Field Mining or Construction Flood Plant of Complete (Complete)  Residential, Park, New Field Mining or Construction Flood Plant of Complete (Complete)  Residential Plan	Bankfull Width Max=30  3.00 5					
BANK FULL WIDTH (Measured as the average of 3-4 measurements)  - 4.0 meters (> 13') [30 pts] - 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] - 3.0 m - 4.0 m (> 9' 7" - 4' 8") [20 pts]  - 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY - NOTE: River Left (L) and Right (R) as looking downstreat  RIPARIAN WIDTH - FLOODPLAIN QUALITY - Note: River Left (L) and Right (R) as looking downstreat  RIPARIAN WIDTH - L R (Most Predominant per Bank) - Wide >10 m	Bankfull Width Max=30  3.00 5					
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  3.00 5					
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  AVERAGE BANKFULL WIDTH (Feet):  This information must also be completed  RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank) L R (Most Predominant per Bank) L R Conservation Till  Moderate 5-10m Mature Forest, Wetland Conservation Till  Moderate 5-10m Residential, Park, New Field Open Pasture, Field  Narrow <5m Residential, Park, New Field Open Pasture, Field  None Fenced Pasture Mining or Constitution  Stream Flowing  Subsurface flow with isolated pools (Interstitial) Dry channel, isolated pools, no flow (Interstitial)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	Bankfull Width Max=30  3.00 5					
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  3.00 5					
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstreat  RIPARIAN WIDTH FLOODPLAIN QUALITY Wide > 10 m Mature Forest, Wetland Moderate 5-10 m Moderate 5-10 m Moderate 5-10 m Residential, Park, New Field Narrow < 5 m None COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None  1.0  Check ONLY one box): None  1.0  3.0	Bankfull Width Max=30  3.00 5					
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstreated RIPARIAN WIDTH    R	Bankfull Width Max=30  3.00 5					

ADDITIONAL STREAM INFORMATION (This Information Must Also be Comp	pleted):
QHEI PERFORMED? - Yes V No QHEI Score (If	Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Moxahala Creek	Distance from Evaluated Stream2.50
CWH Name:	_ Distance from Evaluated Stream _
EWH Name: _	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WAT	TERSHED AREA. CLEARLY MARK THE SITE LOCATION
JSGS Quadrangle Name: Crooksville NRCS S	oil Map Page: NRCS Soil Map Stream Order
County: Perry Township / City:	
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/06/2	20 Quantity: <b>0.25</b>
Photograph Information: 3 photos, upstream, downsteam and substrate	
Elevated Turbidity? (Y/N): N Canopy (% open): 25%	· ·
N	no. or id. and attach results) Lab Number:
Y	(S.U.) Conductivity (µmhos/cm)
s the sampling reach representative of the stream (Y/N) If not, please ex	œplain:
Additional comments/description of pollution impacts:	
Overall Stability of BOTH Stream Banks (check one): Stable	Moderately Stable Unstable
ish Observed? (Y/N) N Salamanders Observed?	om the Primary Headwater Habitat Assessment Manual)  (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N
DRAWING AND NARRATIVE DESCRIPTION OF STR	REAM REACH (This <u>must</u> be completed):
Include important landmarks and other features of interest for site evaluation pipeline AR	uation a Wooded cription of the stream's location
s-jbl-20201008-04	
st	eep—
	111.3
FLOW →	
exposed pipeline	PFO
scrub shr	Pfo wetla
ROW	
PHWH Form Pag	2
October 24, 2002 Revision	Save as pdf Reset Form
wooded	Neset Form



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 014

Date:

October 8, 2020

**Description:** 

Intermittent

Modified Small Drainage Warmwater Stream

Facing Upstream



#### Stream 014

Date:

October 8, 2020

**Description:** 

Intermittent

Modified Small Drainage Warmwater Stream





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 014

Date:

October 8, 2020

**Description:** 

Intermittent

Modified Small Drainage Warmwater Stream





### Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION AEP Crooksville-North Newark 138 kV Transmission Line Rebuild Project	
s-jbl-20201008-05 SITE NUMBER RIVER BASIN Muskingum DRAINAGE AREA (mi²)	0.05
LAT. 39.79960 LONG82.13170 RIVER CODE RIVER MILE	
DATE 10/08/20 SCORER jbl,rcm COMMENTS intermittent	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Institute of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Institute of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Institute of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Institute of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Institute of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Institute of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Institute of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Institute of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Institute of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams of the Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams of the Complete All Items	structions
STREAM CHANNEL	ECOVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	⊥ HHEI
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE  PERCENT  TYPE  PERCENT	Metric
BLDR SLABS [16 pts]	Points
BOULDER (>256 mm) [16 pts]  BEDROCK [16 pt]	Substrate
COBBLE (65-256 mm) [12 pts] 5% CLAY or HARDPAN [0 pt]	Max = 40
☐       GRAVEL (2-64 mm) [9 pts]       10%       MUCK [0 pts]       0%         ☐       SAND (<2 mm) [6 pts]	12
Tatal of Demonstrate of (A)	
Bldr Slabs, Boulder, Cobble, Bedrock Check	A+B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 TOTAL NUMBER OF SUBSTRATE TYPES: 6	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dept
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]	Max = 30
> 22.5 - 30 cm [30 pts]	15
COMMENTS MAXIMUM POOL DEPTH (Inches): 2.00	
MAXIMUM 1 GOL BET 111 (IIICIES).	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.0 m (<=3' 3") [5 pts]	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]	Width
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.0 m (<=3' 3") [5 pts]	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]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Width Max=30
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3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONL Y one box):  > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet): 2.00	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]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet):  2.00  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream ANOTE RIPARIAN WIDTH  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  L R	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] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS   This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream Another Riparian Width (Per Bank)  RIPARIAN WIDTH  L R (Per Bank) Wide > 10m	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]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY   NOTE: River Left (L) and Right (R) as looking downstream   RIPARIAN WIDTH  L R (Per Bank)  L R (Most Predominant per Bank)  Wide >10m  Mature Forest, Wetland  Woderate 5-10m  Conservation Tillage  Immature Forest, Shrub or Old  Urban or Industrial  Field	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]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY \$\frac{1}{2}\$ NOTE: River Left (L) and Right (R) as looking downstream \$\frac{1}{2}\$ RIPARIAN WIDTH  L R (Per Bank) L R (Most Predominant per Bank) L R  Wide >10 m Mature Forest, Wetland Conservation Tillage    Moderate 5-10m   Immature Forest, Shrub or Old   Urban or Industrial   Marrow <5m   Residential, Park, New Field   Open Pasture, Row of the conservation of the co	Width Max=30 5
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY   NOTE: River Left (L) and Right (R) as looking downstream   RIPARIAN WIDTH  L R (Per Bank)  L R (Most Predominant per Bank)  Wide >10m  Mature Forest, Wetland  Woderate 5-10m  Conservation Tillage  Immature Forest, Shrub or Old  Urban or Industrial  Field	Width Max=30 5
BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH    RIPARIAN WIDTH   FLOODPLAIN QUALITY   Moterate State of the state of t	Width Max=30 5
BANK FULL WIDTH (Measured as the average of 3-4 measurements)    Check ONLY one box):	Width Max=30
BANK FULL WIDTH (Measured as the average of 3-4 measurements)    Check ONL Y one box):   > 4.0 meters (> 13') [30 pts]   > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]   > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]   COMMENTS	Width Max=30
BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts] > 3.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] > 1.5 m - 3.0 m (> 9' 7" - 13') [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  NOTE: River Left (L) and Right (R) as looking downstream  Note  N	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] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  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    Residential   Reside	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] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH  EL R (Per Bank) L R (Most Predominant per Bank) L R (Conservation Tillage Wide >10 m   Mature Forest, Wetland   Conservation Tillage  Wide >10 m   Residential, Park, New Field   Open Pasture, Row    Narrow <5m   Residential, Park, New Field   Open Pasture, Row    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)   Dry channel, isolated pools, no flow (Intermitted Dry channel, no water (Ephemeral))  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	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] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  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    Residential   Reside	Width Max=30  5  Crop on ont)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Atta	ch Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)  WWH Name: Buckeye Creek  CWH Name: EWH 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
USGS Quadrangle Name: Fultonham NRCS Soil Map P	age: NRCS Soil Map Stream Order
County: Perry Township / City: Harriso	on
MISCELLANEOUS  Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/06/20	Quantity: 0.25
Photograph Information: 3 photos, upstream, downsteam and substrate	,
Elevated Turbidity? (Y/N): N Canopy (% open): 25%	<del></del>
N	ind attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.)	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) Y If not, please explain:	
Additional comments/description of pollution impacts:  Overall Stability of BOTH Stream Banks (check one): Stable Moderate	ely Stable Unstable
Performed? (Y/N):  N  (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Prince Fish Observed? (Y/N)  Frogs or Tadpoles Observed? (Y/N)  N  Voucher? (Y/N)  Voucher? (Y/N)  Aquatic Macroinvertebrat  Comments Regarding Biology:  none observed	mary Headwater Habitat Assessment Manual)  Voucher? (Y/N)
DRAWING AND NARRATIVE DESCRIPTION OF STREAM R	
Include supportant landmarks and other features of interest for site evaluation an	d a narrative description of the stream's location
s-jbl-20201008-05	wooded
FLOW	
Oculvert Scrub shrub ROW	
steep	
October 24, 2 102 Revision  WOODED  WOODED	Save as pdf Reset Form



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 015

Date:

October 8, 2020

**Description:** 

Intermittent

Modified Small Drainage Warmwater Stream

Facing Upstream



#### Stream 015

Date:

October 8, 2020

**Description:** 

Intermittent

Modified Small Drainage Warmwater Stream





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 015

Date:

October 8, 2020

**Description:** 

Intermittent

Modified Small Drainage Warmwater Stream





# **Qualitative Habitat Evaluation Index and Use Assessment Field Sheet**

QHEI Score: 58.5

Stream & Location:	Buckeye Fork / AEP Croo	ksville-North New	vark 138 kV	<i>RM</i> : <u>5.2</u> . Date:	10/08/2020
s-jbl-20201008-06		_Scorers Full N	ame & Affiliation:	jbl,rcm AECOM	
River Code:	STORET #:_		<b>Long.:</b> 39.80337, -		Office verified location
1] SUBSTRATE Checestin  BEST TYPES  BEDR /SLABS [10]  BOULDER [9]  COBBLE [8]  GRAVEL [7]  SAND [6]  BEDROCK [5]  NUMBER OF BEST  Comments	0 45 ☐ MUCK [2] 0 15 ☑ SILT [2] 10 10 ☐ ARTIFICIA 10 25 (Score na	PES POOL RIFFLE N [4] S [3]  50  50  5  AL [0]  tural substrates; ignore	Check COORIGIN  LIMESTONE [1] TILLS [1] WETLANDS [0]	ONE (Or 2 & average)  QUA  HEAVY  MODER  NORMA  FREE [1	LITY [-2] ATE [-1] Substrate
quality; <b>3-</b> Highest quality	EGETATION [1] 1 ROOTW	e.g., very large boulde / fast water, or deep, > 70cm [2](  //ADS [1](	ancy or in small amounts ers in deep or fast water.	contiguest Check ONE (   large	OUNT Or 2 & average) E >75% [11] E 25-75% [7] -<25% [3] BSENT <5% [1]  Cover Maximum 20  14
SINUOSITY  HIGH [4]  MODERATE [3]  LOW [2]	EXCELLENT [7] NONE [6]  GOOD [5] RECOVER  FAIR [3] RECOVER	ELIZATION RED [4]	STABILITY  HIGH [3]  MODERATE [2]  LOW [1]		Channel Maximum 20
River right looking downstrum  REROSION  NONE / LITTLE [3]  MODERATE [2]  HEAVY / SEVERE [	☐ WIDE > 50m [4] ☐ MODERATE 10-50m [3] ☐ MARROW 5-10m [2]	FLO  R FOREST, S SHRUB OF RESIDENT FENCED P	OOD PLAIN QUALI SWAMP [3] R OLD FIELD [2] IAL, PARK, NEW FIELD	TY  R CONSERVATION URBAN OR IN	IDUSTRIAL [0] STRUCTION [0] land use(s) Riparian
Comments					Maximum 10
MAXIMUM DEPTH Check ONE (ONLY!)  > 1m [6] 0.7-<1m [4] 0.4-<0.7m [2] 0.2-<0.4m [1] <0.2m [0]  Comments 24" dee	Check ONE (Or 2 & avera POOL WIDTH > RIFFLE WID POOL WIDTH = RIFFLE WID POOL WIDTH > RIFFLE WID	I CUF ge) C TH [2] □ TORREN' TH [1] □ VERY FA TH [0] □ FAST [1] □ MODERA Indicate	☐ INTERMIT  ITE [1] ☐ EDDIES [1]  for reach - pools and rif	FIAL [-1] TENT [-2] ] ffles.	Pool / Current Maximum 12
	ctional riffles; Best areas			a population ☐NO	RIFFLE [metric=0]
of riffle-obligate RIFFLE DEPTH	-	heck ONE (Or 2 & av RIFFLE / RUN S	• ,	FLE / RUN EMBEDD	
□ BEST AREAS > 10cm [ □ BEST AREAS 5-10cm [ □ BEST AREAS < 5cm [metric=	2]	STABLE (e.g., Cobb	ole, Boulder) [2] , Large Gravel) [1]	☐ NONE [2] ☐ LOW [1] ☑ MODERATE [0]	Riffle /
Comments				EXTENSIVE [-1	Maximum 8
6] GRADIENT ( 35 DRAINAGE AREA ( 8.1	MODERATE [6-10]		%POOL: 40 %RUN: 30	%GLIDE: 0 %RIFFLE: 30	Gradient Maximum 10



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 016

Date:

October 9, 2020

**Description:** 

Perennial

Limited Resource Water

Buckeye Fork

Facing Upstream



#### Stream 016

Date:

October 9, 2020

**Description:** 

Perennial

Limited Resource Water

Buckeye Fork





**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 016

Date:

October 9, 2020

**Description:** 

Perennial

Limited Resource

Water

Buckeye Fork





## Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION AEP Crooksville-North Newark 138 kV Transmission Line Rebuild Project	
s-jbl-20201007-01 SITE NUMBER RIVER BASIN Muskingum DRAINAGE AREA (mi²)	0.03
ENGTH OF STREAM REACH (ft) 200 LAT. 39.80563 LONG82.13938 RIVER CODE RIVER MILE	0.11
DATE 10/07/20 SCORER jbl,rcm COMMENTS ephemeral	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Inst	ructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING CUIVERT	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HHEI
TYPE  PERCENT  TYPE  PERCENT  PERCENT	Metric
BLDR SLABS [16 pts] 0% SILT [3 pt] 25%	Points
BOULDER (>256 mm) [16 pts]  BEDROCK [16 pt]  0%  LEAF PACK/WOODY DEBRIS [3 pts]  0%  FINE DETRITUS [3 pts]  0%	Substrate
✓ ☐ COBBLE (65-256 mm) [12 pts] 30% ☐ CLAY or HARDPAN [0 pt] 0%	Max = 40
GRAVEL (2-64 mm) [9 pts] 10% MUCK [0 pts] 0%	21
SAND (<2 mm) [6 pts] ARTIFICIAL [3 pts]	ــــــا
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock  30.00% (A) Substrate Percentage Check 100% (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 TOTAL NUMBER OF SUBSTRATE TYPES: 6	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):	Pool Dep
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	IVIAX - 30
> 22.5 - 30 cm [30 pts] < 5 cm [5 pts] < 5 cm [5 pts] NO WATER OR MOIST CHANNEL [0 pts]	0
NO WATER OR MOIOT OF ANNEL [0 pla]	0
COMMENTS MAXIMUM POOL DEPTH (Inches): 0.00	
COMMENTS MAXIMUM POOL DEPTH (Inches): 0.00  BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ON Y one box):	Bankful
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONL Y one box):  > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankfull Width
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONL Y one box):  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  ✓ (□ 0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]  ✓ (□ 1.0 m (<=3' 3") [5 pts]	Width
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  (Check ONLY one box):  > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]  ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONL Y one box):  > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet): 3.00  This information must also be completed	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]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet): 3.00  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream ARIPARIAN WIDTH  FLOODPLAIN QUALITY	Width Max=30
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONL Y one box):  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet): 3.00  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆ NOTE: River Left (L) and Right (R) as looking downstream ☆ RIPARIAN WIDTH  L R (Per Bank) L R (Most Predominant per Bank) L R	Width Max=30
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONL Y one box):  > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  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 River Left (L) and River Left (L) and Right (R) as looking downstream ANOTE: River Left (L) and River	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] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet):  AVERAGE BANKFULL WIDTH (Feet):  ###	Width Max=30
BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONL Y one box):  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet): 3.00  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆  RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank)  L R (Most Predominant per Bank)  L R (Most Predominant per Bank)  Wide >10 m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Residential, Park, New Field  Open Pasture, Row Completed  RIPARIAN WIDTH  Residential, Park, New Field  Open Pasture, Row Completed  RIPARIAN WIDTH  Residential, Park, New Field  Open Pasture, Row Completed  RIPARIAN WIDTH  Residential, Park, New Field  Open Pasture, Row Completed  RIPARIAN WIDTH  Residential, Park, New Field  Open Pasture, Row Completed  RIPARIAN WIDTH  Residential, Park, New Field  Open Pasture, Row Completed  RIPARIAN WIDTH  Residential, Park, New Field	Width Max=30  5
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet):  AVERAGE BANKFULL WIDTH (Feet):  ###	Width Max=30  5
BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  V Wide > 10m  Mature Forest, Wetland  Moderate 5-10m  None  None  Residential, Park, New Field  None  Fenced Pasture  Mining or Construction  COMMENTS	Width Max=30  5
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet):  1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  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  UNGENTY Wide > 10 m  Mature Forest, Wetland Conservation Tillage Immature Forest, Wetland Urban or Industrial  Moderate 5-10m Residential, Park, New Field Open Pasture, Row Completed Immature Forest, Shrub or Old Sield Open Pasture, Row Completed Immature Forest, Shrub or Old Sield Open Pasture, Row Completed Immature Forest, Shrub or Old Sield Open Pasture, Row Completed Immature Forest, Shrub or Old Sield Open Pasture, Row Completed Immature Forest, Shrub or Old Sield Open Pasture, Row Completed Immature Forest, Shrub or Old Sield Open Pasture, Row Completed Immature Forest, Shrub or Old Sield Open Pasture, Row Completed Immature Forest, Shrub or Old Sield Open Pasture, Row Completed Immature Forest, Shrub or Old Sield Open Pasture, Row Completed Immature Forest, Shrub or Old Sield	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]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet):  3.00  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream And RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  Wide >10 m  Mature Forest, Wetland  Moderate 5-10m  Mature Forest, Wetland  Moderate 5-10m  Residential, Park, New Field  Open Pasture, Row Completed  RIPARIAN WIDTH  FLOODPLAIN QUALITY  Wide >10 m  Mature Forest, Wetland  Open Pasture, Row Completed  RIPARIAN WIDTH  FloodPlain Quality  Residential, Park, New Field  Open Pasture, Row Completed  Narrow <5m  Residential, Park, New Field  Open Pasture, Row Completed  RIPARIAN WIDTH  FloodPlain Quality  Wide >10 m  Mature Forest, Shrub or Old  Wide >10 m  Narrow <5m  Residential, Park, New Field  Open Pasture, Row Completed  Mining or Construction  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	Width Max=30
BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7' - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7' - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  NOTE: River Left (L) and Right (R) as looking downstream  Note: RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)	Width Max=30
BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆  RIPARIAN WIDTH FLOODPLAIN QUALITY  ↓ R (Per Bank) ↓ R (Most Predominant per Bank) ↓ R (Per Bank) ↓ R (Per Bank) ↓ R (Most Predominant per Bank) ↓ R (Per Bank) ↓ R (Most Predominant per Bank) ↓ R (Per Bank) ↓ R	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] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  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 RIPARIAN WIDTH FLOODPLAIN QUALITY Wide >10m Mature Forest, Wetland Moderate 5-10m Moderate 5-10m Residential, Park, New Field Narrow <5m None COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3	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] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ↑NOTE: River Left (L) and Right (R) as looking downstream ↑  RIPARIAN WIDTH  FLOODPLAIN QUALITY  Wide >10 m  Mature Forest, Wetland  Moderate 5-10 m  Moderate 5-10 m  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None  1.0  Check ONLY one box):  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None  1.0  Check ONLY one box):  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None  1.0  3.0	Width Max=30  5

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)  WWH Name: Buckeye Fork Distance from Evaluated Stream 0.10  CWH 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
USGS Quadrangle Name: Fultonham NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Perry Township / City: Clayton
MISCELLANEOUS
Base Flow Conditions? (Y/N): Y Date of last precipitation: 10/05/20 Quantity: 0.15
Photograph Information: 3 photos, upstream, downsteam and substrate
Elevated Turbidity? (Y/N): N Canopy (% open): 10%
Were samples collected for water chemistry? (Y/N): Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
Overall Stability of BOTH Stream Banks (check one): Stable Moderately Stable Unstable
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  Fish Observed? (Y/N) N Voucher? (Y
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's location scrub shrub ROW
wooded scrub shrub ROW wooded
October 24, 2002 Revision  PHWH Form Page - 2  Save as pdf  Reset Form



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

Stream 017

Date:

October 7, 2020

**Description:** 

Ephemeral

Modified Ephemeral Stream

Facing Upstream



#### Stream 017

Date:

October 7, 2020

**Description:** 

Ephemeral

Modified Ephemeral Stream





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 017

Date:

October 7, 2020

**Description:** 

Ephemeral

Modified Ephemeral Stream





## Primary Headwater Habitat Evaluation Form

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

	37	
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SITE NAME/LOCATION AEP Crooksville-North Newark 138 kV Transmission Line Rebuild Project	
s-jbl-20201007-02 SITE NUMBER S-02 RIVER BASIN Muskingum DRAINAGE AREA (mi²)	.03
LENGTH OF STREAM REACH (ft) 200 LAT. 39.80960 LONG82.14380 RIVER CODE RIVER MILE 0	
DATE 10/07/20 SCORER jbl,rcm COMMENTS intermittent	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instr	uctions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING Former earthwork, tree clearing	OVERT
<ol> <li>SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A &amp; B.</li> </ol>	HHE
TYPE PERCENT TYPE PERCENT	Metric
BLDR SLABS [16 pts]	Points
BEDROCK [16 pt]  BEDROCK [16 pt]  D'A  FINE DETRITUS [3 pts]  0%	Substrat
COBBLE (65-256 mm) [12 pts] 5% CLAY or HARDPAN [0 pt] 0%	Max = 40
GRAVEL (2-64 mm) [9 pts]	17
SAND (<2 mm) [6 pts]	
Total of Percentages of 5.00% (A) Substrate Percentage Check (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 TOTAL NUMBER OF SUBSTRATE TYPES: 5	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dep
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] > 5 cm - 30 cm [30 pts] < 5 cm [5 pts]	
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	5
COMMENTS MAXIMUM POOL DEPTH (Inches): 1.00	
(	
A DANKELLI MIDTILIA I (I CA ( ) (A) I ANKAY I )	Davide d
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]	Bankful Width
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  ✓ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet):  4.00	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet): 4.00  This information must also be completed	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet):  4.00	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream ☆  RIPARIAN WIDTH  L R (Per Bank)  L R (Most Predominant per Bank)  L R  (Most Predominant per Bank)  L R	Width Max=30
> 4.0 meters (> 13') [30 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]   ≤ 1.0 m (<=3' 3") [5 pts]   ≤ 1.0	Width Max=30
> 4.0 meters (> 13') [30 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]   ≤ 1.0 m (<=3' 3") [5 pts]   ≤ 1.0	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream ☆  RIPARIAN WIDTH  L R (Per Bank)  L R (Most Predominant per Bank)  L R (Most Predominant per Bank)  Wide >10m  Moderate 5-10m  Moderate 5-10m  AVERAGE BANKFULL WIDTH  (Feet):  4.00  L R  (Most Predominant per Bank)  L R  Conservation Tillage  Immature Forest, Wetland  L Irban or Industrial	Width Max=30
> 4.0 meters (> 13') [30 pts]	Width Max=30
> 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]   > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  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  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Narrow <5m  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  Moderate (Ephemeral)	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  Wide > 10m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Residential, Park, New Field  Narrow < 5m  None  Residential, Park, New Field  Mining or Construction  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Moist Channel, isolated pools, no flow (Intermittent)	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  NOTE: River Left (L) and Right (R) as looking downstream  RIPARIAN WIDTH  FLOODPLAIN QUALITY  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Narrow <5m  Narrow <5m  Residential, Park, New Field  Narrow <5m  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY	Width Max=30
> 4.0 meters (> 13') [30 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m (<=3' 3") [5 pts]   > 1.5 m - 3.0 m (× 9' 7" - 13') [25 pts]   > 1.5 m - 3.0 m (× 9' 7" - 4' 8") [20 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY	Width Max=30

MISCELLANEOUS see Flow Conditions? (Y/N):  Output  Y  Date of last precipitation otograph Information:  N  Canopy (% open):  Pere samples collected for water chemistry? (Y/N):  N  (N	10%	
MAPPING: ATTACH COPIES OF MAPS, INCLUDING GGS Quadrangle Name: Fultonham  MISCELLANEOUS see Flow Conditions? (Y/N): Y Date of last precipitation otograph Information: 3 photos, upstream, downsteam are evated Turbidity? (Y/N): N Canopy (% open): Pere samples collected for water chemistry? (Y/N): N (N)	Distance from Evaluated Stream  THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LO  NRCS Soil Map Page: NRCS Soil Map Stream  Township / City: Clayton  10/05/20 Quantity: 0.15  Ind substrate  10%	
MAPPING: ATTACH COPIES OF MAPS, INCLUDING GGS Quadrangle Name: Fultonham  MISCELLANEOUS see Flow Conditions? (Y/N): Y Date of last precipitation otograph Information: 3 photos, upstream, downsteam are evated Turbidity? (Y/N): N Canopy (% open):	THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LO  NRCS Soil Map Page: NRCS Soil Map Stream  Township / City: Clayton  10/05/20 Quantity: 0.15  Ind substrate  10%	
MISCELLANEOUS see Flow Conditions? (Y/N):  Output  Y  Date of last precipitation otograph Information:  N  Canopy (% open):  Pere samples collected for water chemistry? (Y/N):  N  (N	NRCS Soil Map Page: NRCS Soil Map Stream Township / City: Clayton  10/05/20 Quantity: 0.15  nd substrate  10%	
MISCELLANEOUS  se Flow Conditions? (Y/N):  Y  Date of last precipitation otograph Information:  N  Canopy (% open):  Pere samples collected for water chemistry? (Y/N):  N  (N	Township / City: Clayton  n: 10/05/20 Quantity: 0.15  nd substrate  10%	Order
MISCELLANEOUS se Flow Conditions? (Y/N):  Y  Date of last precipitation otograph Information:  3 photos, upstream, downsteam are evated Turbidity? (Y/N):  N  Canopy (% open):  Pere samples collected for water chemistry? (Y/N):  N  (N	n: 10/05/20 Quantity: 0.15 nd substrate 10%	
se Flow Conditions? (Y/N): Y Date of last precipitation otograph Information: 3 photos, upstream, downsteam are evated Turbidity? (Y/N): N Canopy (% open): Present the samples collected for water chemistry? (Y/N): N (N)	nd substrate  10%	
otograph Information: 3 photos, upstream, downsteam are evated Turbidity? (Y/N): N Canopy (% open):	nd substrate  10%	
evated Turbidity? (Y/N): N Canopy (% open): Open State of the samples collected for water chemistry? (Y/N): N (N)	10%	
evated Turbidity? (Y/N): N Canopy (% open): Open State of the samples collected for water chemistry? (Y/N): N (N)	10%	
ere samples collected for water chemistry? (Y/N): N (N		
	Note lab sample no. or id. and attach results) Lab Number:	
eld Measures: Temp (°C) Dissolved Oxygen (mg/		
Y		
the sampling reach representative of the stream (Y/N)	If not, please explain:	
ditional comments/description of pollution impacts:		
verall Stability of BOTH Stream Banks (check one): Stal	ble Moderately Stable Unstable	1
sh Observed? (Y/N) N Voucher? (Y/N) N Salaman ogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N voucher? (Y/N) N	nders Observed? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Voucher? (	//N) <u>N</u>
one observed		
	•	
DRAWING AND NARRATIVE DESCRIP	TION OF STREAM REACH (This <u>must</u> be comple	ed):
Include mportant landmarks and other features of inte	rest for sit <u>e evaluation and a</u> narrative description of the strea	n's loc
hunting s-jbl-20201007-02 sto	eep BOW	
s-jbi-20201007-02	ROW wooded	
	7	
	footbridg	
ow <del>-</del>		е
.ow →	+	e
.ow	Th	e
.ow	#	e
wooded	scrub shrub	e



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 018

Date:

October 7, 2020

**Description:** 

Intermittent

Modified Small Drainage Warmwater Stream

Facing Upstream



#### Stream 018

Date:

October 7, 2020

**Description:** 

Intermittent

Modified Small Draiange Warmwater Stream





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 018

Date:

October 7, 2020

**Description:** 

Intermittent

Modified Small Drainage Warmwater Stream



Stream 019 **Ephemeral Stream** 



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

20

SITE NAME/LOCATION AEP Crooksville-North Newark 138 kV Transmission Line Rebuild Project	
S-jbl-20201007-03 SITE NUMBER RIVER BASIN Muskingum DRAINAGE AREA (mi²) LENGTH OF STREAM REACH (ft) 200 LAT. 39.80975 LONG82.14410 RIVER CODE RIVER MILE	
DATE 10/07/20 SCORER jbl,rcm COMMENTS ephemeral	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Ins	tructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO REMODIFICATIONS: former earthwork-mining	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HHEI
TYPE         PERCENT         TYPE         PERCENT           0%         Image: Control of the percent	Metric
BOULDER (>256 mm) [16 pts]  BEDROCK [16 pt]  D' LEAF PACK/WOODY DEBRIS [3 pts]  40%  FINE DETRITUS [3 pts]	Substrate
COBBLE (65-256 mm) [12 pts]	Max = 40
GRAVEL (2-64 mm) [9 pts] 5% MUCK [0 pts] 0% SAND (<2 mm) [6 pts] 10% ARTIFICIAL [3 pts] 0%	10
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock  Substrate Percentage Check  (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 TOTAL NUMBER OF SUBSTRATE TYPES: 4	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):	Pool Dept Max = 30
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts] > 22.5 - 30 cm [30 pts] < 5 cm [5 pts]	l
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	5
COMMENTS MAXIMUM POOL DEPTH (Inches): 1.00	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  (Check ONLY one box):  > 1.0 m (-3' 3") [5 pts]  ≤ 1.0 m (<=3' 3") [5 pts]	Bankfull Width Max=30
> 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] ≤ 1.0 m (<=3' 3") [5 pts]	Width
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet): 1.50	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet): 1.50  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  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)  L R	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream ★  RIPARIAN WIDTH  L R (Per Bank)  L R (Most Predominant per Bank)  L R (Most Predominant per Bank)  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Virtual or Industrial	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet): 1.50  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)    V   Wide >10m   Mature Forest, Wetland   Conservation Tillage	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet): 1.50  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ♣ NOTE: River Left (L) and Right (R) as looking downstream ♣ RIPARIAN WIDTH  L R (Per Bank)  V Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Conservation Tillage  Immature Forest, Shrub or Old  Field  Conservation Flow Conservation  Urban or Industrial  Flow Conservation  C	Width Max=30  5
> 4.0 meters (> 13') [30 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]     > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]   ✓ ≤ 1.0 m (<=3' 3") [5 pts]     > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Width Max=30  5
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  Wide >10 m  Mature Forest, Wetland  Moderate 5-10 m  Moderate 5-10 m  Narrow <5 m  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  Moist Channel, isolated pools, no flow (Intermitter Dry channel, no water (Ephemeral))	Width Max=30  5

ADDITIONAL STREAM INFO	RMATION (This Information Must A	lso be Completed):		
QHEI PERFORMEI	D? - Yes V No QHEI Score	(If Yes, Atta	ach Completed QI	HEI Form)
DOWNSTREAM DE	ESIGNATED USE(S)			
WWH Name: Buckeye C	reek		_ Distance from	Evaluated Stream 0.40
CWH Name: _			_ Distance from I	Evaluated Stream _
EWH Name:			Distance from I	Evaluated Stream _
	H COPIES OF MAPS, INCLUDING THE	ENTIRE WATERSHED	AREA. CLEARL	Y MARK THE SITE LOCATION
USGS Quadrangle Name: Fu	ıltonham	NRCS Soil Map P	Page:NF	RCS Soil Map Stream Order
County: Perry	To\	wnship / City: Clayto	n	
MISCELLANEOUS		10/06/20	0	0.25
Base Flow Conditions? (Y/N):			_ Quantity:	0.20
Photograph Information: 3 p	hotos, upstream, downsteam and s			
Elevated Turbidity? (Y/N):	Carlopy (70 open).	0%		
Were samples collected for w	rater chemistry? (Y/N): Note	lab sample no. or id. a	and attach results	) Lab Number:
Field Measures: Temp (°C	Dissolved Oxygen (mg/l)	pH (S.U.)	Conducti	vity (µmhos/cm)
Is the sampling reach represe	entative of the stream (Y/N)	not, please explain:		
Additional comments/descript	tion of pollution impacts:			
	tream Banks (check one): Stable	Modera <sup>4</sup>	tely Stable	Unstable <b></b>
Performed? (Y/N): N  Fish Observed? (Y/N)  Frogs or Tadpoles Observed?  Comments Regarding Biology none observed	(If Yes, Record all observations. Vouc ID number. Include appropriate field of Voucher? (Y/N) N Salamanders ? (Y/N) N Voucher? (Y/N) N Aq	data sheets from the Pri	imary Headwater H  Voucher? (Y/	abitat Assessment Manual)
DRAWING A	ND NARRATIVE DESCRIPTION	wooded	ACH (This	must be completed):
Include important land	marks and other features of interest	for site evaluation an	nd a narrotive ues	cription of the stream's location
s-jbl-20201  FLOW upland swale	scrub ROW	shrub		
	scrub s ROW	hrub		s-jbl-20201007-02
	ROW			
	7			
wooded	PHW	H Form Page - 2		
October 24	steep		Save as pdf	Reset Form



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 019

Date:

October 7, 2020

**Description:** 

Ephemeral

**Ephemeral Stream** 

Facing Upstream



#### Stream 019

Date:

October 7, 2020

**Description:** 

Ephemeral

**Ephemeral Stream** 





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 019

Date:

October 7, 2020

**Description:** 

Ephemeral

Ephemeral Stream





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

SITE NAME/LOCATION AEP Crooksville-North Newark 138 kV		
BA I . in a	AINAGE AREA (mi²) 0.03	
LENGTH OF STREAM REACH (ft) 200 LAT. 39.81162 LONG82.14630 RIVER CODE	RIVER MILE 0.04	
DATE 10/07/20 SCORER jbl,rcm COMMENTS intermittent		
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHW	H Streams" for Instruct	ions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING MODIFICATIONS: former earthwork-mining	RECENT OR NO RECOVE	ERY
<ol> <li>SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant s (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum</li> </ol>		HHEI
TYPE  PERCENT  TYPE	PERCENT N	letric
BLDR SLABS [16 pts]  BOULDER (>256 mm) [16 pts]  0%  SILT [3 pt]  LEAF PACK/WOODY DEBRIS [3 pt]	70 /0	oints
BEDROCK [16 pt] 0% FINE DETRITUS [3 pts]	0% St	ubstrate lax = 40
COBBLE (65-256 mm) [12 pts] 5% CLAY or HARDPAN [0 pt]	0%	
GRAVEL (2-64 mm) [9 pts]  SAND (<2 mm) [6 pts]  MUCK [0 pts]  ARTIFICIAL [3 pts]	0%	17
Total of Percentages of 5.00% (A) Substrate Percentage 100%	(B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock  SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12  TOTAL NUMBER OF SUBSTR		
<ol> <li>Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation re evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):</li> </ol>		ool Depth lax = 30
> 30 centimeters [20 pts]		
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL	_ [0 pts]	15
COMMENTS MAXIMUM POOL DEPTH	(Inches): 2.00	
	, , ,	
3 BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one b	DX).	Bankfull
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONL Y one b > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 p	ts]	Bankfull Width
	ts]	
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	ts]	Width Max=30
> 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]  ≤ 1.0 m (<=3' 3") [5 pts]	ts]	Width
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WID  This information must also be completed	TH (Feet): 2.00	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]  > 1.0 m (<=3' 3") [5 pts]  AVERAGE BANKFULL WID  This information to must also be completed  SNOTE: River Left (L) and Right (R) as log	TH (Feet): 2.00	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  □ RIPARIAN WIDTH □ RIP	nth (Feet): 2.00 Now the control of	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as log RIPARIAN WIDTH  L R (Per Bank)  L R (Most Predominant per Bank)	oking downstream ☆	Width Max=30
> 4.0 meters (> 13') [30 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	tts]  Note: The interest of the image of th	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ♣ NOTE: River Left (L) and Right (R) as lot RIPARIAN WIDTH  L R (Per Bank)  Vide >10 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]  AVERAGE BANKFULL WID  AVERAGE BANKFULL WID  AVERAGE BANKFULL WID  Moderate 5-10m  FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  Wide >10 m  Mature Forest, Wetland  Immature Forest, Shrub or Old Field  Narrow <5m  Residential, Park, New Field	oking downstream☆  Conservation Tillage Urban or Industrial Open Pasture, Row Crop	Width Max=30
> 4.0 meters (> 13') [30 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	tts]  Note: The interest of the image of th	Width Max=30
> 4.0 meters (> 13') [30 pts]     > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]     > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]     COMMENTS	oking downstream☆  Conservation Tillage Urban or Industrial Open Pasture, Row Crop	Width Max=30
> 4.0 meters (> 13') [30 pts]     > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]     > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	oking downstream A  Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction  ols, no flow (Intermittent)	Width Max=30
> 4.0 meters (> 13') [30 pts]     > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]     > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]     COMMENTS	oking downstream A  Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction  ols, no flow (Intermittent)	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (<=3' 3") [5 pts]  > 1.5 m - 3.0 m (× 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ♣ NOTE: River Left (L) and Right (R) as lot  RIPARIAN WIDTH  L R (Most Predominant per Bank)  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing Subsurface flow with isolated pools (Interstitial)  Moderate 5-10m Water (Epl	oking downstream A  Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction  ols, no flow (Intermittent)	Width Max=30
> 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" - 4' 8") [20 pts]     > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	oking downstream A  Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction  ols, no flow (Intermittent) nemeral)	Width Max=30
> 4.0 meters (> 13') [30 pts]	oking downstream A  Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction  ols, no flow (Intermittent)	Width Max=30
> 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" - 43') [25 pts]   > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	oking downstream A  Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction  ols, no flow (Intermittent) nemeral)	Width Max=30

ADDITIONAL STREAM INFORMATION (T	his Information Must Als	so be Completed):			
QHEI PERFORMED? - Yes	No QHEI Score	(If Yes, Atta	ch Completed QI	HEI Form)	
DOWNSTREAM DESIGNATED  WWH Name: Buckeye Fork  CWH Name:			_	Evaluated Stream	0.50
			_	Evaluated Stream _	
MAPPING: ATTACH COPIES OF	MAPS, INCLUDING THE E	ENTIRE WATERSHED	AREA. CLEARL	Y MARK THE SITE L	OCATION
USGS Quadrangle Name: Fultonham		NRCS Soil Map P	age: NF	RCS Soil Map Stream	n Order _
County: Perry	Town	nship / City: Clayton	n		
MISCELLANEOUS					
Base Flow Conditions? (Y/N):Y Da	ate of last precipitation:	10/06/20	Quantity:	0.25	
Photograph Information: 3 photos, upstro		bstrate	- · · / <u></u>	<del></del>	
N		1%			
Were samples collected for water chemistr	N	ab sample no. or id. a	and attach results	) Lab Number:	
	ssolved Oxygen (mg/l)	pH (S.U.)			
Is the sampling reach representative of the	Υ	ot, please explain:			
		., produce or praimi			
Additional comments/description of pollution	n impacts:				
Overall Stability of BOTH Stream Banks		Moderat	ely Stable	Unstabl	e 🗸
ID number. Fish Observed? (Y/N)  N  Voucher? (	ord all observations. Vouch Include appropriate field da Y/N)  Salamanders Voucher? (Y/N)  N  Aqu	•	mary Headwater H Voucher? (Y/	abitat Assessment M	lanual)
DRAWING AND NARRA	ATIVE DESCRIPTION	N OF STREAM R	EACH (This	must be comple	eted):
Include important landmarks and o	the features of interest f	or site scrub shru ROW	Jp narrative des	scription of the stre	am's location
s-jbl-20201007-04		✓ stee     ✓	o \	wood	ded
FLOW					
wooded		scrub shrub ROW		,	V
October 24, 2002 Revision	PHWH	Form Page - 2			
COLUMN AT AUGUS INSTITUTE			Save as pdf	Rese	t Form



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 020

Date:

October 7, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream

Facing Upstream



#### Stream 020

Date:

October 7, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 020

Date:

October 7, 2020

**Description:** 

Intermittent

Small Draiange Warmwater Stream





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

SITE NAME/LOCATION AEP Crooksville-North Newark	
s-jbl-20201007-05 SITE NUMBER RIVER BASIN Muskingum DRAINAGE AREA (mi	0.01
LENGTH OF STREAM REACH (ft) 200 LAT. 39.81272 LONG82.14750 RIVER CODE RIVER MIL	0.09
DATE 10/07/20 SCORER jbl,rcm COMMENTS intermittent	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for It	structions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO F MODIFICATIONS:   filling/culvert	RECOVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxe (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	s HHEI
TYPE  PERCENT  TYPE  PERCENT	Metric
BLDR SLABS [16 pts]	Points
BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] 0%	Substrate Max = 40
COBBLE (65-256 mm) [12 pts] 5% CLAY or HARDPAN [0 pt] 20% WILCK [0 pts] 5% MILCK [0 pts] 0%	Wax - 40
GRAVEL (2-64 mm) [9 pts]  SAND (<2 mm) [6 pts]  MUCK [0 pts]  ARTIFICIAL [3 pts]  0%	14
Total of Percentages of Percentage (A) Substrate Percentage (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock	
	┘ <b>│</b> <u></u>
<ol> <li>Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):</li> </ol>	Pool Depth 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]	15
COMMENTS MAXIMUM POOL DEPTH (Inches): 2.00	
BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Max=30
COMMENTS 2.5 ft AVERAGE BANKFULL WIDTH (Feet): 2.00	
COMMENTS AVERAGE BANKFULL WIDTH (Fee[);   2.30	)
AVERAGE BANKFULL WIDTH (Feet): 2.00	5
This information must also be completed	
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  LR (Per Bank) LR (Most Predominant per Bank) LR	
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) Wide >10m Mature Forest, Wetland Conservation Tillage	
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH  L R (Per Bank)  V Wide >10m  Mature Forest, Wetland  Immature Forest, Shrub or Old  Field  Onen Pasture Power  Completed  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  L R (Most Predominant per Bank)  I mature Forest, Wetland  Onen Pasture Power	e
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH  L R (Per Bank) Wide >10m Mature Forest, Wetland Moderate 5-10m  Narrow <5m  This information must also be completed  RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Most Predominant per Bank) L R Mature Forest, Wetland Mature Forest, Shrub or Old Field  Open Pasture, Row	e Crop
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH  L R (Per Bank)  V Wide >10m  Mature Forest, Wetland  Immature Forest, Shrub or Old  Field  Onen Pasture Power  Completed  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  L R  Urban or Industrial Field	e Crop
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  L R (Per Bank)  Wide >10m  Moderate 5-10m  Narrow <5m  None  Residential, Park, New Field  This information must also be completed  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  L R (Der Bank)  L R (Most Predominant per Bank)  L R (Der Bank)  Conservation Tillage  Residential, Park, New Field  Open Pasture, Row  Mining or Construct  COMMENTS	e Crop
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Residential, Park, New Field  Narrow <5m  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Mining or Construction flow (Intermitial moderate) isolated pools, no flow (Intermitial	e Crop ion
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	e Crop ion
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: 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 Tillag Immature Forest, Shrub or Old Urban or Industrial Field  Narrow <5m Residential, Park, New Field Open Pasture, Row None Fenced Pasture Mining or Construct COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing Subsurface flow with isolated pools (Interstitial)  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream Driver Left (L) and Right (R) as looking downstream Mining or Conservation Tillag  Most Channel, isolated pools, no flow (Intermit Dry channel, no water (Ephemeral)	e Crop ion
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Residential, Park, New Field  Narrow <5m  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None  1.0  Check ONLY one box):  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None  1.0  Check ONLY one box):  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None  3.0	e Crop ion
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH FLOODPLAIN QUALITY  Wide >10m Mature Forest, Wetland Moderate 5-10m Moderate 5-10m Residential, Park, New Field None COMMENTS  FLOW REGIME (At Time of Evaluation) Stream Flowing Subsurface flow with isolated pools (Interstitial) 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	e Crop ion
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Residential, Park, New Field  Narrow <5m  None  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None  1.0  Check ONLY one box):  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None  1.0  Check ONLY one box):  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None  3.0	e Crop

ADDITIONAL STREAM INFORMATION (T	his Information Must Als	o be Completed):			
QHEI PERFORMED? - Yes	✓ No QHEI Score	(If Yes, Atta	ch Completed Q	HEI Form)	
DOWNSTREAM DESIGNATED  WWH Name: Buckeye Fork  CWH Name: EWH Name:	USE(S)		_ Distance from	Evaluated Stream _ Evaluated Stream _ Evaluated Stream _	0.52
MAPPING: ATTACH COPIES OF	MAPS, INCLUDING THE E	NTIRE WATERSHED	AREA. CLEARL	Y MARK THE SITE L	LOCATION
USGS Quadrangle Name: Fultonham		NRCS Soil Map Pa	age:NF	RCS Soil Map Strean	m Order
County: Perry	Town	ship / City: Claytor	n		
MISCELLANEOUS					
Base Flow Conditions? (Y/N):_Y Da	ite of last precipitation:_	10/06/20	Quantity:	0.25	
Photograph Information: 3 photos, upstre	eam, downsteam and sub	ostrate			
Elevated Turbidity? (Y/N): N	Canopy (% open):	%			
Were samples collected for water chemistry	y? (Y/N): N (Note la	ab sample no. or id. a	and attach results	s) Lab Number:	
Field Measures: Temp (°C) Dis	ssolved Oxygen (mg/l)	pH (S.U.)	Conduct	ivity (µmhos/cm)	
Is the sampling reach representative of the	stream (Y/N) Y If no	t, please explain:			
Additional comments/description of pollutio					
Overall Stability of BOTH Stream Banks	(check one): Stable	Moderat	ely Stable	Unstabl	e 🗸
ID number. Fish Observed? (Y/N) N Voucher? (**)	ord all observations. Vouch Include appropriate field da  Y/N)  Salamanders (Voucher? (Y/N))  Aqua	· ·	mary Headwater F	Habitat Assessment M	1anual)
DRAWING AND NARRA	ATIVE DESCRIPTION	OF STREAM R	EACH (This	must be comple	eted):
s-jbl-20201007-05	ther features of interest fo	ROW		scription of the stre	
		steer	o \		
FLOW	W-08	5			
wooded		scrub shrub ROW			$\wedge$
October 24, 2002 Revision	PHWH	Form Page - 2	Save as pd	f Rese	t Form



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 021

Date:

October 7, 2020

**Description:** 

Intermittent

Modified Small Drainage Warmwater Stream

Facing Upstream



#### Stream 021

Date:

October 7, 2020

**Description:** 

Intermittent

Modified Small Drainage Warmwater Stream





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 021

Date:

October 7, 2020

**Description:** 

Intermittent

Modified Small Drainage Warmwater Stream





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

SITE NAME/LOCATION AEP Crooksville-North Newark 138 kV Transmission Line Rebuild Project	
s-jbl-20201007-06 SITE NUMBER RIVER BASIN Muskingum DRAINAGE AREA (mi²)	0.01
LENGTH OF STREAM REACH (ft) 100 LAT. 39.81652 LONG82.15229 RIVER CODE RIVER MILE	0.0
DATE 10/07/20 SCORER jbl,rcm COMMENTS ephemeral	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	ructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING RECENT OR NO RECOVERED driven through atv	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HHEI
TYPE PERCENT TYPE PERCENT	Metric Points
BLDR SLABS [16 pts]	
BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%	Substrate Max = 40
☐       COBBLE (65-256 mm) [12 pts]       0%       ☐       CLAY or HARDPAN [0 pt]       0%         ☐       GRAVEL (2-64 mm) [9 pts]       5%       ☐       MUCK [0 pts]       0%	
SAND (<2 mm) [6 pts]	10
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock (A) Substrate Percentage Check (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:  6  TOTAL NUMBER OF SUBSTRATE TYPES: 4	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):	Pool Dept
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	Wax - 30
> 22.5 - 30 cm [30 pts]	o
COMMENTS MAXIMUM POOL DEPTH (Inches): 0.00	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.0 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 1.0 m (< -3 3) [5 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	IVIAX-30
COMMENTS AVERAGE BANKFULL WIDTH (Feet): 1.00	5
COMMENTS AVERAGE BANKFULL WIDTH (Feet): 1.00	5
This information must also be completed	5
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆  RIPARIAN WIDTH FLOODPLAIN QUALITY	5
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY \$\frac{1}{2}NOTE: River Left (L) and Right (R) as looking downstream \$\frac{1}{2}\$	5
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY \$\times \text{NOTE: River Left (L) and Right (R) as looking downstream \$\times \frac{RIPARIAN WIDTH}{RIPARIAN WIDTH} \frac{FLOODPLAIN QUALITY}{L R (Per Bank)} \frac{L R (Most Predominant per Bank)}{L R (Most Predominant per Bank)} \frac{L R}{L R} \frac{Conservation Tillage}{L R (Most Predominant per Bank)} \frac{L R}{L R} \frac{Conservation Tillage}{L R (Most Predominant per Bank)} \frac{L R}{L R} \frac{Conservation Tillage}{L R (Most Predominant per Bank)} \frac{L R}{L R} \frac{Conservation Tillage}{L R (Most Predominant per Bank)} \frac{L R}{L R} \frac{Conservation Tillage}{L R (Most Predominant per Bank)} \frac{L R}{L R} \frac{Conservation Tillage}{L R (Most Predominant per Bank)} \frac{L R}{L R} \frac{Conservation Tillage}{L R (Most Predominant per Bank)} \frac{L R}{L R} \frac{Conservation Tillage}{L R (Most Predominant per Bank)} \frac{L R}{L R} \frac{Conservation Tillage}{L R (Most Predominant per Bank)} \frac{L R}{L R} \frac{Conservation Tillage}{L R (Most Predominant per Bank)} \frac{L R}{L R} \frac{Conservation Tillage}{L R (Most Predominant per Bank)} \frac{L R}{L R} \frac{Conservation Tillage}{L R (Most Predominant per Bank)} \frac{L R}{L R} \frac{Conservation Tillage}{L R (Most Predominant per Bank)} \frac{L R}{L R} \frac{Conservation Tillage}{L R (Most Predominant per Bank)} \frac{L R}{L R} \frac{Conservation Tillage}{L R (Most Predominant per Bank)} \frac{L R}{L R} \frac{Conservation Tillage}{L R (Most Predominant per Bank)} \frac{L R}{L R} \frac{Conservation Tillage}{L R (Most Predominant per Bank)} \frac{L R}{L R} \frac{Conservation Tillage}{L R (Most Predominant per Bank)} \frac{L R}{L R}	5
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream A RIPARIAN WIDTH  L R (Per Bank) L R (Most Predominant per Bank) L R  Wide >10m Mature Forest, Wetland Conservation Tillage	
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆  RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank) L R (Most Predominant per Bank) L R  Wide >10m	ор
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream  RIPARIAN WIDTH  L R (Per Bank)  V Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Narrow <5m  None  Residential, Park, New Field  Fenced Pasture  This information must also be completed  NOTE: River Left (L) and Right (R) as looking downstream  Moderate (L) and Right (R) as looking downstream  Mature Forest, Wetland  Conservation Tillage  Urban or Industrial  Open Pasture, Row Cr  Mining or Construction  COMMENTS	ор
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆  RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank) L R (Most Predominant per Bank) L R  ✓ Wide >10m Mature Forest, Wetland Conservation Tillage    Moderate 5-10m	ор
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ♣NOTE: River Left (L) and Right (R) as looking downstream ♣  RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank) L R (Most Predominant per Bank) L R  Wide >10m Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Urban or Industrial Field  Narrow <5m Residential, Park, New Field Open Pasture, Row Cr  None Fenced Pasture Mining or Construction COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	ор
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY \$NOTE: River Left (L) and Right (R) as looking downstream \$\frac{1}{2} \text{RIPARIAN WIDTH} \text{FLOODPLAIN QUALITY}  \$\frac{1}{2} \text{NOTE: River Left (L) and Right (R) as looking downstream \$\frac{1}{2} \text{RIPARIAN WIDTH} \text{RIPARIAN WIDTH}	ор
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)  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Residential, Park, New Field  Narrow <5m  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream  Another Left (L) and Right (R) as looking to the left (L) and Right (R) as looking to the left (L) and Right (R) as looking to the left (L) and Right (R) as looking to the left (L) and	ор

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes ✓ No QHEI Score (If Yes, Attack	ach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	0.00
WWH Name: Butcherknife Creek (LRW-acid mine drainage)	Distance from Evaluated Stream 0.00
CWH Name:	Distance from Evaluated Stream
EWH Name: _	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED	D AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Fultonham NRCS Soil Map Pa	Page: NRCS Soil Map Stream Order
County: Perry Township / City: Clayton	on
MISCELLANEOUS	
Base Flow Conditions? (Y/N):_Y Date of last precipitation: 10/06/20	Quantity: 0.25
Photograph Information: 3 photos, upstream, downsteam and substrate	
Elevated Turbidity? (Y/N): N Canopy (% open): 0%	
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. al	and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.)	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) Y If not, please explain:	
Additional comments/description of pollution impacts:	
Overall Stability of BOTH Stream Banks (check one): Stable Moderate	tely Stable Unstable
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. ID number. Include appropriate field data sheets from the Print Voucher? (Y/N) N Salamanders Observed? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology: none observed	imary Headwater Habitat Assessment Manual)  Voucher? (Y/N)
DRAWING AND NARRATIVE DESCRIPTION OF STREAM RI Include important landmarks and other features of interest for site evaluation and wooded steep  s-jbl-20201007-06  scrub shrub ROW	
PHWH Form Page - 2	
October 24, 2002 Revision	Save as pdf Reset Form



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 022

Date:

October 7, 2020

**Description:** 

Ephemeral

Modified Ephemeral Stream

Facing Upstream



#### Stream 022

Date:

October 7, 2020

**Description:** 

Ephemeral

Modified Ephemeral Stream





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 022

Date:

October 7, 2020

**Description:** 

Ephemeral

Modified Ephemeral Stream

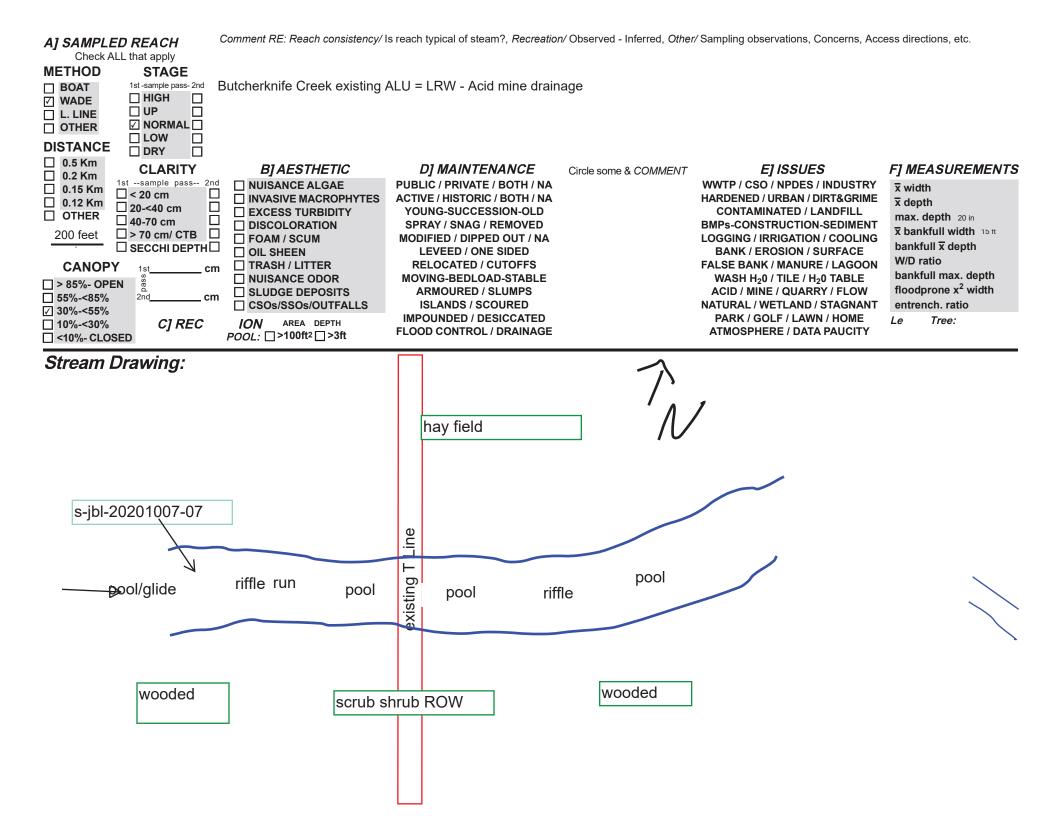




# **Qualitative Habitat Evaluation Index and Use Assessment Field Sheet**

QHEI Score: 52.5

Stream & Location:	P Crooksville-North Newark 138 kV TLine / butcherknife creek	_1_0 <b>Date</b> : 10/07/2020
s-jbl-20201007-07	Scorers Full Name & Affiliation: jbl,rc	m AECOM
River Code:	STORET#:Lat./Long.:STORET#:Lat./Long.:39.816863, -82.1	524 Office verified location
BEST TYPES  BLDR /SLABS [10]  BOULDER [9]  COBBLE [8]  GRAVEL [7]  SAND [6]  BEDROCK [5]	Check ONE (Or ORIGIN  OL RIFFLE  OTHER TYPES OL RIFFLE  OHARDPAN [4]  DETRITUS [3] 30	QUALITY  QUALITY  HEAVY [-2]  MODERATE [-1]  NORMAL [0]  FREE [1]
quality; <b>3</b> -Highest quality in	ETATION [1] 1 ROOTWADS [1] 0 AQUATIC MACROPHYTES [1]	Check ONE (Or 2 & average)  EXTENSIVE >75% [11]  MODERATE 25-75% [7]  SPARSE 5-<25% [3]
	LOGY Check ONE in each category (Or 2 & average)  LOPMENT CHANNELIZATION STABILITY	
☐ HIGH [4] ☐ E ☐ MODERATE [3] ☐ G ☐ LOW [2] ☐ F.	CELLENT [7] NONE [6] HIGH [3] OD [5] RECOVERED [4] MODERATE [2] R [3] RECOVERING [3] LOW [1] OR [1] RECENT OR NO RECOVERY [1]	Channel Maximum 20
4] BANK EROSION A River right looking downstrea EROSION NONE / LITTLE [3] MODERATE [2] MODERATE [1] Comments 1.5+2.5+	☐ MODERATE 10-50m [3] ☐ SHRUB OR OLD FIELD [2] ☐ NARROW 5-10m [2] ☐ RESIDENTIAL, PARK, NEW FIELD [1] ☐ VERY NARROW < 5m [1] ☐ FENCED PASTURE [1] ☐ Ind. pas	CONSERVATION TILLAGE [1] URBAN OR INDUSTRIAL [0] MINING / CONSTRUCTION [0] icate predominant land use(s) st 100m riparian.  Riparian Maximum 10  Richard (6.5)
MAXIMUM DEPTH  Check ONE (ONLY!)  □ > 1m [6] □ 0.7-<1m [4] □ 0.4-<0.7m [2] □ 0.2-<0.4m [1] □ < 0.2m [0]	RIFFLE / RUN QUALITY CHANNEL WIDTH Check ONE (Or 2 & average)  ] POOL WIDTH > RIFFLE WIDTH [2]  ] POOL WIDTH > RIFFLE WIDTH [1]  ] POOL WIDTH > RIFFLE WIDTH [1]  ] POOL WIDTH > RIFFLE WIDTH [0]  ] FAST [1]  [ MODERATE [1]    Indicate for reach - pools and riffles.	
Comments 20" deep Indicate for function of riffle-obligate	onal riffles; Best areas must be large enough to support a pop becies: Check ONE (Or 2 & average).	ulation □NO RIFFLE [metric=0]
RIFFLE DEPTH  BEST AREAS > 10cm [2]  BEST AREAS 5-10cm [1]  BEST AREAS < 5cm [metric=0]  Comments	RUN DEPTH RIFFLE / RUN SUBSTRATE RIFFLE / RUN	RUN EMBEDDEDNESS  NONE [2] LOW [1] MODERATE [0] EXTENSIVE [-1] Maximum 8
6] GRADIENT ( 20 DRAINAGE AREA	ft/mi)	





**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

Stream 023

Date:

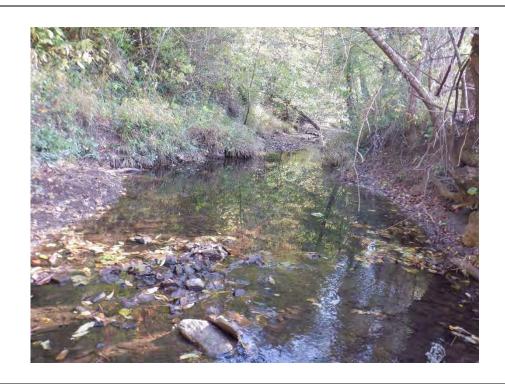
October 7, 2020

**Description:** 

Perennial

Limited Resource Water

Facing Upstream



#### Stream 023

Date:

October 7, 2020

**Description:** 

Perennial

Limited Resource Water





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 023

Date:

October 7, 2020

**Description:** 

Perennial

Limited Resource

Water





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

SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project	
s-bl-20200602-01 SITE NUMBER S01 RIVER BASIN Muskingum DRAINAGE AREA (mi²)	.10
LENGTH OF STREAM REACH (ft) 200 LAT. 39.82058 LONG82.15679 RIVER CODE RIVER MILE 0	
DATE 06/02/20 SCORER BL COMMENTS intermittent, flows through w-bl-20200602-03	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instr	uctions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING.	OVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE  PERCENT  TYPE  PERCENT	HHEI   Metric
TYPE         PERCENT         TYPE         PERCENT           0%         SILT [3 pt]         10%	Points
BOULDER (>256 mm) [16 pts] 5% LEAF PACK/WOODY DEBRIS [3 pts] 5%	Substrate
□       □       BEDROCK [16 pt]       □       □       FINE DETRITUS [3 pts]       □         □       □       COBBLE (65-256 mm) [12 pts]       □       □       CLAY or HARDPAN [0 pt]       □	Max = 40
GRAVEL (2-64 mm) [9 pts]  GRAVEL (2-64 mm) [9 pts]  MUCK [0 pts]	
✓ SAND (<2 mm) [6 pts] 30% ARTIFICIAL [3 pts] 0%	20
Total of Percentages of 5.00% (A) Substrate Percentage 100% (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15	
2. 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]	15
COMMENTS OHW=2.9'w x 0.4'd MAXIMUM POOL DEPTH (Inches): 3.50	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
	B4
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ≤ 1.0 m (<=3' 3") [5 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Max=30
	Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=4.7'w x 1.1'd AVERAGE BANKFULL WIDTH (Feet): 4.70  This information must also be completed	
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  AVERAGE BANKFULL WIDTH (Feet): 4.70  This information function func	
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  AVERAGE BANKFULL WIDTH  (Feet): 4.70  This information must also be completed  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  L R (Most Predominant per Bank)  L R	
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream ANOTE RIPARIAN WIDTH  L R (Per Bank)  L R (Most Predominant per Bank)  Wide >10m  Mature Forest, Wetland  L R Conservation Tillage	
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  AVERAGE BANKFULL WIDTH  (Feet): 4.70  This information must also be completed  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  V Wide >10m  Mature Forest, Wetland  Moderate 5-10m  AVERAGE BANKFULL WIDTH  (Feet): 4.70  L R (Nost Predominant per Bank)  L R (Most Predominant per Bank)  Mature Forest, Wetland  Wide >10m	15
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  AVERAGE BANKFULL WIDTH  (Feet): 4.70  This information must also be completed  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  L R (Most Predominant per Bank)  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Immature Forest, Shrub or Old  Urban or Industrial	15
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  L R (Per Bank)  V Wide >10m  Mature Forest, Wetland  Moderate 5-10m  AVERAGE BANKFULL WIDTH  FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream And Right (R) as looking downstr	15
COMMENTS BF=4.7'w x 1.1'd  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream  RIPARIAN WIDTH  L R (Per Bank)  V Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Narrow <5m  None  Residential, Park, New Field  None  COMMENTS  AVERAGE BANKFULL WIDTH  (Feet):  4.70  AVERAGE BANKFUL	15
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  LR (Per Bank)  Wide >10m  Moderate 5-10m  Narrow <5m  Narrow <5m  Narrow <5m  None  COMMENTS  AVERAGE BANKFULL WIDTH  FLOODPLAIN QUALITY  AVERAGE BANKFULL WIDTH  (Feet):  4.70  AVERAGE BANKFULL WIDTH  (Feet):  4.	<b>15</b>
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  L R (Per Bank)  Wide >10m  Moderate 5-10m  Narrow <5m  Narrow <5m  Narrow <5m  Residential, Park, New Field  None  COMMENTS  AVERAGE BANKFULL WIDTH  (Feet):  4.70  AVERAGE BANKFULL WIDTH  (Feet):	<b>15</b>
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  NOTE: River Left (L) and Right (R) as looking downstream Nature Forest, Wetland  Moderate 5-10m  Narrow <5m  Narrow <5m  None  COMMENTS  FLOW REGIME (At Time of Evaluation)  Stream Flowing Subsurface flow with isolated pools (Interstitial)  AVERAGE BANKFULL WIDTH  (Feet):  4.70  AVERAGE BANKFUL WIDTH  (Feet):  4.70  AVERAGE BANKFULL WIDTH  (Feet):  4.70  AVERAGE BAN	15 op
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream Mature Forest, Wetland Wide >10 Moderate 5-10m Moderate 5-10m Residential, Park, New Field Open Pasture, Row Crown None Residential, Park, New Field Mining or Construction  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None 1.0 (Check ONLY one box):  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None 1.0 (Check ONLY one box):  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None 1.0 (Check ONLY one box):  OMMENTS (Check ONLY one box):  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None 1.0 (Check ONLY one box):  OMMENTS (Check ONLY one box):	15 op
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH	<b>15</b>
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream Mature Forest, Wetland Wide >10 Moderate 5-10m Moderate 5-10m Residential, Park, New Field Open Pasture, Row Crown None Residential, Park, New Field Mining or Construction  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None 1.0 (Check ONLY one box):  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None 1.0 (Check ONLY one box):  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None 1.0 (Check ONLY one box):  OMMENTS (Check ONLY one box):  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None 1.0 (Check ONLY one box):  OMMENTS (Check ONLY one box):	15

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Attach	Completed QHEI Form)
CWH Name:	Distance from Evaluated Stream  Distance from Evaluated Stream  Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED A	REA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Fultonham NRCS Soil Map Page	e: NRCS Soil Map Stream Order
County: Township / City: Newton	
MISCELLANEOUS  Base Flow Conditions? (Y/N): Y Date of last precipitation: 05/29/20	Quantity: 0.17
Photograph Information: SKM: 1645-upstream, 1646-downstream, 1647-substrates	
Elevated Turbidity? (Y/N): N Canopy (% open): 70%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and	d attach results) Lab Number:
Field Measures: Temp (°C) 16.80 Dissolved Oxygen (mg/l) pH (S.U.) 8.3	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	
BANK Stability LOW MOD	DERATE HIGH
	NOTE: all voucher samples must be labeled with the site ry Headwater Habitat Assessment Manual)  Voucher? (Y/N)



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 024

Date:

June 2, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream

Facing Upstream



#### Stream 024

Date:

June 2, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 024

Date:

June 2, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream





## Primary Headwater Habitat Evaluation Form

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

|--|

s-bl-20200601-09 SITE NUMBER S09 RIVER BASIN Muskingum DRAINAGE AREA (mi²)	0.10
LENGTH OF STREAM REACH (ft) 200 LAT. 39.82314 LONG82.15977 RIVER CODE RIVER MILE	0.02
DATE 06/01/20 SCORER BL COMMENTS intermittent, flows to S-bl-20200601-06	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Ins	tructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO REMODIFICATIONS:	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	⊥ HHEI
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE PERCENT TYPE  PERCENT	Metric
BLDR SLABS [16 pts]	Points
BOULDER (>256 mm) [16 pts]	Substrat
COBBLE (65-256 mm) [12 pts] 5% CLAY or HARDPAN [0 pt]	Max = 40
GRAVEL (2-64 mm) [9 pts]  40%  MUCK [0 pts]  0%  ARTIFICIAL [3 pts]	21
CAMB (42 mm) [6 pts]	
Total of Percentages of 5.00% (A) Substrate Percentage Check 100% (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 TOTAL NUMBER OF SUBSTRATE TYPES: 6	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dep
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]	Max = 30
> 22.5 - 30 cm [30 pts] < 5 cm [5 pts]	
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	25
COMMENTS OHW=2.1'w x 1.1'd MAXIMUM POOL DEPTH (Inches): 4.30	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankful
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.0 m (< 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ≤ 1.0 m (<=3' 3") [5 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	IVIAX-30
COMMENTS BF=6.5'w x 1.8'd AVERAGE BANKFULL WIDTH (Feet): 6.50	
This information must also be completed	
RIPARIAN ZONE AND FLOODPLAIN QUALITY \$\triangle \tau\text{NOTE: River Left (L) and Right (R) as looking downstream \$\text{x}\$	
RIPARIAN WIDTH  L R (Per Bank)  L R (Most Predominant per Bank)  L R	
RIPARIAN WIDTH  L R (Per Bank)  L R (Most Predominant per Bank)  Wide >10m  Mature Forest, Wetland  Conservation Tillage	
RIPARIAN WIDTH  L R (Per Bank)  L R (Most Predominant per Bank)  L R	
RIPARIAN WIDTH  L R (Per Bank)  Wide >10m  Moderate 5-10m  FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  Mature Forest, Wetland  Immature Forest, Shrub or Old  Urban or Industrial	Orop
RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m Moderate 5-10m Residential, Park, New Field None  RIPARIAN WIDTH L R (Most Predominant per Bank) L R Conservation Tillage Urban or Industrial Perced Pasture Mining or Construction Mining or Construction Most Predominant per Bank) L R Conservation Tillage Urban or Industrial Open Pasture, Row	
RIPARIAN WIDTH L R (Per Bank) Wide >10m Moderate 5-10m  Narrow <5m  FLOODPLAIN QUALITY L R (Most Predominant per Bank) L R Most Predominant per Bank) L R Mature Forest, Wetland Conservation Tillage Urban or Industrial Open Pasture, Row	
RIPARIAN WIDTH  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Immature Forest, Shrub or Old Field  Varrow <5m  None  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation)  FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  L R  (Most Predominant per Bank)  L R  Conservation Tillage  Urban or Industrial  Open Pasture, Row  Mining or Construction  Check ONLY one box):	on _
RIPARIAN WIDTH  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Immature Forest, Shrub or Old Field  Narrow <5m  None  Residential, Park, New Field  None  COMMENTS	on _
RIPARIAN WIDTH  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Immature Forest, Shrub or Old  Immature Forest, Shrub or	on _
RIPARIAN WIDTH  (Per Bank)  Wide >10m  Mature Forest, Wetland  Conservation Tillage  Immature Forest, Shrub or Old  Wide >5-10m  Residential, Park, New Field  Open Pasture, Row  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	on _
RIPARIAN WIDTH  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel)  None  1.0  Conservation Tillage  Copen Pasture, Row  Mining or Construction  Moist Channel, isolated pools, no flow (Intermitted Dry channel, no water (Ephemeral)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel)  Check ONLY one box):  None  3.0	on _
RIPARIAN WIDTH  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation)  COMMENTS  FLOW REGIONE (At Time of Evaluation)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel)  None  1.0  1.0  1.0  1.0  1.0  1.0  1.0  1.	on _
RIPARIAN WIDTH  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel)  None  1.0  Conservation Tillage  Copen Pasture, Row  Mining or Construction  Moist Channel, isolated pools, no flow (Intermitted Dry channel, no water (Ephemeral)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel)  Check ONLY one box):  None  3.0	nt)

$\underline{\textbf{ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):}$		
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Att	tach Completed QHEI Form)	
DOWNSTREAM DESIGNATED USE(S)		_
WWH Name: Butcherknife Creek (LRW)	Distance from Evaluated Stream  0.60	+
CWH Name:EWH Name:	Distance from Evaluated Stream Distance from Evaluated Stream	1
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHE	D AREA. CLEARLY MARK THE SITE LOCATION	
USGS Quadrangle Name: Fultonham NRCS Soil Map		
County: Muskingum  Township / City: Newton		$\overline{1}$
MISCELLANEOUS		_
Base Flow Conditions? (Y/N):  Date of last precipitation:  05/29/20	Quantity: <b>0.17</b>	
Photograph Information: SKM: 1606-upstream, 1607-downstream, 1608-substrates	Quantity	
N COO		
Carropy (% open).		
	8.00 Conductivity (umbos/cm)	_
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: most of stream has wider forested riparian, not in ROW		_
most of stream has wast forested riparian, not in New		
Additional comments/description of pollution impacts:  BANK Stability  LOW	wanta wan	
DAIN GLOSINY 2011	MODERATE HIGH	#
BIOTIC EVALUATION	MODERATE HIGH	+
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections options)	al. NOTE: all voucher samples must be labeled with th	
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Position of th	al. NOTE: all voucher samples must be labeled with the rimary Headwater Habitat Assessment Manual)  Voucher? (Y/N)	
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Prish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebra	al. NOTE: all voucher samples must be labeled with the rimary Headwater Habitat Assessment Manual)  Voucher? (Y/N)	
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Position of th	al. NOTE: all voucher samples must be labeled with the rimary Headwater Habitat Assessment Manual)  Voucher? (Y/N)	
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections options ID number. Include appropriate field data sheets from the Pish Observed? (Y/N) N Voucher? (Y/N) Salamanders Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebra Comments Regarding Biology:	al. NOTE: all voucher samples must be labeled with the rimary Headwater Habitat Assessment Manual)  Voucher? (Y/N)	
Performed? (Y/N):  N  (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pish Observed? (Y/N)  Frogs or Tadpoles Observed? (Y/N)  Voucher? (Y/N)  Voucher? (Y/N)  N  Aquatic Macroinvertebra  Comments Regarding Biology:  noen observed	al. NOTE: all voucher samples must be labeled with the rimary Headwater Habitat Assessment Manual)  Voucher? (Y/N)	
BIOTIC EVALUATION  Performed? (Y/N):  N  (If Yes, Record all observations. Voucher collections options ID number. Include appropriate field data sheets from the P  Fish Observed? (Y/N)  N  Voucher? (Y/N)  N  Salamanders Observed? (Y/N)  N  Aquatic Macroinvertebra  Comments Regarding Biology:  noen observed  DRAW	al. NOTE: all voucher samples must be labeled with the rimary Headwater Habitat Assessment Manual)  Voucher? (Y/N)  ates Observed? (Y/N)  N  Voucher? (Y/N)	he site
Performed? (Y/N):  N  (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pish Observed? (Y/N)  Frogs or Tadpoles Observed? (Y/N)  Voucher? (Y/N)  Voucher? (Y/N)  N  Aquatic Macroinvertebra  Comments Regarding Biology:  noen observed	al. NOTE: all voucher samples must be labeled with the rimary Headwater Habitat Assessment Manual)  Voucher? (Y/N)	he site
BIOTIC EVALUATION  Performed? (Y/N):  N  (If Yes, Record all observations. Voucher collections options ID number. Include appropriate field data sheets from the P  Fish Observed? (Y/N)  N  Voucher? (Y/N)  N  Salamanders Observed? (Y/N)  N  Aquatic Macroinvertebra  Comments Regarding Biology:  noen observed  DRAW	al. NOTE: all voucher samples must be labeled with the rimary Headwater Habitat Assessment Manual)  Voucher? (Y/N)  ates Observed? (Y/N)  N  Voucher? (Y/N)	he site
BIOTIC EVALUATION  Performed? (Y/N):  N  (If Yes, Record all observations. Voucher collections options ID number. Include appropriate field data sheets from the P  Fish Observed? (Y/N)  N  Voucher? (Y/N)  N  Salamanders Observed? (Y/N)  N  Aquatic Macroinvertebra  Comments Regarding Biology:  noen observed  DRAW	al. NOTE: all voucher samples must be labeled with the rimary Headwater Habitat Assessment Manual)  Voucher? (Y/N)  ates Observed? (Y/N)  N  Voucher? (Y/N)	he site
BIOTIC EVALUATION  Performed? (Y/N):  N  (If Yes, Record all observations. Voucher collections options ID number. Include appropriate field data sheets from the P  Fish Observed? (Y/N)  N  Voucher? (Y/N)  N  Salamanders Observed? (Y/N)  N  Aquatic Macroinvertebra  Comments Regarding Biology:  noen observed  DRAW	al. NOTE: all voucher samples must be labeled with the rimary Headwater Habitat Assessment Manual)  Voucher? (Y/N)  ates Observed? (Y/N)  N  Voucher? (Y/N)	he site
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Prish Observed? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology:    DRAW   Include impor	al. NOTE: all voucher samples must be labeled with the rimary Headwater Habitat Assessment Manual)  Voucher? (Y/N)  ates Observed? (Y/N)  N  Voucher? (Y/N)	he site
BIOTIC EVALUATION  Performed? (Y/N):  N  (If Yes, Record all observations. Voucher collections options ID number. Include appropriate field data sheets from the P  Fish Observed? (Y/N)  N  Voucher? (Y/N)  N  Salamanders Observed? (Y/N)  N  Aquatic Macroinvertebra  Comments Regarding Biology:  noen observed  DRAW	al. NOTE: all voucher samples must be labeled with the rimary Headwater Habitat Assessment Manual)  Voucher? (Y/N)  ates Observed? (Y/N)  N  Voucher? (Y/N)	he site
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Prish Observed? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology:    DRAW   Include impor	al. NOTE: all voucher samples must be labeled with the rimary Headwater Habitat Assessment Manual)  Voucher? (Y/N)  ates Observed? (Y/N)  N  Voucher? (Y/N)	he site
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Prish Observed? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology:    DRAW   Include impor	al. NOTE: all voucher samples must be labeled with the rimary Headwater Habitat Assessment Manual)  Voucher? (Y/N)  ates Observed? (Y/N)  N  Voucher? (Y/N)	he site
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Prish Observed? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology:    DRAW   Include impor	al. NOTE: all voucher samples must be labeled with the rimary Headwater Habitat Assessment Manual)  Voucher? (Y/N)  ates Observed? (Y/N)  N  Voucher? (Y/N)	he site
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Prish Observed? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology:    DRAW   Include impor	al. NOTE: all voucher samples must be labeled with the rimary Headwater Habitat Assessment Manual)  Voucher? (Y/N)  ates Observed? (Y/N)  N  Voucher? (Y/N)	he site



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 025

Date:

June 1, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream

Facing Upstream



#### Stream 025

Date:

June 1, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 025

Date:

June 1, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream





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

61	
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SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project	
s-bl-20200601-08 SITE NUMBER S08 RIVER BASIN Muskingum DRAINAGE AREA (mi²) 0.	10
LENGTH OF STREAM REACH (ft) 200 LAT. 39.82435 LONG82.16124 RIVER CODE RIVER MILE 0.	
DATE 06/01/20 SCORER BL COMMENTS intermittent, flows to S-bI-20200601-06	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	uctions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOMMODIFICATIONS:	OVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE  BLDR SLABS [16 pts]  BOULDER (>256 mm) [16 pts]  BEDROCK [16 pt]  FINE DETRITUS [3 pts]  0%  FINE DETRITUS [3 pts]	HHEI Metric Points Substrate Max = 40
☐       COBBLE (65-256 mm) [12 pts]       5%       ☐       CLAY or HARDPAN [0 pt]       0%         ☐       GRAVEL (2-64 mm) [9 pts]       35%       ☐       MUCK [0 pts]       0%         ✓       SAND (<2 mm) [6 pts]	21
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock (A) Substrate Percentage Check (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 TOTAL NUMBER OF SUBSTRATE TYPES: 6	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):  > 30 centimeters [20 pts]  > 22.5 - 30 cm [30 pts]  > 5 cm - 10 cm [15 pts]  < 5 cm [5 pts]	Pool Depth Max = 30
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	25
COMMENTS OHW=2.2'w x 0.4'd MAXIMUM POOL DEPTH (Inches): 7.50	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Width Max=30
→ 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	Width
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ≤ 1.0 m (<=3' 3") [5 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Width Max=30
Solution   2   3.0 m   -4.0 m   2   7" - 13"   [25 pts]   3.0 m   (<=3" 3")   [5 pts]   3.80 m   -4.0 m   2   7" - 4" 8"   [20 pts]   3.80 m   -4.0 m   2   7" - 4" 8"   [20 pts]   3.80 m   -4.0 m   2   7" - 4" 8"   [20 pts]   3.80 m   -4.0 m   2   7" - 4" 8"   [20 pts]   3.80 m   -4.0 m   2   7" - 4" 8"   [20 pts]   3.80 m   -4.0 m   2   7"   -4" 8"   [20 pts]   3.80 m   -4.0 m   -4" 8"   [20 pts]   3.80 m   -4.0 m   -4" 8"   [20 pts]   3.80 m   -4" 8"   [20 pts]   3.80 m   -4.0 m   -4" 8"   [20 pts]   3.80 m   -4" 8"   [20 pts]   3.80 m   -4" 8" 8"   [20 pts]   3.80 m   -4" 8" 8" 8" 8" 8" 8" 8" 8" 8" 8" 8" 8" 8"	Width Max=30
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  LR (Per Bank)  LR (Most Predominant per Bank)  Moderate 5-10m  Moderate 5-10m  Moderate 5-10m  S 1.0 m (<=3' 3") [5 pts]  AVERAGE BANKFULL WIDTH (Feet): 3.80  AVERAGE BANKFULL WIDTH (Feet): 3.80  LR (Most Predominant per Bank)	Width Max=30
Solution   Solution	Width Max=30
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  □ RIPARIAN WIDTH  □ Conservation Tillage  □ Moderate 5-10m  □ Residential, Park, New Field  □ Open Pasture, Row Cro  □ None  □ Residential, Park, New Field  □ Open Pasture, Row Cro  □ None  □ Residential, Park, New Field  □ Open Pasture, Row Cro  □ None  □ Residential, Park, New Field  □ Open Pasture, Row Cro  □ None  □ Residential, Park, New Field  □ Open Pasture, Row Cro  □ None  □ Residential, Park, New Field  □ Open Pasture, Row Cro  □ None  □ None  □ Residential, Park, New Field  □ Open Pasture, Row Cro  □ None  □ None  □ Residential, Park, New Field  □ Open Pasture, Row Cro  □ None  □ Mining or Construction  □ Moist Channel, isolated pools, no flow (Intermittent)  □ Subsurface flow with isolated pools (Interstitial)  □ Dry channel, no water (Ephemeral)	Width Max=30

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Atta	ach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Butcherknife Creek (LRW)	Distance from Evaluated Stream 0.80
CWH Name:EWH Name:	Distance from Evaluated Stream  Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHEE	-
USGS Quadrangle Name: Fultonham NRCS Soil Map F	
Muskingum	
County.	
MISCELLANEOUS  Y  Deta of last presinitation: 05/29/20	Ougatitus 0.17
Date of last precipitation.	Quantity:
Priotograph information.	
Elevated Turbidity? (Y/N): Canopy (% open):	
	and attach results) Lab Number:
Field Measures: Temp (°C) 16.80 Dissolved Oxygen (mg/l) pH (S.U.)	7.00 Conductivity (µmhos/cm)
Additional comments/description of pollution impacts:	
BANK Stability LOW M	IODERATE HIGH
BIOTIC EVALUATION	
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional	
ID number. Include appropriate field data sheets from the Pri	
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebrate	Voucher? (Y/N) N Voucher? (Y/N) N
Comments Regarding Biology:	N
noen observed	
DR S	10.
Include im	i):
Include Im	Flocation
N 7 Sales I god weither V	3
IN A SOS SOS SOS	3/100cm
	te s
	C'inge
Second Second	3 7 2
5 1 2 W	18 1 3
8 12 1	The Sold of the second
Row Ray	Man Land
Row Book	Man was s
Row Bray	Geom (Geom)
October 24, 2002 Rev	Calmy (See



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 026

Date:

June 1, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream

Facing Upstream



#### Stream 026

Date:

June 1, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 026

Date:

June 1, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream





# Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

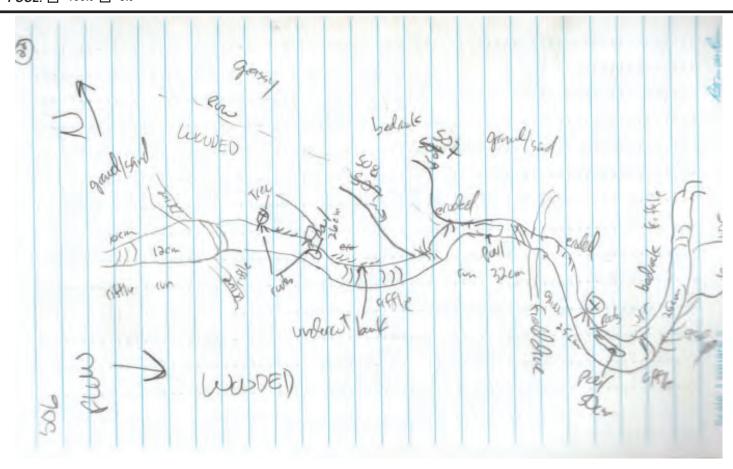
QHEI Score:

61.0

Stream & Locat	ion: AEP-Crooksvi	lle-North Newark 138	8 kV Trans	mission Line	e Rebuild Project	t <b>RM:</b> 0.	8 <b>Date</b>	:6 <b>/</b> 1 <b>/</b> 20
S-BL-20200601	-06				& Affiliation:	Bill Leopo	old, AECOM	
River Code:		_STORET #:		Lat./ Lon (NAD 83 - decimal	<b>9.:</b> 39.8253	<b>/8</b> _2.1	624	Office verified location
BEST TYP BEST TYP BEST TYP BUDDER [9] COBBLE [8] GRAVEL [7] SAND [6] BEDROCK [5] NUMBER OF BE	estimate % or note 6 FS POOL RIFFLE S [10] × × × ×   EST TYPES: 🗵 4	OTLIED TYPE	POOL F	RIFFLE  X		SILT	Average) QUAL HEAVY [ MODERA NORMAI FREE [1] STENS MODERA NORMAI	LITY [-2] ATE [-1] Substra
quality; 3-Highest q diameter log that is 1 UNDERCUT I 1 OVERHANGI	quality; 2-M uality in moderate or stable, well develope BANKS [1] NG VEGETATION [1 (IN SLOW WATER)		not of high, , very large ast water, or 70cm [2] _ OS [1]	est quality or boulders in r deep, well- O OXBO O AQUA	in small amounts deep or fast wate	s of highest r, large l pools. [ ERS [1] [ 'TES [1] [	Check ONE (C EXTENSIVE MODERATE SPARSE 5-4 NEARLY AE	Or 2 & average) E >75% [11] E <b>25-75% [7]</b>
3] CHANNEL MO SINUOSITY  HIGH [4]  MODERATE [3]  LOW [2]  NONE [1]  Comments	DRPHOLOGY Ch DEVELOPMEN  EXCELLENT [7 GOOD [5] FAIR [3] POOR [1]		.IZATION ) [4] G [3]	<b>I</b> □ ⊠	STABILITY HIGH [3] MODERATE [2] LOW [1]			Channel Maximum 20
River right looking do  RIVER EROSION  RIVER NONE / LITTL  MODERATE [2]	Winstream RIPA	ERATE 10-50m [3] ROW 5-10m [2] ' NARROW < 5m [1]	L R FOR SHR	FLOOD REST, SWAM RUB OR OLD SIDENTIAL, F ICED PASTU	PLAIN QUALI IP [3] D FIELD [2] PARK, NEW FIELD		CONSERVATION	DN TILLAGE [1] DUSTRIAL [0] STRUCTION [0] and use(s) Riparian 7.00
Comments								Maximum 1.00
of riffle-oblig RIFFLE DEP ☐ BEST AREAS > 10 ☑ BEST AREAS < 5-10 ☐ BEST AREAS < 5	PTH CHANNEL CH	ANNEL WIDTH ONE (Or 2 & average) OTH > RIFFLE WIDTH OTH = RIFFLE WIDTH OTH < RIFFLE WIDTH	[2] ☐ TO [1] ☐ VE [0] ☐ FA ☐ MC  Ist be lai k ONE (Or  FFLE / R  ABLE (e.g.  DD. STABL	Check of Che	☐ INTERMIT  ☐ EDDIES [7 each - pools and ri  gh to support e).  STRATE RIF builder) [2]	TIAL [-1] TENT [-2] 1] a popula FLE / RUI	Primary Secondar (circle one and co	Pool / Current Maximum 12  RIFFLE [metric=0]  EDNESS
6] GRADIENT (	113.00 <b>ft/mi) V</b>	ERY LOW - LOW [2-4	4]	%P	OOL: 15.00	%GLIDE	5.00	Gradient
DRAINAGE A	REA 🗆 N	IODERATE [6-10] IIGH - VERY HIGH [10	0-6]		=	%RIFFLE	=	Maximum 10

A] SAMPLE Check A	ED REACH ALL that apply	UT to Butcherknife Creek	ls reach typical of steam?, <i>Recreatic</i>	n/ Observed - Inferred, <i>Other</i>	r/ Sampling observations, Concerns, Acc	ess directions, etc.
METHOD	STAGE 1st -sample pass- 2nd	OHW= 21.1'w x 2.1'd				
<ul><li>BOAT</li><li>WADE</li></ul>	☐ HIGH ☐	BF = 29.2'w x 2.6'd				
☐ L. LINE ☐ OTHER	☐ UP ☐ NORMAL ☐	wet = 9.0'w x .5'd				
DISTANCE	☐ LOW ☐ ☐ DRY ☐	pH-3.7	T-18.0 C			
☐ 0.5 Km ☐ 0.2 Km	CLARITY	B] AESTHETICS	D] MAINTENANCE	Circle some & COMMENT	E] ISSUES	F] MEASUREMENTS
□ 0.15 Km □ 0.12 Km □ 0THER   meters CANOP □ > 85%- OPE □ 55%-<85%	v <sub>2</sub>	INVASIVE MACROPHYTES   EXCESS TURBIDITY   DISCOLORATION   FOAM / SCUM   OIL SHEEN   TRASH / LITTER   NUISANCE ODOR	PUBLIC/ PRIVATE / BOTH / NA ACTIVE / HISTORIC BOTH / NA YOUNG-SUCCESSION-OLD SPRAY / SNAG / REMOVED MODIFIED / DIPPED OUT / NA LEVEED / ONE SIDED RELOCATED / CUTOFFS MOVING BEDLOAD-STABLE ARMOURED / SLUMPS ISLANDS / SCOURED	AEP row clearing some residential trash on LDB	WWTP / CSO / NPDES / INDUSTRY HARDENED / URBAN / DIRT&GRIME CONTAMINATED / LANDFILL BMPs-CONSTRUCTION-SEDIMENT LOGGING / IRRIGATION / COOLING BANK / EROSION / SURFACE FALSE BANK / MANURE / LAGOON WASH H <sub>2</sub> 0 / TILE / H <sub>2</sub> 0 TABLE ACID / MINE / QUARRY / FLOW NATURAL / WETLAND / STAGNANT	x width 21.1' x depth 0.5' max. depth 1.6' x bankfull width 29.2 bankfull x depth 2.6 W/D ratio bankfull max. depth floodprone x <sup>2</sup> width entrench. ratio
■ 30%-<55% □ 10%-<30%		_	IMPOUNDED / DESICCATED FLOOD CONTROL / DRAINAGE		PARK / GOLF / LAWN / HOME ATMOSPHERE / DATA PAUCITY	Legacy Tree:

### Stream Drawing:





**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

Stream 027

Date:

June 1, 2020

**Description:** 

Perennial

Warmwater Habitat - Good

Facing Upstream



#### Stream 027

Date:

June 1, 2020

#### **Description:**

Perennial

Warmwater Habitat -Good





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 027

Date:

June 1, 2020

**Description:** 

Perennial

Warmwater Habitat -Good





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

59	
----	--

SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project	
s-bl-20200601-07 SITE NUMBER S07 RIVER BASIN Muskingum DRAINAGE AREA (mi²) 0.	21
LENGTH OF STREAM REACH (ft) 100 LAT. 39.82666 LONG82.16367 RIVER CODE RIVER MILE 0.	.0
DATE 06/01/20 SCORER BL COMMENTS NHD, intermittent, flows to S-bl-20200601-06	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	uctions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOMMODIFICATIONS: Slightly re-aligned based on NHD, culvert for gravel drive present	OVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE  PERCENT  TYPE  PERCENT	HHEI Metric
BLDR SLABS [16 pts] 0% SILT [3 pt] 20%	Points
BOULDER (>256 mm) [16 pts]	Substrate
COBBLE (65-256 mm) [12 pts]	Max = 40
☐ ☐ GRAVEL (2-64 mm) [9 pts] ☐ MUCK [0 pts] ☐ 0% ☐ ARTIFICIAL [3 pts] ☐ 0% ☐ 0% ☐ 0% ☐ 0% ☐ 0% ☐ 0% ☐ 0% ☐ 0	19
Total of Percentages of 0.00% (A) Substrate Percentage 100% (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 TOTAL NUMBER OF SUBSTRATE TYPES: 4	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Depth
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]	Max = 30
> 22.5 - 30 cm [30 pts]	20
	20
COMMENTS OHW=4.3'w x 1.4'd MAXIMUM POOL DEPTH (Inches): 13.8	
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]	Bankfull Width
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ≤ 1.0 m (<=3' 3") [5 pts]	Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
COMMENTS BF=7.6'w x 2.2'd AVERAGE BANKFULL WIDTH (Feet): 6.20	20
This information must also be completed	
RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆ RIPARIAN WIDTH FLOODPLAIN QUALITY	
L R (Per Bank) L R (Most Predominant per Bank) L R	
Wide >10m Mature Forest, Wetland Conservation Tillage	
Field Field Orban of industrial	
Narrow <5m Residential, Park, New Field Open Pasture, Row Cro	р
None Fenced Pasture Mining or Construction COMMENTS	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	
Stream Flowing  Moist Channel, isolated pools, no flow (Intermittent)  Subsurface flow with isolated pools (Interstitial)  Dry channel, no water (Ephemeral)	
COMMENTS_	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	
None	
STREAM GRADIENT ESTIMATE	
STREAM GRADIENT ESTIMATE  Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/10	0 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Atta	ch Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)  WWH Name: Butcherknife Creek (LRW)  CWH Name: EWH Name:	Distance from Evaluated Stream  Distance from Evaluated Stream  Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHEE	AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Fultonham NRCS Soil Map F	age: NRCS Soil Map Stream Order
County: Muskingum Township / City: Newto	n
MISCELLANEOUS  Y  Data of land and significant (05/29/20)	Overetity 0.17
Base Flow Conditions? (Y/N): Date of last precipitation:	Quantity:
N 700/	
Carropy (% open).	
40.40	6.10 Conductivity (umbos/cm)
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:	
BANK Stability LOW M	ODERATE HIGH
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pri	
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology:	Voucher? (Y/N) N
Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebra	Voucher? (Y/N) N



## Primary Headwater Habitat Evaluation Form

61

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

SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project	
s-bl-20200601-05 SITE NUMBER S05 RIVER BASIN Muskingum DRAINAGE AREA (mi²)	0.10
LENGTH OF STREAM REACH (ft) 100 LAT. 39.82822 LONG82.16601 RIVER CODE RIVER MILE	
DATE 06/01/20 SCORER BL COMMENTS intermittent, drains W-bl-20200601-03 and Po	nd01
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for In	structions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO REMODIFICATIONS: Outlow stream created from pond construction across small drainage feature	ECOVERY
<ol> <li>SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A &amp; B.</li> </ol>	HHEI
TYPE         PERCENT         TYPE         PERCENT           BLDR SLABS [16 pts]         0%         V         SILT [3 pt]         36%	Metric
BLDR SLABS [16 pts]	
BEDROCK [16 pt]  2%  FINE DETRITUS [3 pts]	Substrate Max = 40
COBBLE (65-256 mm) [12 pts]	
SAND (<2 mm) [6 pts]  30%  ARTIFICIAL [3 pts]	16
Total of Percentages of 9.00% (A) Substrate Percentage 100% (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:  9  Check 10076  TOTAL NUMBER OF SUBSTRATE TYPES: 7	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dept
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]	Max = 30
<ul> <li>&gt; 22.5 - 30 cm [30 pts]</li> <li>&gt; 10 - 22.5 cm [25 pts]</li> <li>NO WATER OR MOIST CHANNEL [0 pts]</li> </ul>	25
OHW=4.7'w x 0.7'd	7
COMMENTS OHW=4.7 W X U.7 d MAXIMUM POOL DEPTH (Inches): 4.70	
	<u> </u>
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull
> 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] \( \leq 1.0 m (<=3' 3") [5 pts]	<u> </u>
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Bankfull Width
> 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] \( \leq 1.0 m (<=3' 3") [5 pts]	Bankfull Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Bankfull Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=6.2'w x 1.4'd  AVERAGE BANKFULL WIDTH (Feet):  6.20  This information must also be completed	Bankfull Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=6.2'w x 1.4'd  AVERAGE BANKFULL WIDTH (Feet):  6.20	Bankfull Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=6.2'w x 1.4'd  AVERAGE BANKFULL WIDTH (Feet): 6.20  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) as looking downstream QUALITY  L R (Per Bank)  L R (Most Predominant per Bank)  L R	Bankfull Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=6.2'w x 1.4'd  AVERAGE BANKFULL WIDTH (Feet): 6.20  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream ★  RIPARIAN WIDTH  L R (Per Bank)  V Wide > 10m  Moderate 5-10m  Moderate 5-10m  V Mature Forest, Wetland  Immature Forest, Shrub or Old  Urban or Industrial	Bankfull Width Max=30
> 4.0 meters (> 13') [30 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]     > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]   ≤ 1.0 m (<=3' 3") [5 pts]     > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]     COMMENTS   BF=6.2'w x 1.4'd   AVERAGE BANKFULL WIDTH (Feet):   6.20     This information must also be completed     RIPARIAN ZONE AND FLOODPLAIN QUALITY   ♣ NOTE: River Left (L) and Right (R) as looking downstream ♣ RIPARIAN WIDTH   FLOODPLAIN QUALITY     L R (Per Bank)   L R (Most Predominant per Bank)   L R (Desperation Tillage Per Bank)   Conservation Tillage Per Bank)   Conservation Tillage Per Bank)   Conservation Tillage Per Bank   Conservation Tilla	Bankfull Width Max=30
> 4.0 meters (> 13') [30 pts]	Bankfull Width Max=30  20
> 4.0 meters (> 13') [30 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]     > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]   ≤ 1.0 m (<=3' 3") [5 pts]     > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]     COMMENTS   BF=6.2'w x 1.4'd   AVERAGE BANKFULL WIDTH (Feet):   6.20     This information must also be completed     RIPARIAN ZONE AND FLOODPLAIN QUALITY   ♣ NOTE: River Left (L) and Right (R) as looking downstream ♣ RIPARIAN WIDTH   FLOODPLAIN QUALITY     L R (Per Bank)   L R (Most Predominant per Bank)   L R (Desperation Tillage Per Bank)   Conservation Tillage Per Bank)   Conservation Tillage Per Bank)   Conservation Tillage Per Bank   Conservation Tilla	Bankfull Width Max=30  20
> 4.0 meters (> 13') [30 pts]	Bankfull Width Max=30  20
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=6.2'w x 1.4'd  AVERAGE BANKFULL WIDTH (Feet):  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Residential, Park, New Field  Narrow <5m  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Moist Channel, isolated pools, no flow (Intermitte	Bankfull Width Max=30  20  Crop
> 4.0 meters (> 13') [30 pts]	Bankfull Width Max=30  20  Crop
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS   BF=6.2'w x 1.4'd   AVERAGE BANKFULL WIDTH (Feet):   6.20  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  NOTE: River Left (L) and Right (R) as looking downstream   RIPARIAN WIDTH	Bankfull Width Max=30  20  Crop
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=6.2'w x 1.4'd  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 >10 m  Moderate 5-10 m  Residential, Park, New Field  Narrow <5 m  None  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS interstitial flow in upper portion, steady flow in lower portion after UDF confluence  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None  1.0  1.0  None  1.0  None  1.0  None  1.0  None  1.0  None  1.0  None	Bankfull Width Max=30  20  Crop
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7' - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7' - 13') [20 pts]  COMMENTS BF=6.2'w x 1.4'd  AVERAGE BANKFULL WIDTH (Feet):  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  Wide >10 m  Moderate 5-10 m  Narrow <5 m  Narrow <5 m  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS interstitial flow in upper portion, steady flow in lower portion after UDF confluence  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None  1.0  2.0  3.0  3.0  3.0  3.0  3.0  3.0  3	Bankfull Width Max=30  20  Crop
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=6.2'w x 1.4'd  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 >10 m  Moderate 5-10 m  Residential, Park, New Field  Narrow <5 m  None  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS interstitial flow in upper portion, steady flow in lower portion after UDF confluence  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None  1.0  1.0  None  1.0  None  1.0  None  1.0  None  1.0  None  1.0  None	Bankfull Width Max=30  20  Crop on ent)

$\underline{\textbf{ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):}\\$		
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Atta	ach Completed QHEI Form)	
DOWNSTREAM DESIGNATED USE(S)		
WWH Name: Butcherknife Creek (LRW)	Distance from Evaluated Stream 0.80	
CWH Name:	_ Distance from Evaluated Stream _	
EWH Name:	Distance from Evaluated Stream _	
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHE	D AREA. CLEARLY MARK THE SITE LOCATION	
USGS Quadrangle Name: Fultonham NRCS Soil Map F	Page: NRCS Soil Map Stream Order	
County: Muskingum Township / City: Newto	on	
MISCELLANEOUS		
Base Flow Conditions? (Y/N): Y Date of last precipitation: 05/29/20	Quantity: 0.17	
Photograph Information: SKM: 1570-upstream, 1571-downstream, 1572-substrates		
Elevated Turbidity? (Y/N): N Canopy (% open): 5%		
	and attach results) Lab Number:	_
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.)	7.10 Conductivity (µmhos/cm)	_
Is the sampling reach representative of the stream (Y/N) If not, please explain:		_
heavily eroded, entrenched channel in study area		
Additional comments/description of pollution impacts:		
2411/2011/19	VODEDATE /	
BANK Stability LOW N	MODERATE     HIGH	+
	WODERATE HIGH	#
BIOTIC EVALUATION	V	
BIOTIC EVALUATION	al. NOTE: all voucher samples must be labeled with the	
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Prince of	al. NOTE: all voucher samples must be labeled with the rimary Headwater Habitat Assessment Manual)  Voucher? (Y/N)	
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Price of Tadpoles Observed? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebra	al. NOTE: all voucher samples must be labeled with the rimary Headwater Habitat Assessment Manual)  Voucher? (Y/N)	
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Price of Tadpoles Observed? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology:	al. NOTE: all voucher samples must be labeled with the rimary Headwater Habitat Assessment Manual)  Voucher? (Y/N)	
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Price of Tadpoles Observed? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebra	al. NOTE: all voucher samples must be labeled with the rimary Headwater Habitat Assessment Manual)  Voucher? (Y/N)	
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Price of Tadpoles Observed? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology:	al. NOTE: all voucher samples must be labeled with the rimary Headwater Habitat Assessment Manual)  Voucher? (Y/N)	
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Price of Tadpoles Observed? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology:	al. NOTE: all voucher samples must be labeled with the rimary Headwater Habitat Assessment Manual)  Voucher? (Y/N)  N  Voucher? (Y/N)  Voucher? (Y/N)	
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Prish Observed? (Y/N) N Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebra Comments Regarding Biology: noen observed	al. NOTE: all voucher samples must be labeled with the rimary Headwater Habitat Assessment Manual)  Voucher? (Y/N)  N  Voucher? (Y/N)  N  Voucher? (Y/N)  M  M  M  M  M  M  M  M  M  M  M  M  M	e site
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Prish Observed? (Y/N) N Salamanders Observed? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology: noen observed	al. NOTE: all voucher samples must be labeled with the rimary Headwater Habitat Assessment Manual)  Voucher? (Y/N)  N  Voucher? (Y/N)  Voucher? (Y/N)	e site
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Prish Observed? (Y/N) N Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebra Comments Regarding Biology: noen observed	al. NOTE: all voucher samples must be labeled with the rimary Headwater Habitat Assessment Manual)  Voucher? (Y/N)  N  Voucher? (Y/N)  N  Voucher? (Y/N)  M  M  M  M  M  M  M  M  M  M  M  M  M	e site
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Prish Observed? (Y/N) N Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebra Comments Regarding Biology: noen observed	al. NOTE: all voucher samples must be labeled with the rimary Headwater Habitat Assessment Manual)  Voucher? (Y/N)  N  Voucher? (Y/N)  N  Voucher? (Y/N)  M  M  M  M  M  M  M  M  M  M  M  M  M	e site
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Prish Observed? (Y/N) N Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebra Comments Regarding Biology: noen observed	al. NOTE: all voucher samples must be labeled with the rimary Headwater Habitat Assessment Manual)  Voucher? (Y/N)  N  Voucher? (Y/N)  N  Voucher? (Y/N)  M  M  M  M  M  M  M  M  M  M  M  M  M	e site
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Prish Observed? (Y/N) N Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebra Comments Regarding Biology: noen observed	al. NOTE: all voucher samples must be labeled with the rimary Headwater Habitat Assessment Manual)  Voucher? (Y/N)  N  Voucher? (Y/N)  N  Voucher? (Y/N)  M  M  M  M  M  M  M  M  M  M  M  M  M	e site
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Prish Observed? (Y/N) N Salamanders Observed? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology:  DRA Include impt	al. NOTE: all voucher samples must be labeled with the rimary Headwater Habitat Assessment Manual)  Voucher? (Y/N)  N  Voucher? (Y/N)  N  Voucher? (Y/N)  M  M  M  M  M  M  M  M  M  M  M  M  M	e site
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Prish Observed? (Y/N) N Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebra Comments Regarding Biology: noen observed	al. NOTE: all voucher samples must be labeled with the rimary Headwater Habitat Assessment Manual)  Voucher? (Y/N)  N  Voucher? (Y/N)  N  Voucher? (Y/N)  M  M  M  M  M  M  M  M  M  M  M  M  M	e site
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Prish Observed? (Y/N) N Salamanders Observed? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology:  DRA Include impt	al. NOTE: all voucher samples must be labeled with the rimary Headwater Habitat Assessment Manual)  Voucher? (Y/N)  N  Voucher? (Y/N)  N  Voucher? (Y/N)  M  M  M  M  M  M  M  M  M  M  M  M  M	e site
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Prish Observed? (Y/N) N Salamanders Observed? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology:  DRA Include impt	al. NOTE: all voucher samples must be labeled with the rimary Headwater Habitat Assessment Manual)  Voucher? (Y/N)  N  Voucher? (Y/N)  N  Voucher? (Y/N)  M  M  M  M  M  M  M  M  M  M  M  M  M	e site
BIOTIC EVALUATION  Performed? (Y/N):  N  (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Price of Tadpoles Observed? (Y/N)  Frogs or Tadpoles Observed? (Y/N)  Comments Regarding Biology:  noen observed  DRA  Include impt  I	al. NOTE: all voucher samples must be labeled with the rimary Headwater Habitat Assessment Manual)  Voucher? (Y/N)  N  Voucher? (Y/N)  N  Voucher? (Y/N)  M  M  M  M  M  M  M  M  M  M  M  M  M	e site
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Prish Observed? (Y/N) N Salamanders Observed? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology:  DRA Include impt	al. NOTE: all voucher samples must be labeled with the rimary Headwater Habitat Assessment Manual)  Voucher? (Y/N)  N  Voucher? (Y/N)  N  Voucher? (Y/N)  M  M  M  M  M  M  M  M  M  M  M  M  M	e site
BIOTIC EVALUATION  Performed? (Y/N):  N  (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Price of Tadpoles Observed? (Y/N)  Frogs or Tadpoles Observed? (Y/N)  Comments Regarding Biology:  noen observed  DRA  Include impt  I	al. NOTE: all voucher samples must be labeled with the rimary Headwater Habitat Assessment Manual)  Voucher? (Y/N)  N  Voucher? (Y/N)  N  Voucher? (Y/N)  M  M  M  M  M  M  M  M  M  M  M  M  M	e site
BIOTIC EVALUATION  Performed? (Y/N):  N  (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Price of Tadpoles Observed? (Y/N)  Frogs or Tadpoles Observed? (Y/N)  Comments Regarding Biology:  noen observed  DRA  Include impt  I	al. NOTE: all voucher samples must be labeled with the rimary Headwater Habitat Assessment Manual)  Voucher? (Y/N)  N  Voucher? (Y/N)  N  Voucher? (Y/N)  M  M  M  M  M  M  M  M  M  M  M  M  M	e site
BIOTIC EVALUATION  Performed? (Y/N):  N  (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Price of Tadpoles Observed? (Y/N)  Frogs or Tadpoles Observed? (Y/N)  Comments Regarding Biology:  noen observed  DRA  Include impt  I	al. NOTE: all voucher samples must be labeled with the rimary Headwater Habitat Assessment Manual)  Voucher? (Y/N)  N  Voucher? (Y/N)  N  Voucher? (Y/N)  M  M  M  M  M  M  M  M  M  M  M  M  M	e site

October 24, 2002 Revision

Save as pdf

**Reset Form** 



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 029

Date:

June 1, 2020

**Description:** 

Intermittent

Modified Small Drainage Warmwater Stream

Facing Upstream



#### Stream 029

Date:

June 1, 2020

**Description:** 

Intermittent

Modified Small Drainage Warmwater Stream





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 029

Date:

June 1, 2020

**Description:** 

Intrmittent

Modified Small Drainage Warmwater Stream





## Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project	
s-bl-20200601-04 SITE NUMBER S04 RIVER BASIN Muskingum DRAINAGE AREA (mi²)	0.10
LENGTH OF STREAM REACH (ft) 100 LAT. 39.82953 LONG82.16783 RIVER CODE RIVER MILE	
DATE 06/01/20 SCORER BL COMMENTS intermittent, drains W-bl-20200601-02	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Ins	tructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO REMODIFICATIONS:	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	⊥ HHEI
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE  PERCENT  TYPE  PERCENT	Metric
□ □ BLDR SLABS [16 pts] □ □ SILT [3 pt] 10%	Points
BOULDER (>256 mm) [16 pts]  BEDROCK [16 pt]  D'W  LEAF PACK/WOODY DEBRIS [3 pts]  0%  FINE DETRITUS [3 pts]  0%	Substrat
COBBLE (65-256 mm) [12 pts]	Max = 40
GRAVEL (2-64 mm) [9 pts] 25% MUCK [0 pts] 0%	19
SAND (<2 mm) [6 pts] 45% ARTIFICIAL [3 pts] 0%	
Total of Percentages of 0.00% (A) Substrate Percentage Check (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 TOTAL NUMBER OF SUBSTRATE TYPES: 4	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dep
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]	Max = 30
> 22.5 - 30 cm [30 pts] < 5 cm [5 pts]	
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	5
COMMENTS OHW=2.9'w x 0.4'd MAXIMUM POOL DEPTH (Inches): 1.00	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankful
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	
	Width Max=30
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ≤ 1.0 m (<=3' 3") [5 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ≤ 1.0 m (<=3' 3") [5 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Max=30
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=3.7'w x 1.3'd  AVERAGE BANKFULL WIDTH (Feet): 3.70  This information must also be completed	Max=30
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=3.7'w x 1.3'd  AVERAGE BANKFULL WIDTH (Feet): 3.70  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆	Max=30
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=3.7'w x 1.3'd AVERAGE BANKFULL WIDTH (Feet): 3.70  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ♣ NOTE: River Left (L) and Right (R) as looking downstream ♣ RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank) L R (Most Predominant per Bank) L R	Max=30
Solution = 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=3.7'w x 1.3'd  AVERAGE BANKFULL WIDTH (Feet): 3.70  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆  RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank) L R (Most Predominant per Bank) L R  Wide >10m Mature Forest, Wetland Conservation Tillage	Max=30
Source S	Max=30
Solution 2	Max=30
Som - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=3.7'w x 1.3'd  AVERAGE BANKFULL WIDTH (Feet): 3.70  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)  V Wide >10m	Max=30 15
Source S	Max=30 15
S 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]   S 1.0 m (<=3' 3") [5 pts]	Max=30
S 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	Max=30
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=3.7'w x 1.3'd  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  This information must also be completed  RIPARIAN WIDTH  FLOODPLAIN QUALITY  R (Per Bank)  Wide > 10m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Residential, Park, New Field  None  COMMENTS Within ROW  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Moist Channel, isolated pools, no flow (Intermittee	Max=30
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Narrow <5m  Narrow <5m  Narrow <5m  Narrow <5m  Residential, Park, New Field  None  COMMENTS within ROW  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	Max=30
Stream Flowing   Subsurface flow with isolated pools (Interstitial)   Stream Flowing   Stream Flowin	Max=30
S   S   S   S   S   S   S   S   S   S	Max=30
Sinuosity (Number of bends per 61 m (200 ft) of channel)  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=3.7'w x 1.3'd  AVERAGE BANKFULL WIDTH (Feet): 3.70  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆  RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank) L R (Most Predominant per Bank) L R  Wide >10 m Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Urban or Industrial  Narrow <5m Residential, Park, New Field Open Pasture, Row (Conservation Field Open Pasture, Row (Co	Max=30

QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Attac	
	ch Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)  WWH Name: Butcherknife Creek (LRW)  CWH Name:	Distance from Evaluated Stream  Distance from Evaluated Stream  Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream _
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED  Fultonham	
USGS Quadrangle Name: NRCS Soil Map Pa	
Township / City	
MISCELLANEOUS  Base Flow Conditions? (Y/N):  Date of last precipitation:  05/29/20	Quantity: 0.17
Photograph Information: SKM: 1552-upstream, 1553-downstream, 1554-substrates	
Elevated Turbidity? (Y/N): Canopy (% open): 40%	
Were samples collected for water chemistry? (Y/N): Note lab sample no. or id. a	nd attach results) Lab Number:
Dissolved Oxygentium)	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:  BANK Stability  LOW  MG	DDERATE HIGH 🗸 🖪
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. ID number. Include appropriate field data sheets from the Print N	nary Headwater Habitat Assessment Manual)  Voucher? (Y/N)
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Aquatic Macroinvertebrate Comments Regarding Biology:	es Observed? (Y/N) Voucher? (Y/N)
Frogs of Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrate	es Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:	voucher? (Y/N)  Label Description  Label Descriptio



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 030

Date:

June 1, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream

Facing Upstream



#### Stream 030

Date:

June 1, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 030

Date:

June 1, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream





## **ChieFP** Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project	
s-bl-20200601-03 SITE NUMBER S03 RIVER BASIN Muskingum DRAINAGE AREA (mi²)	).10
LENGTH OF STREAM REACH (ft) 100 LAT. 39.83005 LONG82.16879 RIVER CODE RIVER MILE	0.05
DATE 06/01/20 SCORER BL COMMENTS intermittent, drains W-bl-20200601-01	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	ructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING RECENT OR NO RECOVERED RECOVERED RECOVERING RECENT OR NO RECOVERED	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HHEI
TYPE PERCENT TYPE PERCENT	Metric
BLDR SLABS [16 pts]  BOULDER (>256 mm) [16 pts]  D LEAF PACK/WOODY DEBRIS [3 pts]  0%  10%  10%	1 Omits
BEDROCK [16 pt]  0%  FINE DETRITUS [3 pts]	Substrate Max = 40
COBBLE (65-256 mm) [12 pts] 5% CLAY or HARDPAN [0 pt] 5%  GRAVEL (2-64 mm) [9 pts] 30% MUCK [0 pts] 0%	
GRAVEL (2-64 mm) [9 pts]  SAND (<2 mm) [6 pts]  MUCK [0 pts]  ARTIFICIAL [3 pts]  0%  0%	18
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock  15.00% (A) Substrate Percentage Check  Substrate Percentage 100%	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 TOTAL NUMBER OF SUBSTRATE TYPES: 6	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):	Pool Dept
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	IWIAX - 30
> 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	15
OHW=2 2'w x 0.7'd	
COMMENTS OHW=2.2 W X 0.7 d MAXIMUM POOL DEPTH (Inches): 2.50	
	l
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull
> 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] \( \leq 1.0 m (<=3' 3") [5 pts]	Bankfull Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Width Max=30
> 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] \( \leq 1.0 m (<=3' 3") [5 pts]	Width
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=3.2'w x 1.6'd  AVERAGE BANKFULL WIDTH (Feet): 3.20	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=3.2'w x 1.6'd  AVERAGE BANKFULL WIDTH (Feet): 3.20  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=3.2'w x 1.6'd  AVERAGE BANKFULL WIDTH (Feet): 3.20  This information must also be completed	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=3.2'w x 1.6'd  AVERAGE BANKFULL WIDTH (Feet): 3.20  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆  RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank)  V Wide >10m Mature Forest, Wetland  Mature Forest, Wetland  Conservation Tillage	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=3.2'w x 1.6'd  AVERAGE BANKFULL WIDTH (Feet): 3.20  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 River Left (L) and Ri	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=3.2'w x 1.6'd  AVERAGE BANKFULL WIDTH (Feet): 3.20  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream  RIPARIAN WIDTH  L R (Per Bank)  L R (Most Predominant per Bank)  L R (Most Predominant per Bank)  Wide >10m  Mature Forest, Wetland  Conservation Tillage  Immature Forest, Shrub or Old  Urban or Industrial	Width Max=30
> 4.0 meters (> 13') [30 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]   ≤ 1.0 m (<=3' 3") [5 pts]   ≤ 1.0	Width Max=30
> 4.0 meters (> 13') [30 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=3.2'w x 1.6'd  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Narrow <5m  Narrow <5m  Residential, Park, New Field  Fenced Pasture  COMMENTS within ROW  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Moist Channel, isolated pools, no flow (Intermittent)	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=3.2'w x 1.6'd  AVERAGE BANKFULL WIDTH (Feet): 3.20  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 4' 8") [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=3.2'w x 1.6'd  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  RIPARIAN WIDTH  FLOODPLAIN QUALITY  Mide > 10m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Residential, Park, New Field  Narrow <5m  Residential, Park, New Field  None  COMMENTS within ROW  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=3.2'w x 1.6'd  AVERAGE BANKFULL WIDTH (Feet): 3.20  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (≈ 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (≈ 9' 7" - 4' 8") [20 pts]  COMMENTS BF=3.2'w x 1.6'd  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  **NOTE: River Left (L) and Right (R) as looking downstream **  RIPARIAN WIDTH  L R (Per Bank)  Wide >10 m  Mature Forest, Wetland  Moderate 5-10 m  Moderate 5-10 m  None  COMMENTS Within ROW  FLOW REGIME (At Time of Evaluation)  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel)  None  1.0  Check ONLY one box):  None  1.0  3.0	Width Max=30

QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Atta		
CILITERI ORMED: - 105 V NO CILI Scole (II res, Aud	ch Completed QHEI Form)	
DOWNSTREAM DESIGNATED USE(S)	ı	
WWH Name: Butcherknife Creek (LRW)	_ Distance from Evaluated	_
CWH Name:EWH Name:	Distance from Evaluated S Distance from Evaluated S	
	-	-
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED  Fultonham		
USGS Quadrangle Name: NRCS Soil Map P  Muskingum Newton		ap Stream Order
County: Muskingum Township / City: Newton		
MISCELLANEOUS		1
Base Flow Conditions? (Y/N): Y Date of last precipitation: 05/29/20	Quantity: 0.17	
Photograph Information: SKM: 1521-upstream, 1522-downstream, 1523-substrates		
Elevated Turbidity? (Y/N): Canopy (% open):10%		
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. a	and attach results) Lab Num	ber:
Field Measures: Temp (°C) 15.60 Dissolved Oxygen (mg/l) pH (S.U.)	3.60 Conductivity (µmho	s/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:		
heavily entrenched and silted		
Additional comments/description of pollution impacts:		
	ODERATE	HIGH
BIOTIC EVALUATION		
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional	NOTE: all variables complete	
· · · · · · · · · · · · · · · · · · ·	. NOTE: all voucher samples	
ID number. Include appropriate field data sheets from the Pri		
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N)	mary Headwater Habitat Asse  Voucher? (Y/N)	ssment Manual)
	mary Headwater Habitat Asse  Voucher? (Y/N)	
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebrat	mary Headwater Habitat Asse  Voucher? (Y/N)	ssment Manual)
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrat Comments Regarding Biology:	mary Headwater Habitat Asse  Voucher? (Y/N)	ssment Manual)
Fish Observed? (Y/N) N Salamanders Observed? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology:  noen observed	wary Headwater Habitat Asse Voucher? (Y/N)  es Observed? (Y/N)  N	ssment Manual)  /oucher? (Y/N)
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology:  noen observed	wary Headwater Habitat Asse Voucher? (Y/N)  es Observed? (Y/N)  N	completed):
Fish Observed? (Y/N) N Salamanders Observed? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology:  noen observed	wary Headwater Habitat Asse Voucher? (Y/N)  es Observed? (Y/N)  N	ssment Manual)  /oucher? (Y/N)
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology:  noen observed	wary Headwater Habitat Asse Voucher? (Y/N)  es Observed? (Y/N)  N	completed):
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology:  noen observed	wary Headwater Habitat Asse Voucher? (Y/N)  es Observed? (Y/N)  N	completed):
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology:  noen observed	wary Headwater Habitat Asse Voucher? (Y/N)  es Observed? (Y/N)  N	completed):
Fish Observed? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology:  noen observed  D Include i	wary Headwater Habitat Asse Voucher? (Y/N)  es Observed? (Y/N)  N	completed):
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology:  noen observed	wary Headwater Habitat Asse Voucher? (Y/N)  es Observed? (Y/N)  N	completed):
Fish Observed? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology:  noen observed  D Include i	wary Headwater Habitat Asse Voucher? (Y/N)  es Observed? (Y/N)  N	completed):
Fish Observed? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology:  noen observed  D Include i	wary Headwater Habitat Asse Voucher? (Y/N)  es Observed? (Y/N)  N	completed):
Fish Observed? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology:  noen observed  D Include i	wary Headwater Habitat Asse Voucher? (Y/N)  es Observed? (Y/N)  N	completed):
Fish Observed? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology:  noen observed  D Include i	wary Headwater Habitat Asse Voucher? (Y/N)  es Observed? (Y/N)  N	completed):
Fish Observed? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology:  noen observed  D Include i	wary Headwater Habitat Asse Voucher? (Y/N)  es Observed? (Y/N)  N	completed):
Fish Observed? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology:  noen observed  D Include i	wary Headwater Habitat Asse Voucher? (Y/N)  es Observed? (Y/N)  N	completed):



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 031

Date:

June 1, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream

Facing Upstream



#### Stream 031

Date:

June 1, 2020

#### **Description:**

Intermittent

Small Drainage Warmwater Stream





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 031

Date:

June 1, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream





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

87
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SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project  s-bl-20200601-02 SITE NUMBER S02 RIVER BASIN Muskingum DRAINAGE AREA (mi²) 0.	16
LENGTH OF STREAM REACH (ft) 200 LAT. 39.83074 LONG82.16967 RIVER CODE RIVER MILE 0.	
DATE 06/01/20 SCORER BL COMMENTS NHD/NWI R4SBC	
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 RECOMMODIFICATIONS: iron oxide present in channel	VERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	UUEI
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE  PERCENT  TYPE  PERCENT	HHEI Metric
□ □ BLDR SLABS [16 pts]	Points
BOULDER (>256 mm) [16 pts]	Substrate
COBBLE (65-256 mm) [12 pts] 10% CLAY or HARDPAN [0 pt] 0%	Max = 40
☐ ☐ GRAVEL (2-64 mm) [9 pts] ☐ ☐ MUCK [0 pts] ☐ ☐ MUCK [0 pts] ☐ ☐ ARTIFICIAL [3 pts] ☐ ☐ ☐ O% ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	32
Total of Percentages of Substrate Percentage (A)	A B
Bldr Slabs, Boulder, Cobble, Bedrock Check Check Check	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 25 TOTAL NUMBER OF SUBSTRATE TYPES: 7	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):	Pool Depth Max = 30
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	
> 22.5 - 30 cm [30 pts]	30
COMMENTS OHW=8.3'w x 1.7'd MAXIMUM POOL DEPTH (Inches): 10.71	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull
> 4.0 meters (> 13') [30 pts]  > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	
	Width
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=10.9'w x 3.2'd	Max=30
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  AVERAGE BANKFULL WIDTH  (Feet): 10.9  This information floodplain Quality ♣NOTE: River Left (L) and Right (R) as looking downstream ♣	Max=30
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  LR (Per Bank)  AVERAGE BANKFULL WIDTH (Feet): 10.91  AVERAGE BANKFU	Max=30
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  L R (Most Predominant per Bank)  RIPARIAN WIDTH  FLOODPLAIN QUALITY  Conservation Tillage	Max=30
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  Viv Wide >10m  Mature Forest, Wetland  Moderate 5-10m  AVERAGE BANKFULL WIDTH  FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  Mature Forest, Wetland  Conservation Tillage  Immature Forest, Shrub or Old  Field  Conservation Flow Cross	Max=30 25
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  L R (Per Bank)  Vide >10.9  Moderate 5-10m  Narrow <5m  AVERAGE BANKFULL WIDTH  FLOODPLAIN QUALITY  AVERAGE BANKFULL WIDTH  FLOODPLAIN QUALITY  AVERAGE BANKFULL WIDTH  (Feet):  10.9  AVERAGE BANKFULL WIDTH  (Feet):  AVERAGE BANKFULL W	Max=30 25
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  Viv Wide >10m  Mature Forest, Wetland  Moderate 5-10m  AVERAGE BANKFULL WIDTH  FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  Mature Forest, Wetland  Conservation Tillage  Immature Forest, Shrub or Old  Field  Conservation Flow Cross	Max=30 25
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  Property of the	Max=30 25
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream And RIPARIAN WIDTH  L R (Per Bank)  Wide >10m	Max=30 25
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  L R (Per Bank)  Vide >10 m Mature Forest, Wetland  Moderate 5-10m  Narrow <5m  None  Residential, Park, New Field  None  COMMENTS Within ROW  AVERAGE BANKFULL WIDTH  (Feet): 10.91  AVERAGE BANKFULL WIDTH  (Feet): 10.91  (Feet): 10.91  AVERAGE BANKFULL WIDTH  (Feet): 10.91  (Feet): 10.91  AVERAGE BANKFULL WIDTH	Max=30 25
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  PROTE: River Left (L) and Right (R) as looking downstream (Most Predominant per Bank)  RIPARIAN WIDTH  FLOODPLAIN QUALITY  Wide >10 m  Mature Forest, Wetland  Moderate 5-10m  Narrow <5m  Narrow <5m  Residential, Park, New Field  None  COMMENTS within ROW  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS  MV AVERAGE BANKFULL WIDTH  (Feet):  10.91  AVERAGE BAN	Max=30 25
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream Mature Forest, Wetland Conservation Tillage  Moderate 5-10m Mature Forest, Shrub or Old Urban or Industrial  Narrow <5m Residential, Park, New Field Open Pasture, Row Crown None Fenced Pasture  COMMENTS within ROW  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing Subsurface flow with isolated pools (Interstitial)  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None 1.0 (Check ONLY one box):  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None 1.0 (Check ONLY one box):  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None 1.0 (Check ONLY one box):  None 1.0 (Check ONLY one box):  OCCUMENTS (Check ONLY one box):  OCCUMENTS (Check ONLY one box):  None 1.0 (Check ONLY one box):  OCCUMENTS (CHECK ONLY one box):	Max=30 25
COMMENTS BF=10.9'w x 3.2'd  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  Wide >10m Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Urban or Industrial  Moderate 5-10m Residential, Park, New Field Open Pasture, Row Crop None Residential, Park, New Field Mining or Construction  COMMENTS within ROW  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing Subsurface flow with isolated pools (Interstitial)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	Max=30 25

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):		
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Atta	ach Completed QHEI Form)	
DOWNSTREAM DESIGNATED USE(S)		
WWH Name: Butcherknife Creek (LRW)	Distance from Evaluated Stream 1.45	+
CWH Name:EWH Name:	_ Distance from Evaluated Stream _ Distance from Evaluated Stream	+
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHE	_	
Fultonham		
USGS Quadrangle Name: NRCS Soil Map F		_
County Township / City		
MISCELLANEOUS  Y  Data of Last was similar time. 05/29/20	Quantitus 0.17	
Date of last precipitation:  SKM: 4500 unstream 4510 downstream 4511 substrates	Quantity: 0.17	7
Priotograph information.		
Elevated Turbidity? (Y/N): N Canopy (% open): 40%		
	and attach results) Lab Number:	_
Field Measures: Temp (°C) 15.60 Dissolved Oxygen (mg/l) pH (S.U.)	3.60 Conductivity (µmhos/cm)	
Is the sampling reach representative of the stream (Y/N) If not, please explain:		_
highly acidic, iron oxide present, shallow bedrock; former strip mined land?		
Additional comments/description of pollution impacts:		
BANK Stability LOW	MODERATE HIGH	+
BIOTIC EVALUATION		
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional	al. NOTE: all voucher samples must be labeled with	the site
ID number. Include appropriate field data sheets from the Pr		
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Aquatic Macroinvertebra	Voucher? (Y/N) N Voucher? (Y/N)	
Comments Regarding Biology:	N	
noen observed		
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October 24,		
	Save as pdf Reset Form	



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 032

Date:

June 1, 2020

**Description:** 

Intermittent

Spring Water Stream

Facing Upstream



#### Stream 032

Date:

June 1, 2020

**Description:** 

Intermittent

Spring Water Stream





Site Location:

AEP

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 032

**Client Name:** 

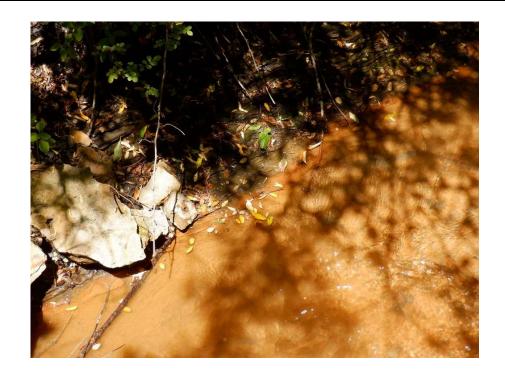
Date:

June 1, 2020

**Description:** 

Intermittent

Spring Water Stream





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

SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project  s-bl-20200601-01a SITE NUMBER S01a RIVER BASIN Muskingum DRAINAGE AREA (mi²) 0.0	
	)1
LENGTH OF STREAM REACH (ft) 65 LAT. 39.83206 LONG82.17237 RIVER CODE RIVER MILE 0.2	25
DATE 06/01/20 SCORER BL COMMENTS ephemeral portion	
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 RECOMPONDIFICATIONS: Changes to intermittent flow (S01b) to south	VERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE  PERCENT  TYPE  PERCENT	HHEI Metric
□ BLDR SLABS [16 pts] □ ✓ SILT [3 pt] 35%	Points
BOULDER (>256 mm) [16 pts]  BEDROCK [16 pt]  DW  LEAF PACK/WOODY DEBRIS [3 pts]  5%  0%  FINE DETRITUS [3 pts]	Substrate
COBBLE (65-256 mm) [12 pts]	Max = 40
☐ GRAVEL (2-64 mm) [9 pts] ☐ MUCK [0 pts] ☐ 0% ☐ ARTIFICIAL [3 pts] ☐ 0% ☐ ☐ ARTIFICIAL [3 pts] ☐ 0% ☐ ☐ OW	13
Total of Percentages of Appendix (A) Substrate Percentage (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock	Α.Β
	Pool Dept
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] < 5 cm [5 pts]	
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	0
COMMENTS OHW=1.9'w x 0.6'd MAXIMUM POOL DEPTH (Inches): 0.00	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	
> 2.0 m	Width
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ≤ 1.0 m (<=3' 3") [5 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Width Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Max=30
COMMENTS BF=3.1'w x 0.8'd  AVERAGE BANKFULL WIDTH (Feet): 3.10  This information must also be completed	Max=30
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  AVERAGE BANKFULL WIDTH (Feet): 3.10  This information must also be completed  RIPARIAN WIDTH  FLOODPLAIN QUALITY  PLOODPLAIN QUALITY  FLOODPLAIN QUALITY	Max=30
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  □ RIPARIAN WIDTH □ RIPARIAN	Max=30
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  L R (Per Bank)  L R (Most Predominant per Bank)  L R (Most Predominant per Bank)  Wide >10m  Moderate 5-10m  AVERAGE BANKFULL WIDTH (Feet): 3.10  This information must also be completed  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  Moderate 5-10m  L R (Most Predominant per Bank)  Moderate 5-10m	Max=30
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  L R (Per Bank)  Vide >10m Mature Forest, Wetland  Moderate 5-10m  AVERAGE BANKFULL WIDTH  (Feet): 3.10  This information must also be completed  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  Vide >10m Mature Forest, Wetland  Conservation Tillage  Immature Forest, Shrub or Old  Field  Conservation Flood Urban or Industrial  Field	Max=30
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ENDOTE: River Left (L) and Right (R) as looking downstream ★  RIPARIAN WIDTH  L R (Per Bank)  V Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Narrow <5m  Residential, Park, New Field  AVERAGE BANKFULL WIDTH  (Feet):  3.10  This information must also be completed  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  L R (Most Predominant per Bank)  L R (Most Predominant per Bank)  Conservation Tillage  Urban or Industrial  Open Pasture, Row Crop	Max=30
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  L R (Per Bank)  Vide >10m Mature Forest, Wetland  Moderate 5-10m  AVERAGE BANKFULL WIDTH  (Feet): 3.10  This information must also be completed  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  Vide >10m Mature Forest, Wetland  Conservation Tillage  Immature Forest, Shrub or Old  Field  Conservation Flood Urban or Industrial  Field	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  RIPARIAN WIDTH  RIPARIAN WIDTH  RIPARIAN WIDTH  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Residential, Park, New Field  None  COMMENTS within ROW  FLOODPLAIN QUALITY  Residential, Park, New Field  Mining or Construction  COMMENTS within ROW  FLOOM Check ONLY one box):	Max=30
COMMENTS BF=3.1'w x 0.8'd  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Narrow <5m  Residential, Park, New Field  None  COMMENTS within ROW  AVERAGE BANKFULL WIDTH  (Feet): 3.10  AVER	Max=30
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  LR (Per Bank)  Vide >10m  Moderate 5-10m  Narrow <5m  Narrow <5m  Narrow <5m  None  COMMENTS Within ROW  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  AVERAGE BANKFULL WIDTH  FLOODPLAIN QUALITY  NOTE: River Left (L) and Right (R) as looking downstream not proved to the completed  RIPARIAN WIDTH  FLOODPLAIN QUALITY  Whoth Predominant per Bank)  LR  (Most Predominant per Bank)  LR  Conservation Tillage  Urban or Industrial  Open Pasture, Row Crop  Mining or Construction  COMMENTS within ROW  Moist Channel, isolated pools, no flow (Intermittent)	Max=30
COMMENTS BF=3.1'w x 0.8'd  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  Wide >10m Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Immature Forest, Shrub or Old Immature Forest, None Residential, Park, New Field Open Pasture, Row Crop  None Residential, Park, New Field Open Pasture, Row Crop  None Fenced Pasture Mining or Construction  COMMENTS within ROW  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing Subsurface flow with isolated pools (Interstitial)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	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  L R (Per Bank)  Wide >10m  Moderate 5-10m  Narrow <5m  None  None  COMMENTS within ROW  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  AVERAGE BANKFULL WIDTH  (Feet): 3.10  AVERA	Max=30
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream to Note: River Left (L) and River Left (L) and Rig	Max=30

ADDITIONAL STREAM INFORMATION (This Information Must Also be Complete March 1997)	leted):
QHEI PERFORMED? - Yes V No QHEI Score (If Y	Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	4.00
WWH Name: Butcherknife Creek (LRW)	Distance from Evaluated Stream 1.80
CWH Name:EWH Name:	Distance from Evaluated Stream Distance from Evaluated Stream
	<del></del>
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WAT	ERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: NRCS So	oil Map Page:NRCS Soil Map Stream Order
County: Perry Township / City:_	Madison
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation: 05/29/2	Quantity.
Photograph Information: SKM: 1143-upstream, 1144-downstream, 1145-subst	trates
Elevated Turbidity? (Y/N): Canopy (% open): 70%	
Were samples collected for water chemistry? (Y/N):	o. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (ma/l) pH (	(S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N)	olain:
dry; flow starts just downstream of ROW (intermittent)	
Additional comments/description of pollution impacts:	
BANK Stability LOW	MODERATE HIGH ✓
BIOTIC EVALUATION	
N.	s ontional NOTE: all voucher samples must be labeled with the site
Performed? (Y/N): (If Yes, Record all observations. Voucher collections	s optional. NOTE: all voucher samples must be labeled with the site m the Primary Headwater Habitat Assessment Manual)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections ID number. Include appropriate field data sheets from Voucher? (Y/N) N Salamanders Observed? (**)	m the Primary Headwater Habitat Assessment Manual)  Y/N)  N  Voucher? (Y/N)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections ID number. Include appropriate field data sheets from Voucher? (Y/N) N Salamanders Observed? (	m the Primary Headwater Habitat Assessment Manual)  Y/N)  N  Voucher? (Y/N)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections ID number. Include appropriate field data sheets from Voucher? (Y/N) N Salamanders Observed? (Frogs or Tadpoles Observed? (Y/N) N Aquatic Macroins	m the Primary Headwater Habitat Assessment Manual)  Y/N)  N  Voucher? (Y/N)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections ID number. Include appropriate field data sheets from Voucher? (Y/N) N Salamanders Observed? (Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroins Comments Regarding Biology:	m the Primary Headwater Habitat Assessment Manual)  Y/N)  N  Voucher? (Y/N)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections ID number. Include appropriate field data sheets from Voucher? (Y/N) N Salamanders Observed? (Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroins Comments Regarding Biology: Noen observed	m the Primary Headwater Habitat Assessment Manual)  Y/N)  N  Voucher? (Y/N)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections ID number. Include appropriate field data sheets from Voucher? (Y/N) N Salamanders Observed? (Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroins Comments Regarding Biology:	m the Primary Headwater Habitat Assessment Manual)  Y/N)  N  Voucher? (Y/N)
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Performed? (Y/N): N (If Yes, Record all observations. Voucher collections ID number. Include appropriate field data sheets from Voucher? (Y/N) N Salamanders Observed? (Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroins Comments Regarding Biology: noen observed	m the Primary Headwater Habitat Assessment Manual)  Y/N)  N  Voucher? (Y/N)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections ID number. Include appropriate field data sheets from Voucher? (Y/N) N Salamanders Observed? (Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroins Comments Regarding Biology: noen observed	m the Primary Headwater Habitat Assessment Manual)  Y/N)  N  Voucher? (Y/N)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections ID number. Include appropriate field data sheets from Voucher? (Y/N) N Salamanders Observed? (Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroins Comments Regarding Biology: noen observed	m the Primary Headwater Habitat Assessment Manual)  Y/N)  N  Voucher? (Y/N)
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Performed? (Y/N): N (If Yes, Record all observations. Voucher collections ID number. Include appropriate field data sheets from Voucher? (Y/N) N Salamanders Observed? (Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroins Comments Regarding Biology:    DRAW   Include import	m the Primary Headwater Habitat Assessment Manual)  Y/N)  N  Voucher? (Y/N)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections ID number. Include appropriate field data sheets from Voucher? (Y/N) N Salamanders Observed? (Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroins Comments Regarding Biology: noen observed	m the Primary Headwater Habitat Assessment Manual)  Y/N)  N  Voucher? (Y/N)
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Performed? (Y/N): N (If Yes, Record all observations. Voucher collections ID number. Include appropriate field data sheets from Voucher? (Y/N) N Salamanders Observed? (Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroins Comments Regarding Biology:    DRAW   Include import   D	m the Primary Headwater Habitat Assessment Manual)  Y/N)  N  Voucher? (Y/N)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections ID number. Include appropriate field data sheets from Voucher? (Y/N) N Salamanders Observed? (Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroins Comments Regarding Biology:    DRAW   Include import   D	m the Primary Headwater Habitat Assessment Manual)  Y/N)  N  Voucher? (Y/N)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections ID number. Include appropriate field data sheets from Voucher? (Y/N) N Salamanders Observed? (Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroins Comments Regarding Biology:    DRAW   Include import   D	m the Primary Headwater Habitat Assessment Manual)  Y/N)  N  Voucher? (Y/N)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections ID number. Include appropriate field data sheets from Voucher? (Y/N) N Salamanders Observed? (Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroins Comments Regarding Biology:    DRAW   Include import   D	m the Primary Headwater Habitat Assessment Manual)  Y/N)  N  Voucher? (Y/N)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections ID number. Include appropriate field data sheets from Voucher? (Y/N) N Salamanders Observed? (Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroins Comments Regarding Biology:    DRAW   Include import   D	m the Primary Headwater Habitat Assessment Manual)  Y/N)  N  Voucher? (Y/N)



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 033a

Date:

June 1, 2020

#### **Description:**

Ephemeral

**Ephemeral Stream** 

Facing Upstream



#### Stream 033a

Date:

June 1, 2020

#### **Description:**

Ephemeral

**Ephemeral Stream** 





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 033a

Date:

June 1, 2020

**Description:** 

Ephemeral

Ephemeral Stream





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

50
----

SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project	
s-bl-20200601-01b SITE NUMBER S01b RIVER BASIN Muskingum DRAINAGE AREA (mi²)	.01
LENGTH OF STREAM REACH (ft) 50 LAT. 39.83195 LONG82.17246 RIVER CODE RIVER MILE 0	
DATE 06/01/20 SCORER BL COMMENTS intermittent portion of s-bl-20200602-01	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	uctions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING Lurns intermittent below headcut	OVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE  PERCENT  TYPE  PERCENT	HHEI Metric
BLDR SLABS [16 pts] 0% SILT [3 pt] 20%	Points
BOULDER (>256 mm) [16 pts]	Substrate
COBBLE (65-256 mm) [12 pts]	Max = 40
GRAVEL (2-64 mm) [9 pts]	20
Critic (*2 min) [o plo]	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock (A) Substrate Percentage Check (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):	Pool Depth Max = 30
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	IVIAX = 30
> 22.5 - 30 cm [30 pts]	15
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull
> 4.0 meters (> 13')	Width
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [70 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [70 pts]	
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Width Max=30
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ≤ 1.0 m (<=3' 3") [5 pts]	Width
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=3.9'w x 1.1'd AVERAGE BANKFULL WIDTH (Feet): 3.90	Width Max=30
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=3.9'w x 1.1'd  AVERAGE BANKFULL WIDTH (Feet): 3.90  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆	Width Max=30
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=3.9'w x 1.1'd  AVERAGE BANKFULL WIDTH (Feet): 3.90  This information must also be completed	Width Max=30
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=3.9'W x 1.1'd  AVERAGE BANKFULL WIDTH (Feet): 3.90  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆  RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank) L R (Most Predominant per Bank) L R  Wide >10m Mature Forest, Wetland Conservation Tillage	Width Max=30
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=3.9'w x 1.1'd	Width Max=30
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=3.9'w x 1.1'd AVERAGE BANKFULL WIDTH (Feet): 3.90  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆  RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank) L R (Most Predominant per Bank) L R  Wide >10m Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Urban or Industrial	Width Max=30
S   S   S   S   S   S   S   S   S   S	Width Max=30
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=3.9'w x 1.1'd  AVERAGE BANKFULL WIDTH (Feet): 3.90  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆  RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank) L R (Most Predominant per Bank) L R  V Wide >10 m Mature Forest, Wetland Conservation Tillage    Moderate 5-10 m Mature Forest, Shrub or Old   Urban or Industrial   Narrow <5 m Residential, Park, New Field Open Pasture, Row Crown Comments within ROW    None Fenced Pasture Mining or Construction	Width Max=30
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=3.9'w x 1.1'd  AVERAGE BANKFULL WIDTH (Feet): 3.90  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆ NOTE: River Left (L) and Right (R) as looking downstream ☆ RIPARIAN WIDTH  L R (Per Bank)  V V Wide > 10m  Mature Forest, Wetland  Moderate 5-10m  Narrow <5m  Narrow <5m  Residential, Park, New Field  None  COMMENTS within ROW  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Moist Channel, isolated pools, no flow (Intermittent)	Width Max=30
3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	Width Max=30
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  IRPARIAN WIDTH  IRPARIAN WIDTH	Width Max=30
Sinuosity (Number of bends per 61 m (200 ft) of channel)    Sinuosity (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):   Sinuosity (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):   Sinuosity (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):   Sinuosity (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):   Sinuosity (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):   Sinuosity (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):   None	Width Max=30
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):    SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):   SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):   SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):   SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):   SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):   SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):   SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):   SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):   SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	Width Max=30

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):		
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, At	tach Completed QHEI Form)	
DOWNSTREAM DESIGNATED USE(S)		
WWH Name: Butcherknife Creek (LRW)	Distance from Evaluated Stream	1.80
CWH Name:EWH Name:	Distance from Evaluated Stream	
EWH Name:	Distance from Evaluated Stream	
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHE	ED AREA. CLEARLY MARK THE SITE LO	DCATION
USGS Quadrangle Name: Fultonham NRCS Soil Map		Order
County: Perry Township / City: Madis	son	
MISCELLANEOUS		
Base Flow Conditions? (Y/N): Y Date of last precipitation: 05/29/20	Quantity: 0.17	
Photograph Information: SKM: 1483-upstream, 1484-downstream, 1485-substrates		
Elevated Turbidity? (Y/N): Canopy (% open):20%		
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id.	and attach results) Lab Number:	
Field Measures: Temp (°C) Dissolved Oxygen (ma/l) pH (S.U.)	7.50 Conductivity (µmhos/cm)	
Is the sampling reach representative of the stream (Y/N) If not, please explain:		
flows to wetland outside study area; channel entrenched partway down		
Additional comments/description of pollution impacts:		
	MODERATE HIGH	
BIOTIC EVALUATION		
BIOTIC EVALUATION		
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the P Fish Observed? (Y/N) N Salamanders Observed? (Y/N) N	rimary Headwater Habitat Assessment Ma  Voucher? (Y/N)	nual)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the P Fish Observed? (Y/N) N Voucher? (Y/N) Salamanders Observed? (Y/N) Aquatic Macroinvertebrase of the P Voucher? (Y/N) N Aquatic Macroinvert	rimary Headwater Habitat Assessment Ma  Voucher? (Y/N)	nual)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the P Fish Observed? (Y/N) N Salamanders Observed? (Y/N) N	rimary Headwater Habitat Assessment Ma  Voucher? (Y/N)	nual)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the P Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebrase Comments Regarding Biology:	rimary Headwater Habitat Assessment Ma  Voucher? (Y/N)	nual)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the P Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebrase Comments Regarding Biology:	rimary Headwater Habitat Assessment Ma  Voucher? (Y/N)	nual)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the P Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebrase Comments Regarding Biology:	rimary Headwater Habitat Assessment Ma  Voucher? (Y/N)	nual)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the P Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebra Comments Regarding Biology:	rimary Headwater Habitat Assessment Ma  Voucher? (Y/N)	nual)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the P Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebra Comments Regarding Biology:    DRAW   DR	rimary Headwater Habitat Assessment Ma  Voucher? (Y/N)	nual)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the P Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebra Comments Regarding Biology:    DRAW	rimary Headwater Habitat Assessment Ma  Voucher? (Y/N)	nual)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the P Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebra Comments Regarding Biology:    DRAW   DR	rimary Headwater Habitat Assessment Ma  Voucher? (Y/N)	nual)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the P Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebra Comments Regarding Biology:    DRAW   DR	rimary Headwater Habitat Assessment Ma  Voucher? (Y/N)	nual)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the Pish Observed? (Y/N) N Salamanders Observed? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebrase Comments Regarding Biology:    DRAW   Include import   DRAW   Include	rimary Headwater Habitat Assessment Ma  Voucher? (Y/N)	nual)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the P Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebra Comments Regarding Biology:    DRAW	rimary Headwater Habitat Assessment Ma  Voucher? (Y/N)	nual)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the Pish Observed? (Y/N) N Salamanders Observed? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebrase Comments Regarding Biology:    DRAW   Include import   DRAW   Include	rimary Headwater Habitat Assessment Ma  Voucher? (Y/N)	nual)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the Pish Observed? (Y/N) N Salamanders Observed? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebra Comments Regarding Biology:    DRAW   Include import   DRAW   Include im	rimary Headwater Habitat Assessment Ma  Voucher? (Y/N)	nual)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the Pish Observed? (Y/N) N Salamanders Observed? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebrase Comments Regarding Biology:    DRAW   Include import   DRAW   Include	rimary Headwater Habitat Assessment Ma  Voucher? (Y/N)	nual)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the Pish Observed? (Y/N) N Salamanders Observed? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebra Comments Regarding Biology:    DRAW   Include import   DRAW   Include im	rimary Headwater Habitat Assessment Ma  Voucher? (Y/N)	nual)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the Pish Observed? (Y/N) N Salamanders Observed? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebra Comments Regarding Biology:    DRAW   Include import   DRAW   Include im	rimary Headwater Habitat Assessment Ma  Voucher? (Y/N)	nual)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the Pish Observed? (Y/N) N Salamanders Observed? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebra Comments Regarding Biology:    DRAW   Include import   DRAW   Include im	rimary Headwater Habitat Assessment Ma  Voucher? (Y/N)	nual)



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 033b

Date:

June 1, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream

Facing Upstream



#### Stream 033b

Date:

June 1, 2020

#### **Description:**

Intermittent Small Drainage Warmwater Stream





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 033b

Date:

June 1, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream





## Primary Headwater Habitat Evaluation Form

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

58	
30	

S-bl-20200603-01 SITE NUMBER S01 RIVER BASIN Muskingum DRAINAGE AREA (mi²) 0.15	
Triver Breit	5
LENGTH OF STREAM REACH (ft) 200 LAT. 39.83351 LONG82.17473 RIVER CODE RIVER MILE 0.0	
DATE 06/03/20 SCORER BL COMMENTS intermittent, flows through w-bl-20200603-03	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruct	tions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOV	/EDV
MODIFICATIONS: residential yard, acid mine drainage, iron oxide on substrates, sulfur odor present	LIXI
residential yard, acid filme dramage, non oxide on substrates, sundrodor present	
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	HHEI
	Metric
	Points
BOULDER (>256 mm) [16 pts] LEAF PACK/WOODY DEBRIS [3 pts] 10%	Substrate
BEDROCK [16 pt] FINE DETRITOS [3 pts]	Max = 40
COBBLE (65-256 mm) [12 pts]	
GRAVEL (2-64 mm) [9 pts]  SAND (<2 mm) [6 pts]  MUCK [0 pts]  ARTIFICIAL [3 pts]  0%	13
Total of Percentages of 0.00% (A) Substrate Percentage Check 100% (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 4	
	Pool Dept Max = 30
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	
> 22.5 - 30 cm [30 pts] < 5 cm [5 pts]	20
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	30
COMMENTS OHW=2.7'w x 1.5'd MAXIMUM POOL DEPTH (Inches): 10.00	
	Bankfull
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankfull Width
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ≤ 1.0 m (<=3' 3") [5 pts]	
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Width
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ≤ 1.0 m (<=3' 3") [5 pts]	Width
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Width Max=30
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=3.9'w x 2.1'd AVERAGE BANKFULL WIDTH (Feet): 3.90  This information must also be completed	Width Max=30
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=3.9'w x 2.1'd AVERAGE BANKFULL WIDTH (Feet): 3.90  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆	Width Max=30
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=3.9'w x 2.1'd  AVERAGE BANKFULL WIDTH (Feet): 3.90  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆  RIPARIAN WIDTH FLOODPLAIN QUALITY	Width Max=30
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=3.9'w x 2.1'd AVERAGE BANKFULL WIDTH (Feet): 3.90  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆	Width Max=30
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=3.9'W x 2.1'd  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ♣NOTE: River Left (L) and Right (R) as looking downstream ♣  RIPARIAN WIDTH  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  S 1.0 m (<=3' 3") [5 pts]  AVERAGE BANKFULL WIDTH  (Feet): 3.90  L R  (Feet): 3.90  Immature Forest, Shrub or Old  Immature Forest, Wetland  Immature Forest, Shrub or Old  Immature Forest, Shrub or Old  Immature Forest, Shrub or Old	Width Max=30
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=3.9'w x 2.1'd  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ♣NOTE: River Left (L) and Right (R) as looking downstream ♣  RIPARIAN WIDTH  L R (Per Bank) Wide >10m Mature Forest, Wetland Moderate 5-10m  Moderate 5-10m  Some Pasture Row Crop	Width Max=30
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]   ≤ 1.0 m (<=3' 3") [5 pts]     > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]     COMMENTS   BF=3.9'w x 2.1'd   AVERAGE BANKFULL WIDTH (Feet): 3.90     This information must also be completed     RIPARIAN ZONE AND FLOODPLAIN QUALITY   ↑ NOTE: River Left (L) and Right (R) as looking downstream ↑ RIPARIAN WIDTH   FLOODPLAIN QUALITY     L R (Per Bank)   L R (Most Predominant per Bank)   L R (Most Predominan	Width Max=30
Solution	Width Max=30
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]   ≤ 1.0 m (<=3' 3") [5 pts]     > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]     COMMENTS   BF=3.9'w x 2.1'd   AVERAGE BANKFULL WIDTH (Feet): 3.90     This information must also be completed     RIPARIAN ZONE AND FLOODPLAIN QUALITY   ↑ NOTE: River Left (L) and Right (R) as looking downstream ↑ RIPARIAN WIDTH   FLOODPLAIN QUALITY     L R (Per Bank)   L R (Most Predominant per Bank)   L R (Most Predominan	Width Max=30
Source 2.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=3.9'W x 2.1'd  AVERAGE BANKFULL WIDTH (Feet): 3.90  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY	Width Max=30
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=3.9'w x 2.1'd  AVERAGE BANKFULL WIDTH (Feet): 3.90  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆ NOTE: River Left (L) and Right (R) as looking downstream ☆ RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank) L R (Most Predominant per Bank) L R  Wide >10m Mature Forest, Wetland Conservation Tillage Immature Forest, Wetland Urban or Industrial Field Open Pasture, Row Crop  None Regime (At Time of Evaluation) (Check ONLY one box):  Stream Flowing Moist Channel, isolated pools, no flow (Intermittent)	Width Max=30
Source 2.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=3.9'W x 2.1'd  AVERAGE BANKFULL WIDTH (Feet): 3.90  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY	Width Max=30
S   S   S   S   S   S   S   S   S   S	Width Max=30
Sommer S	Width Max=30
3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]   > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Width Max=30
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (< 9 7" - 4' 8") [20 pts]  COMMENTS BF=3.9'w x 2.1'd  AVERAGE BANKFULL WIDTH (Feet): 3.90  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆  RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank) L R (Most Predominant per Bank) L R (Onservation Tillage Immature Forest, Wetland Department of the completed Immature Forest, Shrub or Old De	Width Max=30
Salue   Salu	Width Max=30

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):		
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Atta	ach Completed QHEI Form)	
DOWNSTREAM DESIGNATED USE(S)		7
WWH Name: Butcherknife Creek (LRW)	Distance from Evaluated Stream 1.80	-
CWH Name:EWH Name:	Distance from Evaluated Stream  Distance from Evaluated Stream	+
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHEI		
USGS Quadrangle Name: NRCS Soil Map F		╤╵
County: Perry Township / City: Madis		_
MISCELLANEOUS		
Base Flow Conditions? (Y/N): Y Date of last precipitation: 05/29/20	Quantity: 0.17	
Photograph Information: SKM: 1752-upstream, 1753-downstream, 1754-substrates		
Elevated Turbidity? (Y/N): N Canopy (% open): 70%		
Were samples collected for water chemistry? (Y/N): Note lab sample no. or id.	and attach results) Lab Number:	
Field Measures: Temp (°C) 17.90 Dissolved Oxygen (ma/l) pH (S.U.)	3.30 Conductivity (µmhos/cm)	]
Υ		
acid mine drainage, low pH		
Additional comments/description of pollution impacts:		_
Additional comments/description of pollution impacts:  BANK Stability  LOW  N	MODERATE / HIGH	+
DIOTIC EVALUATION		_
BIOTIC EVALUATION  N		
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pr		e site
Fish Observed? (Y/N) N Salamanders Observed? (Y/N) N	Voucher? (Y/N) N	
rogs or Ladpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebra	ates Observed? (Y/N) Voucher? (Y/N)	
Comments Regarding Biology:none observed		
none observed		_
		_
DR	npleted):	_
Include im	stream's location	
N 3	123	
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October 24, 2002 Revision	Max Max	=



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 034

Date:

June 3, 2020

**Description:** 

Intermittent

Modified Small Drainage Warmwater Stream

Facing Upstream



### Stream 034

Date:

June 3, 2020

### **Description:**

Intermittent

Modified Small Drainage Warmwater Stream





### PHOTOGRAPHIC RECORD

**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

### Stream 034

Date:

June 3, 2020

**Description:** 

Intermittent

Modified Small Drainage Warmwater Stream





### Primary Headwater Habitat Evaluation Form

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

	64	
--	----	--

SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project	
S-bl-20200602-07 SITE NUMBER S07 RIVER BASIN Muskingum DRAINAGE AREA (mi²)	0.10
LENGTH OF STREAM REACH (ft) 115 LAT. 39.83499 LONG82.17763 RIVER CODE RIVER MILE	0.0
DATE 06/02/20 SCORER BL COMMENTS intermittent, flows through w-bl-20200602-09	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for In	structions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO REMODIFICATIONS: appears to be affected from strip-mined land	ECOVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE  PERCENT  TYPE  PERCENT	HHEI   Metric
□ □ BLDR SLABS [16 pts]	Points
BOULDER (>256 mm) [16 pts]  BEDROCK [16 pt]  0%  LEAF PACK/WOODY DEBRIS [3 pts]  0%  FINE DETRITUS [3 pts]  0%  0%	Substrat
☐ ☐ COBBLE (65-256 mm) [12 pts] ☐ ☐ CLAY or HARDPAN [0 pt] ☐ 0%	Max = 40
GRAVEL (2-64 mm) [9 pts]  SAND (<2 mm) [6 pts]  45%  MUCK [0 pts]  0%  ARTIFICIAL [3 pts]	19
- The Country to pied	
Total of Percentages of 0.00% (A) Substrate Percentage Check 100% (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 TOTAL NUMBER OF SUBSTRATE TYPES: 4	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dep
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]	Max = 30
> 22.5 - 30 cm [30 pts] < 5 cm [5 pts]	
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	25
COMMENTS OHW=3.3'w x 0.6'd MAXIMUM POOL DEPTH (Inches): 8.30	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankful
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.0 m (<=3' 3") [5 pts] ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	.
COMMENTS BF=8.2'w x 1.5'd AVERAGE BANKFULL WIDTH (Feet): 8.20	
	1
This information must also be completed	
RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆ RIPARIAN WIDTH FLOODPLAIN QUALITY	
L R (Per Bank) L R (Most Predominant per Bank) L R	
✓ Wide >10m	
Moderate 5-10m    Moderate 5-10m   Moder	Oran
Narrow <5m Residential, Park, New Field Open Pasture, Row	Стор
None Fenced Pasture Mining or Constructi	on
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing Moist Channel, isolated pools, no flow (Intermitted)	ent)
Subsurface flow with isolated pools (Interstitial)  Dry channel, no water (Ephemeral)  COMMENTS flows through W09	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	
■ None	
None 2.0 3.0 >3 >3	
0.5	
□ 0.5 □ 1.5 □ 2.5 □ >3	ft/100 ft)

QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Atta	
	ach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Butcherknife Creek (LRW)  CWH Name:	Distance from Evaluated Stream  2.14  Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream  Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHE	DAREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Fultonham NRCS Soil Map F	Page: NRCS Soil Map Stream Order
County: Perry Township / City: Madis	
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation: 05/29/20	Quantity: <b>0.17</b>
Photograph Information: SKM: xxxx-upstream, xxxx-downstream, xxxx-substrates	
Elevated Turbidity? (Y/N): N Canopy (% open): 60%	
N	and attach results) Lab Number:
	3.40 Conductivity (µmhos/cm)
Υ	
acid mine drainage, low pH	
Additional comments/description of pollution impacts:	
	IODERATE HIGH 🗸
BIOTIC EVALUATION	
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional	NOTE: all voucher samples must be labeled with the s
ID number. Include appropriate field data sheets from the Pr	
NI NI NI	N
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Solamanders Observed? (Y/N) Aquatic Macroinvertebra	Voucher? (Y/N) N Voucher? (Y/N) N
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebra Comments Regarding Biology:	Voucher? (Y/N) N Voucher? (Y/N) N
Frogs or Ladpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebra	tes Observed? (Y/N) N Voucher? (Y/N) N
Comments Regarding Biology:	tes Observed? (Y/N) N Voucher? (Y/N) N
Comments Regarding Biology:  none observed	tes Observed? (Y/N) N Voucher? (Y/N) N
Comments Regarding Biology:  none observed  DRA	Voucher? (Y/N) N Vouche
Comments Regarding Biology:  none observed	tes Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:  none observed  DRA	tes Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:  none observed  DRA	tes Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:  none observed  DRA	tes Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:  none observed  DRA	tes Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:  none observed  DRA Include impt	tes Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:  none observed  DRA Include impt	tes Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:  none observed  DRA Include impt	tes Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:  none observed  DRA Include impt	tes Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:  none observed  DRA Include impt	tes Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:  none observed  DRA Include impt	tes Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:  none observed  DRA Include impt	tes Observed? (Y/N) Voucher? (Y/N)



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

SITE NAME/LOCATION   AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project	
s-bl-20200602-06 SITE NUMBER S06 RIVER BASIN Muskingum DRAINAGE AREA (mi²)	0.10
LENGTH OF STREAM REACH (ft) 115 LAT. 39.83521 LONG82.17798 RIVER CODE RIVER MILE	
DATE 06/02/20 SCORER BL COMMENTS intermittent, drains w-bl-20200602-10 to w-09	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Ins	tructions
STREAM CHANNEL	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE  PERCENT  PERCENT	HHEI   Metric
□ □ BLDR SLABS [16 pts] □ □ SILT [3 pt] 10%	Points
BOULDER (>256 mm) [16 pts]  0%  LEAF PACK/WOODY DEBRIS [3 pts]  5%  15%	Substrate
BEDROCK [16 pt]	Max = 40
GRAVEL (2-64 mm) [9 pts]	20
SAND (<2 mm) [6 pts] 40% ARTIFICIAL [3 pts] 0%	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock (A) Substrate Percentage Check (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):	Pool Dep Max = 30
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	I Wax - St
> 22.5 - 30 cm [30 pts]	15
OHW=2 8'w x 0 6'd	
COMMENTS MAXIMUM POOL DEPTH (Inches): 3.00	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankful Width
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONL Y one box):  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  ≤ 1.0 m (<=3' 3") [5 pts]	Bankful 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]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  (Check ONLY one box):  > 1.0 m (<=3' 3") [5 pts]  ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONL Y one box):  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]   ■ PE-4 7"w x 0 0"d	Width
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONL Y one box):  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=4.7'w x 0.9'd  AVERAGE BANKFULL WIDTH (Feet): 4.70  This information must also be completed	Width Max=30
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONL Y one box):  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=4.7'w x 0.9'd  AVERAGE BANKFULL WIDTH (Feet):  4.70	Width Max=30
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONL Y one box):  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=4.7'w x 0.9'd  AVERAGE BANKFULL WIDTH (Feet):  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 River Left (R) and River Left (R) and River Left (R	Width Max=30
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONL Y one box):  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=4.7'w x 0.9'd  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 River Le	Width Max=30
BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=4.7'w x 0.9'd  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  *NOTE: River Left (L) and Right (R) as looking downstream *RIPARIAN WIDTH  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  Wide >10 m  Mature Forest, Wetland  Moderate 5-10 m  Moderate 5-10 m  Check ONL Y one box):  > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]  > 1.0 m (<=3' 3") [5 pts]    V NOTE: River Left (L) and Right (R) as looking downstream *RIPARIAN WIDTH    RIPARIAN WIDTH   FLOODPLAIN QUALITY     L R (Most Predominant per Bank)   L R (Conservation Tillage     Immature Forest, Shrub or Old   Urban or Industrial	Width Max=30
BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=4.7'w x 0.9'd  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 River (R) and River	Width Max=30
BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=4.7'w x 0.9'd  AVERAGE BANKFULL WIDTH (Feet): 4.70  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH  L R (Per Bank)  V Wide > 1.0 m (<=3' 3") [5 pts]  AVERAGE BANKFULL WIDTH (Feet): 4.70  L R (Most Predominant per Bank)  L R (Most Predominant per Bank)  Wide > 1.0 m (<=3' 3") [5 pts]  L R (Most Predominant per Bank) (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 (Feet): 4.70  AVERAGE BANKFULL WIDTH	Width Max=30
BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=4.7'w x 0.9'd  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream And RIPARIAN WIDTH  L R (Per Bank)  L R (Most Predominant per Bank)  L R (Most Predominant per Bank)  Wide >10 m  Mature Forest, Wetland  Moderate 5-10 m  Moderate 5-10 m  Narrow <5 m  Residential, Park, New Field  Mining or Construction	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] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=4.7'w x 0.9'd  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY *NOTE: River Left (L) and Right (R) as looking downstream *\frac{1}{2} \text{RIPARIAN WIDTH} \text{FLOODPLAIN QUALITY} \text{NOTE: River Left (L) and Right (R) as looking downstream *\frac{1}{2} \text{RIPARIAN WIDTH} \text{FLOODPLAIN QUALITY} \text{Most Predominant per Bank} \text{L R (Per Bank)} \text{L R (Most Predominant per Bank)} \text{L R (Der Bank)} \text{L R (Der Bank)} \text{Moderate 5-10m} \text{Muture Forest, Wetland} \text{Durban or Industrial} \text{Conservation Tillage} \text{Immature Forest, Shrub or Old} \text{Immature Forest, None} \text{Residential, Park, New Field} \text{Open Pasture, Row Comments of Comments Steep slopes on both sides} \text{Mining or Construction} \text{Channel, isolated pools, no flow (Intermitter)} \text{Most Channel, isolated pools, no flow (Intermitter)} \text{Most Channel, isolated pools, no flow (Intermitter)} \text{This information must also be completed} \text{Residential, Park, New Field} \text{Durban or Industrial} \text{Conservation Tillage} \text{Durban or Industrial} \text{Conservation Tillage} \text{Durban or Industrial} Comments or Comments or Comments of Comments of Comments or Comment	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] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=4.7'w x 0.9'd  AVERAGE BANKFULL WIDTH (Feet):  4.70  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) L R (Per Bank) Raincer Forest, Wetland Conservation Tillage Moderate 5-10m Residential, Park, New Field Open Pasture, Row Conservation Field Residential, Park, New Field Mining or Construction COMMENTS steep slopes on both sides  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	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]  > 3.0 m - 4.0 m (> 9' 7' - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4" 8") [20 pts]  COMMENTS BF=4.7'w x 0.9'd  AVERAGE BANKFULL WIDTH (Feet):  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY	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] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=4.7'w x 0.9'd  AVERAGE BANKFULL WIDTH (Feet): 4.70  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY	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]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=4.7'w x 0.9'd  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY *NOTE: River Left (L) and Right (R) as looking downstream *Note: RiPARIAN WIDTH  L R (Per Bank)  V V Wide > 10m	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] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (< 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (< 9' 7" - 4' 8") [20 pts]  COMMENTS BF=4.7'w x 0.9'd  AVERAGE BANKFULL WIDTH (Feet): 4.70  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY *NOTE: River Left (L) and Right (R) as looking downstream *X RIPARIAN WIDTH FLOODPLAIN QUALITY  Wide >10 m Mature Forest, Wetland Conservation Tillage Immature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Urban or Industrial Field  Narrow <5m Residential, Park, New Field Open Pasture, Row Conservation Tillage Comments of Stream Flowing Mining or Construction Comments of Stream Flowing Mining or Construction Comments of Subsurface flow with isolated pools (Interstitial)  Subsurface flow with isolated pools (Interstitial)  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None 1.0 3.0	Width Max=30  15  Trop  nt)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):		
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Atta	ach Completed QHEI Form)	
DOWNSTREAM DESIGNATED USE(S)		
WWH Name: Butcherknife Creek (LRW)	Distance from Evaluated Stream	2.14
CWH Name:	Distance from Evaluated Stream	
EWH Name:	Distance from Evaluated Stream _	
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHEE	AREA. CLEARLY MARK THE SITE LO	CATION
USGS Quadrangle Name: Fultonham NRCS Soil Map F	Page: NRCS Soil Map Stream 0	Order
County: Perry Township / City: Madise	on	
MISCELLANEOUS		
Base Flow Conditions? (Y/N): Y Date of last precipitation: 05/29/20	Quantity: <b>0.17</b>	
SKM: vvvv_unetroam_vvvv_downetroam_vvvv_euhetratos		
N CON		
Carropy (% open).		
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. a	and attach results) Lab Number:	
Field Measures: Temp (°C) 17.80 Dissolved Oxygen (ma/l) pH (S.U.)	Conductivity (µmhos/cm)	
Is the sampling reach representative of the stream (Y/N) If not, please explain:		
acid mine drainage, low pH		
Additional comments/description of pollution impacts:	IODEDATE LIICU	
BANK Stability LOW M	ODERATE HIGH	✓ 🖽
BIOTIC EVALUATION		
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pri Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology: none observed	mary Headwater Habitat Assessment Man  Voucher? (Y/N)	ual)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Prish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology:	mary Headwater Habitat Assessment Man  Voucher? (Y/N)	ual)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Prish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology:	mary Headwater Habitat Assessment Man  Voucher? (Y/N)	ual)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Prish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology:	mary Headwater Habitat Assessment Man  Voucher? (Y/N)	N) N
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Prish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology: none observed	Voucher? (Y/N) N  tes Observed? (Y/N) N  Voucher? (Y/N) N	nal)  N)  N  ed):
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optiona ID number. Include appropriate field data sheets from the Pri Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrat Comments Regarding Biology: none observed	Voucher? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Complete	nal)  N)  N  ed):

Reset Form

Save as pdf



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

SITE NAME/LOCATION   AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project	
S-bl-20200602-05 SITE NUMBER S05 RIVER BASIN Muskingum DRAINAGE AREA (mi²)	0.10
LENGTH OF STREAM REACH (ft) 200 LAT. 39.83560 LONG82.17874 RIVER CODE RIVER MILE	
DATE 06/02/20 SCORER BL COMMENTS intermittent, drains to w-bl-20200602-08	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Inst	ructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO REMODIFICATIONS: appears to be in restored strip-mined land	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE  PERCENT  TYPE  PERCENT	HHEI   Metric
BLDR SLABS [16 pts] 0% SILT [3 pt] 10%	Points
BOULDER (>256 mm) [16 pts]  BEDROCK [16 pt]  D  LEAF PACK/WOODY DEBRIS [3 pts]  10%  10%  10%	Substrate
COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPAN [0 pt] 0%	Max = 40
GRAVEL (2-64 mm) [9 pts]	20
SAND (<2 mm) [6 pts] ARTIFICIAL [3 pts] 0%	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock (A) Substrate Percentage Check (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 TOTAL NUMBER OF SUBSTRATE TYPES: 5	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Depth
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]	Max = 30
> 22.5 - 30 cm [30 pts] < 5 cm [5 pts]	
	0
COMMENTS OHW=2.7'w x 0.4'd MAXIMUM POOL DEPTH (Inches): 0.00	
BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	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] ≤ 1.0 m (<=3' 3") [5 pts]	Width
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=7.1'w x 1.1'd  AVERAGE BANKFULL WIDTH  This information must also be completed	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=7.1'w x 1.1'd  AVERAGE BANKFULL WIDTH  (Feet): 7.10	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=7.1'w x 1.1'd  AVERAGE BANKFULL WIDTH (Feet): 7.10  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆  RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank) L R (Most Predominant per Bank) L R	Width Max=30
> 4.0 meters (> 13') [30 pts]     > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]     > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]     COMMENTS   BF=7.1'w x 1.1'd   AVERAGE BANKFULL WIDTH (Feet):   7.10     This information must also be completed     RIPARIAN ZONE AND FLOODPLAIN QUALITY	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=7.1'w x 1.1'd  AVERAGE BANKFULL WIDTH (Feet): 7.10  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 >10 m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Page 1.5 m - 3.0 m (> 3' 3" - 4' 8") [15 pts]  > 1.0 m (<=3' 3") [5 pts]  > 1.0 m (<=3' 3") [5 pts]  > 1.0 m (<=3' 3") [5 pts]    ✓ NOTE: River Left (L) and Right (R) as looking downstream ♣  RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank)    Mature Forest, Wetland   Conservation Tillage   Immature Forest, Shrub or Old   Urban or Industrial   Field   Conservation Tillage   Conservati	Width Max=30
> 4.0 meters (> 13') [30 pts]	Width Max=30  20
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=7.1'w x 1.1'd  AVERAGE BANKFULL WIDTH (Feet): 7.10  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 >10 m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Page 1.5 m - 3.0 m (> 3' 3" - 4' 8") [15 pts]  > 1.0 m (<=3' 3") [5 pts]  > 1.0 m (<=3' 3") [5 pts]  > 1.0 m (<=3' 3") [5 pts]    ✓ NOTE: River Left (L) and Right (R) as looking downstream ♣  RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank)    Mature Forest, Wetland   Conservation Tillage   Immature Forest, Shrub or Old   Urban or Industrial   Field   Conservation Tillage   Conservati	Width Max=30  20
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=7.1'w x 1.1'd  AVERAGE BANKFULL WIDTH (Feet): 7.10  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆  RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank) L R (Most Predominant per Bank) L R (Per Bank) L R (Most Predominant per Bank) L R (Per Bank) Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Urban or Industrial Field Open Pasture, Row C None Residential, Park, New Field Open Pasture, Row C Mining or Construction COMMENTS steep slopes on both sides	Width Max=30  20
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=7.1'w x 1.1'd  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Residential, Park, New Field  Narrow <5m  None  Residential, Park, New Field  None  COMMENTS steep slopes on both sides  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Moist Channel, isolated pools, no flow (Intermitten)  Moist Channel, isolated pools, no flow (Intermitten)	Width Max=30  20
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=7.1'w x 1.1'd  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  RIPARIAN WIDTH  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Residential, Park, New Field  None  COMMENTS steep slopes on both sides  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	Width Max=30  20
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=7.1'w x 1.1'd  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  NOTE: River Left (L) and Right (R) as looking downstream in the completed in the complete in the	Width Max=30  20
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=7.1'w x 1.1'd  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  Wide >10 m  Mature Forest, Wetland  Moderate 5-10m  Narrow <5m  None  Residential, Park, New Field  None  COMMENTS Steep slopes on both sides  FLOW REGIME (At Time of Evaluation)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel)  None  1.0  1.0  1.0  1.0  1.0  1.0  1.0  1.	Width Max=30  20
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7' - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7' - 13') [20 pts]  COMMENTS BF=7.1'w x 1.1'd  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  Wide >10 m  Mature Forest, Wetland  Moderate 5-10 m  Narrow <5 m  Narrow <5 m  Residential, Park, New Field  None  COMMENTS steep slopes on both sides  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None  1.0  1.0  2.0  3.0  3.0  3.0  3.0  3.0  3.0  3	Width Max=30  20
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=7.1'w x 1.1'd  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  Wide >10 m  Mature Forest, Wetland  Moderate 5-10m  Narrow <5m  None  Residential, Park, New Field  None  COMMENTS Steep slopes on both sides  FLOW REGIME (At Time of Evaluation)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel)  None  1.0  1.0  1.0  1.0  1.0  1.0  1.0  1.	Width Max=30  20

QHEI PERFORMED? - Yes ✓ No QHEI Score	(If Vac Attack Commisted OUT Forms)
	(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	Distance from Evaluated Stream 2.14
WWH Name: Butcherknife Creek (LRW)  CWH Name:	Distance from Evaluated Stream  Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE EN	TIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name:	NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Perry Towns	hip / City: Madison
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation:	05/29/20 Quantity: 0.17
Photograph Information: SKM: 1704-upstream, 1705-downstream, 1	706-substrates
Elevated Turbidity? (Y/N): N Canopy (% open): 70%	b
Were samples collected for water chemistry? (Y/N):	sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l)	pH (S.U.) Conductivity (μmhos/cm)
Υ	please explain:
,	
Additional comments/description of pollution impacts.	
Additional comments/description of pollution impacts:  BANK Stability  LOW	MODERATE HIGH
BIOTIC EVALUATION	
N	
· /	collections optional. NOTE: all voucher samples must be labeled with the site sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Of	bserved? (Y/N) N Voucher? (Y/N) N
Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquat	bserved? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Of Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquat Comments Regarding Biology:	bserved? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N
Comments Regarding Biology:	bserved? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N
Comments Regarding Biology:	bserved? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N
Comments Regarding Biology:	bserved? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N e completed):
Comments Regarding Biology:  none observed	Voucher? (Y/N)
Comments Regarding Biology:  none observed  DRAV	e completed):
Comments Regarding Biology:  none observed  DRAV Include impor	e completed):
Comments Regarding Biology:  none observed  DRAV Include impor	e completed):
Comments Regarding Biology:  none observed  DRAV Include impor	e completed):
Comments Regarding Biology:  none observed  DRAV Include impor	e completed):
Comments Regarding Biology:  none observed  DRAV Include impor	e completed):
Comments Regarding Biology:  none observed  DRAV Include impor	e completed):
Comments Regarding Biology:  none observed  DRAV Include impor	e completed):
Comments Regarding Biology:  none observed  DRAV Include impor	e completed):

October 24, 2002 Revision

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**Reset Form** 



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

Stream 037

Date:

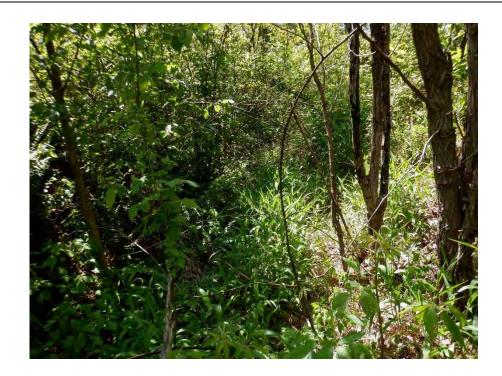
June 2, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream

Facing Upstream



#### Stream 037

Date:

June 2, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream





### PHOTOGRAPHIC RECORD

**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

### Stream 037

Date:

June 2, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream





## Primary Headwater Habitat Evaluation Form

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

39	

SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project	
s-bl-20200602-04 SITE NUMBER S04 RIVER BASIN Muskingum DRAINAGE AREA (mi²)	0.10
LENGTH OF STREAM REACH (ft) 100 LAT. 39.83681 LONG82.18131 RIVER CODE RIVER MILE	0.02
DATE 06/02/20 SCORER BL COMMENTS intermittent, flows from W-bl-2200602-04	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Inst	ructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING.	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	HHE
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE  PERCENT  TYPE  PERCENT	Metric
BLDR SLABS [16 pts]  0%  SILT [3 pt]  15%	Points
BOULDER (>256 mm) [16 pts]	Substrat
COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPAN [0 pt] 0%	Max = 40
GRAVEL (2-64 mm) [9 pts]  SAND (<2 mm) [6 pts]  50%  MUCK [0 pts]  0%  ARTIFICIAL [3 pts]	19
- And ( 12 mm) [0 pto]	
Total of Percentages of 0.00% (A) Substrate Percentage Check 100% (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:   15   TOTAL NUMBER OF SUBSTRATE TYPES:   4	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dep
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]	Max = 30
> 22.5 - 30 cm [30 pts] < 5 cm [5 pts]	
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	0
COMMENTS OHW=3.8'w x 0.4'd MAXIMUM POOL DEPTH (Inches): 0.00	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankful
> 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]  ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	liidx 00
COMMENTS BF=5.8'w x 0.9'd AVERAGE BANKFULL WIDTH (Feet): 5.80	20
(1 553).	
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	
LR (Per Bank) LR (Most Predominant per Bank) LR	
✓ Wide >10m ✓ Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old	
Field Field Urban or Industrial	
Narrow <5m Residential, Park, New Field Open Pasture, Row C	ор
None Fenced Pasture Mining or Construction	1
COMMENTS	L
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	
	11
Stream Flowing Subsurface flow with isolated pools (Interstitial) Moist Channel, isolated pools, no flow (Intermitten Dry channel, no water (Ephemeral)	ī)
Stream Flowing Moist Channel, isolated pools, no flow (Intermitten	1)
Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel)  Check ONLY one box):	1)
Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS  Stream Flowing Moist Channel, isolated pools, no flow (Intermitten Dry channel, no water (Ephemeral)	]
Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) None 0.5  Stream Flowing Moist Channel, isolated pools, no flow (Intermitten Dry channel, no water (Ephemeral)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) Check ONLY one box):  2.0  3.0  3.0  3.0  3.0  3.0  3.0	1
Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) None  Moist Channel, isolated pools, no flow (Intermitten Dry channel, no water (Ephemeral)  (Check ONLY one box): 2.0  3.0	1

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes No QHEI Score (If Yes, Attach Completed QHEI Form)	
DOWNSTREAM DESIGNATED USE(S)	
VVVIII Valide iron Evaluated ettechn	2.40
CWH Name: Distance from Evaluated Stream _	
EWH Name: Distance from Evaluated Stream	
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCA	TION
USGS Quadrangle Name: NRCS Soil Map Page: NRCS Soil Map Stream Orc	der
County: Township / City: Madison	
MISCELLANEOUS Y 05/29/20 0 17	
Base Flow Conditions? (Y/N): Date of last precipitation:Quantity:	
Photograph Information: SKM: 1704-upstream, 1705-downstream, 1706-substrates	
Elevated Turbidity? (Y/N): N Canopy (% open): 10%	
Were samples collected for water chemistry? (Y/N): Note lab sample no. or id. and attach results) Lab Number:	
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)	
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	
	<i>7</i> I
BANK Stability LOW MODERATE HIGH	#
BIOTIC EVALUATION	
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled.)	ed with the site
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual	ed with the site
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled.)	ed with the site
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labele ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manua Fish Observed? (Y/N) N Voucher? (Y/	ed with the site
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual Fish Observed? (Y/N) N Voucher?	ed with the site
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual Fish Observed? (Y/N) N Voucher?	ed with the site
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual Fish Observed? (Y/N) N Voucher?	ed with the site
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labele ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manua Fish Observed? (Y/N) N Voucher? (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 Comments Regarding Biology: none observed	ed with the site
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual Fish Observed? (Y/N) N Voucher?	ed with the site
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manua Fish Observed? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N)	ed with the site
BIOTIC EVALUATION  Performed? (Y/N): N	N N:
BIOTIC EVALUATION  Performed? (Y/N): N	N N:
BIOTIC EVALUATION  Performed? (Y/N): N	N N:
BIOTIC EVALUATION  Performed? (Y/N): N	N N:
BIOTIC EVALUATION  Performed? (Y/N): N	N N:
BIOTIC EVALUATION  Performed? (Y/N): N	N N:
BIOTIC EVALUATION  Performed? (Y/N):  N  (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labele ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manua Fish Observed? (Y/N)  N  Voucher? (Y/N)  Voucher? (Y/N)  N  Aquatic Macroinvertebrates Observed? (Y/N)  N  Voucher? (Y/N)  N  Progs or Tadpoles Observed? (Y/N)  N  Voucher? (Y/N)  N  Aquatic Macroinvertebrates Observed? (Y/N)  N  Pleted  itream's	N N:
BIOTIC EVALUATION  Performed? (Y/N):  N  (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labele ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manua Fish Observed? (Y/N)  N  Voucher? (Y/N)  Voucher? (Y/N)  N  Aquatic Macroinvertebrates Observed? (Y/N)  N  Voucher? (Y/N)  N  Progs or Tadpoles Observed? (Y/N)  N  Voucher? (Y/N)  N  Aquatic Macroinvertebrates Observed? (Y/N)  N  Pleted  itream's	N N:
BIOTIC EVALUATION  Performed? (Y/N):  N  (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labele ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manua Fish Observed? (Y/N)  N  Voucher? (Y/N)  Voucher? (Y/N)  N  Aquatic Macroinvertebrates Observed? (Y/N)  N  Voucher? (Y/N)  N  Progs or Tadpoles Observed? (Y/N)  N  Voucher? (Y/N)  N  Aquatic Macroinvertebrates Observed? (Y/N)  N  Pleted  itream's	N N:
BIOTIC EVALUATION  Performed? (Y/N):  N  (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labele ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manua Fish Observed? (Y/N)  N  Voucher? (Y/N)  Voucher? (Y/N)  N  Aquatic Macroinvertebrates Observed? (Y/N)  N  Voucher? (Y/N)  N  Progs or Tadpoles Observed? (Y/N)  N  Voucher? (Y/N)  N  Aquatic Macroinvertebrates Observed? (Y/N)  N  Pleted  itream's	N N:
BIOTIC EVALUATION  Performed? (Y/N):  N  (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labele ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manua Fish Observed? (Y/N)  N  Voucher? (Y/N)  Voucher? (Y/N)  N  Aquatic Macroinvertebrates Observed? (Y/N)  N  Voucher? (Y/N)  N  Progs or Tadpoles Observed? (Y/N)  N  Voucher? (Y/N)  N  Aquatic Macroinvertebrates Observed? (Y/N)  N  Pleted  itream's	N N:
BIOTIC EVALUATION  Performed? (Y/N):  N  (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labele ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manua Fish Observed? (Y/N)  N  Voucher? (Y/N)  Voucher? (Y/N)  N  Aquatic Macroinvertebrates Observed? (Y/N)  N  Voucher? (Y/N)  N  Progs or Tadpoles Observed? (Y/N)  N  Voucher? (Y/N)  N  Aquatic Macroinvertebrates Observed? (Y/N)  N  Pleted  itream's	N N:

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Reset Form



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 038

Date:

June 2, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream

Facing Upstream



#### Stream 038

Date:

June 2, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream





### PHOTOGRAPHIC RECORD

**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

### Stream 038

Date:

June 2, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream





## Primary Headwater Habitat Evaluation Form

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

56	
50	

Nuclein guns	
s-bl-20200602-03 SITE NUMBER S03 RIVER BASIN Muskingum DRAINAGE AREA (mi²)	.10
LENGTH OF STREAM REACH (ft) 50 LAT. 39.83700 LONG82.18187 RIVER CODE RIVER MILE C	
DATE 06/02/20 SCORER BL COMMENTS intermittent, flows from W-bl-2200602-03	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instr	uctions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING.	OVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HHEI
TYPE PERCENT TYPE PERCENT	Metri
□ □ BLDR SLABS [16 pts] □ □ SILT [3 pt] 20%	Points
BOULDER (>256 mm) [16 pts]	Substrat
□ □ BEDROCK [16 pt] □ □ FINE DETRITUS [3 pts] □ □ COBBLE (65-256 mm) [12 pts] □ □ CLAY or HARDPAN [0 pt] 5%	Max = 40
GRAVEL (2-64 mm) [9 pts]  25%  MUCK [0 pts]  0%	
✓ SAND (<2 mm) [6 pts] 35% ARTIFICIAL [3 pts] 0%	21
Total of Percentages of 5 00% (A) Substrate Percentage 400% (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock Check	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 TOTAL NUMBER OF SUBSTRATE TYPES: 6	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dep
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):	Max = 3
> 30 centimeters [20 pts]	
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	15
COMMENTS OHW=4.2'w x 0.6'd MAXIMUM POOL DEPTH (Inches): 3.50	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankful
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ≤ 1.0 m (<=3' 3") [5 pts]	Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
COMMENTS BF=5.1'w x 1.4'd AVERAGE BANKFULL WIDTH (Feet): 5.10	20
This information must also be completed	
RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆ RIPARIAN WIDTH FLOODPLAIN QUALITY	
L R (Per Bank) 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	
Field Urban or industrial	op
Narrow <5m Field Orban or industrial Open Pasture, Row Cri	pp
Field Urban or industrial	pp -
Narrow <5m	op -
Narrow <5m	-
Narrow <5m Residential, Park, New Field Open Pasture, Row Cro None Fenced Pasture Mining or Construction COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial)  Moist Channel, isolated pools, no flow (Intermittent Dry channel, no water (Ephemeral)	-
Narrow <5m Residential, Park, New Field Open Pasture, Row Cro 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)	-
Narrow <5m Residential, Park, New Field Open Pasture, Row Cro 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  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	-
Narrow <5m Residential, Park, New Field Open Pasture, Row Cro None Fenced Pasture Mining or Construction COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermittent Dry channel, no water (Ephemeral) COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0	-
Narrow <5m Residential, Park, New Field Open Pasture, Row Cro 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  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3	-
Narrow <5m Residential, Park, New Field Open Pasture, Row Crombound Field Open Pasture, Row Crombound Residential, Park, New Field Open Pasture, Row Crombound Residential, Row Crombound Residential, Park, New Field Open Pasture, Row Crombound Residential, Park, New Field Open Pa	-
Narrow <5m Residential, Park, New Field Open Pasture, Row Cro 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  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3	-

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Atta	ach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)  WWH Name: Butcherknife Creek (LRW)  CWH Name: EWH Name:	Distance from Evaluated Stream Distance from Evaluated Stream Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHEE	D AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Fultonham NRCS Soil Map F	Page: NRCS Soil Map Stream Order
County: Perry Township / City: Madis	on
MISCELLANEOUS  Page Flow Conditions? (V/N):  Y  Date of last precipitation: 05/29/20	Quantitus 0.17
Base Flow Conditions? (17/N) Date of last precipitation	Quantity: U.17
Photograph Information:  SKM: 1704-upstream, 1705-downstream, 1706-substrates  N  Canapy (% apap):  10%	
Elevated Turbidity? (Y/N): Canopy (% open): N	
	and attach results) Lab Number:
Y /	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	
BANK Stability LOW N	MODERATE HIGH ✓
Performed? (Y/N):  N  (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Programmer of Tadpoles Observed? (Y/N)  Frogs or Tadpoles Observed? (Y/N)  N  Voucher? (Y/N)  Voucher? (Y/N)  N  Aquatic Macroinvertebra  Comments Regarding Biology:  none observed	Voucher? (Y/N)
(5)	
Include impor	e completed):
2 3 3 1	
FLOW TO THE	2001 Thurs of



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

### Stream 039

Date:

June 2, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream

Facing Upstream



#### Stream 039

Date:

June 2, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream





### PHOTOGRAPHIC RECORD

**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

### Stream 039

Date:

June 2, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream





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

SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project	
	0.01
LENGTH OF STREAM REACH (ft) 200 LAT. 39.84116 LONG82.18687 RIVER CODE RIVER MILE	0.15
DATE 06/02/20 SCORER BL COMMENTS intermittent, spring outflow in pasture	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Ins	tructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO REMODIFICATIONS: Captured roadside ditch, cattle pasture	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE  PERCENT  TYPE  PERCENT	HHE
□ □ BLDR SLABS [16 pts] □ □ SILT [3 pt] 10%	Point
BOULDER (>256 mm) [16 pts]  BEDROCK [16 pt]  BEDROCK [16 pt]  D  LEAF PACK/WOODY DEBRIS [3 pts]  0%  FINE DETRITUS [3 pts]	Substrat
COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPAN [0 pt] 20%	Max = 4
GRAVEL (2-64 mm) [9 pts]  SAND (<2 mm) [6 pts]  MUCK [0 pts]  ARTIFICIAL [3 pts]  0%	19
Total of Percentages of 0.00% (A) Substrate Percentage 100% (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 TOTAL NUMBER OF SUBSTRATE TYPES: 4	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dep
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check <i>ONLY</i> one box):  > 30 centimeters [20 pts]  > 5 cm - 10 cm [15 pts]	Max = 3
> 22.5 - 30 cm [30 pts] < 5 cm [5 pts]	
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	15
COMMENTS OHW=3.0'w x 0.6'd MAXIMUM POOL DEPTH (Inches): 3.50	
3 BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankful
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	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]	Width
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=5.1'w x 1.0'd  AVERAGE BANKFULL WIDTH (Feet):  This information must also be completed	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  BF=5.1'w x 1.0'd  AVERAGE BANKFULL WIDTH (Feet):	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=5.1'w x 1.0'd  AVERAGE BANKFULL WIDTH (Feet): 5.10  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆  RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank) L R (Most Predominant per Bank) L R	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=5.1'w x 1.0'd  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream ↑  RIPARIAN WIDTH  L R (Per Bank)  U RIPARIAN Wide >10m  Mature Forest, Wetland  Mature Forest, Wetland  I Mature Forest, Shrub or Old  I Mature Forest, Shrub or Old  I Mature Forest, Shrub or Old	Width Max=30
> 4.0 meters (> 13') [30 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=5.1'w x 1.0'd  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream A RIPARIAN WIDTH  RIPARIAN WIDTH  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Residential, Park, New Field  Open Pasture, Row C Mining or Construction COMMENTS flows from cattle pasture to roadside ditch along TR 47  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=5.1'w x 1.0'd  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  ↓ NOTE: River Left (L) and Right (R) as looking downstream ↑  RIPARIAN WIDTH  FLOODPLAIN QUALITY  ↓ R (Per Bank)  ↓ R (Most Predominant per Bank)  ↓ L R (Most Predominant per Bank)  ↓ Wide >10 m  Mature Forest, Wetland  ☐ Woderate 5-10 m  ☐ Mature Forest, Shrub or Old ☐ Urban or Industrial  ☐ None  ☐ None ☐ Residential, Park, New Field ☐ Open Pasture, Row C ☐ None ☐ Field ☐ None ☐ Open Pasture ☐ Mining or Construction  COMMENTS flows from cattle pasture to roadside ditch along TR 47  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing Subsurface flow with isolated pools (Interstitial) ☐ Moist Channel, isolated pools, no flow (Intermitte Dry channel, no water (Ephemeral)	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=5.1'w x 1.0'd  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  Wide >10 m  Mature Forest, Wetland  Moderate 5-10m  Residential, Park, New Field  Narrow <5m  None  Penced Pasture  COMMENTS flows from cattle pasture to roadside ditch along TR 47  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS emanates from spring seep	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=5.1'w x 1.0'd  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  ↓ NOTE: River Left (L) and Right (R) as looking downstream ↑  RIPARIAN WIDTH  FLOODPLAIN QUALITY  ↓ R (Per Bank)  ↓ R (Most Predominant per Bank)  ↓ L R (Most Predominant per Bank)  ↓ Wide >10 m  Mature Forest, Wetland  ☐ Woderate 5-10 m  ☐ Mature Forest, Shrub or Old ☐ Urban or Industrial  ☐ None  ☐ None ☐ Residential, Park, New Field ☐ Open Pasture, Row C ☐ None ☐ Field ☐ None ☐ Open Pasture ☐ Mining or Construction  COMMENTS flows from cattle pasture to roadside ditch along TR 47  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing Subsurface flow with isolated pools (Interstitial) ☐ Moist Channel, isolated pools, no flow (Intermitte Dry channel, no water (Ephemeral)	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=5.1'w x 1.0'd  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  NOTE: River Left (L) and Right (R) as looking downstream ↑  RIPARIAN WIDTH  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Residential, Park, New Field  Open Pasture, Row C  None  COMMENTS flows from cattle pasture to roadside ditch along TR 47  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS emanates from spring seep  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=5.1'w x 1.0'd  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream  RIPARIAN WIDTH  L R (Per Bank)  Wide >10 m   Mature Forest, Wetland   Conservation Tillage   Immature Forest, Shrub or Old   Urban or Industrial	Width Max=30

	<u>:</u>		
QHEI PERFORMED? - Yes ✓ No QHEI Score (If Yes, A	Attach Completed Q	HEI Form)	
DOWNSTREAM DESIGNATED USE(S)	_		
WWH Name: Turkey Run (LRW)		Evaluated Stream	1.40
CWH Name:EWH Name:		Evaluated Stream Evaluated Stream	
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSH			CATION
Fultonham			
USGS Quadrangle Name: NRCS Soil Map	o Page: <u> </u>	RCS Soil Map Stream (	Order
County: Perry Township / City: Mad			
MISCELLANEOUS			
Base Flow Conditions? (Y/N): Y Date of last precipitation: 05/29/20	Quantity:	0.17	
Photograph Information: SKM: 1658-upstream, 1659-downstream, 1660-substrates			
Elevated Turbidity? (Y/N): N Canopy (% open): 80%			
Were samples collected for water chemistry? (Y/N):	d and attach results	s) Lab Number	
21 60		ivity (µmhos/cm)	
Y		ivity (µmnos/cm)	
Is the sampling reach representative of the stream (Y/N) If not, please explain:_			
most of stream is roadside ditch flowing north to culvert under TR 47			
Additional comments/description of pollution impacts:			
BANK Stability LOW	MODERATE	HIGH	+
BIOTIC EVALUATION			
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the I Voucher? (Y/N) N Salamanders Observed? (Y/N) Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinverteb Comments Regarding Biology: noen observed	Primary Headwater F  Voucher? (Y	Habitat Assessment Man	ual)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the Prish Observed? (Y/N) N Salamanders Observed? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinverteb Comments Regarding Biology:	Primary Headwater F  Voucher? (Y	Habitat Assessment Man	ual)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the I Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinverteb Comments Regarding Biology: noen observed	Primary Headwater F  Voucher? (Y	Abitat Assessment Man	N) N
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the I voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinverteb Comments Regarding Biology: noen observed	Primary Headwater F  Voucher? (Y	Alabitat Assessment Man	N) N ed):
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the I Voucher? (Y/N) N Salamanders Observed? (Y/N) Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinverteb Comments Regarding Biology:    DRAWI   Include importa	Primary Headwater F  Voucher? (Y	Abitat Assessment Man	N) N ed):
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the I Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinverteb Comments Regarding Biology: noen observed	Primary Headwater F  Voucher? (Y	Alabitat Assessment Man	N) N ed):
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the Prish Observed? (Y/N) N Salamanders Observed? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinverteb Comments Regarding Biology:    DRAWI   Include importa   Includ	Primary Headwater F  Voucher? (Y	Alabitat Assessment Man	N) N ed):
Performed? (Y/N):  N  (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the Include appropriate field	Primary Headwater F  Voucher? (Y	Alabitat Assessment Man	N) N ed):
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the Fish Observed? (Y/N) N Salamanders Observed? (Y/N) Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinverteb Comments Regarding Biology:    DRAWI   Include importa   Include import	Primary Headwater F  Voucher? (Y	Alabitat Assessment Man	N) N ed):
Performed? (Y/N):    N	Primary Headwater F  Voucher? (Y	Alabitat Assessment Man	N) N ed):
Performed? (Y/N):    N	Primary Headwater F  Voucher? (Y	Alabitat Assessment Man	N) N ed):
Performed? (Y/N):    N	Primary Headwater F  Voucher? (Y	Alabitat Assessment Man	N) N ed):
Performed? (Y/N):    N	Primary Headwater F  Voucher? (Y	Alabitat Assessment Man	N) N ed):
Performed? (Y/N):    N	Primary Headwater F  Voucher? (Y	Alabitat Assessment Man	N) N ed):

PHWH Form Page - 2

Save as pdf





**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 040

Date:

June 2, 2020

**Description:** 

Intermittent

Modified Small Drainage Warmwater Stream

Facing Upstream



#### Stream 040

Date:

June 2, 2020

### **Description:**

Intermittent

Modified Small Drainage Warmwater Stream





### PHOTOGRAPHIC RECORD

**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

### Stream 040

Date:

June 2, 2020

**Description:** 

Intermittent

Modified Small Drainage Warmwater Stream





## **Chief Primary** Headwater Habitat Evaluation Form

SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project  s-bl-20200603-02 SITE NUMBER S02 RIVER BASIN Muskingum DRAINAGE AREA (mi²) 0.15	
LENGTH OF STREAM REACH (ft) 200 LAT. 39.84319 LONG82.18920 RIVER CODE RIVER MILE 0.0	
DATE 06/03/20 SCORER BL COMMENTS intermittent, flows through w-bl-20200603-03	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruc	ions
·	
STREAM CHANNEL  □ NONE / NATURAL CHANNEL  □ RECOVERED  □ RECOVERING  □ RECENT OR NO RECOVER MODIFICATIONS:   culverts, field drives and evidence of dredging present	ERY
SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HHEI
	Metric Points
BOULDER (>256 mm) [16 pts]	
BEDROCK [16 pt] FINE DETRITOS [3 pts]	ubstrate //ax = 40
COBBLE (65-256 mm) [12 pts] 5% CLAY or HARDPAN [0 pt] 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%	
SAND (<2 mm) [6 pts]  35%  ARTIFICIAL [3 pts]	20
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 5.00% (A) Substrate Percentage Check (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15	
	ool Dept
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]	Max = 30
> 22.5 - 30 cm [30 pts] < 5 cm [5 pts]	
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	30
COMMENTS OHW=4.6'w x 1.4'd MAXIMUM POOL DEPTH (Inches): 10.01	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull
> 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]	Width Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Wax-50
COMMENTS BF=6.5'w x 2.4'd AVERAGE BANKFULL WIDTH (Feet): 6.50	20
This information must also be completed	
RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆ RIPARIAN WIDTH FLOODPLAIN QUALITY	
L R (Per Bank) L R (Most Predominant per Bank) L R	
Wide >10m	
Field Field	
Narrow <5m Residential, Park, New Field Open Pasture, Row Crop	
None Fenced Pasture Mining or Construction	
COMMENTS mostly residential with some trees	
COMMENTS mostly residential with some trees  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	
COMMENTS mostly residential with some trees  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	
COMMENTS mostly residential with some trees  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS  One of Evaluation (Check ONLY one box):  Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)	
COMMENTS mostly residential with some trees  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None  1.0 3.0	
COMMENTS mostly residential with some trees  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed)	<u>):</u>
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, A	Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Turkey Run (LRW)	Distance from Evaluated Stream1.08
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSH	HED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Fultonham NRCS Soil Ma	p Page: NRCS Soil Map Stream Order
County: Township / City: Mad	dison
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation: 05/29/20	Quantity: 0.17
Photograph Information: SKM: xxxx-upstream, xxxx-downstream, xxxx-substrates	S
Elevated Turbidity? (Y/N): N Canopy (% open): 80%	
N	d. and attach results) Lab Number:
17.60	7.00
N	,
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
lots of activity in and around stream in ROW	
Additional comments/description of pollution impacts:	
BANK Stability LOW	MODERATE   HIGH   I
V	MODERATE
BIOTIC EVALUATION	IIION IIION
N N	
	onal. NOTE: all voucher samples must be labeled with the
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the Voucher? (Y/N) N Salamanders Observed? (Y/N)	onal. NOTE: all voucher samples must be labeled with the Primary Headwater Habitat Assessment Manual)  N  Voucher? (Y/N)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinverteb	onal. NOTE: all voucher samples must be labeled with the
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the Voucher? (Y/N) N Salamanders Observed? (Y/N)	onal. NOTE: all voucher samples must be labeled with the Primary Headwater Habitat Assessment Manual)  N  Voucher? (Y/N)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinverter Comments Regarding Biology:	onal. NOTE: all voucher samples must be labeled with the Primary Headwater Habitat Assessment Manual)  N  Voucher? (Y/N)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinverter Comments Regarding Biology:	onal. NOTE: all voucher samples must be labeled with the Primary Headwater Habitat Assessment Manual)  N  Voucher? (Y/N)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebeness Regarding Biology:	onal. NOTE: all voucher samples must be labeled with the Primary Headwater Habitat Assessment Manual)  N  Voucher? (Y/N)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinverters Comments Regarding Biology: none observed	onal. NOTE: all voucher samples must be labeled with the Primary Headwater Habitat Assessment Manual)  N Voucher? (Y/N)  orates Observed? (Y/N)  Voucher? (Y/N)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinverteb Comments Regarding Biology: none observed	onal. NOTE: all voucher samples must be labeled with the Primary Headwater Habitat Assessment Manual)  N Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)  A  Primary Headwater Habitat Assessment Manual)  N Voucher? (Y/N)  Voucher? (Y/N)  A  Primary Headwater Habitat Assessment Manual)  N Voucher? (Y/N)  N  Voucher? (Y/N)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinverteb Comments Regarding Biology: none observed	onal. NOTE: all voucher samples must be labeled with the Primary Headwater Habitat Assessment Manual)  N Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)  A  Primary Headwater Habitat Assessment Manual)  N Voucher? (Y/N)  Voucher? (Y/N)  A  Primary Headwater Habitat Assessment Manual)  N Voucher? (Y/N)  N  Voucher? (Y/N)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinverteb Comments Regarding Biology: none observed	onal. NOTE: all voucher samples must be labeled with the Primary Headwater Habitat Assessment Manual)  N Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)  A  Primary Headwater Habitat Assessment Manual)  N Voucher? (Y/N)  Voucher? (Y/N)  A  Primary Headwater Habitat Assessment Manual)  N Voucher? (Y/N)  N  Voucher? (Y/N)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinverteb Comments Regarding Biology: none observed	onal. NOTE: all voucher samples must be labeled with the Primary Headwater Habitat Assessment Manual)  N Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)  A  Primary Headwater Habitat Assessment Manual)  N Voucher? (Y/N)  Voucher? (Y/N)  A  Primary Headwater Habitat Assessment Manual)  N Voucher? (Y/N)  N  Voucher? (Y/N)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinverteb Comments Regarding Biology: none observed	onal. NOTE: all voucher samples must be labeled with the Primary Headwater Habitat Assessment Manual)  N Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)  A  Primary Headwater Habitat Assessment Manual)  N Voucher? (Y/N)  Voucher? (Y/N)  A  Primary Headwater Habitat Assessment Manual)  N Voucher? (Y/N)  N  Voucher? (Y/N)
Performed? (Y/N):    N	onal. NOTE: all voucher samples must be labeled with the Primary Headwater Habitat Assessment Manual)  N Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)  A  Primary Headwater Habitat Assessment Manual)  N Voucher? (Y/N)  Voucher? (Y/N)  A  Primary Headwater Habitat Assessment Manual)  N Voucher? (Y/N)  N  Voucher? (Y/N)
Performed? (Y/N):    N	onal. NOTE: all voucher samples must be labeled with the Primary Headwater Habitat Assessment Manual)  N Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)  A  Primary Headwater Habitat Assessment Manual)  N Voucher? (Y/N)  Voucher? (Y/N)  A  Primary Headwater Habitat Assessment Manual)  N Voucher? (Y/N)  N  Voucher? (Y/N)
Performed? (Y/N):    N	onal. NOTE: all voucher samples must be labeled with the Primary Headwater Habitat Assessment Manual)  N Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)  A  Primary Headwater Habitat Assessment Manual)  N Voucher? (Y/N)  Voucher? (Y/N)  A  Primary Headwater Habitat Assessment Manual)  N Voucher? (Y/N)  N  Voucher? (Y/N)
Performed? (Y/N):    N	onal. NOTE: all voucher samples must be labeled with the Primary Headwater Habitat Assessment Manual)  N Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)  A  Primary Headwater Habitat Assessment Manual)  N Voucher? (Y/N)  Voucher? (Y/N)  A  Primary Headwater Habitat Assessment Manual)  N Voucher? (Y/N)  N  Voucher? (Y/N)

Stream 042

**Spring Water** 



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

SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project	
s-bl-20200603-03 SITE NUMBER S03 RIVER BASIN Muskingum DRAINAGE AREA (mi²) 0.	45
LENGTH OF STREAM REACH (ft) 200 LAT. 39.84392 LONG82.18989 RIVER CODE RIVER MILE 1.	1
DATE 06/03/20 SCORER BL COMMENTS intermittent, NHD stream, not really a PHW	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	ıctions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING.	OVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE  PERCENT  TYPE  PERCENT	HHEI Metric
□ □ BLDR SLABS [16 pts] □ □ SILT [3 pt] 20%	Points
BOULDER (>256 mm) [16 pts]  0%  LEAF PACK/WOODY DEBRIS [3 pts]  0%  FINE DETRITUS [3 pts]  0%	Substrate
□       BEDROCK [16 pt]       0%       □       FINE DETRITUS [3 pts]       0%         □       COBBLE (65-256 mm) [12 pts]       5%       □       CLAY or HARDPAN [0 pt]       15%	Max = 40
GRAVEL (2-64 mm) [9 pts] 30% MUCK [0 pts] 0%	20
SAND (<2 mm) [6 pts] ARTIFICIAL [3 pts]	20
Total of Percentages of 5.00% (A) Substrate Percentage (B) Check	A + B
Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 TOTAL NUMBER OF SUBSTRATE TYPES: 5	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	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]	20
COMMENTS OHW=8.5'w x 1.8'd MAXIMUM POOL DEPTH (Inches): 16.1	
BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width Max=30
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	IVIAX-30
COMMENTS BF=16.5'w x 2.4'd AVERAGE BANKFULL WIDTH (Feet): 16.5	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) L R (Most Predominant per Bank) L R	
Wide >10m	
Field Field	
Narrow <5m Residential, Park, New Field Open Pasture, Row Cro	0
None Fenced Pasture Mining or Construction COMMENTS some residential and wetland	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing Moist Channel, isolated pools, no flow (Intermittent)	
Subsurface flow with isolated pools (Interstitial)  Dry channel, no water (Ephemeral)	
COMMENTS	
COMMENTS_  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	
COMMENTS	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None  1.0  3.0	
COMMENTS	0 ft)

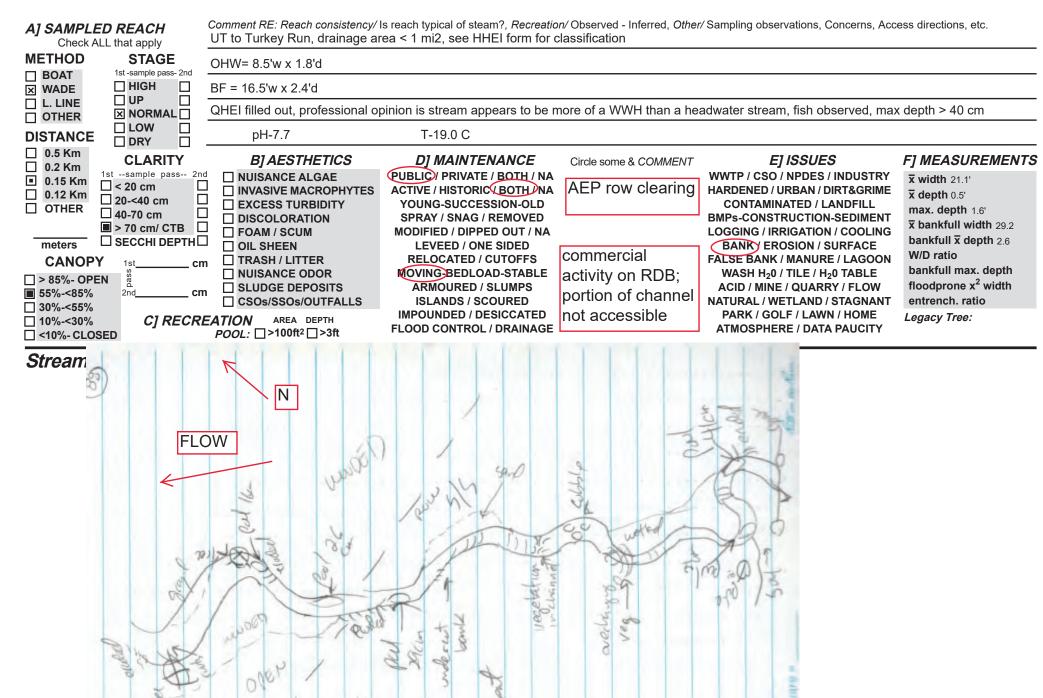
	<u>ed):</u>
QHEI PERFORMED? - Yes No QHEI Score 60.0 (If Yes,	, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)  WWH Name: Turkey Run (LRW)  CWH Name: EWH Name:	Distance from Evaluated Stream Distance from Evaluated Stream Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERS	SHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Fultonham NRCS Soil M	
County: Township / City: Ma	adison
MISCELLANEOUS  Base Flow Conditions? (Y/N):  Date of last precipitation:  05/29/20	Quantity: 0.17
Photograph Information: SKM: 1805-upstream, 1806-downstream, 1807-substrate	es; BL: 1264-1277
Elevated Turbidity? (Y/N): N Canopy (% open): 70%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or	r id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) PH (S.U)  Is the sampling reach representative of the stream (Y/N)  If not, please explain	
some residential/commercial use on RDB outside ROW and downstream	I
Additional comments/description of pollution impacts:  BANK Stability  LOW	MODERATE / HIGH
BIOTIC EVALUATION	
<u> </u>	
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections opt	tional. NOTE: all voucher samples must be labeled with the sit
(If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the	
(If Yes, Record all observations. Voucher collections opt ID number. Include appropriate field data sheets from the Voucher? (Y/N) N Salamanders Observed? (Y/N)	ne Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Aquatic Macroinverte Comments Regarding Biology:	ne Primary Headwater Habitat Assessment Manual)  N  Voucher? (Y/N)
(If Yes, Record all observations. Voucher collections opt ID number. Include appropriate field data sheets from the Voucher? (Y/N) N Salamanders Observed? (Y/N) Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macroinvertee	ne Primary Headwater Habitat Assessment Manual)  N  Voucher? (Y/N)



# Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 60.0

Stream & Location: AEP-Crooksville-North News	rk 138 kV Transmissio	on Line Rebuild Project	RM: 0.9 Date:	6 / 3 / 20
S-BL-20200603-03	Scorers Full N	lame & Affiliation: E	Bill Leopold, AECOM	
River Code: STORET #.	(NAD 63	Long.: 39.8448	<b></b>	Office verified location ☐
1] SUBSTRATE Check ONLY Two substrate TYPE B estimate % or note every type prese	OXES;	Check Of	NE (Or 2 & average)	
BEST TYPES POOL RIFFLE OTHER		ORIGIN	QUALI	TY
□ □ BLDR /SLABS [10] □ □ HARDI         □ □ BOULDER [9] □ □ DETRI	PAN [4] <u>×</u>	∠ LIMESTONE [1]     ☐ TILLS [1]	☐ HEAVY [-:	TE [-1] Substrate
□□ COBBLE [8]		☐ WETLANDS [0] ☐ HARDPAN [0]	× NORMAL	1 12
$\boxtimes$ SAND [6] $\times$ $\times$ $\square$ ARTIFI	CIAL [0]	SANDSTONE [0]	CDDEA EXTENSIV	VE [-2]
NUMBER OF BEST TYPES: 4 or more [2] Slu	natural substrates; ignore idge from point-sources	e ☐ RIP/RAP [0] ) ☐ LACUSTURINE [0]	MODERA NORMAL	[0] Maximum 20
Comments S 3 or less [0]		SHALE [-1]	□ NONE [1]	
		☐ COAL FINES [-2]		
1 OVERHANGING VEGETATION [1] 1 ROO 0 SHALLOWS (IN SLOW WATER) [1] 0 BOU	is, but not of highest quasis (e.g., very large boulding p / fast water, or deep, LS > 70cm [2] 0 TWADS [1]	ality or in small amounts c ers in deep or fast water.	check ONE (O) Ch	r 2 & average) >75% [11] 25-75% [7] 25% [3]
ROOTMATS [1] Comments			Δ.	Cover 12
Comments			n	Maximum 13
3] CHANNEL MORPHOLOGY Check ONE in each		age)		
SINUOSITY DEVELOPMENT CHAN	INELIZATION	STABILITY		
MODERATE [3]	ERED [4]	☐ HIGH [3]  ☑ MODERATE [2]		
	ERING [3] T OR NO RECOVERY [	☐ LOW [1]		Channel
Comments	TOR NO REGOVERT		٨	Maximum 16
II DANK EDOGOVAND DIDABIAN TONE				
4] BANK EROSION AND RIPARIAN ZONE C		gory for <i>EACH BANK</i> (Or DOD PLAIN QUALIT		
$\lfloor R \rfloor$ EROSION $\boxtimes \square$ WIDE > 50m [4]	✓ Prorest, s		CONSERVATION	N TILLAGE [1]
☐ NONE / LITTLE [3] ☐ MODERATE 10-50m  MODERATE [2] ☐ NARROW 5-10m [2]	[3] 🗵 🖾 SHRUB OI	R OLD FIELD [2] TAL, PARK, NEW FIELD [	URBAN OR IND    1]	
☐ ☐ HEAVY / SEVERE [1] ☐ ☐ VERY NARROW < 5	n [1] 🗌 🗎 FENCED F	PASTURE [1]	Indicate predominant la	
□ NONE [0]	☐ ☐ OPEN PAS	STURE, ROWCROP [0]		Riparian 7.00
2 + 3 + ((2.5 + 1.5)/2 = 2)			N	Maximum 1.00
5] POOL / GLIDE AND RIFFLE / RUN QUAL			Deamation	Detential
MAXIMUM DEPTH Check ONE (ONLY!)  Check ONE (ONLY!)  Check ONE (Or 2 & av.		RRENT VELOCITY Check ALL that apply	Recreation Primary	
□ > 1m [6] □ POOL WIDTH > RIFFLE W	/IDTH [2] ☐ TORREN	TIAL [-1] 🗵 SLOW [1]	Secondary	
<ul> <li>□ 0.7-&lt;1m [4]</li> <li>□ POOL WIDTH = RIFFLE W</li> <li>□ 0.4-&lt;0.7m [2]</li> <li>□ POOL WIDTH &lt; RIFFLE W</li> </ul>		ST [1] $\square$ INTERSTITI $\square$ INTERMITT		mment on back)
☐ 0.2-<0.4m [1]	⊠ MODERA	ATE [1]		Pool /
☐ < 0.2m [0]  Comments	Indicate	e for reach - pools and riffi		Current Maximum 4
Indicate for functional riffles; Best area	o must be large of	nough to ounnort o	nonulation	12
of riffle-obligate species:	Check ONE (Or 2 & av			RIFFLE [metric=0]
RIFFLE DEPTH RUN DEPTH	RIFFLE / RUN S		LE / RUN EMBEDDE	DNESS
□ BEST AREAS > 10cm [2]       □ MAXIMUM > 50cm [2]         ☑ BEST AREAS 5-10cm [1]       ☑ MAXIMUM < 50cm [1]			☐ NONE [2] ☐ LOW [1]	
	UNSTABLE (e.g., Fi		MODERATE [0]	Riffle / 2
Comments			EXTENSIVE [-1]	Maximum 8
6] GRADIENT ( 134.00 ft/mi) UERY LOW - LO		%POOL: 15.00	%GLIDE:( 20.00 )	Gradient
DRAINAGE AREA		=		Maximum 4





**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 042

Date:

June 3, 2020

**Description:** 

Intermittent

Good WWH Stream

Facing Upstream



### Stream 042

Date:

June 3, 2020

### **Description:**

Intermittent

Good WWH Stream





OTK

Site Location:

**Client Name:** 

**AEP** 

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 042

Date:

June 3, 2020

**Description:** 

Intermittent

Good WWH Stream





### Primary Headwater Habitat Evaluation Form

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HHEI Score (sum of metrics 1, 2, 3) SITE NAME/LOCATION | AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project s-bl-20200603-04 SITE NUMBER S04 RIVER BASIN Muskingum DRAINAGE AREA (mi²) 0.10 LAT. 39.84702 LONG. -82.19342 RIVER CODE RIVER MILE 0.02 LENGTH OF STREAM REACH (ft) DATE 06/03/20 **COMMENTS** intermittent, maintained SCORER BL NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY STREAM CHANNEL **MODIFICATIONS:** captured roadside ditch, evidence of recent maintenance (dredging), pond upslope outside roadway ROW SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. HHEI Metric **TYPE** PERCENT **PERCENT Points** BLDR SLABS [16 pts] SILT [3 pt] 50% 0% BOULDER (>256 mm) [16 pts] LEAF PACK/WOODY DEBRIS [3 pts] 0% 0% Substrate 20% BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] Max = 400% 0% COBBLE (65-256 mm) [12 pts] CLAY or HARDPAN [0 pt] 0% 0% GRAVEL (2-64 mm) [9 pts] MUCK [0 pts] 12 30% 0% SAND (<2 mm) [6 pts] ARTIFICIAL [3 pts] Total of Percentages of (B) 0.00% 100% A + BBldr Slabs, Boulder, Cobble, Bedrock TOTAL NUMBER OF SUBSTRATE TYPES: 3 SCORE OF TWO MOST PREDOMINATE 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] 15 OHW=3.1'w x 0.6'd COMMENTS 3.50 MAXIMUM POOL DEPTH (Inches): BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): Bankfull Width > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] Max=30 > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  $\leq$  1.0 m (<=3' 3") [5 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS BF=9.1'w x 0.9'd (Feet): | 9.10 **AVERAGE BANKFULL WIDTH** 20 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆ RIPARIAN WIDTH **FLOODPLAIN QUALITY** (Per Bank) R (Most Predominant per Bank) Wide >10m Mature Forest. Wetland Conservation Tillage Immature Forest, Shrub or Old Moderate 5-10m Urban or Industrial Field Open Pasture, Row Crop Narrow <5m Residential, Park, New Field Fenced Pasture Mining or Construction None COMMENTS some residential and wetland FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Moist Channel, isolated pools, no flow (Intermittent) Stream Flowing Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral) COMMENTS flows to culvert under US 22

2.0

3.0

>3

Severe (10 ft/100 ft)

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

Moderate (2 ft/100 ft)

1.0

15

Flat (0.5 ft/100 ft)

None

STREAM GRADIENT ESTIMATE

Flat to Moderate

0.5

ADDITIONAL STREAM INFORMATION (This Information Must Also be Complete	<u>ed):</u>
QHEI PERFORMED? - Yes ✓ No QHEI Score (If Yes	s, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)  WWH Name: Turkey Run (LRW)  CWH Name: EWH Name:	Distance from Evaluated Stream  Distance from Evaluated Stream  Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATER	SHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Fultonham NRCS Soil N	Map Page: NRCS Soil Map Stream Order
County: Perry Township / City: M	ladison
MISCELLANEOUS  Base Flow Conditions? (Y/N):  Y  Date of last precipitation:  O5/29/20  Photograph Information:  SKM: 1849-upstream, 1850-downstream, 1851-substrate	Quantity: 0.17
N 400%	103
Elevated Turbidity? (Y/N): Canopy (% open): N	n:
Additional comments/description of pollution impacts:  BANK Stability  LOW	MODERATE HIGH ✓
ID number. Include appropriate field data sheets from the Voucher? (Y/N) N Salamanders Observed? (Y/N)	
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections op ID number. Include appropriate field data sheets from the Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertical Comments Regarding Biology:	he Primary Headwater Habitat Assessment Manual)  N  Voucher? (Y/N)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections op ID number. Include appropriate field data sheets from the Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertical Comments Regarding Biology:	he Primary Headwater Habitat Assessment Manual)  N) N Voucher? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 043

Date:

June 3, 2020

**Description:** 

Intermittent

Modified Small Drainage Warmwater Stream

Facing Upstream



#### Stream 043

Date:

June 3, 2020

**Description:** 

Intermittent

Modified Small Drainage Warmwater Stream





**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

### Stream 043

Date:

June 3, 2020

**Description:** 

Intermittent

Modified Small Drainage Warmwater Stream





### Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project	
S-bl-20200603-05 SITE NUMBER S05 RIVER BASIN Muskingum DRAINAGE AREA (mi²)	0.05
LENGTH OF STREAM REACH (ft) 200 LAT. 39.84908 LONG82.19550 RIVER CODE RIVER MILE	0.07
DATE 06/03/20 SCORER BL COMMENTS intermittent	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Ins	tructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO REMODIFICATIONS: past channelization for ag fields	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	ı HHEI
TYPE PERCENT TYPE PERCENT	Metric Points
BLDR SLABS [16 pts]	
BEDROCK [16 pt]  0%  FINE DETRITUS [3 pts]	Substrate Max = 40
☐       COBBLE (65-256 mm) [12 pts]       5%       ☐       CLAY or HARDPAN [0 pt]       0%         ☐       GRAVEL (2-64 mm) [9 pts]       50%       ☐       MUCK [0 pts]       0%	
SAND (<2 mm) [6 pts] 30% □ □ □ ARTIFICIAL [3 pts] 0%	19
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock Substrate Percentage Check (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 TOTAL NUMBER OF SUBSTRATE TYPES: 4	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):	Pool Dep Max = 30
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	IVIAX - 30
> 22.5 - 30 cm [30 pts]	0
COMMENTS OHW=3.3'w x 0.4'd MAXIMUM POOL DEPTH (Inches): 0.00	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankful
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]	Bankful Width
> 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] ≤ 1.0 m (<=3' 3") [5 pts]	Width
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=4.4'w x 0.6'd  AVERAGE BANKFULL WIDTH (Feet):  4.40	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=4.4'w x 0.6'd  AVERAGE BANKFULL WIDTH (Feet): 4.40  This information must also be completed	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=4.4'w x 0.6'd  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream ARIPARIAN WIDTH  FLOODPLAIN QUALITY    X NOTE: River Left (L) and Right (R) as looking downstream ARIPARIAN WIDTH   FLOODPLAIN QUALITY	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=4.4'w x 0.6'd  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) as looking downstream ANOTE: River Left (L) and Right (R) as looking downstream ANOTE: River Left (L) R (Per Bank)  L R (Most Predominant per Bank)  L R	Width Max=30
> 4.0 meters (> 13') [30 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]   ≤ 1.0 m (<=3' 3") [5 pts]   ≤ 1.0	Width Max=30
> 4.0 meters (> 13') [30 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]   ≤ 1.0 m (<=3' 3") [5 pts]   ≤ 1.0	Width Max=30
> 4.0 meters (> 13') [30 pts]     > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]     > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]     > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]     COMMENTS   BF=4.4'w x 0.6'd   AVERAGE BANKFULL WIDTH (Feet): 4.40     This information must also be completed     RIPARIAN ZONE AND FLOODPLAIN QUALITY   NOTE: River Left (L) and Right (R) as looking downstream   RIPARIAN WIDTH     L R (Per Bank)   L R (Most Predominant per Bank)   L R (Most Predominant pe	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=4.4'W x 0.6'd  AVERAGE BANKFULL WIDTH (Feet):  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)	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=4.4'w x 0.6'd  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  Noderate 5-10m  Mature Forest, Wetland  Moderate 5-10m  Residential, Park, New Field  V Narrow <5m  Residential, Park, New Field  Flow REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  None Conservation (Intermitter Dry channel, isolated pools, no flow (Intermitter Dry channel, no water (Ephemeral))	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=4.4'w x 0.6'd  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  R (Per Bank)  Wide >10 m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Residential, Park, New Field  Viant Penced Pasture  COMMENTS Some residential and wetland  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Moist Channel, isolated pools, no flow (Intermitter)	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=4.4'w x 0.6'd  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  Noderate 5-10m  Mature Forest, Wetland  Moderate 5-10m  Residential, Park, New Field  V Narrow <5m  Residential, Park, New Field  Flow REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  None Conservation (Intermitter Dry channel, isolated pools, no flow (Intermitter Dry channel, no water (Ephemeral))	Width Max=30
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> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=4.4'w x 0.6'd  AVERAGE BANKFULL WIDTH (Feet): 4.40  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆  RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank) L R (Most Predominant per Bank) L R (Der Bank) L R (Most Predominant per Bank) L R (Der Bank) L R (Most Predominant per Bank) L R (Der Bank) L R (Most Predominant per Bank) L R (Der Bank) L R (Most Predominant per Bank) L R (Der Bank) L R (Most Predominant per Bank) L R (Der Bank) L R (Most Predominant per Bank) L R (Der Bank) L R (Most Predominant per Bank) L R (Der Bank) L R (Most Predominant per Bank) L R (Der Bank) L R (Der Bank) L R (Most Predominant per Bank) L R (Most Predominant per Bank) L R (Der Bank) L R (Most Predominant per Bank) L R (Mos	Width Max=30  15  rop  ntt)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Atta	ach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)  WWWH Name: Turkey Run (LRW)	Distance from Evaluated Stream 0.60
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED	D AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Fultonham NRCS Soil Map P	
County: Perry Township / City: Madiso	on
MISCELLANEOUS	0.45
Base Flow Conditions? (Y/N): Y Date of last precipitation: 05/29/20	Quantity: 0.17
Photograph Information: SKM: 1852-upstream, 1853-downstream, 1854-substrates	
Elevated Turbidity? (Y/N): Canopy (% open): 90%	
Were samples collected for water chemistry? (Y/N): Note lab sample no. or id. a	and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (ma/l) pH (S.U.)	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
narrow s/s on LDB, diffuse channel at one point within ROW, mostly wooded rip	parian upstream of ROW
Additional comments/description of pollution impacts:	
BANK Stability LOW M	MODERATE HIGH
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pri Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrat Comments Regarding Biology: none observed	Voucher? (Y/N)
none observed	
DRAI Include impo	ipleted):
FLOW - Suchasian Substantian S	St James Now Manuel St St State of the State
October 24, 2002 Revisio	Save as pdf  Reset Form



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 044

Date:

June 3, 2020

**Description:** 

Intermittent

Modified Small Drainage Warmwater Stream

Facing Upstream



#### Stream 044

Date:

June 3, 2020

**Description:** 

Intermittent

Modified Small Drainage Warmwater Stream





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 044

Date:

June 3, 2020

**Description:** 

Intermittent

Modified Small Drainage Warmwater Stream





|--|

HHEI Score (sum of metrics 1, 2, 3) SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project s-bl-20200603-06 SITE NUMBER S06 RIVER BASIN Muskingum DRAINAGE AREA (mi²) 0.05 LAT. 39.85055 LONG. -82.19678 RIVER CODE RIVER MILE 0.5 LENGTH OF STREAM REACH (ft) DATE 06/03/20 COMMENTS ephemeral, drains to w07 SCORER BL NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY STREAM CHANNEL **MODIFICATIONS:** mostly normal swale in land surrounded by ag field SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. HHEI Metric **TYPE** PERCENT **PERCENT Points** BLDR SLABS [16 pts] SILT [3 pt] 50% BOULDER (>256 mm) [16 pts] LEAF PACK/WOODY DEBRIS [3 pts] 15% 0% Substrate 5% BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] Max = 400% 0% COBBLE (65-256 mm) [12 pts] CLAY or HARDPAN [0 pt] 0% 0% GRAVEL (2-64 mm) [9 pts] MUCK [0 pts] 13 30% 0% SAND (<2 mm) [6 pts] ARTIFICIAL [3 pts] (B) Total of Percentages of 0.00% 100% A + BBldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES: 4 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] 0 OHW=2.7'w x 0.3'd COMMENTS 0.00 MAXIMUM POOL DEPTH (Inches): BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): Bankfull Width > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] Max=30 > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  $\leq$  1.0 m (<=3' 3") [5 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS BF=3.4'w x 0.5'd 3.40 15 AVERAGE BANKFULL WIDTH (Feet): This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆ RIPARIAN WIDTH **FLOODPLAIN QUALITY** (Per Bank) R (Most Predominant per Bank) Wide >10m Mature Forest. Wetland Conservation Tillage Immature Forest, Shrub or Old Moderate 5-10m Urban or Industrial Field Open Pasture, Row Crop Narrow <5m Residential, Park, New Field Fenced Pasture Mining or Construction None COMMENTS some residential and wetland FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Moist Channel, isolated pools, no flow (Intermittent) Stream Flowing 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 15 >3

☐ Moderate to Severe

Severe (10 ft/100 ft)

Moderate (2 ft/100 ft)

Flat (0.5 ft/100 ft)

STREAM GRADIENT ESTIMATE

✓ Flat to Moderate

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):		
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Att	ach Completed QHEI Form)	
DOWNSTREAM DESIGNATED USE(S)		
WWH Name: Turkey Run (LRW)	Distance from Evaluated Stream0.50	-
CWH Name:EWH Name:	Distance from Evaluated Stream  Distance from Evaluated Stream	
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHE  Fultonham	D AREA. CLEARLY MARK THE SITE LOCATION	
USGS Quadrangle Name: NRCS Soil Map		
County: Township / City: Madis	son	_
MISCELLANEOUS		
Base Flow Conditions? (Y/N): Y Date of last precipitation: 05/29/20	Quantity: 0.17	
Photograph Information: BL: 1309-upstream, 1310-downstream, 1311-substrates		
Elevated Turbidity? (Y/N): N Canopy (% open): 40%		
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id.	and attach results) Lab Number:	]
Field Measures: Temp (°C) Dissolved Oxygen (ma/l) pH (S.U.)	Conductivity (µmhos/cm)	
Is the sampling reach representative of the stream $(Y/N)$ If not, please explain:		_
diffuse channel w/in ROW, evidence of flow to W07 present		
Additional comments/description of pollution impacts:		
BANK Stability LOW	MODERATE HIGH 🗸	+
BIOTIC EVALUATION		
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections options	al. NOTE: all voucher samples must be labeled with the	site
ID number. Include appropriate field data sheets from the P		
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Solamanders Observed? (Y/N) Aquatic Macroinvertebra	Voucher? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N)	
Comments Regarding Biology:	<b>N</b>	_
none observed		
		_
<u> </u>		
DRA	d):	_
Include impr	s location	
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October 24, 2002 Revis	Save as pdf Reset Form	



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 045

Date:

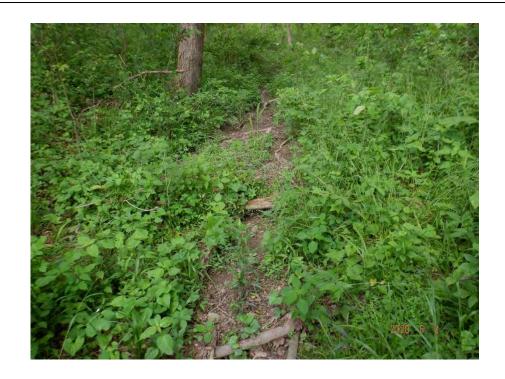
June 3, 2020

**Description:** 

Ephemeral

Ephemeral Stream

Facing Upstream



#### Stream 045

Date:

June 3, 2020

**Description:** 

Ephemeral

**Ephemeral Stream** 





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 045

Date:

June 3, 2020

**Description:** 

Ephemeral

Ephemeral Stream



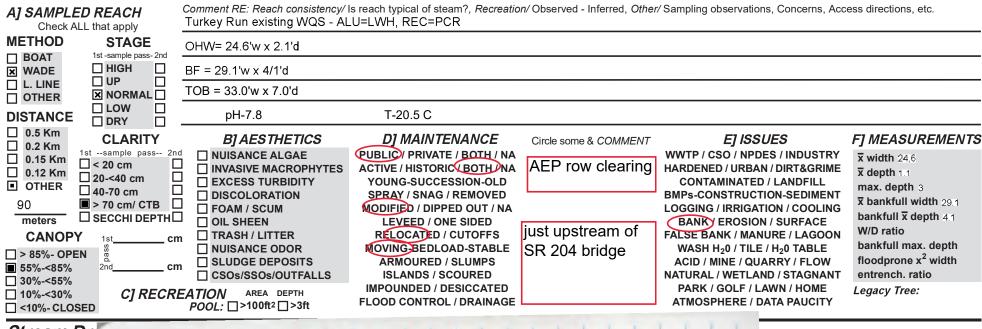


# Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

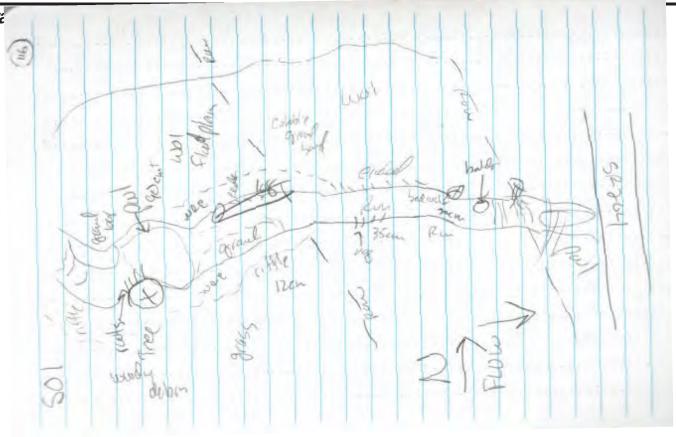
QHEI Score:

69.5

Stream & Location	7; AEP-Crooksville-North Newark	138 kV Transmissio	n Line Rebuild Project	RM: 1.2 Date	<u>:6                                    </u>
S-BL-20200604-01	<u> </u>			Bill Leopold, AECOM	
River Code:	<i>STORET</i> #:_	Lat./	Long.: 39.8578	<b></b>	Office verified location □
BEST TYPES BEST TYPES BUDGER [9] COBBLE [8] GRAVEL [7] SAND [6] BEDROCK [5] NUMBER OF BEST	Muck   Part   Part   Muck   Part   Part	POOL RIFFLE N [4] IS [3]  AL [0] ×  atural substrates; ignore ge from point-sources)	ORIGIN  LIMESTONE [1]  TILLS [1]  WETLANDS [0]  HARDPAN [0]  SANDSTONE [0]  RIP/RAP [0]  LACUSTURINE [0]  SHALE [-1]  COAL FINES [-2]	⊠ NONE [	[-2] ATE [-1] Substrate L [0]
quality; 3-Highest quali diameter log that is sta 1 UNDERCUT BAN 0 OVERHANGING	VEGETATION [1]1_ ROOTV	but not of highest qua e.g., very large boulde o / fast water, or deep, S > 70cm [2] 0 NADS [1]	ility or in small amounts c ers in deep or fast water.	of highest large Check ONE (opools. EXTENSIVINGS [1] MODERATIONS SPARSE 5-	E 25-75% [7]
_	EXCELLENT [7]	NELIZATION RED [4]	STABILITY  HIGH [3]  MODERATE [2]  LOW [1]		Channel 12
River right looking downs  EROSION  NONE / LITTLE [3]  MODERATE [2]  HEAVY / SEVERE	R   NI AN	FLO R FLO R FOREST, S SHRUB OF RESIDENT FENCED P	OD PLAIN QUALIT SWAMP [3] R OLD FIELD [2] IAL, PARK, NEW FIELD	Y R CONSERVATION OR IN	DUSTRIAL [0] STRUCTION [0]
<b>Comments</b> 2 + 1 + ((2 + 1)/2 = 1.5)					Maximum 4.30
		H CUF  age) C  DTH [2]	RRENT VELOCITY heck ALL that apply TIAL [-1] SLOW [1] ST [1] INTERSTITI INTERMITT TE [1] EDDIES [1] for reach - pools and riffi	Primary Seconda (circle one and c	n Potential c Contact ry Contact comment on back)  Pool / Current Maximum 12
Indicate for fur of riffle-obligate RIFFLE DEPTH  ■ BEST AREAS > 10cm ■ BEST AREAS < 5cm [metric	RUN DEPTH  n [2]	Check ONE ( <i>Or 2 &amp; av</i> <b>RIFFLE / RUN S</b> STABLE (e.g., Cobb	erage). UBSTRATE RIFF ole, Boulder) [2] , Large Gravel) [1]	I population  LE / RUN EMBEDD  NONE [2]  LOW [1]  MODERATE [0]  EXTENSIVE [-1	Riffle /
6] GRADIENT ( 22 DRAINAGE ARI	THE HIGH MEDICALION		=	%GLIDE: 5.00 %RIFFLE: 20.00	Gradient 6









**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 046

Date:

June 4, 2020

**Description:** 

Perennial

Warmwater Habitat

Facing Upstream



#### Stream 046

Date:

June 4, 2020

**Description:** 

Perennial

Warmwater Habitat





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 046

Date:

June 4, 2020

**Description:** 

Perennial

Warmwater Habitat





s-bl-20200604-02 SITE NUMBER S02 RIVER BASIN Muskingum DRAINAGE AREA (mi²)	0.07
LENGTH OF STREAM REACH (ft) 200 LAT. 39.85900 LONG82.20616 RIVER CODE RIVER MILE	
DATE 06/04/20 SCORER BL COMMENTS intermittent	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Ins	tructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO REMODIFICATIONS:	:COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE  PERCENT  TYPE  PERCENT	HHEI
BLDR SLABS [16 pts] 0% SILT [3 pt] 10%	Points
BOULDER (>256 mm) [16 pts]	Substrat
COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPAN [0 pt] 0%	Max = 40
GRAVEL (2-64 mm) [9 pts] 50% MUCK [0 pts] 0%	19
SAND (<2 mm) [6 pts]	
Total of Percentages of 0.00% (A) Substrate Percentage 100% (B) Check	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dep
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]	Max = 30
> 22.5 - 30 cm [30 pts]	4.5
OHW=2 21w × 0 61d	15
COMMENTS MAXIMUM POOL DEPTH (Inches): 4.00	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankful
> 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]	Width Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	.
COMMENTS BF=4.4'w x 1.7'd AVERAGE BANKFULL WIDTH (Feet): 4.40	1 4 5
	<sup> </sup>
	15
This information <u>must</u> also be completed	15
RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆	15
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	15
RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆  RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank) L R (Most Predominant per Bank) L R  Wide >10m Mature Forest, Wetland Conservation Tillage	15
RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  L R (Per Bank)  Wide >10m  Moderate 5-10m  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  Mature Forest, Wetland  Field  Word Predominant per Bank  Urban or Industrial	
RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆ RIPARIAN WIDTH  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  V Moderate 5-10m  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  L R  Mature Forest, Wetland  Urban or Industrial	
RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  L R (Per Bank)  Wide >10m  Moderate 5-10m  Narrow <5m  None  RIPARIAN ZONE AND FLOODPLAIN QUALITY  FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  L R (Description of the predominant per Bank)  Residential, Park, New Field  Mining or Construction of the predominant per Bank)  Residential, Park, New Field  Mining or Construction of the predominant per Bank)  Residential, Park, New Field  Mining or Construction of the predominant per Bank)  Residential, Park, New Field  Mining or Construction of the predominant per Bank)  Residential, Park, New Field  Mining or Construction of the predominant per Bank)  Residential, Park, New Field	Crop
RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  L R (Per Bank)  Wide >10m  Moderate 5-10m  Narrow <5m  RIPARIAN VIDTH  FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  L R (Umst Predominant per Bank)  L R (Most Predominant per Bank)  L R (Umst Predomina	Crop
RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Immature Forest, Shrub or Old  Field  Narrow <5m  None  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	Crop
RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Immature Forest, Shrub or Old  Field  Narrow <5m  None  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  NOTE: River Left (L) and Right (R) as looking downstream And Right (R) a	Crop
RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Immature Forest, Shrub or Old  Field  Narrow <5m  None  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  NOTE: River Left (L) and Right (R) as looking downstream ★ NOTE: River Left (L) and	Crop
RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Narrow <5m  None  COMMENTS  FLOW REGIME (At Time of Evaluation)  SINUOSITY (Number of bends per 61 m (200 ft) of channel)  Check ONLY one box):  SINUOSITY (Number of bends per 61 m (200 ft) of channel)  (Check ONLY one box):  SINUOSITY (Number of bends per 61 m (200 ft) of channel)  (Check ONLY one box):  COMMENTS  COMMENTS  Residential, Park, New Field  Dry channel, isolated pools, no flow (Intermitte Dry channel, no water (Ephemeral)  COMMENTS  Check ONLY one box):  Check ONLY one box):  Check ONLY one box):  Check ONLY one box):	Crop
RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  CPER Bank)  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation)  COMMENTS  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  L R (Most Predominant)  R (Most Predominant per Bank)  L R (Most Predominant)  R (Most Predominant per Bank)  L R (Most Predominant per Bank)  L R (Most Predominant per Bank)  L R (Most Predominant per Bank)  R (Most Predo	Crop
RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank) Wide >10m Mature Forest, Wetland Moderate 5-10m Mature Forest, Shrub or Old Field  Narrow <5m Residential, Park, New Field  None COMMENTS  FLOW REGIME (At Time of Evaluation) COMMENTS  FLOW REGIME (At Time of Evaluation) COMMENTS  Stream Flowing Subsurface flow with isolated pools (Interstitial) 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	Crop
RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Narrow <5m  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel)  None  1.0  RIPARIAN WIDTH  FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream  NOTE: River Left (L) and Right (R) as looking downstream  NOTE: River Left (L) and Right (R) as looking downstream  NOTE: River Left (L) and Right (R) as looking downstream  NOTE: River Left (L) and Right (R) as looking downstream  NOTE: River Left (L) and Right (R) as looking downstream  NOTE: River Left (L) and Right (R) as looking downstream  None I Residential QUALITY  Note I Residential, Park, New Field  Open Pasture, Row Comments  Mining or Construction  Noist Channel, isolated pools, no flow (Intermitte Dry channel, no water (Ephemeral)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None I 1.0  3.0	Crop

ADDITIONAL STREAM INFORMATION (This Information I	Must Also be Co	mpleted):		
QHEI PERFORMED? - Yes V No QHEI So	core	(If Yes, Attach Complete	d QHEI Form)	
DOWNSTREAM DESIGNATED USE(S)				
WWH Name: Turkey Run (LRW)		Distance f	rom Evaluated Stream	0.15
CWH Name:			om Evaluated Stream _	
EWH Name:		Distance fr	om Evaluated Stream _	
MAPPING: ATTACH COPIES OF MAPS, INCLUDIN	IG THE <u>ENTIRE</u> W	ATERSHED AREA. CLE	ARLY MARK THE SITE	LOCATION
USGS Quadrangle Name: Fultonham	NRCS	Soil Map Page:	NRCS Soil Map Strea	m Order
County: Perry	Township / Ci	ty:Madison		
MISCELLANEOUS				
Base Flow Conditions? (Y/N): Y Date of last precipita	05/29	9/20 Quantity	<b>0.17</b>	
Photograph Information: SKM: 1938-upstream, 1939-down		bstrates		
Elevated Turbidity? (Y/N): Canopy (% open):	700/			
N		e no. or id. and attach res	sults) Lab Number:	
18.80			ductivity (µmhos/cm)	
Υ	na/i)	on (5.0.) Cond	auctivity (µmnos/cm) <u> </u>	
Is the sampling reach representative of the stream (Y/N)	If not, please	explain:		
wooded riparian outside ROW				
Additional comments/description of pollution impacts:				
BANK Stability	LOW 🗸	MODERATE	HIG	Н
Performed? (Y/N): N (If Yes, Record all observations ID number. Include appropriate ID number. Include ID number. I	e field data sheets nanders Observed	from the Primary Headwa	ter Habitat Assessment N	/Ianual)
DRA Include imp		The of Stape	Control of the contro	ocation
FLOW  October 24, 2002 Revision	South of Sou	entracked by	minar 3	STANKA STANKA



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

Stream 047

Date:

June 4, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream

Facing Upstream



#### Stream 047

Date:

June 4, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 047

Date:

June 4, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream



Stream 048

Spring Water



## Primary Headwater Habitat Evaluation Form

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SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project	
s-bl-20200604-03 SITE NUMBER S03 RIVER BASIN Muskingum DRAINAGE AREA (mi²)	0.06
ENGTH OF STREAM REACH (ft) 200 LAT. 39.86410 LONG82.21146 RIVER CODE RIVER MILE	
DATE 06/04/20 SCORER BL COMMENTS intermittent, flows to s-bl-20200604-04	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Inst	ructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING.	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	HHEI
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE  PERCENT  TYPE  PERCENT	Metric
□ □ BLDR SLABS [16 pts] □ □ SILT [3 pt] 5%	Points
BOULDER (>256 mm) [16 pts]	Substrate
☐ ☐ COBBLE (65-256 mm) [12 pts] ☐ ☐ CLAY or HARDPAN [0 pt] ☐ ☐ 0%	Max = 40
GRAVEL (2-64 mm) [9 pts] 45% MUCK [0 pts] 0%  SAND (<2 mm) [6 pts] 20% ARTIFICIAL [3 pts] 0%	22
Onto (2 mm) [opto]	
Total of Percentages of 25.00% (A) Substrate Percentage Check (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 TOTAL NUMBER OF SUBSTRATE TYPES: 7	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dept
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]	Max = 30
	25
OHM=8 8,M × 0 8,4	25
COMMENTS MAXIMUM POOL DEPTH (Inches): 6.70	
3 BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull
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]	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]	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]	Width
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts]	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]	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]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF = 13.5'w x 1.4'd  AVERAGE BANKFULL WIDTH (Feet):  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream And RIPARIAN WIDTH  FLOODPLAIN QUALITY	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]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF = 13.5'w x 1.4'd  AVERAGE BANKFULL WIDTH (Feet):  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream ANOTE: RIPARIAN WIDTH  RIPARIAN WIDTH  L R (Per Bank)  U R (Most Predominant per Bank)  Wide > 10m  Mature Forest, Wetland  Conservation Tillage	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]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF = 13.5'w x 1.4'd  AVERAGE BANKFULL WIDTH (Feet): 13.50  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY XNOTE: River Left (L) and Right (R) as looking downstream X RIPARIAN WIDTH  L R (Per Bank) L R (Most Predominant per Bank) L R	Width Max=30
BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  BF = 13.5'W x 1.4'd  AVERAGE BANKFULL WIDTH (Feet):  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY *NOTE: River Left (L) and Right (R) as looking downstream *RIPARIAN WIDTH   L R (Most Predominant per Bank)   L R (Most Predominant per Ban	Width Max=30
BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  BF = 13.5'w x 1.4'd  AVERAGE BANKFULL WIDTH (Feet):  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH  L R (Per Bank)  Wide > 1.0 m (<=3' 3") [5 pts]  AVERAGE BANKFULL WIDTH (Feet):  13.50  AVERAGE BANKFULL WIDTH (Feet):  14. MOTE: River Left (L) and Right (R) as looking downstream And RIPARIAN WIDTH (Most Predominant per Bank)  L R (Most Predominant per Bank)  Wide > 1.0 m (<=3' 3") [5 pts]  AVERAGE BANKFULL WIDTH (Feet):  13.50  AVERAGE BANKFULL WIDTH (Feet):  14. MOTE: River Left (L) and Right (R) as looking downstream And RIPARIAN WIDTH (Feet):  15. MOTE: River Left (L) and Right (R) as looking downstream And RIPARIAN WIDTH (Feet):  16. MOTE: River Left (L) and Right (R) as looking downstream And RIPARIAN WIDTH (Feet):  17. MOTE: River Left (L) and Right (R) as looking downstream And RIPARIAN WIDTH (Feet):  18. MOTE: River Left (L) and Right (R) as looking downstream And RIPARIAN WIDTH (Feet):  18. MOTE: River Left (L) and Right (R) as looking downstream And RIPARIAN WIDTH (Feet):  18. MOTE: River Left (L) and Right (R) as looking downstream And RIPARIAN WIDTH (Feet):  18. MOTE: River Left (L) and Right (R) as looking downstream And RIPARIAN WIDTH (Feet):  18. MOTE: River Left (L) and Right (R) as looking downstream And RIPARIAN WIDTH (Feet):  18. MOTE: River Left (L) and Right (R) as looking downstream And RIPARIAN WIDTH (Feet):  18. MOTE: River Left (L) and Right (R) as looking downstream And RIPARIAN WIDTH (Feet):  18. MOTE: River Left (L) and Right (R) as looking downstream And RIPARIAN WIDTH (Feet):  18. MOTE: River Left (L) and Right (R) as looking downstream And RIPARIAN WIDTH (Feet):  18. MOTE: River Left (L) an	Width Max=30 25
BANK FULL WIDTH (Measured as the average of 3-4 measurements)  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  BF = 13.5'w x 1.4'd  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  AVERAGE BANKFULL WIDTH  (Feet): 13.5  This information pust also be completed  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  Wide >10 m  Mature Forest, Wetland  Wide >10 m  Moderate 5-10 m  Moderate 5-10 m  Residential, Park, New Field  Open Pasture, Row Ci	Width Max=30 25
BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  BF = 13.5'w x 1.4'd  AVERAGE BANKFULL WIDTH (Feet):  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH  ENDOTE: River Left (L) and Right (R) as looking downstream Mature Forest, Wetland  Wide >10m Mature Forest, Wetland  Moderate 5-10m Mature Forest, Wetland Conservation Tillage  Immature Forest, Shrub or Old Urban or Industrial  Field Open Pasture, Row Completed  Residential, Park, New Field Open Pasture, Row Completed  Residential, Park, New Field Mining or Construction COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	Width Max=30
BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONL Y one box):  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF = 13.5'w x 1.4'd  AVERAGE BANKFULL WIDTH (Feet): 13.5/  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  Wide > 10m  Mature Forest, Wetland  Wide > 10m  Mature Forest, Wetland  Wide > 10m  Mature Forest, Shrub or Old  Field  None  None  Residential, Park, New Field  None  COMMENTS  Mining or Construction  COMMENTS	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] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF = 13.5'w x 1.4'd  AVERAGE BANKFULL WIDTH (Feet):  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream ANOTE: RIPARIAN WIDTH  L R (Per Bank) L R (Most Predominant per Bank) L R (Mo	Width Max=30
BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  NOTE: River Left (L) and Right (R) as looking downstream  Note and RIPARIAN WIDTH  L R (Per Bank)	Width Max=30
Sank Full Width (Measured as the average of 3-4 measurements)   Check ONLY one box):	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]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF = 13.5'w x 1.4'd  AVERAGE BANKFULL WIDTH (Feet):  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  NOTE: River Left (L) and Right (R) as looking downstream  Note and also be completed  RIPARIAN WIDTH FLOODPLAIN QUALITY  NOTE: River Left (L) and Right (R) as looking downstream  Note and also be completed  RIPARIAN WIDTH FLOODPLAIN QUALITY  NOTE: River Left (L) and Right (R) as looking downstream  Note and also be completed  RIPARIAN WIDTH FLOODPLAIN QUALITY  NOTE: River Left (L) and Right (R) as looking downstream  Note and also be completed  RIPARIAN WIDTH FLOODPLAIN QUALITY  NOTE: River Left (L) and Right (R) as looking downstream  Note and Right (R) as lo	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]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF = 13.5'w x 1.4'd  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  **NOTE: River Left (L) and Right (R) as looking downstream:  RIPARIAN WIDTH  L R (Per Bank)  Wide >10m   Mature Forest, Wetland   Conservation Tillage  Wide >10m   Mature Forest, Shrub or Old   Urban or Industrial  Narrow <5m   Residential, Park, New Field   Open Pasture, Row Completed   Open Pasture, Row Completed    None   Fenced Pasture   Mining or Construction    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) (Check ONLY one box):  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None   1.0   2.0   3.0	Width Max=30  25

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Atta	ch Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Turkey Run (LRW)	Distance from Evaluated Stream 0.45
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHEE	AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Fultonham NRCS Soil Map F	Page: NRCS Soil Map Stream Order
County: Perry Township / City: Madisc	on
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation: 05/29/20	Quantity:0.17
Photograph Information: SKM: 1988-upstream, 1989-downstream, 1990-substrates	
Elevated Turbidity? (Y/N): N Canopy (% open): 60%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. a	and attach results) Lab Number:
Field Measures: Temp (°C) 19.90 Dissolved Oxygen (ma/l) pH (S.U.)	7.90 Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
wooded riparian outside ROW, steep terrain	
Additional comments/description of pollution impacts:	
	ODERATE HIGH
BIOTIC EVALUATION	<del>_</del>
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional	•
ID number. Include appropriate field data sheets from the Pri	mary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N	Voucher? (Y/N) N
Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrat	tes Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:	
Plecoptera observed	
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PHWH Form Page - 2	The state of the s

October 24, 2002 Revision

Save as pdf

Reset Form



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 048

Date:

June 4, 2020

**Description:** 

Intermittent

Spring Water Stream

Facing Upstream



#### Stream 048

Date:

June 4, 2020

#### **Description:**

Intermittent

Spring Water Stream





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 048

Date:

June 4, 2020

**Description:** 

Intermittent

Spring Water Stream





S04 Muckingum	
s-bl-20200604-04 SITE NUMBER S04 RIVER BASIN Muskingum DRAINAGE AREA (mi²)	0.79
LENGTH OF STREAM REACH (ft) 200 LAT. 39.86446 LONG82.21180 RIVER CODE RIVER MILE	
DATE 06/04/20 SCORER BL COMMENTS intermittent, NHD mapped	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Ins	tructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO REMODIFICATIONS:	ECOVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE  PERCENT  TYPE  PERCENT	HHEI
□ □ BLDR SLABS [16 pts]	Points
BOULDER (>256 mm) [16 pts]	Substrat
□ □ BEDROCK [16 pt] □ □ FINE DETRITUS [3 pts] □ 0% □ CLAY or HARDPAN [0 pt] 0% □ 0% □ 0% □ 0% □ 0% □ 0% □ 0% □ 0%	Max = 4
GRAVEL (2-64 mm) [9 pts] 45% MUCK [0 pts] 0%	27
SAND (<2 mm) [6 pts]	
Total of Percentages of 40.00% (A) Substrate Percentage 100% (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:  21  TOTAL NUMBER OF SUBSTRATE TYPES:  6	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dep
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]	Max = 30
> 22.5 - 30 cm [30 pts] < 5 cm [5 pts]	25
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	25
COMMENTS OHW=16.9'w x 1.4'd MAXIMUM POOL DEPTH (Inches): 6.30	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankful
> 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]	Width Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
	,
COMMENTS BF = 18.1'w x 2.1'd AVERAGE BANKFULL WIDTH (Feet): 18.11  This information must also be completed	
AVERAGE BANKFULL WIDTH (Feet):  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream A	
COMMENTS BF = 18.1'w x 2.1'd AVERAGE BANKFULL WIDTH (Feet): 18.11  This information must also be completed	
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  L R (Per Bank)  L R (Most Predominant per Bank)  Wide >10m  Mature Forest, Wetland  AVERAGE BANKFULL WIDTH  (Feet):  18.14  This information must also be completed  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  Mature Forest, Wetland  Conservation Tillage	
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream   RIPARIAN WIDTH  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Wide >10m  Moderate 5-10m  AVERAGE BANKFULL WIDTH  (Feet):  18.11  This information must also be completed  NOTE: River Left (L) and Right (R) as looking downstream   Moderate Search  AVERAGE BANKFULL WIDTH  (Feet):  18.11  This information must also be completed  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  L R  Moderate 5-10m  Wide >10m  Mature Forest, Wetland  Urban or Industrial	30
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream  RIPARIAN WIDTH  L R (Per Bank)  L R (Most Predominant per Bank)  Wide >10m  Mature Forest, Wetland  Conservation Tillage  Immature Forest, Shrub or Old  Urban or Industrial	30
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Narrow <5m  None  AVERAGE BANKFULL WIDTH  FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  Mature Forest, Wetland  Conservation Tillage  Immature Forest, Shrub or Old  Field  Open Pasture, Row of the procedure of t	30 Crop
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ♣NOTE: River Left (L) and Right (R) as looking downstream ♣  RIPARIAN WIDTH  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Wide >10m  Moderate 5-10m  Residential, Park, New Field  AVERAGE BANKFULL WIDTH  (Feet):  18.11  Characteristics  I Mature Forest (L) and Right (R) as looking downstream ♣  RIPARIAN WIDTH  FLOODPLAIN QUALITY  Moderate 5-10m  Residential, Park, New Field  Open Pasture, Row (Conservation Tillage)  Residential, Park, New Field  Open Pasture, Row (Conservation Tillage)	30 Crop
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  LR (Per Bank)  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Narrow <5m  Narrow <5m  None  Residential, Park, New Field  None  COMMENTS forested outside ROW  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	30 Crop
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Wide >10m  Moderate 5-10m  Residential, Park, New Field  None  COMMENTS forested outside ROW  AVERAGE BANKFULL WIDTH  (Feet):  18.12  AVERAGE BANKFULL WIDTH  (Feet):  AVERAGE BANKFULL WIDTH  (A) AVERAGE BANKFULL WI	30 Crop
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Narrow <5m  Narrow <5m  None  Residential, Park, New Field  None  COMMENTS forested outside ROW  FLOW REGIME (At Time of Evaluation)  AVERAGE BANKFULL WIDTH  (Feet):  18.11  AVERAGE BANKFULL WIDTH  (Feet):  18.12  AVERAGE BANKFULL WIDTH  (Feet):  AVERAGE BANKFULL WIDTH  (Feet):  AVERAGE BANKFULL WIDTH  (Feet):  18.12  AVERAGE BANKFULL WIDTH  (Feet):  AVERAGE BANKFULL WIDTH  (Feet):  AVERAGE BANKFULL WIDTH  (Feet):  AVERAGE BANKFULL WIDTH  (Feet):  AVERAGE BANKFULL WIDTH	30 Crop
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)  Wide >10m  Mature Forest, Wetland  Wide >10m  Moderate 5-10m  Residential, Park, New Field  Narrow <5m  Residential, Park, New Field  None  COMMENTS forested outside ROW  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	30 Crop
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)  Wide >10m  Mature Forest, Wetland  Open Pasture, Row of Field  Narrow <5m  Residential, Park, New Field  None  COMMENTS forested outside ROW  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None  1.0  AVERAGE BANKFULL WIDTH  (Feet):  18.1  AVERAGE BANKFULL WIDTH  (Feet):  AVERAGE BANKFULL WIDTH	30 Crop
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH	30 Crop
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  TOTAL PROPERTY OF THE PROPERTY	Crop

ADDITIONAL STREAM INFORMATION (This Information	Must Also be Completed):		
QHEI PERFORMED? - Yes V No QHEI So	core (If Yes, At	ach Completed QHEI Form)	
DOWNSTREAM DESIGNATED USE(S)		_	
WWH Name: Turkey Run (LRW)		Distance from Evaluated Stre	eam 0.45
CWH Name: _		Distance from Evaluated Stre	am
EWH Name:		Distance from Evaluated Stre	am
MAPPING: ATTACH COPIES OF MAPS, INCLUDIN	NG THE ENTIRE WATERSHE	D AREA. CLEARLY MARK THE S	SITE LOCATION
USGS Quadrangle Name: Fultonham	NRCS Soil Map	Page:NRCS Soil Map S	Stream Order
County: Perry	Township / City: Madis	son	
MISCELLANEOUS			
Base Flow Conditions? (Y/N): Y Date of last precipitation	ation: 05/29/20	Quantity:	
Photograph Information: SKM: 1991-upstream, 1992-dow	nstream, 1993-substrates		
Elevated Turbidity? (Y/N): N Canopy (% open):	30%		
Were samples collected for water chemistry? (Y/N):	_ (Note lab sample no. or id.	and attach results) Lab Number:	
Field Measures: Temp (°C) 21.10 Dissolved Oxygen (	ma/l)pH (S.U.) _	8.70 Conductivity (µmhos/cn	1)
Is the sampling reach representative of the stream (Y/N)	If not, please explain:		
wooded riparian outside ROW, potential high-quality	stream		
Additional comments/description of pollution impacts:			
BANK Stability	LOW	MODERATE 1	HIGH
BIOTIC EVALUATION			
NI NI	· · · · · · · · · · · · · · · · · · ·		
Performed? (Y/N): (If Yes, Record all observation	·	al. NOTE: all voucher samples mu rimary Headwater Habitat Assessm	
Fish Observed? (Y/N) Voucher? (Y/N) Salar Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N)	nanders Observed? (Y/N) N Aquatic Macroinvertebra	Voucher? (Y/N) N Vouc	her? (Y/N)
Comments Regarding Biology:			
fish, crayfish observed			
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**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 049

Date:

June 4, 2020

**Description:** 

Intermittent

Spring Water Stream

Facing Upstream



#### Stream 049

Date:

June 4, 2020

**Description:** 

Intermittent

Spring Water Stream





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 049

Date:

June 4, 2020

**Description:** 

Intermittent

Spring Water Stream





SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project	
s-bl-20200605-01 SITE NUMBER S01 RIVER BASIN Muskingum DRAINAGE AREA (mi²)	0.10
ENCTH OF STREAM REACH (ft) 200 LAT. 39.87182 LONG82.21931 RIVER CODE RIVER MILE	
DATE 06/05/20 SCORER BL COMMENTS intermittent, NHD mapped	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Ins	tructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RE	COVERY
meditionto.	
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	HHE
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE  PERCENT  PERCENT	Metric
BLDR SLABS [16 pts] 5% SILT [3 pt] 5%	Points
BOULDER (>256 mm) [16 pts]  0%  LEAF PACK/WOODY DEBRIS [3 pts]  0%  FINE DETRITIES [3 pts]  0%	Substrat
□ □ BEDROCK [16 pt]       0%       □ □ FINE DETRITUS [3 pts]       0%         □ □ COBBLE (65-256 mm) [12 pts]       15%       □ □ CLAY or HARDPAN [0 pt]       0%	Max = 40
GRAVEL (2-64 mm) [9 pts]  40%  MUCK [0 pts]  0%	
SAND (<2 mm) [6 pts]	20
Total of Percentages of 20.00% (A) Substrate Percentage 100% (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock Check	^
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 TOTAL NUMBER OF SUBSTRATE TYPES: 5	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dep Max = 30
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]	IVIAX = 30
> 22.5 - 30 cm [30 pts] < 5 cm [5 pts]	
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	25
COMMENTS OHW = 4.8'w x 1.4'd MAXIMUM POOL DEPTH (Inches): 7.10	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankful
> 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]	Width Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Wax-50
COMMENTS BF = 6.0'w x 1.7'd AVERAGE BANKFULL WIDTH (Feet): 6.00	20
AVENAGE BAING GEE VIII (1 cct).	
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	
Wide >10m	
✓ ✓ Moderate 5-10m ✓ ✓ Immature Forest, Shrub or Old Urban or Industrial Field	
Narrow <5m Residential, Park, New Field Open Pasture, Row C	rop
None Fenced Pasture Mining or Construction	n
COMMENTS forested outside ROW	_
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Moist Channel, isolated pools, no flow (Intermitter	t)
	it)
Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS flow not substantially high even with t-storms day prior	nt)
Stream Flowing Subsurface flow with isolated pools (Interstitial) Moist Channel, isolated pools, no flow (Intermitter Dry channel, no water (Ephemeral)	nt)
Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS flow not substantially high even with t-storms day prior  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	nt)
Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS flow not substantially high even with t-storms day prior  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0 3.0 0.5  STREAM GRADIENT ESTIMATE	1
Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS flow not substantially high even with t-storms day prior  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 3.0	1

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Atta	nch Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
CWH Name:	_ Distance from Evaluated Stream _
EWH Name: Jonathan Creek	Distance from Evaluated Stream 0.64
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED	AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: NRCS Soil Map P	Page: NRCS Soil Map Stream Order
County: Perry Township / City: Madiso	on
MISCELLANEOUS  Base Flow Conditions? (Y/N):  Y  Date of last precipitation:  06/04/20	Quantity: 0.75
Photograph Information: BL: 1404-upstream, 1405-downstream, 1406-substrates	
Elevated Turbidity? (Y/N): Canopy (% open): 40%	
	and attach results) Lab Number:
Field Measures: Temp (°C) 16.90 Dissolved Oxygen (mg/l) pH (S.U.)	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
wooded riparian outside ROW, potential high-quality stream	
Additional comments/description of pollution impacts:	
BANK Stability LOW M	ODERATE HIGH
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Prince Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology: none observed	mary Headwater Habitat Assessment Manual)  Voucher? (Y/N)
2>7	1
DRAW	
Include impor	ocation
FLOW -	Paul Land
	TOP OS Flyre

Reset Form



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 050

Date:

June 5, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream

Facing Upstream



#### Stream 0050

Date:

June 5, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 050

Date:

June 5, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream





SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project	
s-bl-20200605-03 SITE NUMBER S03 RIVER BASIN Muskingum DRAINAGE AREA (mi²)	0.05
LENGTH OF STREAM REACH (ft) 200 LAT. 39.87587 LONG82.22430 RIVER CODE RIVER MILE	
DATE 06/05/20 SCORER BL COMMENTS intermittent, field tile or spring outflow	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Inst	tructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RE MODIFICATIONS: channel partially filled in with rocks/cobble/boulders	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE  BLDR SLABS [16 pts]  PERCENT  SILT [3 pt]  30%	HHEI Metric Points
□ □ □ BOULDER (>256 mm) [16 pts]       □ □ □ LEAF PACK/WOODY DEBRIS [3 pts]       0%         □ □ BEDROCK [16 pt]       0%       □ □ FINE DETRITUS [3 pts]       0%         □ □ COBBLE (65-256 mm) [12 pts]       □ □ CLAY or HARDPAN [0 pt]       0%         □ □ GRAVEL (2-64 mm) [9 pts]       □ □ MUCK [0 pts]       0%	Substrate Max = 40
SAND (<2 mm) [6 pts] 40% ARTIFICIAL [3 pts] 0%	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 9  SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9  Substrate Percentage 100%  TOTAL NUMBER OF SUBSTRATE TYPES: 5	A + B
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dep
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):  > 30 centimeters [20 pts]  > 22.5 - 30 cm [30 pts]	Max = 30
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	5
COMMENTS OHW = 2.6'w x 1.0'd MAXIMUM POOL DEPTH (Inches): 2.00	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONL Y one box):  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  (Check ONL Y one box):  > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]  < 1.0 m (<=3' 3") [5 pts]	Bankful Width Max=30
COMMENTS BF = 3.4'w x 1.5'd AVERAGE BANKFULL WIDTH (Feet): 3.40	15
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆  RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank) L R (Most Predominant per Bank) L R	
Wide >10m  Mature Forest, Wetland  Immature Forest, Shrub or Old  Field  V Narrow <5m  Residential, Park, New Field  None  COMMENTS  Mature Forest, Wetland  Urban or Industrial  Open Pasture, Row C	•
Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial  V V Narrow <5m Residential, Park, New Field Open Pasture, Row C  None V Fenced Pasture Mining or Construction	1
Moderate 5-10m	1

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes ✓ No QHEI Score (If Yes, Attack	ch Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	_ Distance from Evaluated Stream
CWH Name: _	Distance from Evaluated Stream
EWH Name: _Jonathan Creek	Distance from Evaluated Stream0.53
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED	AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Gratiot NRCS Soil Map Pa	age: NRCS Soil Map Stream Order
County: Perry Township / City: Madiso	on
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation: 06/04/20	Quantity:
Photograph Information: SKM: xxx-upstream, xxxx-downstream, xxxx-substrates	
Elevated Turbidity? (Y/N): Canopy (% open): 100%	
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. a	and attach results) Lab Number:
Field Measures: Temp (°C) 18.80 Dissolved Oxygen (ma/l) pH (S.U.)	Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
upper reaches surrounded by W-bl-20200605-02	
Additional comments/description of pollution impacts:	
BANK Stability LOW M	ODERATE HIGH
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. ID number. Include appropriate field data sheets from the Print Pr	mary Headwater Habitat Assessment Manual)  Voucher? (Y/N)
Include impo	leted): eam's location
October 24, 2002 Revision	Jagg Bugge



50	

	0.05
LENGTH OF STREAM REACH (ft) 90 LAT. 39.87844 LONG82.22741 RIVER CODE RIVER MILE	.06
DATE 06/05/20 SCORER BL COMMENTS intermittent	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Ins	tructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO REMODIFICATIONS:	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE  PERCENT  TYPE  PERCENT	HHE
BLDR SLABS [16 pts]  O  SILT [3 pt]  5%	Point
BOULDER (>256 mm) [16 pts]  BEDROCK [16 pt]	Substrat
□       □       BEDROCK [16 pt]       □       □       FINE DETRITUS [3 pts]       5%         □       □       CLAY or HARDPAN [0 pt]       0%	Max = 4
GRAVEL (2-64 mm) [9 pts] 25% MUCK [0 pts] 0%	30
SAND (<2 mm) [6 pts] 0% ARTIFICIAL [3 pts] 0%	30
Total of Percentages of 60.00% (A) Substrate Percentage (B) Check (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 25 TOTAL NUMBER OF SUBSTRATE TYPES: 5	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dep
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check <i>ONLY</i> one box):  > 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	Max = 3
> 22.5 - 30 cm [30 pts]	
	5
COMMENTS OHW = 3.2 W X 1.1 d MAXIMUM POOL DEPTH (Inches): 1.00	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankful
> 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]	Width Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
COMMENTS BF = 3.7'w x 1.8'd AVERAGE BANKFULL WIDTH (Feet): 3.70	15
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	
L R (Per Bank) L R (Most Predominant per Bank) L R  Wide >10m  Mature Forest, Wetland  Conservation Tillage	
L R (Per Bank)  Wide >10m  Moderate 5-10m  L R (Most Predominant per Bank)  L R  Mature Forest, Wetland  Immature Forest, Shrub or Old  Field  Urban or Industrial	'ron
L R (Per Bank) Wide >10m Moderate 5-10m Narrow <5m L R (Most Predominant per Bank) L R (Most P	·
L R (Per Bank) Wide >10m Moderate 5-10m  Narrow <5m None  L R (Most Predominant per Bank) L R (Conservation Tillage Immature Forest, Shrub or Old Field  Open Pasture, Row C	·
L R (Per Bank) Wide >10m Mature Forest, Wetland Immature Forest, Shrub or Old Field  Narrow <5m None Fenced Pasture  COMMENTS  L R (Most Predominant per Bank) L R (Most Predominant per Bank) L R (Conservation Tillage  Urban or Industrial  Open Pasture, Row C  Mining or Construction  COMMENTS	·
L R (Per Bank)  Wide >10m  Moderate 5-10m  Narrow <5m  None  L R (Most Predominant per Bank)  L R (Most Predominant per Bank)  L R (Conservation Tillage Immature Forest, Wetland  Urban or Industrial  Open Pasture, Row C	n _
L R (Per Bank)  V Wide >10m  Moderate 5-10m  Moderate 5-10m  Narrow <5m  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing Subsurface flow with isolated pools (Interstitial)  L R (Most Predominant per Bank)  L R (Conservation Tillage  Urban or Industrial  Open Pasture, Row C  Mining or Construction  COMMENTS  Moist Channel, isolated pools, no flow (Intermitte Dry channel, no water (Ephemeral)	n _
L R (Per Bank)  Wide >10m  Moderate 5-10m  Moderate 5-10m  Narrow <5m  None  COMMENTS  FLOW REGIME (At Time of Evaluation)  Stream Flowing Subsurface flow with isolated pools (Interstitial)  COMMENTS  L R (Most Predominant per Bank)  L R (Per Bank)  L R (Most Predominant per Bank)  L R (Per Bank)  L R (Most Predominant per Bank)  L R (Per Bank)  L R	n _
L R (Per Bank)  Wide >10m  Moderate 5-10m  Moderate 5-10m  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation)  Stream Flowing Subsurface flow with isolated pools (Interstitial)  L R (Most Predominant per Bank)  L R (Per Bank)  L R (Most Predominant per Bank)  L R (Per Bank)  L R (Most Predominant per Bank)  L R (Per Bank)  L R (Most Predominant per Bank)  L R (Per Bank)  L R (P	n _
L R (Per Bank)  Wide >10m  Moderate 5-10m  Moderate 5-10m  Narrow <5m  None  COMMENTS  FLOW REGIME (At Time of Evaluation)  Stream Flowing Subsurface flow with isolated pools (Interstitial)  COMMENTS  L R (Most Predominant per Bank)  L R (Conservation Tillage  Immature Forest, Wetland  Immature Forest, Shrub or Old  Immature Forest, Wetland  Immature Forest, New Field  Open Pasture, Row Open Pasture  None  FELOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  Immature Forest, New Field  Open Pasture, Row Open Pasture  Open Pasture, Row Open P	n _
L R (Per Bank)  Vide > 10m  Mature Forest, Wetland  Immature Forest, Shrub or Old  Immature Forest or Old  Immature Fo	nt)
L R (Per Bank)  Wide >10m  Moderate 5-10m  Moderate 5-10m  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation)  COMMENTS  FLOW REGIME (At Time of Evaluation)  COMMENTS  FLOW REGIME (Number of bends per 61 m (200 ft) of channel)  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	nt)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Atta	ach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
CWH Name: _	_ Distance from Evaluated Stream _
EWH Name: _ Jonathan Creek	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHEE	O AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Gratiot NRCS Soil Map F	Page: NRCS Soil Map Stream Order
County: Perry Township / City: Madisc	on
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation: 06/04/20	Quantity: 0.75
Photograph Information: SKM: 2103-upstream, 2104-downstream, 2105-substrates	
Elevated Turbidity? (Y/N): N Canopy (% open): 10%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id.	and attach results) Lab Number:
	10.10 Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	
BANK Stability LOW M	ODERATE HIGH 🗸
BIOTIC EVALUATION	
Performed? (Y/N):  N  (If Yes, Record all observations. Voucher collections optiona ID number. Include appropriate field data sheets from the Prince of Tadpoles Observed? (Y/N)  Frogs or Tadpoles Observed? (Y/N)  N  Voucher? (Y/N)  Voucher? (Y/N)  Aquatic Macroinvertebra Comments Regarding Biology:	mary Headwater Habitat Assessment Manual)  Voucher? (Y/N)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Principle of the P	mary Headwater Habitat Assessment Manual)  Voucher? (Y/N)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Principle of the Program of Tadpoles Observed? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebra Comments Regarding Biology: none observed	Voucher? (Y/N)  N Voucher? (Y/N)  N Voucher? (Y/N)  N Voucher? (Y/N)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optiona ID number. Include appropriate field data sheets from the Principle of the Pr	mary Headwater Habitat Assessment Manual)  Voucher? (Y/N)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Principle of the Program of Tadpoles Observed? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebra Comments Regarding Biology: none observed	Voucher? (Y/N)  N Voucher? (Y/N)  N Voucher? (Y/N)  N Voucher? (Y/N)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Price of the Programment of the Price of the Programment of the Price of	Voucher? (Y/N)  N Voucher? (Y/N)  N Voucher? (Y/N)  N Voucher? (Y/N)  St be completed):



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 052

Date:

June 5, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream

Facing Upstream



#### Stream 052

Date:

June 5, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 052

Date:

June 5, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream





s-aeh-20200611-07 SITE NUMBER RIVER BASIN Muskingum DRAINAGE AREA (mi²)	0.01
LENGTH OF STREAM REACH (ft) 200 LAT. 39.87900 LONG82.22834 RIVER CODE RIVER MILE	0.17
DATE 06/11/20 SCORER AEH COMMENTS intermittent	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Inst	ructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING RECOVERING RECOVERING RECENT OR NO RECOVERING RE	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HHEI
TYPE PERCENT TYPE PERCENT	Metric
BLDR SLABS [16 pts]	
BEDROCK [16 pt]  15%  FINE DETRITUS [3 pts]	Substrate Max = 40
☐       COBBLE (65-256 mm) [12 pts]       ☐       CLAY or HARDPAN [0 pt]       0%         ☐       GRAVEL (2-64 mm) [9 pts]       ☐       MUCK [0 pts]       0%	
GRAVEL (2-64 mm) [9 pts]  SAND (<2 mm) [6 pts]  MUCK [0 pts]  ARTIFICIAL [3 pts]  0%  0%	17
Total of Percentages of 25.00% (A) Substrate Percentage 100% (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 TOTAL NUMBER OF SUBSTRATE TYPES: 5	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dept
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]	Max = 30
> 22.5 - 30 cm [30 pts] < 5 cm [5 pts]	45
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	15
COMMENTS MAXIMUM POOL DEPTH (Inches): 2.00	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	
	Bankfull
> 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]	Bankfull Width Max=30
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH  (Feet): 3.00  This information must also be completed	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH  (Feet): 3.00	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet): 3.00  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆  RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank) L R (Most Predominant per Bank) L R	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream A  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  L R (Most Predominant per Bank)  L R (Most Predominant per Bank)  Wide >10m  Mature Forest, Wetland  Conservation Tillage	Width Max=30
> 4.0 meters (> 13') [30 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]	Width Max=30  5
> 4.0 meters (> 13') [30 pts]	Width Max=30  5
> 4.0 meters (> 13') [30 pts]	Width Max=30  5
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  NOTE: River Left (L) and Right (R) as looking downstream  RIPARIAN WIDTH  RIPARIAN WIDTH  L R (Per Bank)  Wide >10 m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Narrow <5m  Narrow <5m  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Moist Channel, isolated pools, no flow (Intermitten)	Width Max=30
> 4.0 meters (> 13') [30 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  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  Wide >10 m  Mature Forest, Wetland  Moderate 5-10 m  Moderate 5-10 m  Narrow <5 m  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  Nor water (Ephemeral)	Width Max=30
> 4.0 meters (> 13') [30 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m (> 9' 7" - 13') [25 pts]   > 1.5 m - 3.0 m (> 9' 7" - 13') [25 pts]   > 1.5 m - 3.0 m (> 9' 7" - 14' 8") [20 pts]   AVERAGE BANKFULL WIDTH (Feet): 3.00      This information must also be completed   RIPARIAN VIDTH   FLOODPLAIN QUALITY	Width Max=30
> 4.0 meters (> 13') [30 pts]	Width Max=30  5

ADDITIONAL STR	REAM INFORMATION	(This illiorination wust Also			
QHEI PI	ERFORMED? - Ye	s No QHEI Score	(If Yes, Atta	ach Completed QHEI Form)	
DOWNS	STREAM DESIGNATE	D USE(S)			
WWH Name:				Distance from Evaluated Stream	am
CWH Name: _				Distance from Evaluated Strea	ım
EWH Name:	Jonathan Creek			Distance from Evaluated Strea	m 0.59
MAPPIN	IG: ATTACH COPIES C	OF MAPS, INCLUDING THE EN	ITIRE WATERSHED	DAREA. CLEARLY MARK THE S	ITE LOCATIO
USGS Quadrangle	Name: Gratiot		NRCS Soil Map F	Page: NRCS Soil Map S	tream Order
County: Perry		Towns	ship / City: Madiso	on	
MISCEL  Base Flow Condition	LANEOUS	Date of last precipitation:	06/04/20	Quantity: <b>0.75</b>	
	, ,	Date of last precipitation.		Quantity	
Photograph Inform	N	Canany (% anan): 90%	/0		
Elevated Turbidity		N			
Were samples coll	lected for water chemis	, , ,,		and attach results) Lab Number:_	
Field Measures:	Temp (°C)[	Dissolved Oxygen (ma/l)	pH (S.U.)	8.40 Conductivity (μmhos/cm	)
Is the sampling rea	ach representative of the	ne stream (Y/N) If not,	please explain:		
Additional comme	nts/description of pollu	ution impacts:			
BANK Stability	nts/description of pollu	ution impacts:LOW	M	ODERATE 🗸	нідн
BANK Stability  BIOTIC  Performed? (Y/N):  Fish Observed? (Y	EVALUATION  N (If Yes, Re ID numbe //N)  N Voucher?  Observed? (Y/N)	ecord all observations. Voucher. Include appropriate field data	r collections optional asheets from the Pri	I. NOTE: all voucher samples mus imary Headwater Habitat Assessme	t be labeled w
BANK Stability  BIOTIC  Performed? (Y/N):  Fish Observed? (YFrogs or Tadpoles  Comments Regard	EVALUATION  N (If Yes, Re ID numbe //N)  N Voucher?  Observed? (Y/N)	ecord all observations. Voucher. Include appropriate field data	r collections optional asheets from the Pri	I. NOTE: all voucher samples mus imary Headwater Habitat Assessme	t be labeled went Manual)
BANK Stability  BIOTIC  Performed? (Y/N):  Fish Observed? (YFrogs or Tadpoles  Comments Regard  none observed	EVALUATION  N (If Yes, Re ID numbe ID n	ecord all observations. Voucher Include appropriate field data and a Voucher? (Y/N) Aqua	r collections optionals asheets from the Privipe sheets from the Privipe sheet	I. NOTE: all voucher samples mus imary Headwater Habitat Assessme	t be labeled went Manual) ner? (Y/N)
BANK Stability  BIOTIC  Performed? (Y/N):  Fish Observed? (YFrogs or Tadpoles  Comments Regard  none observed	EVALUATION  N (If Yes, Re ID numbe Y/N) N Voucher? Observed? (Y/N) N ding Biology:	ecord all observations. Voucher. Include appropriate field data (Y/N) Salamanders C Voucher? (Y/N) Aqua	or collections optional asheets from the Privipe served? (Y/N) Notice Macroinvertebrate	I. NOTE: all voucher samples mus imary Headwater Habitat Assessme Voucher? (Y/N) N  tes Observed? (Y/N) Vouch	t be labeled went Manual) ner? (Y/N)
BANK Stability  BIOTIC  Performed? (Y/N):  Fish Observed? (YFrogs or Tadpoles  Comments Regard  none observed	EVALUATION  N (If Yes, Re ID numbe Y/N) N Voucher? Observed? (Y/N) N ding Biology:	ecord all observations. Voucher. Include appropriate field data (Y/N) Salamanders C Voucher? (Y/N) Aqua	or collections optional asheets from the Privipe served? (Y/N) Notice Macroinvertebrate	I. NOTE: all voucher samples mus imary Headwater Habitat Assessment Voucher? (Y/N) N Vouchers Observed? (Y/N) N Vouchers Observed	t be labeled went Manual) ner? (Y/N)
BANK Stability  BIOTIC  Performed? (Y/N):  Fish Observed? (YFrogs or Tadpoles Comments Regard none observed  DRA  Include imp	EVALUATION  N (If Yes, Re ID numbe Y/N) N Voucher? Observed? (Y/N) N ding Biology:	ecord all observations. Voucher. Include appropriate field data (Y/N) Salamanders C Voucher? (Y/N) Aqua	or collections optional asheets from the Privipe served? (Y/N) Notice Macroinvertebrate	I. NOTE: all voucher samples mus imary Headwater Habitat Assessment Voucher? (Y/N) N Vouchers Observed? (Y/N) N Vouchers Observed	t be labeled went Manual) ner? (Y/N)





**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 053

Date:

June 11, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream

Facing Upstream



#### Stream 053

Date:

June 11, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 053

Date:

June 11, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream





## **ChieFP** Primary Headwater Habitat Evaluation Form

SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project	
	0.01
s-aeh-20200611-09 SITE NUMBER RIVER BASIN MUSKINGUM DRAINAGE AREA (mi²) LENGTH OF STREAM REACH (ft) 50 LAT. 39.88380 LONG82.23570 RIVER CODE RIVER MILE	
DATE 06/11/20 SCORER AEH COMMENTS Ephemeral	0.0
	·············
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Inst	tructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO REMODIFICATIONS:	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE  PERCENT  TYPE  PERCENT	HHEI   Metric
□ □ BLDR SLABS [16 pts]	Points
BOULDER (>256 mm) [16 pts]  0%  LEAF PACK/WOODY DEBRIS [3 pts]  0%  FINE DETRITUS [3 pts]  0%	Substrate
BEDROCK [16 pt]	Max = 40
GRAVEL (2-64 mm) [9 pts]	
SAND (<2 mm) [6 pts]	8
Total of Percentages of 0.00% (A) Substrate Percentage 100% (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dept
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] < 5 cm [5 pts]	
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	0
COMMENTS MAXIMUM POOL DEPTH (Inches): 0.00	
3 BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ON/ Yone box):	Bankfull
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]	Bankfull Width
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (<=3' 3") [5 pts]	
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] ≤ 1.0 m (<=3' 3") [5 pts]	Width
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet): 1.00  This information must also be completed	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet): 1.00	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  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)  L R	Width Max=30
2 4.0 meters (> 13') [30 pts]   2 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]   2 1.0 m (<=3' 3") [5 pts]   3 1.0 m (<=3' 3") [5 pts]   4 1.0 m (<=3' 3") [5 pts]   5 1.0	Width Max=30
> 4.0 meters (> 13') [30 pts]     > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]     > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]     > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]     > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]     > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]     > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]     > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]     COMMENTS	Width Max=30  5
> 4.0 meters (> 13') [30 pts]     > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]     > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]     COMMENTS	Width Max=30  5
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream  RIPARIAN WIDTH  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Narrow <5m  Narrow <5m  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	Width Max=30  5
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  L R (Per Bank)  V Wide >10 m  Mature Forest, Wetland  Moderate 5-10 m  Moderate 5-10 m  Narrow <5 m  None  COMMENTS  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  Moist Channel, isolated pools, no flow (Intermitter Dry channel, no water (Ephemeral))	Width Max=30  5
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream And RIPARIAN WIDTH  FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  Wide >10 m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Residential, Park, New Field  Narrow <5m  Narrow <5m  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Moist Channel, isolated pools, no flow (Intermitter)	Width Max=30  5
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream And RIPARIAN WIDTH  FLOODPLAIN QUALITY  Wide > 10m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Residential, Park, New Field  Narrow <5m  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	Width Max=30  5
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  Wide >10 m (<=3' 3") [5 pts]  1.0 m (<=3' 3") [5 pts]  AVERAGE BANKFULL WIDTH  FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  Wide >10 m (Signer Left (L) and Right (R) as looking downstream:  RIPARIAN WIDTH  FLOODPLAIN QUALITY  Wide >10 m (Most Predominant per Bank)  Residential, Personal (Personal Conservation Tillage)  Moderate 5-10 m (Field (Personal Conservation))  Narrow <5 m (Residential, Park, New Field (Personal Conservation))  None (Personal Conservation)  Residential, Park, New Field (Personal Conservation)  None (Personal Conservation)  None (Personal Conservation)  Residential, Park, New Field (Personal Conservation)  None (Personal Cons	Width Max=30  5
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 13') [20 pts]  COMMENTS  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)  Vide >10m  Mature Forest, Wetland  Moderate 5-10m  Narrow <5m  None  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None  1.0  2.0  3.0  3.0  3.0  3.0  3.0  3.0  3	Width Max=30  5
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  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)  Wide >10m Mature Forest, Wetland  Moderate 5-10m V V Immature Forest, Shrub or Old  Immature Forest, Shrub or Old  Narrow <5m Residential, Park, New Field  Narrow <5m Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None  1.0  2.0  3.0	Width Max=30  5

QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Atta	ach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)  WWH Name:	Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
EWH Name: Jonathan Creek	Distance from Evaluated Stream 0.43
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHEE	DAREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: NRCS Soil Map F	Page: NRCS Soil Map Stream Order
County: Perry Township / City: Madiso	on
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation: 06/04/20	Quantity: 0.75
Photograph Information:	
Elevated Turbidity? (Y/N): N Canopy (% open): 10%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. a	and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (ma/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:	
BANK Stability LOW Me	ODERATE / HIGH
	V
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pri Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology: none observed	I. NOTE: all voucher samples must be labeled with the site imary Headwater Habitat Assessment Manual)  Voucher? (Y/N)  Voucher? (Y/N)  Voucher? (Y/N)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Principle of the P	I. NOTE: all voucher samples must be labeled with the site imary Headwater Habitat Assessment Manual)  Voucher? (Y/N)  Voucher? (Y/N)  Voucher? (Y/N)  REACH (This must be completed):



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 054

Date:

June 11, 2020

**Description:** 

Ephemeral

**Ephemeral Stream** 

Facing Upstream



#### Stream 054

Date:

June 11, 2020

#### **Description:**

Ephemeral

**Ephemeral Stream** 





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 054

Date:

June 11, 2020

**Description:** 

Ephemeral

Ephemeral Stream





### Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project	
s-aeh-20200611-08 SITE NUMBER RIVER BASIN Muskingum DRAINAGE AREA (mi²)	0.01
LENGTH OF STREAM REACH (ft) 100 LAT. 39.88398 LONG82.23580 RIVER CODE RIVER MILE	0.1
DATE 06/11/20 SCORER AEH COMMENTS Intermitent	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Inst	ructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING RECENT OR NO RECOVERED RECOVERED RECOVERING RECENT OR NO RECOVERED RECOVERING RECENT OR NO RECOVERED RECOVERING RECENT OR NO RECOVERED RECOVERED RECOVERING RECENT OR NO RECOVERED	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	ı HHEI
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE  PERCENT  TYPE  PERCENT	Metric
BLDR SLABS [16 pts]	Points
BEDROCK [16 pt]  BEDROCK [16 pt]  D'A  D'B  D'B  D'B  D'B  D'B  D'B  D'B	Substrat
COBBLE (65-256 mm) [12 pts] 40% CLAY or HARDPAN [0 pt] 0%	Max = 40
☐ ☐ GRAVEL (2-64 mm) [9 pts] ☐ ☐ MUCK [0 pts] ☐ ☐ 0% ☐ ☐ ARTIFICIAL [3 pts] ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	25
Tatal of Brown town of	
Total of Percentages of 40.00% (A) Substrate Percentage (Check 100%)	A+B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 21 TOTAL NUMBER OF SUBSTRATE TYPES: 4	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dep
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]	Max = 30
> 22.5 - 30 cm [30 pts] < 5 cm [5 pts]	F
	5
COMMENTS MAXIMUM POOL DEPTH (Inches): 1.00	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankful
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]	Bankful Width Max=30
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	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]   ≤ 1.0 m (<=3' 3") [5 pts]	Width
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH  (Feet): 2.00  This information must also be completed	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH  (Feet): 2.00	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet): 2.00  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆  RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank) L R (Most Predominant per Bank) L R	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ♣ NOTE: River Left (L) and Right (R) as looking downstream ♣  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  L R (Most Predominant per Bank)  L R (Most Predominant per Bank)  Wide >10m  Mature Forest, Wetland  Conservation Tillage	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet): 2.00  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)  V Wide >10m Mature Forest, Wetland  Moderate 5-10m  Noderate 5-10m  Proper Pasture Row Conservation Tillage  Immature Forest, Shrub or Old	Width Max=30
> 4.0 meters (> 13') [30 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet): 2.00  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)  V Wide >10m Mature Forest, Wetland  Moderate 5-10m  Noderate 5-10m  Proper Pasture Row Conservation Tillage  Immature Forest, Shrub or Old	Width Max=30
> 4.0 meters (> 13') [30 pts]     > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]     > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]     > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  NOTE: River Left (L) and Right (R) as looking downstream  RIPARIAN WIDTH  RIPARIAN WIDTH  R (Per Bank)  Wide >10 m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  No me (ST 3") [5 pts]  > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]  > 1.0 m (<=3' 3") [5 pts]  > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]  > 1.0 m (<=3' 3") [5 pts]    5 1.0 m (<=3' 3") [5 pts]    6 1.0 m (<=3' 3") [5 pts]    7 2.0 m (<=3' 3") [5 pts]    7 3.0 m (> 9' 7" - 4' 8") [20 pts]    8 3.0 m (> 9' 7" - 4' 8") [20 pts]    8 3.0 m (> 9' 7" - 4' 8") [20 pts]    8 3.0 m (> 9' 7" - 4' 8") [20 pts]    9 3.0 m (> 9' 7" - 4' 8") [20 pts]    9 3.0 m (> 9' 7" - 4' 8") [20 pts]    9 3.0 m (> 9' 7" - 4' 8") [20 pts]    9 3.0 m (> 9' 7" - 4' 8") [20 pts]    9 3.0 m (> 9' 7" - 4' 8") [20 pts]    9 3.0 m (> 9' 7" - 4' 8") [20	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS   This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  V Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Narrow <5m  Narrow <5m  Narrow <5m  Residential, Park, New Field  None  COMMENTS   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]  > 1.0 m (<=3' 3") [5 pts]    2.00    3.0 m - 4.0 m (> 9' 7" - 4' 8") [15 pts]   4	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  Wide >10 m  Mature Forest, Wetland  Moderate 5-10m  Narrow <5m  Narrow <5m  None  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing Subsurface flow with isolated pools (Interstitial)  COMMENTS    10 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m (> 10 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m (<=3' 3") [5 pts]   > 1.0 m (<=3' 3") [5 pts]   > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  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  Wide >10 m  Mature Forest, Wetland  Moderate 5-10 m  Moderate 5-10 m  Residential, Park, New Field  None  COMMENTS  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  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	Width Max=30
> 4.0 meters (> 13') [30 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m (<=3' 3") [5 pts]   > 1.0 m (<=3' 3") [5 pts]   > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Width Max=30  5

QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)  WWH Name:  CWH Name:  Distance from Evaluated Stream  Distance from Evaluated Stream  Distance from Evaluated Stream  Distance from Evaluated Stream  Output  Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name:     NRCS Soil Map Page:   NRCS Soil Map Stream Order
County: Perry Township / City: Madison
MISCELLANEOUS
Base Flow Conditions? (Y/N): Y Date of last precipitation: 06/04/20 Quantity: 0.75
Photograph Information:
Elevated Turbidity? (Y/N): N Canopy (% open): 10%
Were samples collected for water chemistry? (Y/N): Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:  BANK Stability  LOW  MODERATE  HIGH
BIOTIC EVALUATION
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  Fish Observed? (Y/N) N Voucher? (Y
ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  Fish Observed? (Y/N) N Voucher? (Y/N)



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 055

Date:

June 11, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream

Facing Upstream



#### Stream 055

Date:

June 11, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 055

Date:

June 11, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream





# Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score:

12A	75
109	. / O

Stream & Location:	AEP-Crooksville-North Newark	k 138 kV Transmission	Line Rebuild Project	RM: 14.1 Date:	3 <b> </b> 5 <b> </b> 20
S-BL-20200605-02 /	Jonathan Creek	Scorers Full Na	ame & Affiliation: Bi	ill Leopold, AECOM	
River Code:	<i>STORET</i> #:_		 Long.: <sup>decimal °)</sup> *	/8	Office verified location
1] SUBSTRATE Chec	ck ONLYTwo substrate TYPE BO	XES;	•	E (Or 2 & average)	
BEST TYPES  BLDR /SLABS [10]  BOULDER [9]  GRAVEL [7]  SAND [6]  BEDROCK [5]  NUMBER OF BEST  Comments	HARDPA   DETRITL   MUCK [2]   SILT [2]   ARTIFIC   (Score n   TYPES: 4 or more [2] slud   3 or less [0]	YPES POOL RIFFLE IN [4]	ORIGIN  LIMESTONE [1]  TILLS [1]  WETLANDS [0]  HARDPAN [0]	QUAL  HEAVY [-  MODERA  NORMAL  FREE [1]  DEO  MODERA  MODERA  MODERA	2] TE [-1] Substrate
estimated from edge of water,	<b>ER</b> Indicate presence 0 to 3: <b>0</b> -A	bsent: 1-Very small amo	ounts or if more common	of marginal	INT
quality: 3-Highest quality	quality; 2-Moderate amounts, in moderate or greater amounts e, well developed rootwad in dee (S [1] POOLS [1] ROOTS	, but not of highest qual (e.g., very large boulde p / fast water, or deep, v S > 70cm [2]O WADS [1]A	lity or in small amounts of rs in deep or fast water. Ia	chighest arge Check ONE (O EXTENSIVE S [1] MODERATE S [1] SPARSE 5-<	r 2 & average) >75% [11] 25-75% [7]
Comments				ı	Maximum 8
as observed from single acces	<u> </u>				20
SINUOSITY DE'  HIGH [4]  MODERATE [3]  LOW [2]	EXCELLENT [7] NONE [6] GOOD [5] RECOVE FAIR [3] RECOVE	NELIZATION     RED [4]	STABILITY  HIGH [3]  MODERATE [2]  LOW [1]		Channel 8
	ack-straightened, nearly all deep with cu				
River right looking downstre  EROSION  NONE / LITTLE [3]  MODERATE [2]	AND RIPARIAN ZONE Ch  RIPARIAN WIDTH  WIDE > 50m [4]  MODERATE 10-50m [3]  NARROW 5-10m [2]  VERY NARROW < 5m  NONE [0]	FLOO RESIDENTIA RESIDENTIA FENCED PA	OD PLAIN QUALIT WAMP [3] OLD FIELD [2] AL, PARK, NEW FIELD [1	CONSERVATIO URBAN OR IND MINING / CONS Indicate predominant la	DUSTRIAL [0] TRUCTION [0] and use(s)
Comments	- HONE [0]	E L OPEN PAS	TORE, ROWCROP [U]		Riparian Maximum 4.75
1 + ((2 + (4+2)/2=3)/2=2.5 + ((	0 + (3+2/2=2.5)/2 = 1.25)				10
5] POOL / GLIDE AN MAXIMUM DEPTH Check ONE (ONLY!)    > 1m [6]   0.7-<1m [4]   0.4-<0.7m [2]   0.2-<0.4m [1]   < 0.2m [0]  Comments	ND RIFFLE / RUN QUALIT  CHANNEL WIDT  Check ONE (Or 2 & aver  POOL WIDTH > RIFFLE WID  POOL WIDTH < RIFFLE WID  POOL WIDTH < RIFFLE WID  POOL WIDTH < RIFFLE WID	H CUR  age) Ch  DTH [2]	RENT VELOCITY  neck ALL that apply  IAL [-1] SLOW [1]  ST [1] INTERSTITIA INTERMITTE  IE [1] EDDIES [1]  for reach - pools and riffle	ENT [-2]	Contact y Contact mment on back)  Pool / Current Maximum
Indicate for fund	ctional riffles: Boot erese	must ha large on	ough to support s	nonulation	12
of riffle-obligate RIFFLE DEPTH BEST AREAS > 10cm [ BEST AREAS 5-10cm [ BEST AREAS < 5cm [metric=] Comments no riffle within assessed section	RUN DEPTH 2]	Check ONE ( <i>Or</i> 2 & ave RIFFLE / RUN SI ] STABLE (e.g., Cobbl ] MOD. STABLE (e.g., ] UNSTABLE (e.g., Fin	erage). UBSTRATE RIFFL le, Boulder) [2] Large Gravel) [1] e Gravel, Sand) [0]	Dopulation  NO F  RUN EMBEDDE  NONE [2]  LOW [1]  MODERATE [0]  EXTENSIVE [-1]	Riffle /
6] GRADIENT ( 9.40	, 🗀		%POOL: (10.00) %	<b>6GLIDE:</b> 30.00	Gradient 6
DRAINAGE AREA	THE HIGH VERY HIGH		%RUN: (60.00)%	RIFFLE: 0.00	Maximum 0

F] MEASUREMENTS bankfull x depth 6.4'+ bankfull max. depth floodprone x<sup>2</sup> width x bankfull width 58 entrench. ratio Comment RE: Reach consistency/ Is reach typical of steam?, Recreation/ Observed - Inferred, Other/ Sampling observations, Concerns, Access directions, etc. max. depth 3+ Legacy Tree: x width 50' x depth 3' W/D ratio HARDENED / URBAN / DIRT&GRIME **LOGGING / IRRIGATION / COOLING** FALSE BANK / MANURE / LAGOON BMPs-CONSTRUCTION-SEDIMENT NATURAL / WETLAND / STAGNANT WWTP / CSO / NPDES / INDUSTRY ATMOSPHERE / DATA PAUCITY ACID / MINE / QUARRY / FLOW WASH H20(TILE ) H20 TABLE BANK, EROSION / SURFACE PARK / GOLF / LAWN / HOME CONTAMINATED / LANDFILL El ISSUES AEP row clearing RR grade on RDB Circle some & COMMENT PUBLIC/ PRIVATE / BOTH / NA ACTIVE / HISTORIC BOTH NA FLOOD CONTROL / DRAINAGE MODIFIED / DIPPED OUT / NA MOVING-BEDLOAD-STABLE IMPOUNDED / DESICCATED YOUNG-SUCCESSION-OLD SPRAY / SNAG / REMOVED RELOCATED / CUTOFFS DI MAINTENANCE ARMOURED / SLUMPS LEVEED / ONE SIDED ISLANDS / SCOURED Jonathan Creek existing WQS - ALU=EWH, REC=PCR T-19.9 C OHW= 50'w x 2.8' + water depth INVASIVE MACROPHYTES CSOs/SSOs/OUTFALLS **BI AESTHETICS**  $BF = 58'w \times OHW + 3.6'd$ ■ EXCESS TURBIDITY SLUDGE DEPOSITS  $TOB = 65'w \times BF + 3.2'd$ ☐ NUISANCE ALGAE POOL: □>100ft²□>3ft AREA DEPTH ☐ OIL SHEEN ☐ TRASH / LITTER ☐ NUISANCE ODOR ☐ DISCOLORATION ☐ FOAM / SCUM **NUISANCE ODOR** pH-10.0 CJ RECREATION E E ☐ SECCHI DEPTH☐ ☐ HIGH ☐ UP ☐ NORMAL☐ ☐ LOW ☐ DRY ☐ DRY 1st -sample pass- 2nd --sample pass--☐ > 70 cm/ CTB CLARITY STAGE □ 20-<40 cm AJ SAMPLED REACH ■ 40-70 cm Check ALL that apply □ < 20 cm 1st sss 2nd 2nd Stream Dra ☐ <10%- CLOSED □ > 85%- OPEN CANOPY □ 10%-<30% DISTANCE **22%-<85%** □ 30%-<25% 0.5 Km 0.2 Km 0.15 Km 0.15 Km 0.12 Km O.12 Km □ BOAT
□ WADE
□ L. LINE

| OTHER 0.15 Km 0.12 Km METHOD meters



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 056

Date:

June 5, 2020

**Description:** 

Perennial

Warmwater Habitat

Facing Upstream



#### Stream 056

Date:

June 5, 2020

**Description:** 

Perennial

Warmwater Habitat





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 056

Date:

June 5, 2020

**Description:** 

Perennial

Warmwater Habitat





### A Primary Headwater Habitat Evaluation Form

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

JJ
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s-aeh-20200611-06 SITE NUMBER RIVER BASIN Muskingum DRAINAGE AREA (mi²)	.01
LENGTH OF STREAM REACH (ft) 30 LAT. 39.89298 LONG82.24776 RIVER CODE RIVER MILE 0	.04
DATE 06/11/20 SCORER AEH COMMENTS intermittent	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instr	uctions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO REC	OVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HHEI
TYPE PERCENT TYPE PERCENT	Metric
BLDR SLABS [16 pts]  BOULDER (>256 mm) [16 pts]  0%  SILT [3 pt]  LEAF PACK/WOODY DEBRIS [3 pts]  10%	Points
BEDROCK [16 pt]	Substrate
COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPAN [0 pt] 0%	Max = 40
GRAVEL (2-64 mm) [9 pts]	15
SAND (<2 mm) [6 pts]	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock (A) Substrate Percentage Check (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 TOTAL NUMBER OF SUBSTRATE TYPES: 3	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dept
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]	Max = 30
	4 -
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	15
COMMENTS MAXIMUM POOL DEPTH (Inches): 2.00	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	
	Bankfull
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
> 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] ≤ 1.0 m (<=3' 3") [5 pts]	Width
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet): 3.00  This information must also be completed	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet): 3.00	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  AVERAGE BANKFULL WIDTH  (Feet): 3.00  This information must also be completed  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  L R (Most Predominant per Bank)  L R	Width Max=30
> 4.0 meters (> 13') [30 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]     > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]     COMMENTS	Width Max=30
> 4.0 meters (> 13') [30 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]   ≤ 1.0 m (<=3' 3") [5 pts]   ≤ 1.0	Width Max=30
> 4.0 meters (> 13') [30 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m (<=3' 3") [5 pts]   > 1.0	Width Max=30
> 4.0 meters (> 13') [30 pts]     > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]     > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]     COMMENTS	Width Max=30
> 4.0 meters (> 13') [30 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]     > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]     > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]     COMMENTS	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  RIPARIAN Wide >10 m  Mature Forest, Wetland  Wide >10 m  Mature Forest, Wetland  Wide >10 m  Moderate 5-10 m  Residential, Park, New Field  None  COMMENTS  Fenced Pasture  Mining or Construction  Fenced Pasture  Moist Channel, isolated pools, no flow (Intermittent)  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  More (Ephemeral)	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream A  RIPARIAN WIDTH  FLOODPLAIN QUALITY  Wide >10 m  Mature Forest, Wetland  Wide >10 m  Mature Forest, Shrub or Old  Immature Forest, Shrub or Old  Narrow <5m  Narrow <5m  Residential, Park, New Field  Flow REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS  P1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]  > 1.0 m (=3' 3") [5 pts]    1.0 m (=3' 3" - 4' 8") [15 pts]    2 loo m (=3' 3") [5 pts]    3.00    3.00    4 loo m (=3' 3") [5 pts]    5 loo m (=3' 3" - 4' 8") [15 pts]    5 loo m (=3' 3" - 4' 8") [15 pts]    5 loo m (=3' 3") [5 pts]    5 loo m (=3' 3") [5 pts]    5 loo m (=3' 3") [5 pts]    6 loo m (=3' 3") [5 pts]    6 loo m (=3' 3") [5 pts]    6 loo m (=3' 3") [5 pts]    7 loo m (=3' 3") [5 pts]    6 loo m (=3' 3") [5 pts]    7 loo m (=3' 3") [5 pts]    7 loo m (=3' 3") [5 pts]    8 loo m (=3' 3") [5 pts]    8 loo m (=3' 3") [5 pts]    7 loo m (=3' 3") [5 pts]    8 loo m (=3' 3") [5 pts]    8 loo m (=3' 3") [5 pts]    9 loo m (=3' 3") [5 pts]    9 loo m (=3' 3") [5 pts]    10 m (=3' 3" [5 pts]    10 m (=1' 5 p	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ↑NOTE: River Left (L) and Right (R) as looking downstream ↑  RIPARIAN WIDTH  FLOODPLAIN QUALITY  ↑ NOTE: River Left (L) and Right (R) as looking downstream ↑  RIPARIAN WIDTH  FLOODPLAIN QUALITY  ↑ Moderate 5-10m  Mature Forest, Wetland  Narrow <5m  Residential, Park, New Field  Narrow <5m  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream A  RIPARIAN WIDTH  FLOODPLAIN QUALITY  Wide >10 m  Mature Forest, Wetland  Wide >10 m  Mature Forest, Shrub or Old  Immature Forest, Shrub or Old  Narrow <5m  Narrow <5m  Residential, Park, New Field  Flow REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS  P1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]  > 1.0 m (=3' 3") [5 pts]    1.0 m (=3' 3" - 4' 8") [15 pts]    2 loo m (=3' 3") [5 pts]    3.00    3.00    4 loo m (=3' 3") [5 pts]    5 loo m (=3' 3" - 4' 8") [15 pts]    5 loo m (=3' 3" - 4' 8") [15 pts]    5 loo m (=3' 3") [5 pts]    5 loo m (=3' 3") [5 pts]    5 loo m (=3' 3") [5 pts]    6 loo m (=3' 3") [5 pts]    6 loo m (=3' 3") [5 pts]    6 loo m (=3' 3") [5 pts]    7 loo m (=3' 3") [5 pts]    6 loo m (=3' 3") [5 pts]    7 loo m (=3' 3") [5 pts]    7 loo m (=3' 3") [5 pts]    8 loo m (=3' 3") [5 pts]    8 loo m (=3' 3") [5 pts]    7 loo m (=3' 3") [5 pts]    8 loo m (=3' 3") [5 pts]    8 loo m (=3' 3") [5 pts]    9 loo m (=3' 3") [5 pts]    9 loo m (=3' 3") [5 pts]    10 m (=3' 3" [5 pts]    10 m (=1' 5 p	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream ANOTE (Per Bank)  Wide > 1.0 m (> 3' 3" - 4' 8") [15 pts]  1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]  AVERAGE BANKFULL WIDTH  Feet): 3.00  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7' - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7' - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7' - 13') [20 pts]  COMMENTS   This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream ↑  RIPARIAN WIDTH  L R (Per Bank)  Wide > 10m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Residential, Park, New Field  V Dopen Pasture, Row Cro  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None  1.0  1.0  2.0  3.0  3.0  3.0  3.0  3.0  3.0  3	Width Max=30

		e Completed):			
QHEI PERFORMED? - Yes V No QHEI So	core	(If Yes, Atta	ch Completed C	HEI Form)	
DOWNSTREAM DESIGNATED USE(S)				Г	
WWH Name:			_	Evaluated Stream	
CWH Name: Jonathan Creek			-	Evaluated Stream _ Evaluated Stream	0.80
MAPPING: ATTACH COPIES OF MAPS, INCLUDING USGS Quadrangle Name:		<b>RE WATERSHED</b> IRCS Soil Map Pa		LY MARK THE SITE	
County: Perry	Township	o / City:	ell		
MISCELLANEOUS  Base Flow Conditions? (Y/N):  Y  Date of last precipite	ation:	06/04/20	Quantity:_	0.75	
Photograph Information:  N  Canopy (% open):  N					
Were samples collected for water chemistry? (Y/N):  Field Measures: Temp (°C)  Dissolved Oxygen (r	ma/l)			s) Lab Number: tivity (µmhos/cm)	
Additional comments/description of pollution impacts:					
BANK Stability	LOW 🗸	МС	DERATE	HIG	H
BIOTIC EVALUATION					
Performed? (Y/N): N (If Yes, Record all observation: ID number. Include appropriate Pish Observed? (Y/N) N Voucher? (Y/N) N Salam Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Comments Regarding Biology: none observed	e field data s nanders Obs	neets from the Prinerved? (Y/N)	nary Headwater Voucher? (	Habitat Assessment M	lanual)



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 057

Date:

June 11, 2020

**Description:** 

Intermittent

Modified Small Drainage Warmwater Stream

Facing Upstream



#### Stream 057

Date:

June 11, 2020

**Description:** 

Intermittent

Modified Small Drainage Warmwater Stream





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 057

Date:

June 11, 2020

**Description:** 

Intermittent

Modified Small Drainage Warmwater Stream





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

15
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SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Re	ebuild Project
s-aeh-20200611-05 SITE NUMBER RIVER BASIN Muskingum	DRAINAGE AREA (mi²) 0.01
LENGTH OF STREAM REACH (ft) 75 LAT. 39.89616 LONG82.25239 RIVER COD	RIVER MILE 0.0
DATE 06/11/20 SCORER AEH COMMENTS ephemeral	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's	PHWH Streams" for Instructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING MODIFICATIONS: from field	G RECENT OR NO RECOVERY
SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predoming (May of 22). Add total number of significant substrate types found (May of 2). Find metric pages in	
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is  TYPE  PERCENT  TYPE	PERCENT Metric
BLDR SLABS [16 pts]  BOULDER (>256 mm) [16 pts]  0%  SILT [3 pt]  LEAF PACK/WOODY DEBRIS	40% Points
BEDROCK [16 pt]  BEDROCK [16 pt]  BEDROCK [16 pt]	0% Substrate
COBBLE (65-256 mm) [12 pts]	0% 0%
GRAVEL (2-64 mm) [9 pts]	0% 10
Total of Percentages of 10 00% (A) Substrate Percentage 100%	(B) A + B
Bldr Slabs, Boulder, Cobble, Bedrock	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evalua	tion reach at the time of Pool Dept
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 CHA	ANNEL [0 pts]
COMMENTS MAXIMUM POOL DEF	
COMMENTS MAXIMUM FOOL DEP	PTH (Inches): 0.00
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY	one box):  Bankfull
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8"	one box):  Bankfull
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY	one box):   Bankfull   Width
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY  > 4.0 meters (> 13') [30 pts]  > 1.0 m - 1.5 m (> 3' 3" - 4' 8"  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]   ✓ ≤ 1.0 m (<=3' 3") [5 pts]	one box):    [15 pts]   Width   Max=30
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8" ≤ 1.0 m (<=3' 3") [5 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS AVERAGE BANKFUL	one box):   Bankfull   Width   Max=30
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY > 4.0 meters (> 13') [30 pts]	one box): ) [15 pts]  Bankfull Width Max=30  L WIDTH (Feet): 2.00
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R  RIPARIAN WIDTH  FLOODPLAIN QUALITY	one box): ) [15 pts]  Bankfull Width Max=30  L WIDTH (Feet): 2.00  5
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY  > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ∴ NOTE: River Left (L) and Right (R  RIPARIAN WIDTH  L R (Per Bank)  L R (Most Predominant per Bank)  L R	one box): ) [15 pts]  Bankfull Width Max=30  L WIDTH (Feet): 2.00  5
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ♣ NOTE: River Left (L) and Right (R  RIPARIAN WIDTH  L R (Per Bank)  Wide >10m  Mature Forest, Wetland    Moderate 5-10m    Moderate 5-10m	one box): ) [15 pts]  Bankfull Width Max=30  L WIDTH (Feet): 2.00  5
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R  RIPARIAN WIDTH  L R (Per Bank)  Wide >10m  Wide >10m  Mature Forest, Wetland  Immature Forest, Shrub or Old  Field	one box): Description
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY 1	one box): Description
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R  RIPARIAN WIDTH  L R (Per Bank)  Wide >10m  Wide >10m  Mature Forest, Wetland  Immature Forest, Shrub or Old  Field	one box): Description
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8" ≤ 1.0 m (<=3' 3") [5 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS AVERAGE BANKFUL  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE: River Left (L) and Right (R RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank) L R (Most Predominant per Bank) L R (Per Bank) Mature Forest, Wetland Mature Forest, Shrub or Old Field  Narrow <5m Residential, Park, New Field  None Fenced Pasture	one box): Description
BANK FULL WIDTH (Measured as the average of 3-4 measurements)  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ♣ NOTE: River Left (L) and Right (R  RIPARIAN WIDTH  FLOODPLAIN QUALITY  ♣ NOTE: River Left (L) and Right (R  RIPARIAN WIDTH  FLOODPLAIN QUALITY  ♣ (Per Bank)  Wide >10 m  Mature Forest, Wetland  Moderate 5-10 m  None  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Moist Channel, isolati	one box):  Description one box):  Description one box):  Bankfull Width Max=30  L WIDTH (Feet): 2.00  Solution of Industrial Open Pasture, Row Crop  Mining or Construction  Mining or Construction
BANK FULL WIDTH (Measured as the average of 3-4 measurements)  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ♣ NOTE: River Left (L) and Right (R  RIPARIAN WIDTH  FLOODPLAIN QUALITY  ♣ NOTE: River Left (L) and Right (R  RIPARIAN WIDTH  FLOODPLAIN QUALITY  ♣ (Per Bank)  Wide >10 m  Mature Forest, Wetland  Moderate 5-10 m  None  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Moist Channel, isolati	one box):  Description one box):  Description one box):  Bankfull Width Max=30  L WIDTH (Feet): 2.00  Solution of Industrial Open Pasture, Row Crop  Mining or Construction  Mining or Construction
BANK FULL WIDTH (Measured as the average of 3-4 measurements)  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R  RIPARIAN WIDTH  FLOODPLAIN QUALITY  Wide > 10m  Mature Forest, Wetland  Moderate 5-10m  Narrow < 5m  Narrow < 5m  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	one box):    15 pts   Bankfull Width Max=30   L WIDTH (Feet): 2.00   5    as looking downstream ☆   Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction   Mining or Construction   Conservation   C
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements)  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  **NOTE: River Left (L) and Right (R RIPARIAN WIDTH  L R (Per Bank)  Wide >10 m  Mature Forest, Wetland  Wide >10 m  Mature Forest, Wetland  Moderate 5-10 m  Narrow <5 m  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS  Moist Channel, isolated  Dry channel, no water	one box):  Description one box):  Description one box):  Bankfull Width Max=30  L WIDTH (Feet): 2.00  Solution of Industrial Open Pasture, Row Crop  Mining or Construction  Mining or Construction
BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8" > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank) L R (Most Predominant per Bank) L R (Most Predominant per Bank) L R (Most Predominant per Bank) Residential, Park, New Field  Narrow <5m Residential, Park, New Field  None Residential, Park, New Field  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing Subsurface flow with isolated pools (Interstitial)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None 1.0 2.0 2.5	one box):    15 pts   Bankfull Width Max=30   L WIDTH (Feet): 2.00   5    as looking downstream
BANK FULL WIDTH (Measured as the average of 3-4 measurements)  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY %NOTE: River Left (L) and Right (R  RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank) L R (Most Predominant per Bank) L Wide >10m Mature Forest, Wetland  Moderate 5-10m Mature Forest, Shrub or Old Field  Narrow <5m Residential, Park, New Field  None Residential, Park, New Field  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None 1.0 (Check ONLY one box):  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None 1.0 (Check ONLY one box):	one box):    15 pts   Bankfull Width Max=30   L WIDTH (Feet): 2.00   5    as looking downstream

ADDITIONAL STREAM INFORMATION (This Information Must Also be Complete	ed):
QHEI PERFORMED? - Yes ✓ No QHEI Score (If Yes	s, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
EWH Name: Jonathan Creek	Distance from Evaluated Stream1.80
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATER	SHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name:   Glenford   NRCS Soil N	Map Page: NRCS Soil Map Stream Order
County: Perry Township / City:	opewell
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation: 06/04/20	Quantity: 0.75
Photograph Information:	
Elevated Turbidity? (Y/N): Canopy (% open): 50%	
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. c	or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.t	J.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain	n:
Additional comments/description of pollution impacts:	
BANK Stability LOW	MODERATE HIGH
ID number. Include appropriate field data sheets from the Fish Observed? (Y/N) N Salamanders Observed? (Y/N)	
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections op ID number. Include appropriate field data sheets from the Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinver Comments Regarding Biology:	he Primary Headwater Habitat Assessment Manual)  N Voucher? (Y/N)  tebrates Observed? (Y/N)  N Voucher? (Y/N)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections on ID number. Include appropriate field data sheets from the Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinver Comments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF STREAM	he Primary Headwater Habitat Assessment Manual)  N) N Voucher? (Y/N) N Vou
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections op ID number. Include appropriate field data sheets from the Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinver Comments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF STREAT Include important landmarks and other features of interest for site evaluation. Woods	he Primary Headwater Habitat Assessment Manual)  N) N Voucher? (Y/N) N Vou
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections op ID number. Include appropriate field data sheets from the Fish Observed? (Y/N) N Salamanders Observed? (Y/N) Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinver Comments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF STREATING Include important landmarks and other features of interest for site evaluation.	he Primary Headwater Habitat Assessment Manual)  N) N Voucher? (Y/N) N Vou
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections op ID number. Include appropriate field data sheets from the Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinver Comments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF STREAT Include important landmarks and other features of interest for site evaluation. Woods	he Primary Headwater Habitat Assessment Manual)  N) N Voucher? (Y/N) N Vou



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 058

Date:

June 11, 2020

**Description:** 

Ephemeral

**Ephemeral Stream** 

Facing Upstream



#### Stream 058

Date:

June 11, 2020

#### **Description:**

Ephemeral

**Ephemeral Stream** 





**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 058

Date:

June 11, 2020

**Description:** 

Ephemeral

Ephemeral Stream





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

20
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SITE NAME/LOCATION   AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project	
s-aeh-20200611-04 SITE NUMBER RIVER BASIN Muskingum DRAINAGE AREA (mi²)	0.01
LENGTH OF STREAM REACH (ft) 75 LAT. 39.89641 LONG82.25253 RIVER CODE RIVER MILE	0.13
DATE 06/11/20 SCORER AEH COMMENTS ephemeral	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Ins	tructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO REMODIFICATIONS: by field. junk left in stream	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE  PERCENT  PERCENT	HHEI   Metric
□ □ BLDR SLABS [16 pts]	Points
BOULDER (>256 mm) [16 pts]	Substrate
COBBLE (65-256 mm) [12 pts] 5% CLAY or HARDPAN [0 pt] 0%	Max = 40
GRAVEL (2-64 mm) [9 pts] 15% MUCK [0 pts] 0%	10
SAND (<2 mm) [6 pts]	
Total of Percentages of 5.00% (A) Substrate Percentage Check (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 TOTAL NUMBER OF SUBSTRATE TYPES: 4	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Depth
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]	Max = 30
> 22.5 - 30 cm [30 pts] < 5 cm [5 pts]	
	5
COMMENTS MAXIMUM POOL DEPTH (Inches): 1.00	
BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull
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]	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]	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]	Width
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONL Y one box):  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet): 2.00	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]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet): 2.00  This information must also be completed	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]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet): 2.00  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream ARIPARIAN WIDTH  FLOODPLAIN QUALITY	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]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  AVERAGE BANKFULL WIDTH (Feet):  2.00  This information pust also be completed  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  L R (Most Predominant per Bank)  L R	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]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ♣NOTE: River Left (L) and Right (R) as looking downstream ♣  RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank)	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]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet): 2.00  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆  RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank) L R (Most Predominant per Bank) L R  Wide >10 m  Mature Forest, Wetland Conservation Tillage    Moderate 5-10m   Mature Forest, Shrub or Old   Urban or Industrial Field   Conservation Field   Conse	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] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet): 2.00  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆ NOTE: River Left (L) and Right (R) as looking downstream ☆ RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank) L R (Most Predominant per Bank) Wide >10m Mature Forest, Wetland Wide >10m Mature Forest, Shrub or Old Field Narrow <5m Residential, Park, New Field Open Pasture, Row Completed  RIPARIAN WIDTH Conservation Tillage Urban or Industrial Open Pasture, Row Completed RIPARIAN WIDTH Residential, Park, New Field Open Pasture, Row Completed RIPARIAN WIDTH Residential, Park, New Field Open Pasture, Row Completed RIPARIAN WIDTH Residential, Park, New Field Open Pasture, Row Completed RIPARIAN WIDTH Residential, Park, New Field Open Pasture, Row Completed RIPARIAN WIDTH Residential, Park, New Field Open Pasture, Row Completed RIPARIAN WIDTH Residential, Park, New Field Open Pasture, Row Completed RIPARIAN WIDTH Residential, Park, New Field	Width Max=30  5
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet): 2.00  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆  RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank) L R (Most Predominant per Bank) L R  Wide >10 m  Mature Forest, Wetland Conservation Tillage    Moderate 5-10m   Mature Forest, Shrub or Old   Urban or Industrial Field   Conservation Field   Conse	Width Max=30  5
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  AVERAGE BANKFULL WIDTH (Feet):  2.00  This information must also be completed  RIPARIAN WIDTH  FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream And RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  Wide >10 m  Mature Forest, Wetland  Wide >10 m  Mature Forest, Shrub or Old  Immature Forest, Shrub or Old  Field  Narrow <5m  Residential, Park, New Field  Mining or Construction	Width Max=30  5
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7' - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7' - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream And Floodplain Quality  L R (Per Bank) Wide > 10m Mature Forest, Wetland Wide > 10m Moderate 5-10m Moderate 5-10m Residential, Park, New Field Open Pasture, Row Completed  Residential, Park, New Field None COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Moist Channel, isolated pools, no flow (Intermitter)	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] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet):  2.00  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY *NOTE: River Left (L) and Right (R) as looking downstream *Note: Riparian Note: Ri	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]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream And Plank Predominant per Bank)  RIPARIAN WIDTH  L R (Per Bank)  Wide >10 m  Mature Forest, Wetland  Mature Forest, Wetland  Moderate 5-10 m  Narrow <5 m  Residential, Park, New Field  None  COMMENTS  Funced Pasture  Mining or Construction  COMMENTS  Moist Channel, isolated pools, no flow (Intermitter Dry channel, no water (Ephemeral))  COMMENTS  Moist Channel, isolated pools, no flow (Intermitter Dry channel, no water (Ephemeral))	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] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9" 7" - 4" 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream And RIPARIAN WIDTH L R (Per Bank) Wide > 10m Mature Forest, Wetland Wide > 10m Mature Forest, Wetland Wide > 10m Moderate 5-10m None Residential, Park, New Field Open Pasture, Row Completed None FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None  2.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3	Width Max=30
BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  **NOTE: River Left (L) and Right (R) as looking downstream:*  RIPARIAN WIDTH  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Wide >10m  Mature Forest, Shrub or Old  Field  Narrow <5m  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None  0.5  None  1.0  2.0  3.0  3.0  3.0  3.0  3.0  3.0  3	Width Max=30
BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream And RIPARIAN WIDTH L R (Per Bank) Wide > 10m Mature Forest, Wetland Wide > 10m Mature Forest, Wetland Moderate 5-10m Moderate 5-10m Residential, Park, New Field None COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None  2.0 3.0	Width Max=30  5

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Atta	ch Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
CWH Name:lonathan Crook	Distance from Evaluated Stream  Distance from Evaluated Stream  1.80
EWH Name: Jonathan Creek	Distance from Evaluated Stream1.80
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED	AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Glenford NRCS Soil Map P	age: NRCS Soil Map Stream Order
County: Perry Township / City: Hopew	rell
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation: 06/04/20	Quantity: 0.75
Photograph Information:	
Elevated Turbidity? (Y/N): Canopy (% open): 50%	
Were samples collected for water chemistry? (Y/N): Note lab sample no. or id. a	and attach results) Lab Number:
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:  BANK Stability  LOW  MO	DDERATE HIGH
DANK Stability	
BIOTIC EVALUATION	
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional	. NOTE: all voucher samples must be labeled with the sit
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pri	. NOTE: all voucher samples must be labeled with the sit
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pri Fish Observed? (Y/N) N Salamanders Observed? (Y/N) N	. NOTE: all voucher samples must be labeled with the sit mary Headwater Habitat Assessment Manual)  Voucher? (Y/N)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pri Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Aquatic Macroinvertebrate	. NOTE: all voucher samples must be labeled with the sit mary Headwater Habitat Assessment Manual)  Voucher? (Y/N)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pri Fish Observed? (Y/N) N Salamanders Observed? (Y/N) N	. NOTE: all voucher samples must be labeled with the sit mary Headwater Habitat Assessment Manual)  Voucher? (Y/N)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pri Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Aquatic Macroinvertebrate	. NOTE: all voucher samples must be labeled with the sit mary Headwater Habitat Assessment Manual)  Voucher? (Y/N)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pri Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Aquatic Macroinvertebrate	. NOTE: all voucher samples must be labeled with the sit mary Headwater Habitat Assessment Manual)  Voucher? (Y/N)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pri Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Aquatic Macroinvertebrate	. NOTE: all voucher samples must be labeled with the sit mary Headwater Habitat Assessment Manual)  Voucher? (Y/N)  N  Voucher? (Y/N)  Voucher? (Y/N)
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pri Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrat Comments Regarding Biology:	NOTE: all voucher samples must be labeled with the sit mary Headwater Habitat Assessment Manual)  Voucher? (Y/N)  N  Voucher? (Y/N)  Voucher? (Y/N)  N  REACH (This must be completed):
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pri Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrat Comments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF STREAM R	NOTE: all voucher samples must be labeled with the sit mary Headwater Habitat Assessment Manual)  Voucher? (Y/N)  N  Voucher? (Y/N)  Voucher? (Y/N)  N  REACH (This must be completed):
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pri Fish Observed? (Y/N) N Salamanders Observed? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF STREAM R Include important landmarks and other features of interest for site evaluation and	NOTE: all voucher samples must be labeled with the sit mary Headwater Habitat Assessment Manual)  Voucher? (Y/N)  N  Voucher? (Y/N)  Voucher? (Y/N)  N  REACH (This must be completed):
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pri Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrat Comments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF STREAM R	NOTE: all voucher samples must be labeled with the sit mary Headwater Habitat Assessment Manual)  Voucher? (Y/N)  N  Voucher? (Y/N)  Voucher? (Y/N)  N  REACH (This must be completed):
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pri Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF STREAM Research Include important landmarks and other features of interest for site evaluation and field	NOTE: all voucher samples must be labeled with the sit mary Headwater Habitat Assessment Manual)  Voucher? (Y/N)  N  Voucher? (Y/N)  Voucher? (Y/N)  REACH (This must be completed):  d a narrative description of the stream's location
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pri Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF STREAM Research Include important landmarks and other features of interest for site evaluation and field	NOTE: all voucher samples must be labeled with the sit mary Headwater Habitat Assessment Manual)  Voucher? (Y/N)  N  Voucher? (Y/N)  Voucher? (Y/N)  N  REACH (This must be completed):
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pri Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF STREAM Research Include important landmarks and other features of interest for site evaluation and field	NOTE: all voucher samples must be labeled with the sit mary Headwater Habitat Assessment Manual)  Voucher? (Y/N)  N  Voucher? (Y/N)  Voucher? (Y/N)  REACH (This must be completed):  d a narrative description of the stream's location
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pri Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF STREAM Research Include important landmarks and other features of interest for site evaluation and field	NOTE: all voucher samples must be labeled with the sit mary Headwater Habitat Assessment Manual)  Voucher? (Y/N)  N  Voucher? (Y/N)  Voucher? (Y/N)  REACH (This must be completed):  d a narrative description of the stream's location



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 059

Date:

June 11, 2020

**Description:** 

Ephemeral

Modified Ephemeral Stream

Facing Upstream



#### Stream 059

Date:

June 11, 2020

#### **Description:**

Ephemeral

Modified Ephemeral Stream





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 059

Date:

June 11, 2020

**Description:** 

Ephemeral

Modified Ephemeral Stream



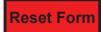


### **ChieFP** Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project	
s-aeh-20200611-03 SITE NUMBER RIVER BASIN Muskingum DRAINAGE AREA (mi²)	0.03
LENGTH OF STREAM REACH (ft) 200 LAT. 39.89869 LONG82.25401 RIVER CODE RIVER MILE	
DATE 06/11/20 SCORER AEH COMMENTS intermittent	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Inst	ructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING RECOVERING RECENT OR NO RECOVERING RECENT OR NO RECOVERING R	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE  PERCENT  TYPE  PERCENT	HHEI   Metric
□ □ BLDR SLABS [16 pts] □ □ SILT [3 pt] 30%	Points
BOULDER (>256 mm) [16 pts]  BEDROCK [16 pt]  30%  LEAF PACK/WOODY DEBRIS [3 pts]  0%  FINE DETRITUS [3 pts]	Substrate
BEDROCK [16 pt]	Max = 40
GRAVEL (2-64 mm) [9 pts] 30% MUCK [0 pts] 0%	20
SAND (<2 mm) [6 pts]	29
Total of Percentages of 40.00% (A) Substrate Percentage 100% (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dep
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]	15
COMMENTS MAXIMUM POOL DEPTH (Inches): 3.00	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankful
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]	Width
	Bankful Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Width Max=30
> 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] \( \leq 1.0 m (<=3' 3") [5 pts]	Width
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet): 4.00  This information must also be completed	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet): 4.00  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet): 4.00  This information must also be completed	Width Max=30
> 4.0 meters (> 13') [30 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]   ≤ 1.0 m (<=3' 3") [5 pts]   ≤ 1.0	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet): 4.00  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream  RIPARIAN WIDTH  L R (Per Bank)  L R (Most Predominant per Bank)  L R	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet): 4.00  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ♣NOTE: River Left (L) and Right (R) as looking downstream ♣  RIPARIAN WIDTH  L R (Per Bank) L R (Most Predominant per Bank) Wide >10m Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Virtual or Industrial	Width Max=30
> 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]   > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]     COMMENTS	Width Max=30
> 4.0 meters (> 13') [30 pts]     > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]     > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream A RIPARIAN WIDTH  L R (Per Bank)  Wide >10 m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  None  COMMENTS  Fenced Pasture  Residential, Park, New Field  Flow REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Moist Channel, isolated pools, no flow (Intermitten)	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream A RIPARIAN WIDTH  L R (Per Bank)  L R (Most Predominant per Bank)  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Residential, Park, New Field  Open Pasture, Row Completed  RIPARIAN WIDTH  FLOODPLAIN QUALITY  Residential, Park, New Field  Open Pasture, Row Completed  RIPARIAN WIDTH  FLOODPLAIN QUALITY  Residential, Park, New Field  Open Pasture, Row Completed  RIPARIAN WIDTH  FROODPLAIN QUALITY  Residential, Park, New Field  Open Pasture, Row Completed  Mining or Construction  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Moist Channel, isolated pools, no flow (Intermittent)	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Residential, Park, New Field  None  COMMENTS  Flow REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  None water (Ephemeral)	Width Max=30
A to meters (> 13') [30 pts]   Sinuosity [15 pts]   Sinuosity (Number of bends per 61 m (200 ft) of channel, isolated pools, no flow (Intermittent None Park Intermittent Park Intermittent None Park Intermittent None Park Intermittent None Park Intermittent Park Intermittent None Park Intermittent Park Intermittent None Park Intermittent None Park Intermittent Park Intermittent Park Intermittent Park Intermittent Park Intermittent Intermittent Park Intermitent Park Intermitent Park Inte	Width Max=30
AVERAGE BANKFULL WIDTH (Feet):  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  ANOTE: River Left (L) and Right (R) as looking downstream  RIPARIAN WIDTH  FLOODPLAIN QUALITY  Moderate 5-10m  Moderate 5-10m  Moderate 5-10m  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	Width Max=30
A to meters (> 13') [30 pts]   Sinuosity [15 pts]   Sinuosity (Number of bends per 61 m (200 ft) of channel, isolated pools, no flow (Intermittent None Park Intermittent Park Intermittent None Park Intermittent None Park Intermittent None Park Intermittent Park Intermittent None Park Intermittent Park Intermittent None Park Intermittent None Park Intermittent Park Intermittent Park Intermittent Park Intermittent Park Intermittent Intermittent Park Intermitent Park Intermitent Park Inte	Width Max=30

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes ✓ No QHEI Score (If Yes, Attach Completed QHEI Form)	
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Distance from Evaluated Stream	-
CWH Name: Distance from Evaluated Stream	+
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION  Glenford	
USGS Quadrangle Name: NRCS Soil Map Page: NRCS Soil Map Stream Order	
County: Township / City:	
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Pate of last precipitation: Quantity: 75.00	
Photograph Information:	
Elevated Turbidity? (Y/N): Canopy (% open): 90%	
Were samples collected for water chemistry? (Y/N): Note lab sample no. or id. and attach results) Lab Number:	
Field Measures: Temp (°C) Dissolved Oxygen (ma/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:	
BANK Stability LOW MODERATE HIGH	
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  Fish Observed? (Y/N) N Voucher? (Y/N) N	e site
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's location.	<b></b>
FLOW -	woods
	woods
herb/ shrubby	





**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 060

Date:

June 11, 2020

**Description:** 

Intermittent

Modified Small Drainage Warmwater Stream

Facing Upstream



#### Stream 060

Date:

June 11, 2020

#### **Description:**

Intermittent

Modified Small Drainage Warmwater Stream





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 060

Date:

June 11, 2020

**Description:** 

Intermittent

Modified Small Drainage Warmwater Stream





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

SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project	
s-aeh-20200611-02 SITE NUMBER RIVER BASIN Muskingum DRAINAGE AREA (mi²) 0.	.01
LENGTH OF STREAM REACH (ft) 200 LAT. 39.89886 LONG82.25420 RIVER CODE RIVER MILE 0.	
DATE 06/11/20 SCORER AEH/SKM COMMENTS ephemeral	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	uctions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOMMODIFICATIONS:	OVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE  PERCENT  TYPE  PERCENT	HHEI Metric
BLDR SLABS [16 pts]	Points
BOULDER (>256 mm) [16 pts]  BEDROCK [16 pt]  0%  LEAF PACK/WOODY DEBRIS [3 pts]  0%  FINE DETRITUS [3 pts]  0%	Substrate
COBBLE (65-256 mm) [12 pts] 15% CLAY or HARDPAN [0 pt] 0%	Max = 40
GRAVEL (2-64 mm) [9 pts]	10
SAND (<2 mm) [6 pts] ARTIFICIAL [3 pts]	
Total of Percentages of 15.00% (A) Substrate Percentage (B) Check	A + B
Bldr Slabs, Boulder, Cobble, Bedrock	
2. 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):  > 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	Max = 30
> 22.5 - 30 cm [30 pts] < 5 cm [5 pts]	
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	0
COMMENTS MAXIMUM POOL DEPTH (Inches): 0.00	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	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] ≤ 1.0 m (<=3' 3") [5 pts]	Width
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet): 1.00  This information must also be completed	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet): 1.00	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVERAGE BANKFULL WIDTH (Feet): 1.00  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆  RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank) L R (Most Predominant per Bank) L R	Width Max=30
> 4.0 meters (> 13') [30 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]   ≤ 1.0 m (<=3' 3") [5 pts]   ≤ 1.0	Width Max=30
> 4.0 meters (> 13') [30 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]   ≤ 1.0 m (<=3' 3") [5 pts]   ≤ 1.0	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ∴ NOTE: River Left (L) and Right (R) as looking downstream ∴ RIPARIAN WIDTH  L R (Per Bank)  L R (Most Predominant per Bank)  Wide >10m  Mature Forest, Wetland  Conservation Tillage  Immature Forest, Shrub or Old  Urban or Industrial	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  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 River Left (L) and Right (R) as looking downstream ANOTE: River Left (L) an	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ♣ NOTE: River Left (L) and Right (R) as looking downstream ♣  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Wide >10m  Moderate 5-10m  Narrow <5m  Narrow <5m  Residential, Park, New Field  None  COMMENTS  > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]  > 1.0 m (<=3' 3") [5 pts]  > 1.0 m (<=3' 3") [5 pts]    X   S   S   S     X   S   S     X   S   S     X   S   S     X   S   S     X   S   S     X   S   S     X	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ★NOTE: River Left (L) and Right (R) as looking downstream ★  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Wide >10m  Mature Forest, Wetland  Wide >10m  Narrow <5m  Narrow <5m  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Moist Channel, isolated pools, no flow (Intermittent)	Width Max=30
> 4.0 meters (> 13') [30 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  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)  Wide >10m  Mature Forest, Wetland  Wide >10m  Mature Forest, Shrub or Old  Field  Narrow <5m  Narrow <5m  Residential, Park, New Field  Open Pasture, Row Cro  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS  None (Ephemeral)  COMMENTS	Width Max=30
AVERAGE BANKFULL WIDTH (Feet): 1.00  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY	Width Max=30
> 4.0 meters (> 13') [30 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]   > 1.0 m (<=3' 3") [5 pts]   > 1.5 m - 3.0 m (> 9' 7" - 13') [25 pts]   > 1.5 m - 3.0 m (> 9' 7" - 14' 8") [20 pts]	Width Max=30
AVERAGE BANKFULL WIDTH (Feet): 1.00  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY	Width Max=30

QHEI PERFORMED? -	Yes No QHEI Score(If	Yes, Attach Completed QHEI Form	)
DOWNSTREAM DESIGN	NATED USE(S)		
WWH Name:		Distance from Evaluate	d Stream
CWH Name:		Distance from Evaluated	
EWH Name: _oonathan oreek		Distance from Evaluated	i Stream _ 1.90
MAPPING: ATTACH COR	PIES OF MAPS, INCLUDING THE ENTIRE WA	TERSHED AREA. CLEARLY MARK	THE SITE LOCATION
USGS Quadrangle Name:	'd NRCS S	oil Map Page: NRCS Soil	Map Stream Order
County: Perry	Township / City:	Hopewell	
MISCELLANEOUS			
Y	06/04/2	20 Quantitu 0.75	
Base Flow Conditions? (Y/N):	Date of last precipitation:	Quantity: 0.73	
Photograph Information:			
Elevated Turbidity? (Y/N):	Canopy (% <u>open</u> ): <b>0%</b>		
Were samples collected for water of		no. or id. and attach results) Lab Nu	mher:
Field Measures: Temp (°C)	Dissolved Oxygen (ma/l) pH	(S.U.) Conductivity (µmh	os/cm)
Is the sampling reach representative	re of the stream (Y/N) If not, please ex	φlain:	
Additional comments/description or	f nellution impacts:		
BANK Stability	LOW	MODERATE 🗸	HIGH
		<u> </u>	
BIOTIC EVALUATION			
Performed? (Y/N): N (If Y	es, Record all observations. Voucher collection	ns optional. NOTE: all voucher sample	es must be labeled with
ID n	number. Include appropriate field data sheets fro	om the Primary Headwater Habitat Ass	sessment Manual)
Fish Observed? (Y/N) N Vou	ucher? (Y/N) N Salamanders Observed?	(Y/N) N Voucher? (Y/N) N	N
Frogs or Tadpoles Observed? (Y/N	ucher? (Y/N) N Salamanders Observed?  N Voucher? (Y/N) N Aquatic Macroin	(Y/N) N Voucher? (Y/N) N voucher? (Y/N) N	Voucher? (Y/N)
Fish Observed? (Y/N) N Vou Frogs or Tadpoles Observed? (Y/N Comments Regarding Biology:	scher? (Y/N) N Salamanders Observed?  N Voucher? (Y/N) N Aquatic Macroin	(Y/N) N Voucher? (Y/N) N vertebrates Observed? (Y/N) N	Voucher? (Y/N)
Frogs or Tadpoles Observed? (Y/N	Icher? (Y/N) N Salamanders Observed?  N Voucher? (Y/N) N Aquatic Macroin	(Y/N) N Voucher? (Y/N) N vertebrates Observed? (Y/N) N	Voucher? (Y/N)
Frogs or Tadpoles Observed? (Y/N	Icher? (Y/N) N Salamanders Observed?  N Voucher? (Y/N) N Aquatic Macroin	(Y/N) N Voucher? (Y/N) N voucher? (Y/N) N	Voucher? (Y/N)
Comments Regarding Biology:	N Voucher? (Y/N) N Aquatic Macroir	N	Voucher? (Y/N)
Comments Regarding Biology:  DRAWING AND N	NARRATIVE DESCRIPTION OF STE	REAM REACH (This must be	e completed):
Comments Regarding Biology:  DRAWING AND N  Include important landmarks	N Voucher? (Y/N) N Aquatic Macroir	REAM REACH (This must be	e completed):
Comments Regarding Biology:  DRAWING AND N  Include important landmarks	NARRATIVE DESCRIPTION OF STE	REAM REACH (This must be uation and a narrative description	e completed):
Comments Regarding Biology:  DRAWING AND N  Include important landmarks	NARRATIVE DESCRIPTION OF STE	REAM REACH (This must be uation and a narrative description	e completed):
Comments Regarding Biology:  DRAWING AND N	NARRATIVE DESCRIPTION OF STE	REAM REACH (This must be uation and a narrative description	e completed):
Comments Regarding Biology:  DRAWING AND N  Include important landmarks	NARRATIVE DESCRIPTION OF STE	REAM REACH (This must be uation and a narrative description	e completed):
Comments Regarding Biology:  DRAWING AND N  Include important landmarks	NARRATIVE DESCRIPTION OF STE	REAM REACH (This must be uation and a narrative description	e completed):



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 061

Date:

June 11, 2020

**Description:** 

Ephemeral

Ephemera Stream

Facing Upstream



#### Stream 061

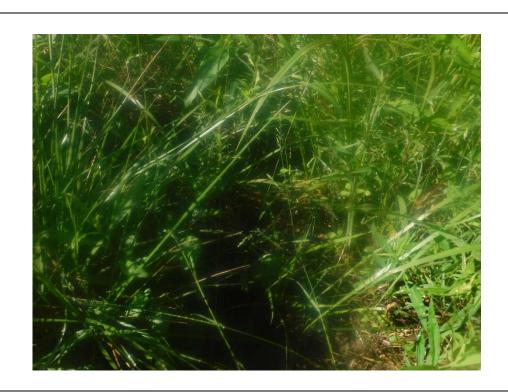
Date:

June 11, 2020

**Description:** 

Ephemeral

Ephemera Stream





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 061

Date:

June 11, 2020

**Description:** 

Ephemeral

Ephemera Stream





# Primary Headwater Habitat Evaluation Form

		HEI Score (sum of m	
SITE NAME/LOCATION AEP-Crooksvil			ild Project
s-aeh-20200610-13 SITE NUMBER	RIVER BASIN	Muskingum	RAINAGE AREA (mi²) 0.13
LENGTH OF STREAM REACH (ft) 200	LAT. <b>39.90031</b> LONG	82.25520 RIVER CODE	RIVER MILE 0.09
OATE 06/10/20 SCORER AEH	COMMENTS	nittent	
NOTE: Complete All Items On This Fo	orm - Refer to "Field Evaluati	on Manual for Ohio's PH\	VH Streams" for Instructio
STREAM CHANNEL NONE / IMPORTATIONS:   Culverted	NATURAL CHANNEL RECOV	/ERED	RECENT OR NO RECOVER
. SUBSTRATE (Estimate percent of		<del></del> ·	
(Max of 32). Add total number of sign	ificant substrate types found (Max  PERCENT TYPE	of 8). Final metric score is sun	n of boxes A & B.  PERCENT
BLDR SLABS [16 pts]		Γ [3 pt]	40% PC
BOULDER (>256 mm) [16 pts]		F PACK/WOODY DEBRIS [3	pts] 0% Sub
BEDROCK [16 pt]		E DETRITUS [3 pts]	0% Ma
COBBLE (65-256 mm) [12 pts]  GRAVEL (2-64 mm) [9 pts]	100/	Y or HARDPAN [0 pt] CK [0 pts]	0%
SAND (<2 mm) [6 pts]		TFICIAL [3 pts]	0%
Total of Percentages of		rrate Percentage	(B) A
Bldr Slabs, Boulder, Cobble, Bedrock	Chec	100%	
CORE OF TWO MOST PREDOMINATE SU	BSTRATE TYPES: 12	TOTAL NUMBER OF SUBST	RATE TYPES: 3
Maximum Pool Depth (Measure the			
evaluation. Avoid plunge pools from		,	Ma
> 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts]		5 cm - 10 cm [15 pts] 5 cm [5 pts]	
> 10 - 22.5 cm [25 pts]		WATER OR MOIST CHANN	EL [0 pts] 2
COMMENTS		MAXIMUM POOL DEPTH	(Inches): 5.00
BANK FULL WIDTH (Measured as > 4.0 meters (> 13') [30 pts]		(Check ONLY one .0 m - 1.5 m (> 3' 3" - 4' 8") [15	· · · · · · · · · · · · · · · · · · ·
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]		1.0 m (<=3' 3") [5 pts]	Ma
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]		_	
COMMENTS		AVERAGE BANKFULL W	IDTH (Feet): 4.00     1
	This information mu		
RIPARIAN ZONE AND FLOC RIPARIAN WIDTH	FLOODPLAIN QUALITY  FLOODPLAIN QUALITY	River Left (L) and Right (R) as	looking downstream &
L R (Per Bank)	L R (Most Predominal		
Wide >10m	Mature Forest, W		Conservation Tillage
✓ ✓ Moderate 5-10m	Immature Forest, Field	Shrub or Old	Urban or Industrial
Narrow <5m	Residential, Park,	New Field	Open Pasture, Row Crop
None Nanow Sill	Fenced Pasture		Mining or Construction
COMMENTS	renced Pasture		Mining or Construction
ELOW BECIME (A4 Time 5)	Evaluation) (Charle CAU V === 1	v).	
Stream Flowing	Evaluation) (Check ONLY one box	7	ools, no flow (Intermittent)
Subsurface flow with isolated	pools (Interstitial)	Dry channel, no water (E	,
COMMENTS_			
SINUOSITY (Number of beng	s per 61 m (200 ft) of channel) (0	Check ONLY one box):	
None	<b>∠</b> 1.0 ` ´ _	2.0	3.0
`	<b>¬</b> ' ' ' <b>¬</b>	′ F	3.0 >3
None	<b>∠</b> 1.0 ` ´ _	2.0	=

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed)	<u>):</u>	
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, A	Attach Completed QHEI Form)	
DOWNSTREAM DESIGNATED USE(S)		
WWH Name:	Distance from Evaluated Stream	
CWH Name:	Distance from Evaluated Stream	1.10
EWH Name: Jonathan Creek	Distance from Evaluated Stream _	1.40
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSH	HED AREA. CLEARLY MARK THE SITE	LOCATION
USGS Quadrangle Name: Glenford NRCS Soil Maj	p Page: NRCS Soil Map Strea	am Order
County: Licking Township / City: New	vark	
MISCELLANEOUS		
Base Flow Conditions? (Y/N): Y Date of last precipitation: 06/05/20	Quantity: 0.73	
Photograph Information:		
Elevated Turbidity? (Y/N): Canopy (% open): 80%		
Were samples collected for water chemistry? (Y/N): Note lab sample no. or id	d. and attach results) Lab Number:	
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:		
Additional comments/description of pollution impacts:  BANK Stability  LOW	MODERATE HIG	ЭН
BIOTIC EVALUATION  Performed? (Y/N):  N  (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the Fish Observed? (Y/N)  Frogs or Tadpoles Observed? (Y/N)  N  Voucher? (Y/N)  N  Aquatic Macroinverteb	onal. NOTE: all voucher samples must be Primary Headwater Habitat Assessment	e labeled with the site Manual)
BIOTIC EVALUATION  Performed? (Y/N):  N  (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the Fish Observed? (Y/N)  N  Voucher? (Y/N)  N  Salamanders Observed? (Y/N)	onal. NOTE: all voucher samples must be Primary Headwater Habitat Assessment  N  Voucher? (Y/N)	e labeled with the site Manual)
BIOTIC EVALUATION  Performed? (Y/N):  N  (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the Fish Observed? (Y/N)  Frogs or Tadpoles Observed? (Y/N)  N  Voucher? (Y/N)  N  Aquatic Macroinverteb	onal. NOTE: all voucher samples must be Primary Headwater Habitat Assessment  N  Voucher? (Y/N)	e labeled with the site Manual)
BIOTIC EVALUATION  Performed? (Y/N):  N  (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the Fish Observed? (Y/N)  Frogs or Tadpoles Observed? (Y/N)  N  Voucher? (Y/N)  N  Aquatic Macroinverteb	onal. NOTE: all voucher samples must be Primary Headwater Habitat Assessment  N  Voucher? (Y/N)	e labeled with the site Manual)
BIOTIC EVALUATION  Performed? (Y/N):  N  (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the Fish Observed? (Y/N)  Frogs or Tadpoles Observed? (Y/N)  N  Voucher? (Y/N)  Voucher? (Y/N)  Aquatic Macroinvertebers.	onal. NOTE: all voucher samples must be Primary Headwater Habitat Assessment  N Voucher? (Y/N)  brates Observed? (Y/N)  N Voucher	e labeled with the site Manual) ? (Y/N)
BIOTIC EVALUATION  Performed? (Y/N):  N  (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the Fish Observed? (Y/N)  Frogs or Tadpoles Observed? (Y/N)  N  Voucher? (Y/N)  N  Aquatic Macroinverteb	onal. NOTE: all voucher samples must be Primary Headwater Habitat Assessment  N Voucher? (Y/N)  brates Observed? (Y/N)  N Voucher  Voucher	e labeled with the site Manual)  ? (Y/N)  N  leted):
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the Fish Observed? (Y/N) N Salamanders Observed? (Y/N) Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinverteb Comments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF STREAM Include important landmarks and other features of interest for site evaluation	Primary Headwater Habitat Assessment  N Voucher? (Y/N)  Prates Observed? (Y/N)  N Voucher	e labeled with the site Manual)  ? (Y/N)  N  leted):
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the Fish Observed? (Y/N) N Voucher? (Y/N) Salamanders Observed? (Y/N) Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macroinverteb Comments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF STREAM	Primary Headwater Habitat Assessment  N Voucher? (Y/N)  Prates Observed? (Y/N)  N Voucher	e labeled with the site Manual)  ? (Y/N)  N  leted):
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the Fish Observed? (Y/N) N Salamanders Observed? (Y/N) Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinverteb Comments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF STREAM Include important landmarks and other features of interest for site evaluation	Primary Headwater Habitat Assessment  N Voucher? (Y/N)  Prates Observed? (Y/N)  N Voucher	e labeled with the site Manual)  ? (Y/N)  N  leted):
BIOTIC EVALUATION  Performed? (Y/N):  N  (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the Fish Observed? (Y/N)  Frogs or Tadpoles Observed? (Y/N)  Voucher? (Y/N)  Voucher? (Y/N)  Aquatic Macroinverteber Comments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF STREAM Include important landmarks and other features of interest for site evaluation	Primary Headwater Habitat Assessment  N Voucher? (Y/N)  Prates Observed? (Y/N)  N Voucher	e labeled with the site Manual)  ? (Y/N)  N  leted):
BIOTIC EVALUATION  Performed? (Y/N):  N  (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the Fish Observed? (Y/N)  Frogs or Tadpoles Observed? (Y/N)  N  Salamanders Observed? (Y/N)  Frogs or Tadpoles Observed? (Y/N)  N  Aquatic Macroinverteber Comments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF STREAM Include important landmarks and other features of interest for site evaluation wetland	Primary Headwater Habitat Assessment  N Voucher? (Y/N)  Prates Observed? (Y/N)  N Voucher	e labeled with the site Manual)  ? (Y/N)  N  leted):
BIOTIC EVALUATION  Performed? (Y/N):  N  (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the Fish Observed? (Y/N)  Frogs or Tadpoles Observed? (Y/N)  Voucher? (Y/N)  Voucher? (Y/N)  Aquatic Macroinverteber Comments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF STREAM Include important landmarks and other features of interest for site evaluation	Primary Headwater Habitat Assessment  N Voucher? (Y/N)  brates Observed? (Y/N)  N Voucher  M REACH (This must be comp  and a narrative description of the str	e labeled with the site Manual)  ? (Y/N)  N  leted):
BIOTIC EVALUATION  Performed? (Y/N):  N  (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the Fish Observed? (Y/N)  Frogs or Tadpoles Observed? (Y/N)  N  Salamanders Observed? (Y/N)  Frogs or Tadpoles Observed? (Y/N)  N  Aquatic Macroinverteber Comments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF STREAM Include important landmarks and other features of interest for site evaluation wetland	Primary Headwater Habitat Assessment  N Voucher? (Y/N)  Prates Observed? (Y/N)  N Voucher  Voucher  I REACH (This must be compared a narrative description of the straight of	e labeled with the site Manual)  ? (Y/N)  N  leted):
BIOTIC EVALUATION  Performed? (Y/N):  N  (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the Fish Observed? (Y/N)  Frogs or Tadpoles Observed? (Y/N)  N  Salamanders Observed? (Y/N)  Frogs or Tadpoles Observed? (Y/N)  N  Aquatic Macroinverteber Comments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF STREAM Include important landmarks and other features of interest for site evaluation wetland	Primary Headwater Habitat Assessment  N Voucher? (Y/N)  brates Observed? (Y/N)  N Voucher  M REACH (This must be comp  and a narrative description of the str	e labeled with the site Manual)  ? (Y/N)  N  leted):





**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 062

Date:

June 10, 2020

**Description:** 

Intermittent

Modified dSmall Drainage Warmwater Stream

Facing Upstream



#### Stream 062

Date:

June 10, 2020

**Description:** 

Intermittent

Modified Small Drainage Warmwater Stream





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 062

Date:

June 10, 2020

**Description:** 

Intermittent

Modified Small Drainage Warmwater Stream





## Primary Headwater Habitat Evaluation Form

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

s-aeh-20200611-01 SITE NUMBER RIVER BASIN Muskingum DRAINAGE AREA (mi²)	0.04
LENGTH OF STREAM REACH (ft) 200 LAT. 39.90613 LONG82.25950 RIVER CODE RIVER MILE	0.13
DATE 06/11/20 SCORER AEH/SKM COMMENTS intermittent	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Inst	ructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO REMODIFICATIONS:	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	ı HHEI
TYPE PERCENT TYPE PERCENT	Metric
BLDR SLABS [16 pts]	Points
BEDROCK [16 pt]  BEDROCK [16 pt]  D'A  FINE DETRITUS [3 pts]  0%	Substrate
COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPAN [0 pt] 0%	Max = 40
GRAVEL (2-64 mm) [9 pts]  SAND (<2 mm) [6 pts]  0%  MUCK [0 pts]  5%  0%  ARTIFICIAL [3 pts]	16
Total of Percentages of 0.00% (A) Substrate Percentage Check (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 TOTAL NUMBER OF SUBSTRATE TYPES: 4	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dep
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]	Max = 30
> 22.5 - 30 cm [30 pts] < 5 cm [5 pts]	
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	25
COMMENTS MAXIMUM POOL DEPTH (Inches): 5.00	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankful
> 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]	Width Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
COMMENTS AVERAGE BANKFULL WIDTH (Feet): 3.00	5
This information must also be completed	
RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆	
RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆  RIPARIAN WIDTH FLOODPLAIN QUALITY  LR (Per Bank) LR (Most Predominant per Bank) LR	
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)  V Wide >10m  V Mature Forest, Wetland  Conservation Tillage	
RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream  RIPARIAN WIDTH  L R (Per Bank)  Wide >10m  Moderate 5-10m  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  Mature Forest, Wetland  Immature Forest, Shrub or Old  Field  Urban or Industrial	
RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆ RIPARIAN WIDTH  L R (Per Bank)  V Wide >10m  Moderate 5-10m  FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  Moderate 5-10m  Moderate 5-10m  Work Predominant per Bank)  L R (Most Predominant per Bank)  L R (Der Bank)  Work Predominant per Bank	rop
RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream A  RIPARIAN WIDTH  L R (Per Bank)  V Wide >10m  Moderate 5-10m  Narrow <5m  None  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  L R (Conservation Tillage  Immature Forest, Shrub or Old  Field  Open Pasture, Row C  Mining or Construction	
RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  L R (Per Bank)  Wide >10m  Moderate 5-10m  Narrow <5m  None  Residential, Park, New Field  Residential  Comments  Fenced Pasture  NOTE: River Left (L) and Right (R) as looking downstream ☆  NOTE: River Left (L) and Right (R) as looking downstream ☆  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  L R  Conservation Tillage  Immature Forest, Shrub or Old  Field  Open Pasture, Row C  Mining or Construction  COMMENTS	•
RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  Wide >10m  Moderate 5-10m  Narrow <5m  None  Residential, Park, New Field  Fenced Pasture  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	1
RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  Wide >10m  Moderate 5-10m  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation)  Subsurface flow with isolated pools (Interstitial)  NOTE: River Left (L) and Right (R) as looking downstream ☆  NOTE: River Left (L) and Right (R) as looking downstream ☆  NOTE: River Left (L) and Right (R) as looking downstream ☆  NOTE: River Left (L) and Right (R) as looking downstream ☆  RIPARIAN WIDTH  FLOODPLAIN QUALITY  Mature Forest, Wetland  Conservation Tillage  Immature Forest, Shrub or Old  Field  Open Pasture, Row Construction  Open Pasture, Row Construction  Open Pasture, Row Construction  COMMENTS  Moist Channel, isolated pools, no flow (Intermitter Dry channel, no water (Ephemeral)	1
RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  Wide >10m  Moderate 5-10m  Narrow <5m  None  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  NOTE: River Left (L) and Right (R) as looking downstream ☆ NOTE: River Left (L) and Right (R) as looking downstream ☆ NOTE: River Left (L) and Right (R) as looking downstream ☆ NOTE: River Left (L) and Right (R) as looking downstream ☆ NOTE: River Left (L) and Right (R) as looking downstream ☆ Note: River Left (L) and Right (R) as looking downstream ☆ Note: River Left (L) and Right (R) as looking downstream ☆ Note: River Left (L) and Right (R) as looking downstream ☆ Note: River Left (L) and Right (R) as looking downstream ☆ Note: River Left (L) and Right (R) as looking downstream ☆ Note: River Left (L) and Right (R) as looking downstream ☆ Note: River Left (L) and Right (R) as looking downstream ☆ Note: River Left (L) and Right (R) as looking downstream ☆ Note: River Left (L) and Right (R) as looking downstream ☆ Note: River Left (L) and Right (R) as looking downstream ☆ Note: River Left (L) and Right (R) as looking downstream ☆ Note: River Left (L) and Right (R) as looking downstream ☆ Note: River Left (L) and Right (R) as looking downstream ☆ Note: River Left (L) and Right (R) as looking downstream ☆ Note: River Left (L) and Right (R) as looking downstream ☆ Note: River Left (L) and Right (R) as looking downstream ☆ Note: River Left (L) and River Left (L) and River Left (R) and River Left (	1
RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  Wide >10m  Moderate 5-10m  Residential, Park, New Field  Narrow <5m  None  COMMENTS  FLOW REGIME (At Time of Evaluation)  SINUOSITY (Number of bends per 61 m (200 ft) of channel)  Check ONLY one box):  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream At None RIPARIAN (R) as looking downstream At None Conservation Tillage  L R (Most Predominant per Bank)  L R (Description Conservation Tillage  Urban or Industrial  Open Pasture, Row Conservation Tillage  Mining or Construction  Conservation Tillage  Most Channel, isolated pools, no flow (Intermitter Dry channel, no water (Ephemeral)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	1
RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  Wide >10m  Moderate 5-10m  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation)  COMMENTS  RIPARIAN WIDTH  FLOODPLAIN QUALITY  FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream & NOTE: River Left (L) and Right (R) as looking downstream & NOTE: River Left (L) and Right (R) as looking downstream & NOTE: River Left (L) and Right (R) as looking downstream & NOTE: River Left (L) and Right (R) as looking downstream & NOTE: River Left (L) and Right (R) as looking downstream & NOTE: River Left (L) and Right (R) as looking downstream & NOTE: River Left (L) and Right (R) as looking downstream & NOTE: River Left (L) and Right (R) as looking downstream & NOTE: River Left (L) and Right (R) as looking downstream & NOTE: River Left (L) and Right (R) as looking downstream & NOTE: River Left (L) and Right (R) as looking downstream & NOTE: River Left (L) and Right (R) as looking downstream & NOTE: River Left (L) and Right (R) as looking downstream & NOTE: River Left (L) and Right (R) as looking downstream & NOTE: River Left (L) and Right (R) as looking downstream & NOTE: River Left (L) and Right (R) as looking downstream & NOTE: River Left (L) and Right (R) as looking downstream & NOTE: River Left (L) and River Le	1
RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank)	1
RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  Wide >10m  Moderate 5-10m  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel)  None  CI A NOTE: River Left (L) and Right (R) as looking downstream And Text Park (L) and Right (R) as looking downstream And Text Park (Most Predominant per Bank)  L R (Most Predominant per B	nt)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)
WWH Name: Distance from Evaluated Stream
CWH Name: Distance from Evaluated Stream Support EWH Name: Distance from Evaluated Stream 2.00
FWH Name: _Jonathan Creek Distance from Evaluated Stream 2.00
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Perry Township / City: Hopewell
MISCELLANEOUS
Base Flow Conditions? (Y/N): Y Date of last precipitation: 06/04/20 Quantity: 0.75
Photograph Information:
Elevated Turbidity? (Y/N): Canopy (% open): 0%
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (ma/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:
BANK Stability LOW MODERATE HIGH
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Vouc
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):
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'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
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location drainage patterns
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location  drainage patterns
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location drainage patterns
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location  drainage patterns  Wetland
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location  drainage patterns



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 063

Date:

June 11, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream

Facing Upstream



#### Stream 063

Date:

June 11, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 063

Date:

June 11, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream



Stream 064 **Modified Ephemeral** 



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

18	
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SITE NAME/LOCATION   AEP Crooksville-North Newark 138 kV Transmission Line Rebuild	
s-aeh-20200921-02 SITE NUMBER RIVER BASIN Muskingum DRAINAGE AREA (mi²)	.06
LENGTH OF STREAM REACH (ft) 200 LAT. 39.91070 LONG82.26295 RIVER CODE RIVER MILE 0	.23
DATE 09/21/20 SCORER AEH, WRL COMMENTS Ephemeral, NHD mapped stream	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instr	uctions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING Partially filled in channel for vehicle crossing	OVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	HHEI
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE PERCENT TYPE PERCENT	Metric
BLDR SLABS [16 pts]	Points
BEDROCK [16 pt]	Substrate Max = 40
COBBLE (65-256 mm) [12 pts]	IVIAX – 40
☐ ☐ GRAVEL (2-64 mm) [9 pts] ☐ ☐ MUCK [0 pts] ☐ ☐ ARTIFICIAL [3 pts] ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	13
Total of Percentages of 0.00% (A) Substrate Percentage 100% (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock  SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:   9  TOTAL NUMBER OF SUBSTRATE TYPES: 4	
<ul> <li>Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):</li> </ul>	Pool Depth Max = 30
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts] > 5 cm - 30 cm [30 pts] < 5 cm [5 pts]	 
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	0
COMMENTS OHW = 1.3' w x 0.8' d MAXIMUM POOL DEPTH (Inches): 0.00	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF = 2.7' w x 0.9' d  This information must also be completed	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF = 2.7' w x 0.9' d  AVERAGE BANKFULL WIDTH (Feet): 2.70	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF = 2.7' w x 0.9' d  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 (Most Predominant per Bank)  L R  (Most Predominant per Bank)  L R	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF = 2.7' w x 0.9' d  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream ☆  RIPARIAN WIDTH  L R (Per Bank)  L R (Most Predominant per Bank)  L R (Most Predominant per Bank)  Wide >10m  Mature Forest, Wetland  Immature Forest, Shrub or Old  Urban or Industrial	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF = 2.7' w x 0.9' d  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	Width Max=30
> 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]   > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]     COMMENTS   BF = 2.7' w x 0.9' d   AVERAGE BANKFULL WIDTH (Feet):   2.70     This information must also be completed     RIPARIAN ZONE AND FLOODPLAIN QUALITY  NOTE: River Left (L) and Right (R) as looking downstream  NOTE: River Left (L) and Right (R)	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF = 2.7' w x 0.9' d  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	Width Max=30
> 4.0 meters (> 13') [30 pts]   > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]     > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]   ✓ ≤ 1.0 m (<=3' 3") [5 pts]     > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]     COMMENTS   BF = 2.7' w x 0.9' d   AVERAGE BANKFULL WIDTH (Feet):   2.70     This information must also be completed     RIPARIAN ZONE AND FLOODPLAIN QUALITY  NOTE: River Left (L) and Right (R) as looking downstream  Note   No	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF = 2.7' w x 0.9' d  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  Note: River Left (L) and Right (R) as looking downstream  RIPARIAN WIDTH  L R (Per Bank)  Wide >10 m  Mature Forest, Wetland  Wide >10 m  Mature Forest, Shrub or Old  Immature Forest, Shrub or Old  Immature Forest, Shrub or Old  Narrow <5 m  None  Residential, Park, New Field  Open Pasture, Row Cro  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Moist Channel, isolated pools, no flow (Intermittent)	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF = 2.7' w x 0.9' d  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  Wide > 10 m (<=3' 3") [5 pts]  2.70  This information must also be completed  RIPARIAN WIDTH  FLOODPLAIN QUALITY  Most Predominant per Bank)  Wide > 10 m  Mature Forest, Wetland  Conservation Tillage  Immature Forest, Shrub or Old  Immature Forest, Shrub or Old  Narrow < 5 m  None  Residential, Park, New Field  Open Pasture, Row Cro  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Moist Channel, isolated pools, no flow (Intermittent)	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF = 2.7' w x 0.9' d  AVERAGE BANKFULL WIDTH (Feet): 2.70  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆  RIPARIAN WIDTH FLOODPLAIN QUALITY  □ (Per Bank) □ (Most Predominant per Bank) □ (Check ONLY one box):  Narrow <5m □ (Y Residential, Park, New Field □ (Deen Pasture, Row Credominant)  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing Subsurface flow with isolated pools (Interstitial)  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF = 2.7' w x 0.9' d  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  L R (Per Bank) Wide >10m	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF = 2.7' w x 0.9' d  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 **NOTE: River Left (L) and Right (R) as looking downstream **  RIPARIAN WIDTH FLOODPLAIN QUALITY **NOTE: River Left (L) and Right (R) as looking downstream **  RIPARIAN WIDTH FLOODPLAIN QUALITY **  Wide >10m Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Immature Forest, Shrub or Old Field Open Pasture, Row Crown Rome Fenced Pasture Mining or Construction  Narrow <5m Fenced Pasture Mining or Construction  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None 1.0 2.0 3.0  > 3.0  > 3.0  > 3.0  > 3.0  > 3.0  > 3.0  > 3.0	Width Max=30
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF = 2.7' w x 0.9' d  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY	Width Max=30

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed	d):
QHEI PERFORMED? - Yes V No QHEI Score (If Yes,	Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
EWH Name: Valley Run	Distance from Evaluated Stream0.84
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERS	HED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Glenford NRCS Soil M	ap Page: NRCS Soil Map Stream Order
County: Perry Township / City: Bo	wling Green
MISCELLANEOUS	
Base Flow Conditions? (Y/N):_Y Date of last precipitation:_ 09/13/20	Quantity: 1.36
Photograph Information: 3 photos, upstream, downsteam and substrate	
Elevated Turbidity? (Y/N): N Canopy (% open): 50%	
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or	id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U	.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain	:
reach within powerline ROW, most of stream is in wooded areas	
Additional comments/description of pollution impacts:	
Overall Stability of BOTH Stream Banks (check one): Stable Mod	derately Stable Unstable
BIOTIC EVALUATION	
ID number. Include appropriate field data sheets from the	
Fish Observed? (Y/N) Salamanders Observed? (Y/N) Salamanders Observed? (Y/N)	Voucher? (Y/N) Voucher? (Y/N) N
Comments Regarding Biology:	
None observed	
DRAWING AND NARRATIVE DESCRIPTION OF STREA	M REACH (This <u>must</u> be completed):
Include important landmar	the stream's location
Scale: 1 square =	New Case of the Man of





**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 064

Date:

September 21, 2020

**Description:** 

Ephemeral

Modifid Ephemeral Stream

Facing Upstream



#### Stream 064

Date:

September 21, 2020

**Description:** 

Ephemeral

Modifid Ephemeral Stream





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 064

Date:

September 21, 2020

**Description:** 

Ephemeral

Modifid Ephemeral Stream





## **ChieFP** Primary Headwater Habitat Evaluation Form

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SITE NAME/LOCATION AEP Crooksville-North Newark 138 kV Transmission Line Rebuild  s-aeh-20200921-03 SITE NUMBER RIVER BASIN Muskingum DRAINAGE AREA (mi²) 0.01  LENGTH OF STREAM REACH (ft) 200 LAT. 39.91263 LONG82.26472 RIVER CODE RIVER MILE 0.0	
DATE 09/21/20 SCORER AEH, WRL COMMENTS Intermittent	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruction	tions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVER MODIFICATIONS:	ERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE  PERCENT  TYPE  PERCENT	HHEI Vetric
□ □ BLDR SLABS [16 pts] 0% □ ✓ SILT [3 pt] 40%	oints
BOULDER (>256 mm) [16 pts]	ubstrate
	/lax = 40
GRAVEL (2.64 mm) [9 ptc] 30% MIJCK [0 ptc] 0%	40
SAND (<2 mm) [6 pts] 20% ARTIFICIAL [3 pts] 0%	16
Total of Percentages of 0.00% (A) Substrate Percentage 100% (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 TOTAL NUMBER OF SUBSTRATE TYPES: 4	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	ool Dept
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):    Some storm water pipes   Check ONLY one box):   Market	Max = 30
> 20 certifileters [20 pts]	
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	5
COMMENTS MAXIMUM POOL DEPTH (Inches): 1.00	
	Bankfull
	Width Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
COMMENTS AVERAGE BANKFULL WIDTH (Feet): 4.00	15
7.0218.02 B/4.03 D/4.03 D/4.04	
This information must also be completed	
RIPARIAN ZONE AND FLOODPLAIN QUALITY \$\times \text{NOTE}: \text{River Left (L) and Right (R) as looking downstream \$\frac{1}{2}\$	
RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH FLOODPLAIN QUALITY	
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)  V Wide >10m  V Mature Forest, Wetland  Conservation Tillage	
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	
RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  L R (Per Bank)  V Wide >10m  Moderate 5-10m  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  Moderate 5-10m  L R (Most Predominant per Bank)  L R (Der Bank)  Moderate 5-10m  Moderate 5-10m  Moderate 5-10m	
RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  L R (Per Bank)  Wide >10m  Moderate 5-10m  Narrow <5m  RIPARIAN QUALITY  L R (Most Predominant per Bank)  L R (Der Bank)  L R (Most Predominant per Bank)  L R (Most Predominant per Bank)  L R (Der Bank)  L R (Most Predominant per Bank)  L R (Most Predominant per Bank)  L R (Der Bank)  L R (Most Predominant per Bank)  L R (Der Bank)  L R (Der Bank)  Conservation Tillage  Urban or Industrial  Open Pasture, Row Crop	
RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  Wide >10m  Moderate 5-10m  Narrow <5m  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  L R (Der Bank)  Moderate 5-10m  Residential, Park, New Field  Open Pasture, Row Crop	
RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  L R (Per Bank)  Wide >10m  Moderate 5-10m  Narrow <5m  None  RIPARIAN QUALITY  L R (Most Predominant per Bank)  L R (Umst Predominant per Bank)  L R (Most Predominant per Bank)  L R (Umst Predominant per Bank)	
RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  (Per Bank)  Wide >10m  Moderate 5-10m  Narrow <5m  None  Residential, Park, New Field  Fenced Pasture  Fenced Pasture  Flood Pasture  Flood Pasture  Moist Channel, isolated pools, no flow (Intermittent)	
RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  Wide >10m  Moderate 5-10m  Narrow <5m  None  Residential, Park, New Field  Fenced Pasture  Flood Plain Quality  L R (Most Predominant per Bank)  L R (Most Predominant per Bank)  L R (Conservation Tillage  Urban or Industrial  Open Pasture, Row Crop  Mining or Construction  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	
RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  Wide >10m  Moderate 5-10m  Residential, Park, New Field  Narrow <5m  None  COMMENTS  FLOW REGIME (At Time of Evaluation)  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS  RIPARIAN WIDTH  FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream And R	
RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  L R (Per Bank)  Wide >10m  Moderate 5-10m  Narrow <5m  None  COMMENTS  FLOW REGIME (At Time of Evaluation)  SINUOSITY (Number of bends per 61 m (200 ft) of channel)  SINUOSITY (Number of bends per 61 m (200 ft) of channel)  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream A  NOTE: River Left (L) and Right (R) as looking downstream A  NOTE: River Left (L) and Right (R) as looking downstream A  NOTE: River Left (L) and Right (R) as looking downstream A  NOTE: River Left (L) and Right (R) as looking downstream A  NOTE: River Left (L) and Right (R) as looking downstream A  Note: Left (L) and Right (R) as looking downstream A  RIPARIAN WIDTH  FLOODPLAIN QUALITY  Mature Forest, Wetland  Conservation Tillage  Immature Forest, Shrub or Old  Urban or Industrial  Open Pasture, Row Crop  Mining or Construction  Moist Channel, isolated pools, no flow (Intermittent)  Dry channel, no water (Ephemeral)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None  3.0	
RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank) Wide >10m Wide >10m Woderate 5-10m  Residential, Park, New Field  Narrow <5m None COMMENTS  FLOW REGIME (At Time of Evaluation) COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) CORNER TO COMMENTS  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream A  NoTE: River Left (L) and Right (R) as looking downstream A  NOTE: River Left (L) and Right (R) as looking downstream A  NOTE: River Left (L) and Right (R) as looking downstream A  NOTE: River Left (L) and Right (R) as looking downstream A  NoTE: River Left (L) and Right (R) as looking downstream A  L R  (Most Predominant per Bank)  L R  (Per Bank)  L R  (Most Predominant per Bank)  L R  (Per Bank)  L R  (Most Predominant per Bank)  L R  (Per Bank)  L R  (Most Predominant per Bank)  L R  (Per Bank)  L R  (Most Predominant per Bank)  L R  (Per Bank)  L R  (Most Predominant per Bank)  L R  (Per Bank)  L R  (Most Predominant per Bank)  L R  (Per Bank)  L R  (Most Predominant per Bank)  L R  (Per Bank)  L R  (Most Predominant per Bank)  L R  (Per Bank)  L R  (Per Bank)  L R  (Most Predominant per Bank)  L R  (Per Bank)  L R  (Most Predominant per Bank)  L R  (Per Bank)  L R  (Per Bank)  L R  (Most Predominant per Bank)  L R  (Per Bank)  L R  (Per Bank)  L R  (Per Bank)  L R  (Most Predominant per Bank)  L R  (Per Bank)  L R  (Most Predominant per Bank)  L R  (Per Bank)  L R  (Per Bank)  L R  (Most Predominant per Bank)  L R  (Per Bank)  L R  (Per Bank)  L R  (Most Predominant per Bank)  L R  (Per Bank)	

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)  WWH Name:
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Glenford NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Perry Township / City: Hopewell
MISCELLANEOUS
Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/13/20 Quantity: 1.36
Photograph Information: 3 photos, upstream, downsteam and substrate
Elevated Turbidity? (Y/N): N Canopy (% open): 50%
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
Overall Stability of BOTH Stream Banks (check one): Stable Moderately Stable Unstable
BIOTIC EVALUATION
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Vouc
Comments Regarding Biology:
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's location
prest
wetland
FLOW
herb
IIGID



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 065

Date:

September 21, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream

Facing Upstream



#### Stream 065

Date:

September 21, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 065

Date:

September 21, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream





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

SITE NAME/LOCATION   AEP Crooksville-North Newark 138 kV Transmission Line Rebuild	
s-aeh-20200921-04 SITE NUMBER RIVER BASIN Muskingum DRAINAGE AREA (mi²)	0.05
LENGTH OF STREAM REACH (ft) 200 LAT. 39.91356 LONG82.26484 RIVER CODE RIVER MILE	0.06
DATE 09/21/20 SCORER AEH, WRL COMMENTS Intermittent	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Inst	ructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING RECOVERING RECENT OR NO RECOVERING RE	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	HHEI
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE  PERCENT  TYPE  PERCENT	Metric
BLDR SLABS [16 pts]	Points
BEDROCK [16 pt]	Substrate Max = 40
COBBLE (65-256 mm) [12 pts]	Wax - 40
GRAVEL (2-64 mm) [9 pts] 5% MUCK [0 pts] 0%  SAND (<2 mm) [6 pts] 30% ARTIFICIAL [3 pts] 0%	14
Total of Percentages of 0.00% (A) Substrate Percentage 100% (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock Gheck Score of TWO MOST PREDOMINATE SUBSTRATE TYPES: 9  TOTAL NUMBER OF SUBSTRATE TYPES: 5	~ 5
<ol> <li>Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):</li> </ol>	Pool Depth 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]	15
COMMENTS OHW = 2.2' w x 1.2' d MAXIMUM POOL DEPTH (Inches): 2.00	
	Bankfull
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]	Width
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  (Check ONLY one box):  > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]  \( \leq 1.0 \text{ m (<=3' 3") [5 pts]} \rightarrow	Width
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  (Check ONLY one box):  > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]  > 1.0 m (<=3' 3") [5 pts]	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]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF = 4.1' w x 1.4' d  AVERAGE BANKFULL WIDTH (Feet):  4.10  This information must also be completed	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]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF = 4.1' w x 1.4' d  AVERAGE BANKFULL WIDTH (Feet):  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream ARIPARIAN WIDTH  FLOODPLAIN QUALITY	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]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF = 4.1' w x 1.4' d  AVERAGE BANKFULL WIDTH (Feet):  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream ARIPARIAN WIDTH  EL R (Per Bank)  L R (Most Predominant per Bank)  L R	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]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF = 4.1' w x 1.4' d  AVERAGE BANKFULL WIDTH (Feet):  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  NOTE: River Left (L) and Right (R) as looking downstream  Note: River Left (L) and River Left (L)	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]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF = 4.1' w x 1.4' d  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)  V Wide >10m  Moderate 5-10m  Moderate 5-10m  Check ONLY one box):  > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]  > 2 1.0 m (<=3' 3") [5 pts]  > 1.0 m (<=3' 3") [5 pts]  > 1.0 m (<=3' 3") [5 pts]  AVERAGE BANKFULL WIDTH (Feet):  4.10  Conservation Tillage Immature Forest, Wetland Urban or Industrial Field	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]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF = 4.1' w x 1.4' d  AVERAGE BANKFULL WIDTH (Feet):  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)  Vide > 1.0 m (<=3' 3") [5 pts]  4.10  This information must also be completed  RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  Vide > 1.0 m (<=3' 3") [5 pts]  4.10  This information must also be completed  RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Most Predominant per Bank)  Vide > 1.0 m (<=3' 3") [5 pts]  4.10  This information must also be completed  RIPARIAN WIDTH FLOODPLAIN QUALITY  URB ANKFULL WIDTH (Feet):  4.10  AVERAGE BANKFULL WIDTH (Feet):  4.10  This information must also be completed  RIPARIAN WIDTH (Feet):  Average BANKFULL WIDTH (Feet):  4.10  This information must also be completed  RIPARIAN WIDTH (Feet):  Average BANKFULL WIDTH (Feet):  4.10  This information must also be completed  RIPARIAN WIDTH (Feet):  Average BANKFULL WIDTH (Feet):  4.10  Average BANKFULL WIDTH (Feet):  4.10  Average BANKFULL WIDTH (Feet):  4.10  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  Average BANKFULL WIDTH (Feet):  4.10	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]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF = 4.1' w x 1.4' d  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆ NOTE: River Left (L) and Right (R) as looking downstream ☆ RIPARIAN WIDTH  L R (Per Bank)  V Wide >10 m (<=3' 3") [5 pts]  L R (Most Predominant per Bank)  V Wide >10 m	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] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF = 4.1' w x 1.4' d  AVERAGE BANKFULL WIDTH (Feet):  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  NOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH  Eloodplain QUALITY  L R (Per Bank) L R (Most Predominant per Bank) L R  Wide >10 m  Moderate 5-10 m  Moderate 5-10 m  Narrow <5 m  Residential, Park, New Field  Open Pasture, Row Completed  Residential, Park, New Field  None Penced Pasture Mining or Construction  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	Width Max=30
BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF = 4.1' w x 1.4' d  AVERAGE BANKFULL WIDTH (Feet): 4.10  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  NOTE: River Left (L) and Right (R) as looking downstream RIPARIAN WIDTH  EL R (Per Bank)  Wide >10 Moderate 5-10m  Moderate 5-10m  Narrow <5m  Narrow <5m  Residential, Park, New Field  Open Pasture, Row Completed  Residential, Park, New Field  Mining or Construction COMMENTS	Width Max=30
BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF = 4.1' w x 1.4' d  AVERAGE BANKFULL WIDTH (Feet):  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY	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]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF = 4.1' w x 1.4' d  AVERAGE BANKFULL WIDTH (Feet):  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY   NOTE: River Left (L) and Right (R) as looking downstream   Note   N	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]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF = 4.1' w x 1.4' d  AVERAGE BANKFULL WIDTH (Feet):  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  Wide >10 m  Moderate 5-10 m  Moderate 5-10 m  Residential, Park, New Field  Open Pasture, Row 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 (Intermitten Dry channel, no water (Ephemeral))	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]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF = 4.1' w x 1.4' d  AVERAGE BANKFULL WIDTH (Feet):  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  NOTE: River Left (L) and Right (R) as looking downstream  (Most Predominant per Bank)  L R (Per Bank) L R (Most Predominant per Bank) L R (Most Predominant per Bank) L R (Most Predominant per Bank) Urban or Industrial Field  Moderate 5-10m Mature Forest, Wetland Drychard Drych	Width Max=30
BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF = 4.1' w x 1.4' d  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  **NOTE: River Left (L) and Right (R) as looking downstream **  RIPARIAN WIDTH  L R (Per Bank)  Wide >10 m  Moderate 5-10 m  Moderate 5-10 m  None  COMMENTS  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  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None  1.0  1.0  1.0  1.0  1.0  1.0  1.0  1.	Width Max=30  15

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Atta	ach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream  Distance from Evaluated Stream  0.80
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHE	D AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Glenford NRCS Soil Map F	Page: NRCS Soil Map Stream Order
County: Perry Township / City: Hopew	well
MISCELLANEOUS	
Base Flow Conditions? (Y/N):_Y Date of last precipitation: 09/13/20	Quantity: 1.36
Photograph Information: 3 photos, upstream, downsteam and substrate	
Elevated Turbidity? (Y/N): N Canopy (% open): 50%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id.	and attach results) Lab Number:
Field Measures: Temp (°C) 14.90 Dissolved Oxygen (mg/l) pH (S.U.)	7.20 Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	
Overall Stability of BOTH Stream Banks (check one): Stable Modera	ately Stable Unstable
BIOTIC EVALUATION	
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional	al. NOTE: all voucher samples must be labeled with the site
ID number. Include appropriate field data sheets from the Pr	
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebra	Voucher? (Y/N) N Voucher? (Y/N)
Comments Regarding Biology:	<b>N</b>
none observed	
DRAWING AND NARRATIVE DESCRIPTION OF STREAM F	REACH (This <u>must</u> be completed): the stream's location
Include important land	the stream's location
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October 24, 2002 Revision

Save as pdf

Reset Form



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 066

Date:

September 21, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream

Facing Upstream



#### Stream 066

Date:

September 21, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 066

Date:

September 21, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream



Stream 067



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

17
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**Ephemeral** 

s-aeh-20200921-05 SITE NUMBER RIVER BASIN Muskingum DRAINAGE AREA (mi²)	
STE NOMBER RIVER BASIN BRAINAGE AREA (IIII )	0.01
LENGTH OF STREAM REACH (ft) 100 LAT. 39.91473 LONG82.26579 RIVER CODE RIVER MILE	0.1
DATE 09/21/20 SCORER AEH, WRL COMMENTS Ephemeral	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	ructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING Heavily entrenched channel	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HHE
TYPE         PERCENT         TYPE         PERCENT           □ BLDR SLABS [16 pts]         0%         □ SILT [3 pt]         35%           □ BOULDER (>256 mm) [16 pts]         0%         □ LEAF PACK/WOODY DEBRIS [3 pts]         5%           □ BEDROCK [16 pt]         0%         □ FINE DETRITUS [3 pts]         0%           □ COBBLE (65-256 mm) [12 pts]         0%         □ CLAY or HARDPAN [0 pt]         0%	Metric Points Substrate Max = 40
☐ GRAVEL (2-64 mm) [9 pts]	12
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock OCH SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9  SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9  Substrate Percentage 100%  TOTAL NUMBER OF SUBSTRATE TYPES: 3	A + B
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Dep
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] > 5 cm - 30 cm [30 pts] < 5 cm [5 pts]	
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	0
COMMENTS OHW = 2.6' w x 0.4 d MAXIMUM POOL DEPTH (Inches): 0.00	
BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Danleful
	Bankful
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  > 1.0 m (<=3' 3") [5 pts]	
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ≤ 1.0 m (<=3' 3") [5 pts]	Width
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF = 2.6' w x 0.4' d	Width Max=30
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF = 2.6' w x 0.4' d  AVERAGE BANKFULL WIDTH (Feet): 2.60  This information must also be completed	Width Max=30
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  L R (Per Bank)  Wide >10m (<=3' 3") [5 pts]  ✓ ≤ 1.0 m (<=3' 3") [5 pts]  ✓ ≤ 1.0 m (<=3' 3") [5 pts]  ✓ AVERAGE BANKFULL WIDTH (Feet): 2.60   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 River Left (L) and River	Width Max=30
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  L R (Per Bank)  Wide >10m  Wide >10m  Wide >10m  Moderate 5-10m  AVERAGE BANKFULL WIDTH  (Feet): 2.60   AVERAGE BANKFULL WIDTH  (Feet): 2.60  AVERAGE BANKFULL WIDTH  (Feet): 2.60  L R (Most Predominant per Bank)  Mature Forest, Wetland  Urban or Industrial	Width Max=30
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  L R (Per Bank)  L R (Most Predominant per Bank)  L R (Most Predominant per Bank)  Wide >10m  Moderate 5-10m  V ≤ 1.0 m (<=3' 3") [5 pts]  ✓ ≤ 1.0 m (<=3' 3") [5 pts]  ✓ S 1.0 m (<=3' 3") [5 pts]  ✓	Width Max=30
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  L R (Per Bank)  Wide >10m (Yest): 2.60    Conservation Tillage   Immature Forest, Shrub or Old   Immature Forest, Shrub or Old   Immature Row Conservation Field   Immature Row Conservation Flood   I	Width Max=30
Solution	Width Max=30
Source   S	Width Max=30

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)  WWH Name:  Distance from Evaluated Stream  Distance from Evaluated Stream
EWH Name: Valley Run Distance from Evaluated Stream 0.40
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Glenford NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Licking Township / City: Bowling Green
MISCELLANEOUS
Base Flow Conditions? (Y/N):_Y Date of last precipitation:Quantity:
Photograph Information: 3 photos, upstream, downsteam and substrate
Elevated Turbidity? (Y/N): N Canopy (% open): 50%
Were samples collected for water chemistry? (Y/N): Y (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
Overall Stability of BOTH Stream Banks (check one): Stable Moderately Stable Unstable
V
BIOTIC EVALUATION
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the sit
BIOTIC EVALUATION  Performed? (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)  Fish Observed? (Y/N)  N  Voucher? (Y/N)  N  Voucher? (Y/N)
BIOTIC EVALUATION  Performed? (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)  Fish Observed? (Y/N)  N  Voucher? (Y/N)  N  Voucher? (Y/N)  N  Voucher? (Y/N)  N  Voucher? (Y/N)  Voucher? (Y/N)  N  Voucher? (Y/N)
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Performed? (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)  Fish Observed? (Y/N) N Voucher? (Y/N) N N Voucher? (Y/N) N N Voucher? (Y/N) N Voucher? (Y/N) N N N N N N N N N N N N N N N N N N
BIOTIC EVALUATION  Performed? (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)  Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N)
BIOTIC EVALUATION  Performed? (Y/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)  Fish Observed? (Y/N)  N  Voucher? (Y/N)  N  Voucher? (Y/N)  N  Aquatic Macroinvertebrates Observed? (Y/N)  N  Voucher? (Y/N)  N  Voucher? (Y/N)  N  DRAWING  Include important Ia  DRAWING  Include important Ia
BIOTIC EVALUATION  Performed? (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)  Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N)
BIOTIC EVALUATION  Performed? (Y/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)  Fish Observed? (Y/N)  N  Voucher? (Y/N)  N  Voucher? (Y/N)  N  Aquatic Macroinvertebrates Observed? (Y/N)  N  Voucher? (Y/N)  N  Voucher? (Y/N)  N  DRAWING  Include important Ia  DRAWING  Include important Ia
BIOTIC EVALUATION  Performed? (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)  Fish Observed? (Y/N) N Voucher? (
BIOTIC EVALUATION  Performed? (Y/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)  Fish Observed? (Y/N)  N  Voucher? (Y/N)  N  Voucher? (Y/N)  N  Aquatic Macroinvertebrates Observed? (Y/N)  N  Voucher? (Y/N)  N  Voucher? (Y/N)  N  DRAWING  Include important Ia  DRAWING  Include important Ia
BIOTIC EVALUATION  Performed? (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)  Fish Observed? (Y/N) N Voucher? (
BIOTIC EVALUATION  Performed? (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)  Fish Observed? (Y/N) N Voucher? (
BIOTIC EVALUATION  Performed? (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)  Fish Observed? (Y/N) N Voucher? (



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 067

Date:

September 21, 2020

**Description:** 

Ephemeral

**Ephemeral Stream** 

Facing Upstream



#### Stream 067

Date:

September 21, 2020

**Description:** 

Ephemeral

**Ephemeral Stream** 





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 067

Date:

September 21, 2020

**Description:** 

Ephemeral

Ephemeral Stream





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

AED Out destilled	Next Next 400 IV Transmission Line Policital	
	North Newark 138 kV Transmission Line Rebuild  RIVER BASIN Muskingum DRAINAGE AREA (mi²) 0.0	10
s-aeh-20200921-06 SITE NUMBER  ENGTH OF STREAM REACH (ft) 200		
00/24/20		72
5/112		-4:
NOTE: Complete All Items On This Form	n - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruc	ctions
STREAM CHANNEL NONE / NAT MODIFICATIONS:	TURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECENT OR NO RECENT OR NO RECOVERING RECENT OR NO RECEN	VERY
	ry type of substrate present. Check ONLY two predominant substrate TYPE boxes	
, ,	ant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  ERCENT TYPE PERCENT	HHEI Metric
BLDR SLABS [16 pts]	<b>0</b> % SILT [3 pt] <b>35</b> %	Points
BOULDER (>256 mm) [16 pts]	0% LEAF PACK/WOODY DEBRIS [3 pts] 5% 0%	Substrate
BEDROCK [16 pt]  COBBLE (65-256 mm) [12 pts]		Max = 40
	10% MUCK [0 pts] 0%	44
SAND (<2 mm) [6 pts]	40% ARTIFICIAL [3 pts] 0%	14
Total of Percentages of	0.00% (A) Substrate Percentage 100% (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock  SCORE OF TWO MOST PREDOMINATE SUBST		
• •	· · · ·	Pool Dept
evaluation. Avoid plunge pools from road > 30 centimeters [20 pts]	d culverts or storm water pipes) (Check ONLY one box):  > 5 cm - 10 cm [15 pts]	Max = 30
> 22.5 - 30 cm [30 pts]	< 5 cm [5 pts]	
> 10 - 22.5 cm [25 pts]	NO WATER OR MOIST CHANNEL [0 pts]	15
COMMENTS OHW=2.9'w x 1.0'd	MAXIMUM POOL DEPTH (Inches): 2.00	
3. BANK FULL WIDTH (Measured as the	average of 3-4 measurements) (Check ONLY one box):	Bankfull
> 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] ≤ 1.0 m (<=3' 3") [5 pts]	Width Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	≤ 1.0 III (<-3 3 ) [5 pts]	Wax-30
COMMENTS BF=3.9'w x 1.4'd	AVERAGE BANKFULL WIDTH (Feet): 3.90	15
OSMINERIO .	AVEIGGE BANK GEE WISTIN (1 eet).	
	This information must also be completed	
RIPARIAN ZONE AND FLOODP	LAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆	
<u>RIPARIAN WIDTH</u> 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 Urban or Industrial	
Narrow <5m	Residential, Park, New Field Open Pasture, Row Crop	
None None	Fenced Pasture Mining or Construction	
COMMENTS	I chood radiate	
FLOW REGIME (At Time of Eval	luation) (Check ONLY one box):	
Stream Flowing	Moist Channel, isolated pools, no flow (Intermittent)	
Subsurface flow with isolated pool COMMENTS	ls (Interstitial) Dry channel, no water (Ephemeral)	
	24 (200 %) 5 1 1) (21 1 24//)	
SINUOSITY (Number of bends pe	er 61 m (200 ft) of channel) (Check <i>ONLY</i> one box):  1.0	
0.5	1.5 2.5 >3	
STREAM GRADIENT ESTIMATE		
STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate	Moderate (2 ft/100 ft) ✓ Moderate to Severe ☐ Severe (10 ft/100	ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also	be Completed):
QHEI PERFORMED? - Yes ✓ No QHEI Score	(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
CWH Name: Valley Run	Distance from Evaluated Stream  Distance from Evaluated Stream  0.42
	TIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Glenford	NRCS Soil Map Page: NRCS Soil Map Stream Order
	nip / City:Bowling Green
MISCELLANEOUS	
Base Flow Conditions? (Y/N):Y Date of last precipitation:	09/13/20 Quantity: 1.36
Photograph Information: 3 photos, upstream, downsteam and subs	trate
Elevated Turbidity? (Y/N): N Canopy (% open): 80%	
y l	sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) 16.50 Dissolved Oxygen (mg/l)	pH (S.U.) 7.60 Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not,	please explain:
reach crossed powerline ROW, most of stream in wooded hills	
Additional comments/description of pollution impacts:	
Overall Stability of BOTH Stream Banks (check one): Stable	Moderately Stable Unstable
BIOTIC EVALUATION	
Performed? (Y/N): N (If Yes, Record all observations. Voucher	collections optional. NOTE: all voucher samples must be labeled with the site sheets from the Primary Headwater Habitat Assessment Manual)
Performed? (Y/N): N (If Yes, Record all observations. Voucher ID number. Include appropriate field data Voucher? (Y/N) N Salamanders Ol	·
Performed? (Y/N): N (If Yes, Record all observations. Voucher ID number. Include appropriate field data Voucher? (Y/N) N Salamanders Ol	sheets from the Primary Headwater Habitat Assessment Manual) oserved? (Y/N) N Voucher? (Y/N) N
Performed? (Y/N): N (If Yes, Record all observations. Voucher ID number. Include appropriate field data  Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Of Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) N Aquati	sheets from the Primary Headwater Habitat Assessment Manual) oserved? (Y/N) N Voucher? (Y/N) N
Performed? (Y/N): N (If Yes, Record all observations. Voucher ID number. Include appropriate field data Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Of Frogs or Tadpoles Observed? (Y/N) Y Voucher? (Y/N) N Aquati Comments Regarding Biology:	sheets from the Primary Headwater Habitat Assessment Manual) oserved? (Y/N) N Voucher? (Y/N) N
Performed? (Y/N): N (If Yes, Record all observations. Voucher ID number. Include appropriate field data Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Of Frogs or Tadpoles Observed? (Y/N) Y Voucher? (Y/N) N Aquati Comments Regarding Biology:  frogs, isopods, leeches	sheets from the Primary Headwater Habitat Assessment Manual) oserved? (Y/N) N Voucher? (Y/N
Performed? (Y/N):  N  (If Yes, Record all observations. Voucher ID number. Include appropriate field data Voucher? (Y/N)  Fish Observed? (Y/N)  Voucher? (Y/N)  Voucher? (Y/N)  N  Aquati  Comments Regarding Biology:  frogs, isopods, leeches	sheets from the Primary Headwater Habitat Assessment Manual) oserved? (Y/N) N Voucher? (Y/N) N
Performed? (Y/N): N (If Yes, Record all observations. Voucher ID number. Include appropriate field data Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Of Frogs or Tadpoles Observed? (Y/N) Y Voucher? (Y/N) N Aquati Comments Regarding Biology:  frogs, isopods, leeches	sheets from the Primary Headwater Habitat Assessment Manual) oserved? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) Y Voucher? (Y/N) N Ompleted):
Performed? (Y/N):  N  (If Yes, Record all observations. Voucher ID number. Include appropriate field data Voucher? (Y/N)  Fish Observed? (Y/N)  Voucher? (Y/N)  Voucher? (Y/N)  N  Aquati  Comments Regarding Biology:  frogs, isopods, leeches	sheets from the Primary Headwater Habitat Assessment Manual) oserved? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) Y Voucher? (Y/N) N Ompleted):
Performed? (Y/N):  N  (If Yes, Record all observations. Voucher ID number. Include appropriate field data Voucher? (Y/N)  Fish Observed? (Y/N)  Voucher? (Y/N)  Voucher? (Y/N)  N  Aquati  Comments Regarding Biology:  frogs, isopods, leeches	sheets from the Primary Headwater Habitat Assessment Manual) oserved? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) Y Voucher? (Y/N) N Ompleted):
Performed? (Y/N):  N  (If Yes, Record all observations. Voucher ID number. Include appropriate field data Voucher? (Y/N)  Fish Observed? (Y/N)  Frogs or Tadpoles Observed? (Y/N)  Comments Regarding Biology:  frogs, isopods, leeches  DRAWING AND N  Include important landmarks	sheets from the Primary Headwater Habitat Assessment Manual) oserved? (Y/N) N Voucher? (Y/N
Performed? (Y/N):  N  (If Yes, Record all observations. Voucher ID number. Include appropriate field data Voucher? (Y/N)  Fish Observed? (Y/N)  Frogs or Tadpoles Observed? (Y/N)  Comments Regarding Biology:  frogs, isopods, leeches  DRAWING AND N  Include important landmarks	sheets from the Primary Headwater Habitat Assessment Manual) oserved? (Y/N) N Voucher? (Y/N
Performed? (Y/N):  N  (If Yes, Record all observations. Voucher ID number. Include appropriate field data Voucher? (Y/N)  Fish Observed? (Y/N)  Voucher? (Y/N)  Voucher? (Y/N)  Voucher? (Y/N)  N  Aquati Comments Regarding Biology:  frogs, isopods, leeches  DRAWING AND N  Include important landmarks	sheets from the Primary Headwater Habitat Assessment Manual) oserved? (Y/N) N Voucher? (Y/N

Save as pdf

Reset Form



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 068

Date:

September 21, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream

Facing Upstream



#### Stream 068

Date:

September 21, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 068

Date:

September 21, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream



Stream 069

**Ephemeral** 



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

18
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SITE NAME/LOCATION   AEP Crooksville-North Newark 138 kV Transmission Line Rebuild	
s-aeh-20200921-07 SITE NUMBER RIVER BASIN Muskingum DRAINAGE AREA (mi²) 0.0	)8
LENGTH OF STREAM REACH (ft) 100 LAT. 39.92016 LONG82.26987 RIVER CODE RIVER MILE 0.0	
DATE 09/21/20 SCORER AEH, WRL COMMENTS Ephemeral	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruc	ctions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOMMODIFICATIONS:	VERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE  PERCENT  TYPE  PERCENT	HHEI Metric
BLDR SLABS [16 pts] 0% SILT [3 pt] 40%	Points
BOULDER (>256 mm) [16 pts]  BEDROCK [16 pt]  DW  LEAF PACK/WOODY DEBRIS [3 pts]  0%  FINE DETRITUS [3 pts]  0%	Substrate
COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPAN [0 pt] 0%	Max = 40
GRAVEL (2-64 mm) [9 pts] 0% MUCK [0 pts] 0%	13
SAND (<2 mm) [6 pts] 40% ARTIFICIAL [3 pts] 0%	
Total of Percentages of 0.00% (A) Substrate Percentage Check 100% (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 4	
	Pool Depth
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]	Max = 30
> 22.5 - 30 cm [30 pts]	0
COMMENTS MAXIMUM POOL DEPTH (Inches): 0.00	
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]	Bankfull Width
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ≤ 1.0 m (<=3' 3") [5 pts]	Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	_
COMMENTS AVERAGE BANKFULL WIDTH (Feet): 2.00	5
This information must also be completed	
RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆	
RIPARIAN WIDTH FLOODPLAIN QUALITY  LR (Per Bank) LR (Most Predominant per Bank) LR	
☐ Wide >10m ☐ Mature Forest, Wetland ☐ Conservation Tillage	
✓✓ Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial	
Narrow <5m Residential, Park, New Field Open Pasture, Row Crop	I
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)	
Stream Flowing Subsurface flow with isolated pools (Interstitial)  Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)	
Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS  Moist Channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)	
Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel)  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)	
Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) None 1.0 2.0 3.0 3.0 3.0 3.5  STREAM GRADIENT ESTIMATE	
Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) None 1.0 2.0 3.0 3.0 0.5 3.0 >3.0 >3.0	ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Yes No QHEI Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)  WWH Name:  CWH Name:  Distance from Evaluated Stream  Distance from Evaluated Stream  Valley Run  Distance from Evaluated Stream  0.42
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE <u>ENTIRE</u> WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Glenford NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Licking Township / City: Bowling Green
MISCELLANEOUS
Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/13/20 Quantity: 1.36
Photograph Information: 3 photos, upstream, downsteam and substrate
Elevated Turbidity? (Y/N): N Canopy (% open): 80%
Were samples collected for water chemistry? (Y/N): Y (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:
Additional comments/description of pollution impacts:
Overall Stability of BOTH Stream Banks (check one): Stable   Moderately Stable   Unstable
BIOTIC EVALUATION
Performed? (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)
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Vouc
Comments Regarding Biology:
None observed
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's location
wetland
FLOW
any moth
cow path



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 069

Date:

September 21, 2020

**Description:** 

Ephemeral

**Ephemeral Stream** 

Facing Upstream



#### Stream 069

Date:

September 21, 2020

**Description:** 

Ephemeral

Ephemeral Stream





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 069

Date:

September 21, 2020

**Description:** 

Ephemeral

Ephemeral Stream





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

s-aeh-20200921-08 SITE NUMBER RIVER BASIN Muskingum DRAINAGE AREA (mi²)	0.08
LENGTH OF STREAM REACH (ft) 100 LAT. 39.92071 LONG82.27023 RIVER CODE RIVER MILE	
DATE 09/21/20 SCORER AEH, WRL COMMENTS Intermittent	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Insti	ructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING	COVERY
SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HHEI
TYPE PERCENT TYPE PERCENT	Metric Points
BLDR SLABS [16 pts]	
BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] 0%	Substrate Max = 40
COBBLE (65-256 mm) [12 pts] 10% CLAY or HARDPAN [0 pt] 0%	Wiax - 40
GRAVEL (2-64 mm) [9 pts] 5% MUCK [0 pts] 0%  SAND (<2 mm) [6 pts] 50% ARTIFICIAL [3 pts] 0%	14
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock (A) Substrate Percentage Check (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 5	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool Depth
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]	Max = 30
> 22.5 - 30 cm [30 pts] < 5 cm [5 pts]	
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	5
COMMENTS OHW=2.8'w x 0.4'd MAXIMUM POOL DEPTH (Inches): 1.00	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
	May-20
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=4.0'w x 0.8'd AVERAGE BANKFULL WIDTH (Feet): 4.00  This information must also be completed	
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS BF=4.0'w x 0.8'd AVERAGE BANKFULL WIDTH (Feet): 4.00	
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  AVERAGE BANKFULL WIDTH  (Feet): 4.00  This information must also be completed  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  L R (Most Predominant per Bank)  L R	
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  L R (Per Bank)  L R (Most Predominant per Bank)  L R (Most Predominant per Bank)  Wide >10m  Mature Forest, Wetland  L R (Der Bank)  Wide >10m  Mature Forest, Shrub or Old	
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ♣NOTE: River Left (L) and Right (R) as looking downstream ♣  RIPARIAN WIDTH  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  AVERAGE BANKFULL WIDTH  (Feet): 4.00  L R (Most Predominant per Bank)  L R (Most Predominant per Bank)  L R (Most Predominant per Bank)  Moderate 5-10m  Wide >10m  Moderate 5-10m  Wide >10m  Moderate 5-10m	15
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ♣NOTE: River Left (L) and Right (R) as looking downstream ♣  RIPARIAN WIDTH  L R (Per Bank)  Wide >10m  Moderate 5-10m  Moderate 5-10m  AVERAGE BANKFULL WIDTH  (Feet): 4.00  AVERAGE BANKFULL WIDTH  (Feet): 4.00  L R (Most Predominant per Bank)  Wide >10m  Moderate 5-10m  Moderate 5-10m	15
COMMENTS BF=4.0'w x 0.8'd  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  PLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream  RIPARIAN WIDTH  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Residential, Park, New Field  None  AVERAGE BANKFULL WIDTH  (Feet):  4.00  AVERAGE BANKFULL WIDTH  (Feet):  4.00  Conservation Tillage  Urban or Industrial  Open Pasture, Row Cr	<b>15</b>
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  LR (Per Bank)  Wide >10m  Wide >10m  Moderate 5-10m  Residential, Park, New Field  AVERAGE BANKFULL WIDTH  (Feet): 4.00  AVERAGE BANKFULL WIDTH  (Feet): 4.00  AVERAGE BANKFULL WIDTH  (Feet): 4.00  L (R)  AVERAGE BANKFULL WIDTH  (Feet): 4.00  L (R)  AVERAGE BANKFULL WIDTH  (Feet): 4.00  AVERAGE	<b>15</b>
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  NOTE: River Left (L) and Right (R) as looking downstream Nature Forest, Wetland  Wide >10m  Moderate 5-10m  None  None  COMMENTS  AVERAGE BANKFULL WIDTH  (Feet): 4.00  AND REPARIAN COMPONITY  AND REPARIAN CONSTRUCTION  Open Pasture, Row Cr  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	15 op
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  NOTE: River Left (L) and Right (R) as looking downstream  RIPARIAN WIDTH  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Moderate 5-10w AVERAGE BANKFULL WIDTH  (Feet):  4.00  ANOTE: River Left (L) and Right (R) as looking downstream  ANOTE: River Left (L) and Right (R) as looking downstream  ANOTE: River Left (L) and Right (R) as looking downstream  ANOTE: Residential, Pank, New Field  Conservation Tillage  Immature Forest, Shrub or Old  Wish Channel, isolated pools, no flow (Intermittent)  FLOW REGIME (At Time of Evaluation)  Moist Channel, isolated pools, no flow (Intermittent)	15 op
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  Mature Forest, Wetland  Mature Forest, Wetland  Moderate 5-10m  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Moderate 5-10m  AVERAGE BANKFULL WIDTH  (Feet):  4.00  AVERAGE BANKFULL WIDTH  (Feet):  4.00  AVERAGE BANKFULL WIDTH  (Feet):  4.00  AND  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R  (Most Predominant per Bank)  L R  (Most Predominant per Bank)  L R  Open Pasture, Row Cr  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Moist Channel, isolated pools, no flow (Intermittent)	<b>15</b>
This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream ↑  RIPARIAN WIDTH  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Residential, Park, New Field  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  AVERAGE BANKFULL WIDTH  (Feet):  4.00  ANOTE: River Left (L) and Right (R) as looking downstream ↑  RIPARIAN WIDTH  FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream ↑  RIPARIAN WIDTH  FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream ↑  RIPARIAN WIDTH  FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream ↑  RIPARIAN WIDTH  FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream ↑  RIPARIAN WIDTH  FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream ↑  RIPARIAN WIDTH  FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream ↑  RIPARIAN WIDTH  FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream ↑  RIPARIAN WIDTH  FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream ↑  RIPARIAN WIDTH  FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream ↑  RIPARIAN WIDTH  FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream ↑  RIPARIAN WIDTH  FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream ↑  RIPARIAN WIDTH  FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream ↑  RIPARIAN WIDTH  FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream ↑	<b>15</b>
COMMENTS BF=4.0'w x 0.8'd  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  Wide >10m Mature Forest, Wetland Conservation Tillage    Moderate 5-10m   Immature Forest, Shrub or Old   Urban or Industrial   Marrow <5m   Residential, Park, New Field   Open Pasture, Row Cr   None   Penced Pasture   Mining or Construction   COMMENTS   Moist Channel, isolated pools, no flow (Intermittent Dry channel, no water (Ephemeral)   COMMENTS   SiNUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):   None   1.0   2.0   3.0	15 op
AVERAGE BANKFULL WIDTH  This information must also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Residential, Park, New Field  Open Pasture, Row Cr  None  COMMENTS  FLOW REGIME (At Time of Evaluation)  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS  AVERAGE BANKFULL WIDTH  (Feet):  4.00  AND  AVERAGE BANKFULL WIDTH  (Feet):  4.00  AND  AVERAGE BANKFULL WIDTH  (Feet):  4.00  AND  AND  AVERAGE BANKFULL WIDTH  (Feet):  4.00  AND  AND  AND  AND  AND  AND  AND  A	15 op
COMMENTS BF=4.0'w x 0.8'd  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  Wide >10m Mature Forest, Wetland Conservation Tillage    Moderate 5-10m   Immature Forest, Shrub or Old   Urban or Industrial   Marrow <5m   Residential, Park, New Field   Open Pasture, Row Cr   None   Penced Pasture   Mining or Construction   COMMENTS   Moist Channel, isolated pools, no flow (Intermittent Dry channel, no water (Ephemeral)   COMMENTS   SiNUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):   None   1.0   2.0   3.0	15

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Atta	ach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
CWH Name: Valley Run	Distance from Evaluated Stream  Distance from Evaluated Stream  0.40
	_ Distance in Sim Evaluated exteam _
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHEE	
USGS Quadrangle Name: Glenford NRCS Soil Map F	
County: Licking Township / City: Bowlin	ng Green
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation: 09/13/20	Quantity: 1.36
Photograph Information: 3 photos, upstream, downsteam and substrate	
Elevated Turbidity? (Y/N): N Canopy (% open): 30%	
Were samples collected for water chemistry? (Y/N): Y (Note lab sample no. or id.	and attach results) Lab Number:
Field Measures: Temp (°C) 14.60 Dissolved Oxygen (mg/l) pH (S.U.)	7.70 Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
reach along edge of powerline ROW, rest of stream in wooded hillside	
Additional comments/description of pollution impacts:	
Overall Stability of BOTH Stream Banks (check one): Stable Modera	tely Stable Unstable
Performed? (Y/N):  N  (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Property of Tadpoles Observed? (Y/N)  Frogs or Tadpoles Observed? (Y/N)  N  Voucher? (Y/N)  Voucher? (Y/N)  N  Aquatic Macroinvertebra  Comments Regarding Biology:  none observed	imary Headwater Habitat Assessment Manual)  Voucher? (Y/N)
DRAWING AND I	his <u>must</u> be completed):
FLOW TO THE PROPERTY OF THE PR	/e description of the stream's location
The Manner of the State of the	To wid



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 070

Date:

September 21, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream

Facing Upstream



#### Stream 070

Date:

September 21, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 070

Date:

September 21, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream

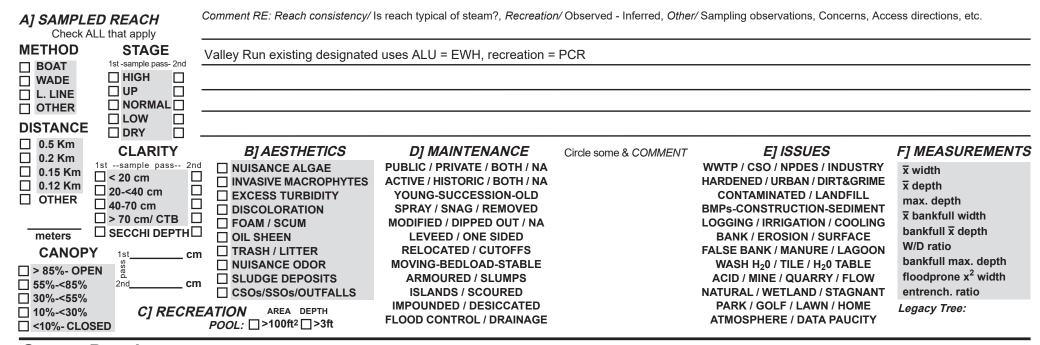




# **Qualitative Habitat Evaluation Index and Use Assessment Field Sheet**

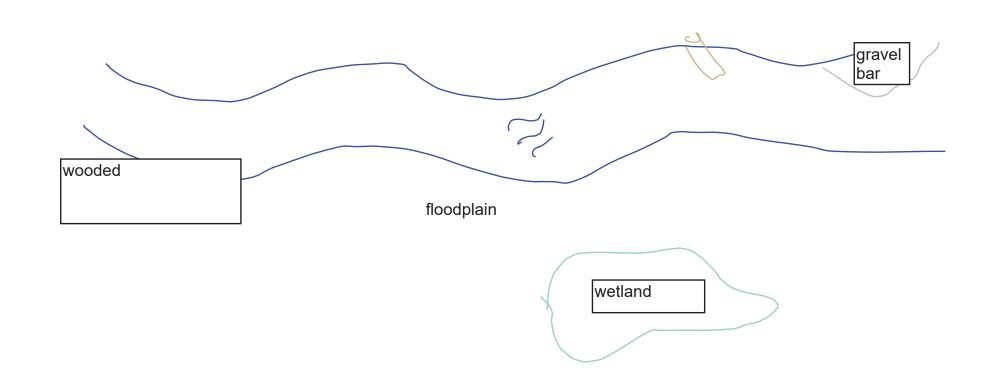
QHEI Score: 55.0

Stream & Location	on: AEP-Crooksville-N	lorth Newark 138 kV	Transmission Li	ne Rebuild Project	<b>RM:</b> 3.4	<b>Date:</b> 6   10   20
S-aeh-20200610-	·10 / Valley Run	Sco		e & Affiliation:	AECOM	
River Code:	<i>S</i> 7	ORET #:	Lat./ Lo	<b>ng.:</b> 39.9244	<b> /8</b> <u>2</u> .2736	Office verified location
BEST TYPE BEST TYPE BLDR /SLABS BOULDER [9] COBBLE [8] GRAVEL [7] SAND [6] BEDROCK [5]	[10]	Type present OTHER TYPES HARDPAN [4] DETRITUS [3] MUCK [2] SILT [2] ARTIFICIAL [0] (Score natural subnore [2] Sludge from parts of the control of the contro	OOL RIFFLE	Check COORIGIN LIMESTONE [1] TILLS [1] WETLANDS [0] HARDPAN [0]	SILT MC	QUALITY EAVY [-2] DDERATE [-1] DRMAL [0] EF [1]
quality; 3-Highest quadiameter log that is stored UNDERCUT BA	ality in moderate or greatable, well developed ro ANKS [1] G VEGETATION [1] N SLOW WATER) [1]	ate amounts. but not o	of highest quality of y large boulders in ater, or deep, well n [2] 1 OXB	or in small amounts	of highest , large Check C pools.	AMOUNT  ONE (Or 2 & average)  NSIVE >75% [11]  ERATE 25-75% [7]  SE 5-<25% [3]  ELY ABSENT <5% [1]  Cover  Maximum  20  7
SINUOSITY I  HIGH [4]  MODERATE [3]  LOW [2]		ONE in each category CHANNELIZA  NONE [6] RECOVERED [4] RECOVERING [3] RECENT OR NO I	ATION [	STABILITY ☐ HIGH [3] ☑ MODERATE [2] ☐ LOW [1]		Channel 13
River right looking dow  EROSION  NONE / LITTLE  MODERATE [2]	R   WIDE > 50	AN WIDTH  Om [4]   TE 10-50m [3]   5-10m [2]   RROW < 5m [1]   [1]	FLOOD FOREST, SWA SHRUB OR OL RESIDENTIAL, FENCED PAST	PLAIN QUALI MP [3] D FIELD [2] PARK, NEW FIELD	TY  R CONSER  URBAN  MINING	EVATION TILLAGE [1] OR INDUSTRIAL [0] CONSTRUCTION [0] inant land use(s) ian. Riparian
Comments						Maximum 10
5] POOL / GLIDE  MAXIMUM DEP  Check ONE (ONL)	Check ONE POOL WIDTH POOL WIDTH	N QUALITY NEL WIDTH (Or 2 & average) > RIFFLE WIDTH [2] = RIFFLE WIDTH [1] < RIFFLE WIDTH [0]	Chect TORRENTIAL VERY FAST [ FAST [1] MODERATE	ENT VELOCITY  ALL that apply [-[-1] S SLOW [1] [1] INTERSTIT INTERMIT [1] EDDIES [1] reach - pools and rife	FIAL [-1] TENT [-2]	eation Potential mary Contact endary Contact endary Contact en and comment on back)  Pool / Current Maximum 12
Indicate for for of riffle-obligation RIFFLE DEPT  BEST AREAS > 100  BEST AREAS 5-100  BEST AREAS < 50  [metrocomments]	H RUN DE m [2] □ MAXIMUM > m [1] ☑ MAXIMUM < m	Check Of PTH RIFFL  50cm [2] ☐ STABL  50cm [1] ☒ MOD. S	NE (Or 2 & averag .E / RUN SUB E (e.g., Cobble, I	ye) STRATE RIFF Boulder) [2] rge Gravel) [1]	a population  FLE / RUN EMB  NONE [2]  LOW [1]  MODERAT  EXTENSIV	NO RIFFLE [metric=0] EDDEDNESS  RE [0] Riffle /
DRAINAGE AF	REA MODI	LOW - LOW [2-4] ERATE [6-10] - VERY HIGH [10-6]		POOL:	%GLIDE:	Gradient 8



Stream Drawing:

ag field





**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 071

Date:

June 10, 2020

**Description:** 

Perennial

Exceptional Warmwater Habitat

Valley Run

Facing Upstream



#### Stream 071

Date:

June 1, 2020

**Description:** 

Perennial

Exceptional Warmwater Habitat

Valley Run





**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 071

Date:

June 10, 2020

**Description:** 

Perennial

Exceptional

Warmwater Habitat

Valley Run





### Primary Headwater Habitat Evaluation Form

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

49	

SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project	
s-aeh-20200610-11 SITE NUMBER RIVER BASIN Muskingum DRAINAGE AREA (mi²) 0.	06
LENGTH OF STREAM REACH (ft) 150 LAT. 39.92951 LONG82.27793 RIVER CODE RIVER MILE 0.	.14
DATE 06/10/20 SCORER AEH COMMENTS Intermittent	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	uctions
STREAM CHANNEL NONE / NATURAL CHANNEL PRECOVERED RECOVERING RECENT OR NO RECOMMODIFICATIONS:	OVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	HHEI
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE PERCENT TYPE PERCENT	Metric
BLDR SLABS [16 pts]	Points
BOULDER (>256 mm) [16 pts] LEAF PACK/WOODY DEBRIS [3 pts]	Substrate
BEDROCK [16 pt]  0%  FINE DETRITUS [3 pts]	Max = 40
COBBLE (65-256 mm) [12 pts] 40% CLAY or HARDPAN [0 pt] 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%	
☐       GRAVEL (2-64 mm) [9 pts]       20%       ☐       MUCK [0 pts]       0%         ☐       SAND (<2 mm) [6 pts]	19
Total of Percentages of 40.00% (A) Substrate Percentage Check 100% (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 TOTAL NUMBER OF SUBSTRATE TYPES: 4	
Maximum Dad Danth (Maximum da maximum and dadh aidi in da 24 mata (200 ft) and a farm da the firm of	De el Deser
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):	Pool Dept 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]	4.5
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	15
COMMENTS MAXIMUM POOL DEPTH (Inches): 2.00	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull
> 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ≤ 1.0 m (<=3' 3") [5 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Max=30
	4=
COMMENTS AVERAGE BANKFULL WIDTH (Feet): 4.00	15
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	
LR (Per Bank) LR (Most Predominant per Bank) LR	
Wide >10m	
Moderate 5-10m Field  Urban or Industrial	
Narrow <5m Residential, Park, New Field Open Pasture, Row Cro	р
None Fenced Pasture Mining or Construction	
COMMENTS	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	
Stream Flowing  Moist Channel, isolated pools, no flow (Intermittent)	
Subsurface flow with isolated pools (Interstitial)  Dry channel, no water (Ephemeral)	
COMMENTS_	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	
None 1.0 2.0 3.0 3.0 0.5 1.5 2.5 3	
STREAM GRADIENT ESTIMATE  Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/10	(O ft)
☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☐ Severe (10 ft/10	υ π)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)
WWH Name: Distance from Evaluated Stream
CWH Name: Distance from Evaluated Stream Stream Distance from Evaluated Stream Distance from Evaluated Stream 0.60
EWH Name: Valley Run Distance from Evaluated Stream 0.60
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name:   Glenford   NRCS Soil Map Page:   NRCS Soil Map Stream Order
County: Iicking Township / City: Newark
MISCELLANEOUS
Base Flow Conditions? (Y/N): Y Date of last precipitation: 06/05/20 Quantity: 0.73
Photograph Information:
Elevated Turbidity? (Y/N): Canopy (% open): 85%
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 (mα/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:
BANK Stability LOW J MODERATE HIGH
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  Fish Observed? (Y/N) N Voucher?
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  Fish Observed? (Y/N) N Voucher?
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  Fish Observed? (Y/N) N Voucher?
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N)
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  Fish Observed? (Y/N) N Voucher?
BIOTIC EVALUATION  Performed? (Y/N):  N  (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  Fish Observed? (Y/N)  N  Voucher? (Y/N)  Voucher? (Y/N)  N  Voucher? (Y/N)  Aquatic Macroinvertebrates Observed? (Y/N)  N  Voucher? (Y/N)  N  Vouch
BIOTIC EVALUATION  Performed? (Y/N):  N  (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  Fish Observed? (Y/N)  Voucher? (Y/N)  N  Voucher? (Y/N)  Aquatic Macroinvertebrates Observed? (Y/N)  Comments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):  Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location
BIOTIC EVALUATION  Performed? (Y/N):  N  (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  Fish Observed? (Y/N)  N  Voucher? (Y/N)  Voucher? (Y/N)  N  Voucher? (Y/N)  Aquatic Macroinvertebrates Observed? (Y/N)  N  Voucher? (Y/N)  N  Vouch
BIOTIC EVALUATION  Performed? (Y/N):  N  (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  Fish Observed? (Y/N)  N  Voucher? (Y/N)  Voucher? (Y/N)  N  Aquatic Macroinvertebrates Observed? (Y/N)  N  Voucher? (Y/N)  N  Vo
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  Fish Observed? (Y/N) N Voucher?
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  Fish Observed? (Y/N) N Voucher?



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 072

Date:

June 10, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream

Facing Upstream



#### Stream 072

Date:

June 10, 2020

#### **Description:**

Intermittent

Small Drainage Warmwater Stream





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 072

Date:

June 10, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream





### Primary Headwater Habitat Evaluation Form

34

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

S-aeh-20200610-12  SITE NUMBER  RIVER BASIN Muskingum  DRAINAGE AREA (mi²) 0.01  LENGTH OF STREAM REACH (ft) 150  LAT. 39.93271  LONG82.28047  RIVER CODE  RIVER MILE 0.1  DATE 06/10/20  SCORER AEH  COMMENTS intemittent  NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions  STREAM CHANNEL  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY MODIFICATIONS:  Culverted  1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE  PERCENT  PERCENT  TYPE  PERCENT  PONT  SULT 13 pt 1
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions  STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY MODIFICATIONS:  Culverted  1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE  PERCENT TYPE  PERCENT TYPE
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions  STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY MODIFICATIONS: Culverted  1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE PERCENT TYPE  PERCENT TYPE  PERCENT
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY MODIFICATIONS: culverted  1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE  PERCENT  TYPE  PERCENT  PERCENT
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE  PERCENT  TYPE  PERCENT  PERCENT  PERCENT
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE  PERCENT  TYPE  PERCENT  PERCENT  PERCENT  PERCENT  PERCENT  PERCENT  PERCENT  PERCENT  PERCENT
TYPE PERCENT TYPE PERCENT Metri
== Doint
BEDIT SEADS [10 pts]
BOULDER (>256 mm) [16 pts]
COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPAN [0 pt] 0%
GRAVEL (2-64 mm) [9 pts] 40% MUCK [0 pts] 0%
SAND (<2 mm) [6 pts]
Total of Percentages of 0.00% (A) Substrate Percentage 100% (B) A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 TOTAL NUMBER OF SUBSTRATE TYPES: 2
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):  30 centimeters [20 pts]  Max = 3  > 5 cm - 10 cm [15 pts]
□ > 10 - 22.5 cm [25 pts] □ NO WATER OR MOIST CHANNEL [0 pts] 15
COMMENTS MAXIMUM POOL DEPTH (Inches): 3.00
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): Bankfu
> 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]
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] ✓ ≤ 1.0 m (<=3' 3") [5 pts] Max=30
COMMENTSAVERAGE BANKFULL WIDTH (Feet): 3.00 5
This information must also be completed
RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆ RIPARIAN WIDTH FLOODPLAIN QUALITY
L R (Per Bank) L R (Most Predominant per Bank) L R
Wide >10m
Field Field Urban or Industrial
Narrow <5m Residential, Park, New Field Open Pasture, Row Crop
None Fenced Pasture Mining or Construction COMMENTS
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing Moist Channel, isolated pools, no flow (Intermittent)
Subsurface flow with isolated pools (Interstitial)  COMMENTS  Dry channel, no water (Ephemeral)
Subsurface flow with isolated pools (Interstitial)  COMMENTS  Dry channel, no water (Ephemeral)
Subsurface flow with isolated pools (Interstitial)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None  1.0  3.0
Subsurface flow with isolated pools (Interstitial)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

ADDITIONAL STREAM INFORMATION (This Information	Must Also be Completed)	<u>:</u>		
QHEI PERFORMED? - Yes No QHEI S	core(If Yes, A	uttach Completed QHE	il Form)	
DOWNSTREAM DESIGNATED USE(S)				
WWH Name:		Distance from Ev		-
CWH Name: Valley Run		Distance from Ev		10
MAPPING: ATTACH COPIES OF MAPS, INCLUDI	NG THE <u>ENTIRE</u> WATERSH	ED AREA. CLEARLY	MARK THE SITE LOCAT	ION
JSGS Quadrangle Name:	NRCS Soil Map		S Soil Map Stream Orde	er
County: Licking	Township / City:New	vark		
MISCELLANEOUS				
Base Flow Conditions? (Y/N): Y Date of last precipit	ation: 06/05/20	Quantity:	0.73	
Photograph Information:				
Elevated Turbidity? (Y/N): Canopy (% open)	60%			
Were samples collected for water chemistry? (Y/N):	(Note lab sample no. or ic	d. and attach results) L	_ab Number:	
	ma/l) pH (S.U.)	Conductivit	y (µmhos/cm)	
s the sampling reach representative of the stream (Y/N)	If not, please explain:			
,	/\			
A 1355				
Additional comments/description of pollution impacts: BANK Stability	LOW 🗸	MODERATE	HIGH	
ID number. Include appropria  Fish Observed? (Y/N) N Voucher? (Y/N) N Sala  Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Comments Regarding Biology:	manders Observed? (Y/N)	Voucher? (Y/N)	N	N
DRAWING AND NARRATIVE DESCRIPTION OF TOACH CONCRETE blocks	RIPTION OF STREAM	and a narrative descr		
FLOW	sh	hrub		
•	ag field			
	9			
	PHWH Form Page - 2			

road



**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 073

Date:

June 10, 2020

**Description:** 

Intermittent

Modified Small Drainage Warmwater Stream

Facing Upstream



#### Stream 073

Date:

June 10, 2020

**Description:** 

Intermittent

Modified Small Drainage Warmwater Stream





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 073

Date:

June 10, 2020

**Description:** 

Intermittent

Modified Small Drainage Warmwater Stream





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

58
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SITE NAME/LOCATION   AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Project	
s-aeh-20200610-08 SITE NUMBER RIVER BASIN Muskingum DRAINAGE AREA (mi²)	.10
LENGTH OF STREAM REACH (ft) 200 LAT. 39.93580 LONG82.28303 RIVER CODE RIVER MILE	
DATE 06/10/20 SCORER AEH COMMENTS intermittent	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instr	ructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING.	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes	
(Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE  PERCENT  TYPE  PERCENT	HHEI   Metric
BLDR SLABS [16 pts] 0% SILT [3 pt] 50%	Points
BOULDER (>256 mm) [16 pts]	Substrate
COBBLE (65-256 mm) [12 pts] 30% CLAY or HARDPAN [0 pt] 0%	Max = 40
GRAVEL (2-64 mm) [9 pts]  SAND (<2 mm) [6 pts]  0%  ARTIFICIAL [3 pts]  0%	18
Critic (*2 min) [o pio]	
Bldr Slabs, Boulder, Cobble, Bedrock Check	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 TOTAL NUMBER OF SUBSTRATE TYPES: 3	
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):	Pool Depth Max = 30
> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts]	Wiax - 30
> 22.5 - 30 cm [30 pts]	25
COMMENTS MAXIMUM POOL DEPTH (Inches): 4.00	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  > 4.0 meters (> 13') [30 pts]	Bankfull Width
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ≤ 1.0 m (<=3' 3") [5 pts]	Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
COMMENTS AVERAGE BANKFULL WIDTH (Feet): 4.00	15
This information would be	
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	
I B (Most Brodominant per Bank) I B	
L R (Per Bank) L R (Most Predominant per Bank) L R  Wide >10m Mature Forest, Wetland Conservation Tillage	
Wide >10m	
Wide >10m  Mature Forest, Wetland  Conservation Tillage  Immature Forest, Shrub or Old  Field  Open Pasture Row Cr	ор
Wide >10m  Mature Forest, Wetland  Conservation Tillage  Immature Forest, Shrub or Old  Field  Open Pasture Row Cr	ор
Wide >10m  Mature Forest, Wetland  Immature Forest, Shrub or Old  Field  Narrow <5m  Mature Forest, Wetland  Open Pasture, Row Cru	op -
Wide >10m	_
Wide >10m  Mature Forest, Wetland  Immature Forest, Wetland  Immature Forest, Shrub or Old  Field  Narrow <5m  None  Fenced Pasture  Comments	_
Wide >10m	_ ) <u> </u>

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):		
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Atta	ach Completed QHEI Form)	
DOWNSTREAM DESIGNATED USE(S)	1	
WWH Name:	_ Distance from Evaluated Stream	
CWH Name: Valley Run	Distance from Evaluated Stream Distance from Evaluated Stream	0.40
	Distance nom Evaluated Stream _	0.10
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED	DAREA. CLEARLY MARK THE SITE	LOCATION
USGS Quadrangle Name: Glenford NRCS Soil Map P	Page: NRCS Soil Map Strea	m Order
County: Licking Township / City: Newar	k	
MISCELLANEOUS		
Base Flow Conditions? (Y/N): Y Date of last precipitation: 06/05/20	Quantity: 0.73	
Photograph Information:		
Elevated Turbidity? (Y/N): N Canopy (% open): 80%		
Were samples collected for water chemistry? (Y/N): Note lab sample no. or id. a	and attach results) Lab Number:	
Field Measures: Temp (°C) Dissolved Oxygen (ma/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:  BANK Stability  LOW  MG	ODERATE HIG	ВН
	I. NOTE: all voucher samples must be mary Headwater Habitat Assessment I	labeled with the site
BANK Stability  BIOTIC EVALUATION  Performed? (Y/N):  N  (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pri Fish Observed? (Y/N)  Frogs or Tadpoles Observed? (Y/N)  N  Voucher? (Y/N)  Voucher? (Y/N)  Aquatic Macroinvertebrate	I. NOTE: all voucher samples must be mary Headwater Habitat Assessment I Voucher? (Y/N) N Voucher?	labeled with the site Manual)
BIOTIC EVALUATION  Performed? (Y/N):  N  (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pri Fish Observed? (Y/N)  Frogs or Tadpoles Observed? (Y/N)  N  Voucher? (Y/N)  Voucher? (Y/N)  Aquatic Macroinvertebrat Comments Regarding Biology:	I. NOTE: all voucher samples must be mary Headwater Habitat Assessment Noucher? (Y/N) Noucher? (Y/N) Noucher?	labeled with the site Manual)  N (Y/N)  N  eted):
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pri Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF STREAM R	I. NOTE: all voucher samples must be mary Headwater Habitat Assessment Noucher? (Y/N) Noucher? (Y/N) Noucher?	labeled with the site Manual)  N (Y/N)  N eted):
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pri Fish Observed? (Y/N) N Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF STREAM R Include important landmarks and other features of interest for site evaluation and the state of the st	I. NOTE: all voucher samples must be mary Headwater Habitat Assessment Noucher? (Y/N) Noucher? (Y/N) Noucher?	labeled with the site Manual)  N (Y/N)  N eted):
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pri Fish Observed? (Y/N) N Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF STREAM R Include important landmarks and other features of interest for site evaluation and the state of the st	I. NOTE: all voucher samples must be mary Headwater Habitat Assessment Noucher? (Y/N) Noucher? (Y/N) Noucher?	labeled with the site Manual)  N (Y/N)  N eted):
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pri Fish Observed? (Y/N) N Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF STREAM R Include important landmarks and other features of interest for site evaluation and the state of the st	I. NOTE: all voucher samples must be mary Headwater Habitat Assessment Noucher? (Y/N) Noucher? (Y/N) Noucher?	labeled with the site Manual)  N (Y/N)  N eted):
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pri Fish Observed? (Y/N) N Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF STREAM R Include important landmarks and other features of interest for site evaluation and the state of the st	I. NOTE: all voucher samples must be mary Headwater Habitat Assessment Noucher? (Y/N) Noucher? (Y/N) Noucher?	labeled with the site Manual)  N (Y/N)  N eted):
BIOTIC EVALUATION  Performed? (Y/N):  (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pri Fish Observed? (Y/N)  Frogs or Tadpoles Observed? (Y/N)  N  Voucher? (Y/N)  Voucher? (Y/N)  N  Aquatic Macroinvertebrate  Comments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF STREAM R  Include important landmarks and other features of interest for site evaluation and eroded banks	I. NOTE: all voucher samples must be mary Headwater Habitat Assessment Noucher? (Y/N) Noucher? (Y/N) Noucher?	labeled with the site Manual)  N (Y/N)  N eted):
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pri Fish Observed? (Y/N) N Salamanders Observed? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF STREAM Reference in the result of interest for site evaluation and eroded banks  FLOW	I. NOTE: all voucher samples must be mary Headwater Habitat Assessment Noucher? (Y/N) Noucher? (Y/N) Noucher?	labeled with the site Manual)  N (Y/N)  N eted):





**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 074

Date:

June 10, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream

Facing Upstream



#### Stream 074

Date:

June 10, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 074

Date:

June 10, 2020

**Description:** 

Intermittent

Small Drainage Warmwater Stream



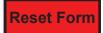


### **ChieFP** Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3):

25
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SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmis	ssion Line Rebuild Project
s-aeh-20200610-09 SITE NUMBER RIVER BASIN Muskin	
LENGTH OF STREAM REACH (ft) 25 LAT. 39.93597 LONG82.2828	RIVER CODE RIVER MILE 0.0
DATE 06/10/20 SCORER AEH COMMENTS Ephemeral to	rib to Stream 074
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Man	ual for Ohio's PHWH Streams" for Instructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED MODIFICATIONS:	RECOVERING RECENT OR NO RECOVERY
SUBSTRATE (Estimate percent of every type of substrate present. Check O/  (May of 22) Add total number of significant substrate types found (May of 2). Fin	
(Max of 32). Add total number of significant substrate types found (Max of 8). Fin <b>TYPE</b> PERCENT TYPE	PERCENT Metric
BLDR SLABS [16 pts]	WOODY DEBRIS [3 pts]  Points
BOULDER (>256 mm) [16 pts]	TUS [3 pts] 0% Substrate
☐ ☐ COBBLE (65-256 mm) [12 pts] ☐ ☐ CLAY or HAP	RDPAN [0 pt] 0%
GRAVEL (2-64 mm) [9 pts] 40% MUCK [0 pts]  SAND (<2 mm) [6 pts] 0% ARTIFICIAL	1 15
Ortito (*2 min) [o pio]	
Total of Percentages of 0.00% (A) Substrate Percentages of Check	100% (B) A + B
	NUMBER OF SUBSTRATE TYPES: 3
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter evaluation. Avoid plunge pools from road culverts or storm water pipes) (Chec	
> 30 centimeters [20 pts] > 5 cm - 10	cm [15 pts]
> 22.5 - 30 cm [30 pts]	ts] R OR MOIST CHANNEL [0 pts] 5
COMMENTS MAXI	
Online Et 10	MUM POOL DEPTH (Inches): 1.00
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements)	(Check ONLY one box): Bankfull
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements)  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  ✓ ≤ 1.0 m (<=:	(Check ONLY one box): 5 m (> 3' 3" - 4' 8") [15 pts]  Bankfull Width
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements)  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]     1.0 m (<=:	(Check ONLY one box):  5 m (> 3' 3" - 4' 8") [15 pts]  3' 3") [5 pts]  Bankfull Width Max=30
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements)  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	(Check ONLY one box): 5 m (> 3' 3" - 4' 8") [15 pts]  Bankfull Width
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements)  > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVER	(Check ONLY one box): 5 m (> 3' 3" - 4' 8") [15 pts]  RAGE BANKFULL WIDTH (Feet):  6 completed
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements)  > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  AVER	(Check ONLY one box): 5 m (> 3' 3" - 4' 8") [15 pts] 3' 3") [5 pts]  RAGE BANKFULL WIDTH (Feet): 2.00
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements)  > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be RIPARIAN ZONE AND FLOODPLAIN QUALITY  ∴ NOTE: River Left FLOODPLAIN QUALITY  L R (Per Bank)  L R (Most Predominant per Bar	(Check ONLY one box):  5 m (> 3' 3" - 4' 8") [15 pts]  RAGE BANKFULL WIDTH (Feet):  2.00  6 completed  t (L) and Right (R) as looking downstream☆
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements)  > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left RIPARIAN WIDTH  L R (Per Bank)  L R (Most Predominant per Bar Mature Forest, Wetland	(Check ONLY one box):  5 m (> 3' 3" - 4' 8") [15 pts]  RAGE BANKFULL WIDTH (Feet):  e completed t (L) and Right (R) as looking downstream the conservation Tillage
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements)  > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also b  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ♣ NOTE: River Left  RIPARIAN WIDTH  L R (Per Bank) Wide >10m Mature Forest, Wetland    Moderate 5-10m	(Check ONLY one box):  5 m (> 3' 3" - 4' 8") [15 pts]  RAGE BANKFULL WIDTH (Feet):  e completed t (L) and Right (R) as looking downstream  hk)  L R  Conservation Tillage  Old  Old  Old  Onen Pasture Row Crop
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements)  > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be RIPARIAN ZONE AND FLOODPLAIN QUALITY  ♣ NOTE: River Left RIPARIAN WIDTH  L R (Per Bank) Wide >10m Wide >10m Mature Forest, Wetland    Moderate 5-10m   Narrow <5m   Residential, Park, New Field	(Check ONLY one box): 5 m (> 3' 3" - 4' 8") [15 pts]  RAGE BANKFULL WIDTH (Feet):  e completed t (L) and Right (R) as looking downstream  hk)  L R  Conservation Tillage Old  Urban or Industrial  Open Pasture, Row Crop
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements)  > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also b  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ♣ NOTE: River Left  RIPARIAN WIDTH  L R (Per Bank) Wide >10m Mature Forest, Wetland    Moderate 5-10m	(Check ONLY one box):  5 m (> 3' 3" - 4' 8") [15 pts]  RAGE BANKFULL WIDTH (Feet):  e completed t (L) and Right (R) as looking downstream  hk)  L R  Conservation Tillage  Old  Old  Old  Onen Pasture Row Crop
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements)  > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be RIPARIAN ZONE AND FLOODPLAIN QUALITY  L R (Per Bank) Wide >10m Mature Forest, Wetland  Wide >10m Moderate 5-10m  Narrow <5m  None COMMENTS  Residential, Park, New Field  None COMMENTS	(Check ONLY one box): 5 m (> 3' 3" - 4' 8") [15 pts]  RAGE BANKFULL WIDTH (Feet):  e completed t (L) and Right (R) as looking downstream  hk)  L R  Conservation Tillage Old  Urban or Industrial  Open Pasture, Row Crop
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements)  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be RIPARIAN ZONE AND FLOODPLAIN QUALITY  ♣ NOTE: River Left RIPARIAN WIDTH  L R (Per Bank)  Wide >10m  Mature Forest, Wetland  Wide >10m  Moderate 5-10m  Narrow <5m  Narrow <5m  Residential, Park, New Fiel  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Mois	(Check ONLY one box):  5 m (> 3' 3" - 4' 8") [15 pts]  RAGE BANKFULL WIDTH (Feet):  2.00  Completed  t (L) and Right (R) as looking downstream  hk)  Conservation Tillage  Old  Urban or Industrial  Open Pasture, Row Crop  Mining or Construction  St Channel, isolated pools, no flow (Intermittent)
BANK FULL WIDTH (Measured as the average of 3-4 measurements)  > 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  L R (Per Bank) L R (Most Predominant per Bar Mature Forest, Wetland Wide >10m Moderate 5-10m  Narrow <5m None COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing  Mois	(Check ONLY one box):  5 m (> 3' 3" - 4' 8") [15 pts]  RAGE BANKFULL WIDTH (Feet):  2.00  6 completed  t (L) and Right (R) as looking downstream  hk)  Conservation Tillage  Old  Urban or Industrial  Open Pasture, Row Crop  Mining or Construction
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements)  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be  RIPARIAN ZONE AND FLOODPLAIN QUALITY  L R (Per Bank)  L R (Most Predominant per Bar  Wide >10m  Mature Forest, Wetland  Immature Forest, Wetland  Immature Forest, Shrub or Field  Narrow <5m  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial)  Noise  Dry	(Check ONLY one box):  5 m (> 3' 3" - 4' 8") [15 pts]  RAGE BANKFULL WIDTH (Feet):  2.00  E completed  t (L) and Right (R) as looking downstream  hk)  Conservation Tillage Old  Urban or Industrial  Open Pasture, Row Crop  Mining or Construction  St Channel, isolated pools, no flow (Intermittent) channel, no water (Ephemeral)
BANK FULL WIDTH (Measured as the average of 3-4 measurements)  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also be represented by the second s	(Check ONLY one box):  5 m (> 3' 3" - 4' 8") [15 pts]  RAGE BANKFULL WIDTH (Feet):  2.00  E completed  t (L) and Right (R) as looking downstream  hk)  Conservation Tillage Old  Urban or Industrial  Open Pasture, Row Crop  Mining or Construction  St Channel, isolated pools, no flow (Intermittent) channel, no water (Ephemeral)
BANK FULL WIDTH (Measured as the average of 3-4 measurements)  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS   This information must also be RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left RIPARIAN WIDTH  L R (Per Bank)  Wide >10 m Mature Forest, Wetland Immature Forest, Wetland Immature Forest, Shrub or Field  Narrow <5m Residential, Park, New Fiel  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY ONE)  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY ONE)  1.0  2.0  2.5	(Check ONLY one box):  5 m (> 3' 3" - 4' 8") [15 pts]  RAGE BANKFULL WIDTH (Feet):  2.00  Completed  t (L) and Right (R) as looking downstream  Conservation Tillage  Old  Urban or Industrial  Open Pasture, Row Crop  Mining or Construction  St Channel, isolated pools, no flow (Intermittent) channel, no water (Ephemeral)  (LY one box):  3.0
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements)  > 4.0 meters (> 13') [30 pts]  > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]  > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  COMMENTS  This information must also b  RIPARIAN ZONE AND FLOODPLAIN QUALITY  ♣ NOTE: River Left  RIPARIAN WIDTH  L R (Per Bank)  Wide >10m  Mature Forest, Wetland    Mature Forest, Wetland   Immature Forest, Wetland   Immature Forest, Shrub or Field  Narrow <5m  Residential, Park, New Fiel  None  COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing Subsurface flow with isolated pools (Interstitial)  COMMENTS  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY ONE)  STREAM GRADIENT ESTIMATE	(Check ONLY one box):  5 m (> 3' 3" - 4' 8") [15 pts]  RAGE BANKFULL WIDTH (Feet):  2.00  Completed  t (L) and Right (R) as looking downstream  Conservation Tillage  Old  Urban or Industrial  Open Pasture, Row Crop  Mining or Construction  St Channel, isolated pools, no flow (Intermittent) channel, no water (Ephemeral)  (LY one box):  3.0

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Atta	ach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
CWH Name:	_ Distance from Evaluated Stream
EWH Name: Valley Run	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHE	D AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Glenford NRCS Soil Map I	Page: NRCS Soil Map Stream Order
County: Licking Township / City: Newar	rk
MISCELLANEOUS	
Base Flow Conditions? (Y/N):	Quantity: 0.73
Photograph Information:	
Elevated Turbidity? (Y/N): N Canopy (% open): 20%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id.	and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (ma/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:  BANK Stability  LOW  M	IODERATE / HIGH
DARK Stability	MODERATE V MIGHT
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections options)	•
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebra Comments Regarding Biology:	Voucher? (Y/N) N
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebra Comments Regarding Biology:	Voucher? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebra Comments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF STREAM I	Voucher? (Y/N) N Vouche
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinvertebra Comments Regarding Biology:	Voucher? (Y/N) N Vouche





**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 075

Date:

June 10, 2020

**Description:** 

Ephemeral

**Ephemeral Stream** 

Facing Upstream



#### Stream 075

Date:

June 10, 2020

**Description:** 

Ephemeral

Ephemeral Stream





**STREAMS** 

**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 075

Date:

June 10, 2020

**Description:** 

Ephemeral

Ephemeral Stream





## Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

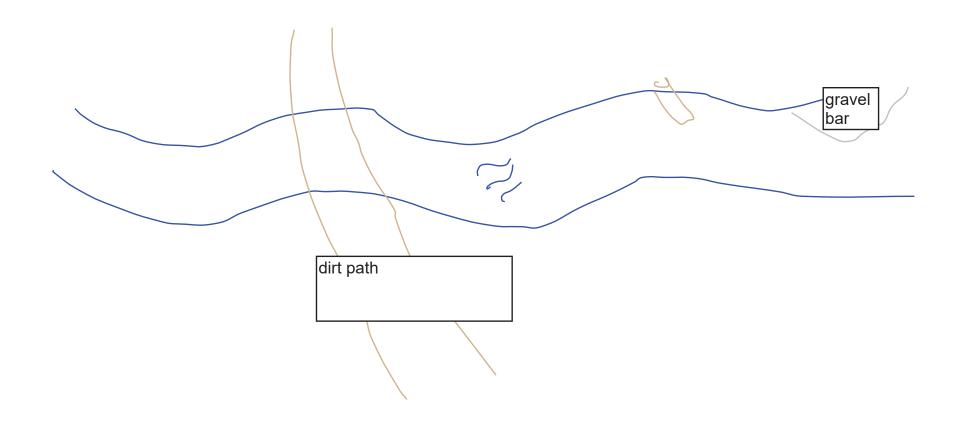
QHEI Score:

57	.0	
		-4

		/ Transmission Line Rebuild Project	RM: 1.7 _ Date:	6 <b>/</b> 10 <b>/</b> 20
S-aeh-20200610-07 / Wis	e Run <i>Sco</i>	orers Full Name & Affiliation:	AECOM	
River Code:	STORET #:	Lat./ Long.: 39.9398	<b>/8</b> 2.2863	Office verified location
DECT TYPES	or note every type present  OTHER TYPES  HARDPAN [4]  DETRITUS [3]  MUCK [2]  SILT [2]  ARTIFICIAL [0]  (Score natural su	POOL RIFFLE    LIMESTONE [1]   X TILLS [1]   WETLANDS [0]   HARDPAN [0]   SANDSTONE [0]   bstrates: ignore   RIP/RAP [0]	ONE (Or 2 & average)  QUAL  HEAVY [-  MODERA  NORMAL  FREE [1]  WODEO  MODERA  NORMAL  NORMAL  NORMAL	2] TE [-1] Substrate
quality; <b>3</b> -Highest quality in mod	ality; 2-Moderate amounts, but not lerate or greater amounts (e.g., ve developed rootwad in deep / fast very pools > 70ci ATION [1] 1 ROOTWADS [	1]O_ AQUATIC MACROPHY	of highest   large   Check ONE (O pools.   EXTENSIVE   RS [1]   MODERATE   TES [1]   SPARSE 5-< BRIS [1]   NEARLY AB	or 2 & average) >75% [11] 25-75% [7]
SINUOSITY DEVELO	LENT [7]	ATION STABILITY    HIGH [3]   MODERATE [2]   LOW [1]	,	Channel Maximum 20
River right looking downstream  REROSION  NONE / LITTLE [3]  MODERATE [2]  HEAVY / SEVERE [1]	RIPARIAN WIDTH  WIDE > 50m [4]  MODERATE 10-50m [3]  NARROW 5-10m [2]  VERY NARROW < 5m [1]	E in each category for EACH BANK (OR  R FLOOD PLAIN QUALITY FOREST, SWAMP [3] SHRUB OR OLD FIELD [2] RESIDENTIAL, PARK, NEW FIELD FENCED PASTURE [1] OPEN PASTURE, ROWCROP [0]	IY  R CONSERVATIO URBAN OR INI II	DUSTRIAL [0] STRUCTION [0]
□ 0.7-<1m [4] × P	FFLE / RUN QUALITY CHANNEL WIDTH Check ONE (Or 2 & average) OOL WIDTH > RIFFLE WIDTH [2] OOL WIDTH = RIFFLE WIDTH [1] OOL WIDTH < RIFFLE WIDTH [0]	CURRENT VELOCITY  Check ALL that apply  TORRENTIAL [-1] SLOW [1]  VERY FAST [1] INTERSTIT  FAST [1] INTERMIT  MODERATE [1] EDDIES [1]  Indicate for reach - pools and rift	TENT [-2]  Ifles.	Contact y Contact
of riffle-obligate spec RIFFLE DEPTH  ☐ BEST AREAS > 10cm [2] ☐	Cies:         Check O           RUN DEPTH         RIFF           MAXIMUM > 50cm [2]         ☒ STABI           MAXIMUM < 50cm [1]         ☐ MOD.	LE (e.g., Cobble, Boulder) [2]	a population  □ NO I  FLE / RUN EMBEDDE □ NONE [2] ☑ LOW [1] □ MODERATE [0] □ EXTENSIVE [-1]	RIFFLE [metric=0] EDNESS  Riffle /
6] GRADIENT ( 65.00 ft/m DRAINAGE AREA ( 3.60 mi	MODERATE [6-10]	%POOL: %RUN:	%GLIDE:	Gradient 4

A] SAMPLE Check A	ED REACH ALL that apply	Comment RE: Reach consistency/	Is reach typical of steam?, Recreation	n/ Observed - Inferred, Other	/ Sampling observations, Concerns, Acc	ess directions, etc.
METHOD  BOAT  WADE  L. LINE OTHER  DISTANCE	STAGE  1st -sample pass- 2nd  HIGH  UP  NORMAL  LOW	Wise Run-no existing designate	ted uses			
☐ 0.5 Km ☐ 0.2 Km	□ DRY □ CLARITY  1stsample pass 2nd  < 20 cm □ 20-<40 cm □ 40-70 cm □ > 70 cm/ CTB □ SECCHI DEPTH □	☐ INVASIVE MACROPHYTES ☐ EXCESS TURBIDITY ☐ DISCOLORATION ☐ FOAM / SCUM	DJ MAINTENANCE PUBLIC / PRIVATE / BOTH / NA ACTIVE / HISTORIC / BOTH / NA YOUNG-SUCCESSION-OLD SPRAY / SNAG / REMOVED MODIFIED / DIPPED OUT / NA LEVEED / ONE SIDED	Circle some & COMMENT	EJ ISSUES  WWTP / CSO / NPDES / INDUSTRY  HARDENED / URBAN / DIRT&GRIME  CONTAMINATED / LANDFILL  BMPs-CONSTRUCTION-SEDIMENT  LOGGING / IRRIGATION / COOLING  BANK / EROSION / SURFACE	F] MEASUREMENTS  \( \overline{x} \) width  \( \overline{x} \) depth  max. depth  \( \overline{x} \) bankfull width  bankfull \( \overline{x} \) depth
CANOP  > 85%- OPI  55%-<85%  30%-<55%  10%-<30%	EN g g g g g g g g g g g g g g g g g g g	TRASH / LITTER  NUISANCE ODOR SLUDGE DEPOSITS CSOs/SSOs/OUTFALLS	RELOCATED / CUTOFFS MOVING-BEDLOAD-STABLE ARMOURED / SLUMPS ISLANDS / SCOURED IMPOUNDED / DESICCATED FLOOD CONTROL / DRAINAGE		FALSE BANK / MANURE / LAGOON WASH H <sub>2</sub> 0 / TILE / H <sub>2</sub> 0 TABLE ACID / MINE / QUARRY / FLOW NATURAL / WETLAND / STAGNANT PARK / GOLF / LAWN / HOME ATMOSPHERE / DATA PAUCITY	W/D ratio bankfull max. depth floodprone x <sup>2</sup> width entrench. ratio Legacy Tree:

### Stream Drawing:





**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 076

Date:

June 10, 2020

**Description:** 

Perennial

Warmwater Habitat – Good

Wise Run

Facing Upstream



#### Stream 076

Date:

June 10, 2020

#### **Description:**

Perennial

Warmwater Habitat – Good

Wise Run





**Client Name:** 

**AEP** 

Site Location:

Crooksville-North Newark 138 kV Transmission Line Rebuild Project

Project No.

60616110, 60618779, 60616126

#### Stream 076

Date:

June 10, 2020

**Description:** 

Perennial

Warmwater Habitat – Good

Wise Run





### Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1	, 2, 3)
SITE NAME/LOCATION AEP-Crooksville-North Newark 138 kV Transmission Line Rebuild Proj	ect
s-aeh-20200610-06 SITE NUMBER RIVER BASIN Muskingum DRAINAGE	E AREA (mi²) <b>0.06</b>
LENGTH OF STREAM REACH (ft) 200 LAT. 39.94364 LONG82.28960 RIVER CODE	RIVER MILE 0.13
DATE 06/10/20 SCORER AEH COMMENTS intermittent	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Strea	ams" for Instructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECEI	NIT OD NO DECOVEDY
MODIFICATIONS: Cow pasture	NI OR NO RECOVERY
SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes	
TYPE PERCENT TYPE PE	ERCENT Meti
BLDR SLABS [16 pts]	60% 5%
BEDROCK [16 pt]  BEDROCK [16 pt]  BEDROCK [16 pt]  BEDROCK [16 pt]	0% Substr
COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPAN [0 pt]	0% Max =
GRAVEL (2-64 mm) [9 pts] MUCK [0 pts]	0% 15
SAND (<2 mm) [6 pts]  O  ARTIFICIAL [3 pts]	0%
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock Substrate Percentage Check 100%	(B) A + B
CORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 12 TOTAL NUMBER OF SUBSTRATE TY	rpes: 3
Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at t	the time of Pool Do
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):	Max =
> 30 centimeters [20 pts]	
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	15
COMMENTS MAXIMUM POOL DEPTH (Inc	iches): 4.00
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]	Bankfi Width
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	Max=3
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
COMMENTS AVERAGE BANKFULL WIDTH	(Feet): 2.00   5
This information <u>must</u> also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking do	lownstream√r
RIPARIAN WIDTH FLOODPLAIN QUALITY	ownstream M
L R (Per Bank) L R (Most Predominant per Bank) L R	mustice Tillens
Immature Forest Shrub or Old	rvation Tillage or Industrial
Field	
Narrow < 5m Residential, Park, New Field	Pasture, Row Crop
None Fenced Pasture Mining COMMENTS	or Construction
COMMENTO	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing Moist Channel, isolated pools, no flowing	flow (Intermittent)
Subsurface flow with isolated pools (Interstitial)  Dry channel, no water (Ephemeral	,
COMMENTS	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	
None	
STREAM GRADIENT ESTIMATE  Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe	Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):		
QHEI PERFORMED? - Yes ✓ No QHEI Score (If Yes, Attack	ach Completed QHEI Form)	
DOWNSTREAM DESIGNATED USE(S)  WWH Name:  CWH Name:	Distance from Evaluated Stream Distance from Evaluated Stream	
EWH Name: Valley Run	Distance from Evaluated Stream1.95	
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED	DAREA. CLEARLY MARK THE SITE LOCATION	
USGS Quadrangle Name: RCS Soil Map Pa		
County: Licking Township / City: newark	K	
MISCELLANEOUS		
Base Flow Conditions? (Y/N): Y Date of last precipitation: 06/05/20	Quantity:	
Photograph Information:		
Elevated Turbidity? (Y/N): Canopy (% open): 90%		
Were samples collected for water chemistry? (Y/N): Note lab sample no. or id. a	and attach results) Lab Number:	
Field Measures: Temp (°C) Dissolved Oxygen (ma/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:		
BANK Stability LOW MC	ODERATE HIGH	
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. ID number. Include appropriate field data sheets from the Print Fish Observed? (Y/N) N Salamanders Observed? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrate Comments Regarding Biology:	imary Headwater Habitat Assessment Manual)  Voucher? (Y/N)	
DRAWING AND NARRATIVE DESCRIPTION OF STREAM R  Include important landmarks and other features of interest for site evaluation and	· ·	
The duty important fandinaries and other reactives of interest for site evaluation and	Was a marrative description of the stream's location	
FLOW black pipe	cow pasture wetland	
outlet	John Pastars	

# This foregoing document was electronically filed with the Public Utilities Commission of Ohio Docketing Information System on

12/2/2021 3:12:32 PM

in

Case No(s). 21-1206-EL-BLN

Summary: Notice Letter of Notification Part 9 electronically filed by Hector Garcia-Santana on behalf of AEP Ohio Transmission Company, Inc.