B.4 HHEI FORMS



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

SITE NAME/LOCATION NCL - alternate route	
SITE NUMBER Stream 1 RIVER BASIN DRAINAGE AREA (mi ²) 0	.59 mi ²
LENGTH OF STREAM REACH (ft) 200 LAT. 40.21913 LONG83.09393 RIVER CODE RIVER MILE	
DATE 02/20/20 SCORER A. Sjollema 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 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 BLDR SLABS [16 pts] 0% Image: SILT [3 pt] 80%	HHEI Metric Points
BOULDER (>256 mm) [16 pts] 0% LEAF PACK/WOODY DEBRIS [3 pts] 0%	Substrate
BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] 0% COBBLE (65-256 mm) [12 pts] 0% ✓ CLAY or HARDPAN [0 pt] 20%	Max = 40
GRAVEL (2-64 mm) [9 pts] 0% MUCK [0 pts] 0% SAND (<2 mm) [6 pts]	5
Total of Percentages of 0.00% (A) Substrate Percentage 100% (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3 TOTAL NUMBER OF SUBSTRATE TYPES: 2	
2. Maximum Pool Depth (<i>Measure the maximum pool depth within the 61 meter (200 ft</i>) 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]	
> 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	15
COMMENTS 4 inches MAXIMUM POOL DEPTH (centimeters): 10	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull Width
$ \begin{array}{ c c c c c } &> 4.0 \text{ meters } (> 13') \ [30 \text{ pts}] \\ \hline &> 3.0 \text{ m} - 4.0 \text{ m} (> 9' 7" - 13') \ [25 \text{ pts}] \\ \hline &< 1.5 \text{ m} - 3.0 \text{ m} (> 9' 7" - 4' 8") \ [20 \text{ pts}] \end{array} \end{array} > 1.0 \text{ m} (<=3' 3") \ [5 \text{ pts}] \\ \hline &\leq 1.0 \text{ m} (<=3' 3") \ [5 \text{ pts}] \\ \hline &\leq 1.0 \text{ m} (<=3' 3") \ [5 \text{ pts}] \end{array} $	Max=30
COMMENTS Bankfull 5.5 width 0.8 height AVERAGE BANKFULL WIDTH (meters): 1.70	20
OHWM 4.5' width 0.5' hight	
This information <u>must</u> 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 Wide >10m Mature Forest, Wetland Conservation Tillage	
Moderate 5-10m Immature Forest, Shrub or Old	
	p
Image: Marrow <5m	
COMMENTS Old 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 3.0 0.5 1.5 2.5 3.0	

ADDITIONAL STREAM INFORMATION (This Information Mus	st 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 Distance from Evaluated Stream
EWH Name: Olentangy River	Distance from Evaluated Stream 1.70 mi.
MAPPING: ATTACH COPIES OF MAPS. INCLUDING T	THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Powell, OH	NRCS Soil Map Page: NRCS Soil Map Stream Order
Deleviere	Township / City: LibertyTownship
MISCELLANEOUS	
Base Flow Conditions? (Y/N):_Y Date of last precipitation	n: 02/14/20 Quantity: 0.07 in.
Photograph Information: upstream, downstream, substrates	
Elevated Turbidity? (Y/N): N Canopy (% open):	100%
	lote lab sample no. or id. and attach results) Lab Number:
6.00	
rield Measures. Temp (C) Dissolved Oxygen (mg/	
Is the sampling reach representative of the stream (Y/N)	If not, please explain:
Additional comments/description of pollution impacts:	
Plastic culvert feeding into stream, potentially tiles from fiel	lds
BIOTIC EVALUATION	
Ν	
	/oucher collections optional. NOTE: all voucher samples must be labeled with the s eld data sheets from the Primary Headwater Habitat Assessment Manual)
	ders Observed? (Y/N) N Voucher? (Y/N) N
Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) N	Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:	
	TION OF STREAM REACH (This must be completed):
Include important landmarks and other features of intere	est for site evaluation and a narrative description of the stream's location
BILLON A	VALL PTP
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HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION NCL - alternate route	
SITE NUMBER Stream 2 RIVER BASIN DRAINAGE AREA (mi²) 0.	40
LENGTH OF STREAM REACH (ft) 200 LAT. 40.22179 LONG83.12096 RIVER CODE RIVER MILE	
DATE 02/18/20 SCORER A. Sjollema COMMENTS Ephemeral	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	ictions
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 BLDR SLABS [16 pts] 0% BOULDER (>256 mm) [16 pts] 0% SILT [3 pt] BEDROCK [16 pt] 0% 0% COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPAN [0 pt] GRAVEL (2-64 mm) [9 pts] 0% 0% SAND (<2 mm) [6 pts]	HHEI Metric Points Substrate Max = 40 5 A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3 TOTAL NUMBER OF SUBSTRATE TYPES: 2	
2. Maximum Pool Depth (<i>Measure the maximum pool depth within the 61 meter (200 ft)</i> evaluation reach at the time of	Pool Depth
 waximum Pool Depth (measure the maximum pool depth within the of meter (200 h) 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] 	Max = 30
> 10 - 22.5 cm [25 pts]	20
COMMENTS 16 inches MAXIMUM POOL DEPTH (centimeters): 41	
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] > 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
COMMENTS Bankfull 3 feet width/0.8' height AVERAGE BANKFULL WIDTH (meters): 0.90	5
OHWM 1.5 ' width/ 0.2' height	
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE: River Left (L) and Right (R) as looking downstream is a color of the color of t	
Narrow <5m	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS snowmelt and strom water influence	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 0.5 1.5	
STREAM GRADIENT ESTIMATE	D ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	<u>.</u>
QHEI PERFORMED? - Yes V No QHEI Score (If Yes, A	ttach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S) WWH Name: Scioto River (O'Shaughnessy Reservoir/Dam) CWH Name:	Distance from Evaluated Stream < 1.00 mi. Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSH	ED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Powell NRCS Soil Map	Page: NRCS Soil Map Stream Order
County: Delaware Township / City: Liber	rtyTownship
MISCELLANEOUS Base Flow Conditions? (Y/N):N Date of last precipitation:02/14/20	Quantity: 0.07 in.
Photograph Information: _upstream, downstream, substrates	
Elevated Turbidity? (Y/N): Y Canopy (% open): 50%	
Were samples collected for water chemistry? (Y/N): Y (Note lab sample no. or id	l. and attach results) Lab Number:
Field Measures: Temp (°C) 6.10 Dissolved Oxygen (mg/l) pH (S.U.)	
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
BIOTIC EVALUATION Performed? (Y/N): N (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the F Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinverteb Comments Regarding Biology:	Primary Headwater Habitat Assessment Manual)
DRAWING AND NARRATIVE DESCRIPTION OF STREAM Include Important landmarks and other features of interest for site evaluation	
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residential 2 and the Streems from the	- 0x 60-00 15

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

SITE NAME/LOCATION NCL - alternate route		
SITE NUMBER Stream 3 RIVER BASIN DRAINAGE AREA (mi²)	0.10	
LENGTH OF STREAM REACH (ft) 19 LAT. 40.22394 LONG83.13718 RIVER CODE RIVER MILE		
DATE 02/18/20 SCORER A. Sjollema 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 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 BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts] 0% BEDROCK [16 pt] 0% COBBLE (65-256 mm) [12 pts] 0% GRAVEL (2-64 mm) [9 pts] 0% SAND (<2 mm) [6 pts]	HHEI Metric Points Substrate Max = 40 6 A + B	
Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3 TOTAL NUMBER OF SUBSTRATE TYPES: 3	A+B	
2. Maximum Pool Depth (<i>Measure the maximum pool depth within the 61 meter (200 ft)</i> 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]	25	
COMMENTS 4 inches MAXIMUM POOL DEPTH (centimeters): 10		
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] > 1.0 m (<=3' 3") [5 pts] Width > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] \checkmark > 1.0 m (<=3' 3") [5 pts] Max=30		
COMMENTS Bankfull 3 feet width/0.5' height AVERAGE BANKFULL WIDTH (meters): 0.90 OHWM 2' width/ 0.2' height	5	
This information must also be completed		
RIPARIAN ZONE AND FLOODPLAIN QUALITY		
RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) L R (Most Predominant per Bank) L R Image: State of the sta		
Narrow <5m Residential, Park, New Field Open Pasture, Row C	rop	
None Fenced Pasture Mining or Construction		
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS	t)	
SINUOSITY (Number of bends per 61 m (200 ft) of channel)(Check ONLY one box):None1.02.03.00.571.52.5>3		
STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate I Moderate (2 ft/100 ft) Moderate to Severe Severe (10 ft)	100 ft)	

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 LOCATIO USGS Quadrangie Name: Shawnee Hills NRCS Soil Map Page: NRCS Soil Map Dage: NRCS Soil Map Stream Order. County: Delatance from Evaluated Stream MISCELLANEOUS Base Flow Conditions? (Y/N): Y Date of last precipitation: 02/14/20 Quantity: 0.07 in. Photograph Information: Iupstream, downstream, substrates 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: 0.46 Is the sampling reach representative of the stream (Y/N) If not, please explain: Took data at headwaters Additional comments/description of pollution impacts: Eleviter Number: Number	WWH Name: Scioto River (O'Shaughnessy Reservoir/Dam) Distance from Evaluated Stream WH Name: Distance from Evaluated Stream Distance from Evaluated Stream WH Name: Distance from Evaluated Stream Distance from Evaluated Stream MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERED AREA. CLEARLY MARK THE SITE LOCATION USGS Quadrangle Name: Shawnee Hills NRCS Soil Map Page: NRCS Soil Map Stream Order County: Delaware Township / City: LibertyTownship MISCELLANEOUS Base Flow Conditions? (V/N): N Date of last precipitation: 02/14/20 Quantity: 0.07 in. Photograph Information: Upstream, downstream, substrates Elevated Township / City: LibertyTownship Field Measures: Temp (°C) 8.50 Dissolved Oxygen (mg/l) pH (S, U) 6.61 Conductivity (umhos/orn) 0.46 Is the sampling reach representative of the stream (Y/N) If not, please explain: Took data at headwaters Additional comments/description of pollution impacts:	WWH Name: Sictor River (O'Shaughnessy Reservoir/Dam) Distance from Evaluated Stream Distance from Evaluated Stream Distance from Evaluated Stream USGS Quadrangle Name: Shawnee Hills NRCS Soil Map Page: NRCS Soil Map Stream Order County: Delaware Township / City: LibertyTownship MISCELLANEOUS Base Flow Conditions? (V/N): Y Date of last precipitation: 02/14/20 Quantity: 0.07 in. Photograph Information: Upstream, substrates Elevated Turbidity? (V/N): N Canopy (% open): 30% Were samples collected for water chemistry? (V/N): Y (Note lab sample no. or id. and attach results) Lab Number:	QHEI PERFORMED? - Yes ✓ No QHEI Score ((If Yes, Attach Completed QHEI Form)
WWH Name: Scioto River (O'Shaughnessy Reservoir/Dam) Distance from Evaluated Stream 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 STE LOCATIO USGS Quadrangle Name: Shawnee Hills NRCS Soil Map Page: NRCS Soil Map Stream Order. County: Delaware Wiscassing Township / City: Liberty Township MISCELLANEOUS Base Flow Conditions? (Y/N): V Date of last precipitation: 02/14/20 Quantity: 0.07 in. Photograph Informatio: upstream, downstream, substrates Elevated Turbidity? (Y/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) 5.50 Dissolved Oxygen (mg/t) pH (S.U.) 6.61 Conductivity (umhos/cm) 0.46 Is the sampling reach representative of the stream (Y/N) If not, please explain: Took data at headwaters Additional comments/description of pollution impacts: Distole appropriate field data sheets from	WWH Name: Scioto River (O'Shaughnessy Reservoir/Dam) Distance from Evaluated Stream <1.00 r CWH Name: Distance from Evaluated Stream Distance from Evaluated Stream CWH Name: Distance from Evaluated Stream Distance from Evaluated Stream MAPPING: ATTACH COPES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE STE LOCATION USGS Quadrangle Name: NRCS Soil Map Page: NRCS Soil Map Stream Order County: Delaware Township / City: LibertyTownship MISCELLANEOUS Base Flow Conditions? (V/N): N Canopy (% open): 30% Were samples collected for water chemistry? (V/N): N Canopy (% open): 30% Were samples collected for water chemistry? (V/N): Y (Note lab sample no. orid. and attach results) Lab Number: Field Measures: Field Measures: Temp (*C) 8.50 Dissolved Oxygen (mg/l) pH (S U) 6.61 Conductivity (µmhos/cm) 0.46 Is the sampling reach representative of the stream (Y/N) If not, please explain: Took data at headwaters Additional comments/description of pollution impacts:	WWH Name: Sictor River (O'Shaughnessy Reservoir/Dam) Distance from Evaluated Stream Distance from Evaluated Stream Distance from Evaluated Stream USGS Quadrangle Name: Shawnee Hills NRCS Soil Map Page: NRCS Soil Map Stream Order County: Delaware Township / City: LibertyTownship MISCELLANEOUS Base Flow Conditions? (V/N): Y Date of last precipitation: 02/14/20 Quantity: 0.07 in. Photograph Information: Upstream, substrates Elevated Turbidity? (V/N): N Canopy (% open): 30% Were samples collected for water chemistry? (V/N): Y (Note lab sample no. or id. and attach results) Lab Number:		
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: Shawnee Hills NRCS Soil Map Page: NRCS Soil Map Page: NRCS Soil Map Stream Order. County: Delator Township / City: LibertyTownship NRCS Soil Map Page: NRCS Soil Map Page: NRCS Soil Map Stream Order. MiSCELLANEOUS Base Flow Conditions? (Y/N): Y Date of last precipitation: 02/14/20 Quantity: 0.07 in. Photograph Information: IUPStream, downstream, substrates Elevated Turbidity? (Y/N): Y (Note lab sample no. or id. and attach results) Lab Number:	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: Shawnee Hills NRCS Soil Map Page: NRCS Soil Map Stream Order County: Delaware Township / City: LibertyTownship MISCELLANEOUS Base Flow Conditions? (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: 0.46 Is the sampling reach representative of the stream (Y/N) If not please explain: Took data at headwaters Additional comments/description of pollution impacts: BIOTIC EVALUATION If not, please explain: Took data at headwaters BIOTIC EVALUATION If were, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with to number. Include appropriate field data sheets from the Primary Headwater Habital Assessment Manual) Field Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Comments Regarding Biology: If no number. Include appropriate field data sheets from the Primary Headwater Habital Assessment Manual) Findo Dserved? (Y/N) Voucher? (Y/N)	CWH Name: Distance from Evaluated Stream Distance from Evaluated Stream Distance from Evaluated Stream MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTITE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION USGS Quadrangle Name: Shawnee Hills NRCS Soil Map Page: NRCS Soil Map Stream Order County: Delaware Township / City: LibertyTownship MISCELLANEOUS Base Flow Conditions? (Y/N): Date of last precipitation: 02/14/20 Quantity: 0.07 in. Photograph Information: upstream, downstream, substrates 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: 0.46 Is the sampling reach representative of the stream (Y/N) If not, please explain: Took data at headwaters Additional comments/description of pollution impacts: Elevated from ethilas a specta from the Primary Headwater Habita' Assessment Manual) Field Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) Field Disenved? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observe? (Y/N) Voucher? (Y/N) Comments Regarding Biology: Inclue ton the stream? Ion Nocher? (Distance from Evoluted Stream <100 mi
EWH Name: Distance from Evaluated Stream MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATIO USGS Quadrangle Name: Shawnee Hills NRCS Soil Map Page: NRCS Soil Map Stream Order County: Delaware Township / City. LibertyTownship MISCELLANEOUS Quantity: 0.07 in. Photograph Information: Upsteen, downstream, substrates Elevated Turbidity? (Y/N): N Canopy (% open): 30% Were samples collected for water chemistry? (Y/N): Y (Note lab sample no. orid. and attach results) Lab Number: 0.46 Is the sampling reach representative of the stream (Y/N) If not, please explain: Took data at headwaters Additional comments/description of pollution impacts: Inumber: Inumber: If not, please explain: Fish Observed? (Y/N) N Voucher? (Y/N) Voucher? (Y/N) <td< td=""><td>EWH Name: Distance from Evaluated Stream MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE STE LOCATION USGS Quadrargle Name: Shawnee Hills NRCS Soil Map Page: NRCS Soil Map Page: County: Delaware Township / City: LibertyTownship MISCELLANEOUS Base Flow Conditions? (Y/N): Photograph Information: upstream, downstream, substrates Elevated Turbidity? (Y/N): N Canopy (% open): 30%6 Were samples collected for water chemistry? (Y/N): Y (Note lab sample no. or id. and attach results) Lab Number: Field Measures: Temp (*C) 8.50 Dissolved Oxyge (molt) pH (S.U.) 6.61 Conductivity (umhos/cm) 0.46 Is the sampling reach representative of the stream (Y/N) If not, please explain: Took data at headwaters Additional comments/description of pollution impacts: Biotic EVALUATION (If Yea, Record all observations. Voucher Collections optional. NOTE: all vouchers samples must be labeled with the number. Include appropriate field data sheets from the Primary Headwater Habital Assessment Manual) Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N)<</td><td>EWH Name: Distance from Evaluated Stream. MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTINE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION USGS Quadrangle Name: Shawnee Hills NRCS Soil Map Page: NRCS Soil Map Stream Order County: Delaware Township / City: LibertyTownship MISCELLANEOUS Base Flow Conditions? (Y/N): P age of last precipitation. 02/14/20 Quantity: 0.07 in. Photograph Information: upstream, downstream, substrates 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: </td><td></td><td></td></td<>	EWH Name: Distance from Evaluated Stream MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE STE LOCATION USGS Quadrargle Name: Shawnee Hills NRCS Soil Map Page: NRCS Soil Map Page: County: Delaware Township / City: LibertyTownship MISCELLANEOUS Base Flow Conditions? (Y/N): Photograph Information: upstream, downstream, substrates Elevated Turbidity? (Y/N): N Canopy (% open): 30%6 Were samples collected for water chemistry? (Y/N): Y (Note lab sample no. or id. and attach results) Lab Number: Field Measures: Temp (*C) 8.50 Dissolved Oxyge (molt) pH (S.U.) 6.61 Conductivity (umhos/cm) 0.46 Is the sampling reach representative of the stream (Y/N) If not, please explain: Took data at headwaters Additional comments/description of pollution impacts: Biotic EVALUATION (If Yea, Record all observations. Voucher Collections optional. NOTE: all vouchers samples must be labeled with the number. Include appropriate field data sheets from the Primary Headwater Habital Assessment Manual) Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N)<	EWH Name: Distance from Evaluated Stream. MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTINE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION USGS Quadrangle Name: Shawnee Hills NRCS Soil Map Page: NRCS Soil Map Stream Order County: Delaware Township / City: LibertyTownship MISCELLANEOUS Base Flow Conditions? (Y/N): P age of last precipitation. 02/14/20 Quantity: 0.07 in. Photograph Information: upstream, downstream, substrates 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:		
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June 20, 2008 Revision OCIONEI 24, 2002 NEVISION

PHWH Form Page - 2

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

SITE NAME/LOCATION NCL - alternate route	
SITE NUMBER Stream 5 RIVER BASIN DRAINAGE AREA (mi²)	0.10
LENGTH OF STREAM REACH (ft) 76 LAT. 40.21876 LONG83.14656 RIVER CODE RIVER MILE	
DATE 02/11/20 SCORER A. Sjollema 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	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] 0% BOULDER (>256 mm) [16 pts] 0% SILT [3 pt] BEDROCK [16 pt] 0% 0% COBBLE (65-256 mm) [12 pts] 0% FINE DETRITUS [3 pts] GRAVEL (2-64 mm) [9 pts] 10% MUCK [0 pts] SAND (<2 mm) [6 pts]	HHEI Metric Points Substrate Max = 40 10 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): > 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts] 	Pool Depth Max = 30
2 inches	
COMMENTS 3 menes MAXIMUM POOL DEPTH (centimeters): 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] > 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
COMMENTS Bankfull 2.5 feet width/ 0.7 feet height AVERAGE BANKFULL WIDTH (meters): 0.80	5
OHWM 1.0' width/ 0.2' height	
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 Mature Forest, Wetland Conservation Tillage	
Field Field	
Narrow <5m	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS	t)
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	
STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate (2 ft/100 ft) Moderate (2 ft/100 ft) Severe (10 ft)	100 ft)

QHEI PERFORMED? - Yes 🖌 No QHEI Score (If Yes, Atta	ch Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Scioto River	_ Distance from Evaluated Stream _ 0.10 mi.
CWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED	
USGS Quadrangle Name: NRCS Soil Map Pa	
County: Delaware Township / City: Concor	rd Township
MISCELLANEOUS	
Base Flow Conditions? (Y/N):N Date of last precipitation:02/11/20	Quantity: 0.12 in.
Photograph Information: upstream, downstream, substrates	
Elevated Turbidity? (Y/N): N Canopy (% open): 30%	
Were samples collected for water chemistry? (Y/N): _Y (Note lab sample no. or id. a	nd attach results) Lab Number:
	7.50 Conductivity (µmhos/cm) 0.28
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. ID number. Include appropriate field data sheets from the Prin 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 Macroinvertebrate Comments Regarding Biology:	nary 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 R FLOW FLOW	d a narrative description of the stream's location Sture

PHWH Form Page - 2

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

SITE NAME/LOCATION NCL - alternate route		
SITE NUMBER Stream 6 RIVER BASIN DRAINAGE AREA (mi²)	0.18	
LENGTH OF STREAM REACH (ft) 175 LAT. 40.21025 LONG83.16532 RIVER CODE RIVER MILE		
DATE 02/11/20 SCORER A. Sjollema COMMENTS Ephemeral		
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 R	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 BLDR SLABS [16 pts] PERCENT TYPE BUDR SLABS [16 pts] 0% SILT [3 pt] 0% BOULDER (>256 mm) [16 pts] 0% EAF PACK/WOODY DEBRIS [3 pts] 0% BEDROCK [16 pt] 0% 0% CLAY or HARDPAN [0 pt] 0% GRAVEL (2-64 mm) [9 pts] 0% 0% 0% 0% 0% Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0.00% (A) Substrate Percentage 100% (B) Score of Two Most PREDOMINATE SUBSTRATE TYPEs: 0 00% (A) Substrate Percentage 100% (B)	HHEI Metric Points Substrate Max = 40 1 A + B	
 Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts] 	Pool Depth Max = 30	
COMMENTS 10 inches MAXIMUM POOL DEPTH (centimeters): 25		
MAXIMON FOOL DEF TH (centimeters): 23a. 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] \checkmark > 1.0 m (<=3' 3") [5 pts]		
OHWM 1.5' width/ 0.6' height		
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE: River Left (L) and Right (R) as looking downstream A RIPARIAN WIDTH FLOODPLAIN QUALITY Conservation downstream A L R (Per Bank) L R Wide >10m Mature Forest, Wetland Conservation Tillage Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial Vide >10m Residential, Park, New Field Open Pasture, Row None Fenced Pasture Mining or Constructi COMMENTS Fenced Pasture Moist Channel, isolated pools, no flow (Intermitte Dry channel, no water (Ephemeral)	Crop	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 0.5 1.5		
STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe	ft/100 ft)	

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes 🖌 No QHEI Score (If Yes, Att	ach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	2.00mi
WWH Name: Eversole Run CWH Name:	Distance from Evaluated Stream 2.00 mi.
CWH Name:	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: Shawnee Hills NRCS Soil Map	Page: NRCS Soil Map Stream Order
County: Delaware Township / City: Conce	ord Township
MISCELLANEOUS	
Base Flow Conditions? (Y/N):N Date of last precipitation:02/11/20	Quantity: 0.12 in.
Photograph Information: upstream, downstream, substrates	
Elevated Turbidity? (Y/N): Y 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) 5.70 Dissolved Oxygen (mg/l) pH (S.U.)	7.40 Conductivity (µmhos/cm) 0.30
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Stream has been culverted and buried, but pipes/tiles have broken, some section	ons are showing through
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the P Fish Observed? (Y/N) N Voucher? (Y/N) N Frogs or Tadpoles Observed? (Y/N) N Comments Regarding Biology:	rimary Headwater Habitat Assessment Manual)
DRAWING AND NARRATIVE DESCRIPTION OF STREAM Include important landmarks and other features of interest for site evaluation a Rew FLOW	nd a narrative description of the stream's location
FOUC	qu'

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

SITE NAME/LOCATION NCL - alternate route			
SITE NUMBER Stream 7 RIVER BASIN DRAINAGE AREA (mi ²) 0.60			
LENGTH OF STREAM REACH (ft) 75 LAT. 40.21022 LONG83.16747 RIVER CODE RIVER MILE			
DATE 02/11/20 SCORER A. Sjollema 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 MODIFICATIONS:	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] 0% SILT [3 pt] PERCENT BUDDER (>256 mm) [16 pts] 0% SILT [3 pt] 15% BEDROCK [16 pt] 0% SILT [3 pt] 0% COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPAN [0 pt] 55% GRAVEL (2-64 mm) [9 pts] 0% ARTIFICIAL [3 pts] 0% Total of Percentages of 0.00% (A) Substrate Percentage 100% (B) SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 TOTAL NUMBER OF SUBSTRATE TYPES: 3	HHEI Metric Points Substrate Max = 40 9 A + B		
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	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]			
> 22.5 - 30 cm [30 µs] < 3 cm [3 µs]	25		
COMMENTS 8 inches MAXIMUM POOL DEPTH (centimeters): 13			
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] \checkmark \leq 1.0 m (<=3' 3") [5 pts]	Max=30		
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]			
COMMENTS Bankfull 3 feet width/ 1 feet height AVERAGE BANKFULL WIDTH (meters): 0.90 5			
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 Mature Forest, Wetland Conservation Tillage			
Moderate 5-10m Immature Forest, Shrub or Old			
	a		
	٣		
None Fenced Pasture Mining or Construction			
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS			
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			
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	d <u>):</u>
QHEI PERFORMED? - Yes 🖌 No QHEI Score (If Yes,	Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Eversole Run	Distance from Evaluated Stream 2.00 mi.
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERS	HED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: NRCS Soil Ma	ap Page: NRCS Soil Map Stream Order
County: Delaware Township / City: Co	ncord Township
MISCELLANEOUS	
Base Flow Conditions? (Y/N):N Date of last precipitation: 02/11/20	Quantity: 0.12 in.
Photograph Information: upstream, downstream, substrates	
Elevated Turbidity? (Y/N): Y Canopy (% open): 70%	
Were samples collected for water chemistry? (Y/N): _Y (Note lab sample no. or	id. and attach results) Lab Number:
Field Measures: Temp (°C) 5.70 Dissolved Oxygen (mg/l) pH (S.U	.) 7.40 Conductivity (µmhos/cm) 0.28
Is the sampling reach representative of the stream (Y/N) If not, please explain	:
Stream has been culverted and buried, but pipes/tiles have broken, some se	ctions are showing through
Additional comments/description of pollution impacts:	
ID number. Include appropriate field data sheets from the Fish Observed? (Y/N) N Salamanders Observed? (Y/N)	
DRAWING AND NARRATIVE DESCRIPTION OF STREAM Include important landmarks and other features of interest for site evaluation	
Trees culuerts culuerts	Drive want et mile

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PHWH Form Page - 2

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

SITE NAME/LOCATION NCL - alternate route	
SITE NUMBER Stream 8 RIVER BASIN DRAINAGE AREA (mi²)	0.57
LENGTH OF STREAM REACH (ft) 36 LAT. 40.19595 LONG83.195985 RIVER CODE RIVER MILE	
DATE 01/30/20 SCORER A. Sjollema 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 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. TYPE BLDR SLABS [16 pts] 0% SILT [3 pt] 80% BOULDER (>256 mm) [16 pts] 0% EAF PACK/WOODY DEBRIS [3 pts] 0% BEDROCK [16 pt] 0% 0% CLAY or HARDPAN [0 pt] 0% COBBLE (65-256 mm) [12 pts] 0% 0% 0% 0% 0% MUCK [0 pts] 0% 0% 0% 0% 0% 0% 0% Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0.00% (A) Substrate Percentage 100% (B)	HHEI Metric Points Substrate Max = 40 5 A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3 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] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts] 	Pool Depth Max = 30
COMMENTS 5 inches MAXIMUM POOL DEPTH (centimeters): 13	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.0 m (<=3' 3") [5 pts] ✓ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Bankfull Width Max=30
COMMENTS Bank full 5 feet width/ 1.5 feet height AVERAGE BANKFULL WIDTH (meters): 1.50 OHWM 2.5' width/ 1.0' height	20
This information <u>must</u> also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY 것NOTE: River Left (L) and Right (R) as looking downstream ☆ <u>RIPARIAN WIDTH</u> <u>FLOODPLAIN QUALITY</u>	
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	
Image: Narrow <5m	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS	ıt)
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	
STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe	/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also	o be Completed):
QHEI PERFORMED? - Yes 🖌 No QHEI Score	(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S) WWH Name: Scioto River CWH Name: EWH Name:	Distance from Evaluated Stream 3.00 mi. Distance from Evaluated Stream Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE E	NTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Shawnee Hills, OH	NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Union Town	ship / City:Mill Creek Township
MISCELLANEOUS Base Flow Conditions? (Y/N):_Y Date of last precipitation:	01/25/20 Quantity: 0.87 in.
Photograph Information: upstream, downstream, substrates	
Elevated Turbidity? (Y/N): N Canopy (% open): 100)%
Were samples collected for water chemistry? (Y/N): Y (Note la	b sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) 5.50 Dissolved Oxygen (mg/l)	pH (S.U.) 7.20 Conductivity (µmhos/cm) 0.46
Is the sampling reach representative of the stream (Y/N) If not	, please explain:
Upstream of culvert is a wetland	
Additional comments/description of pollution impacts:	
ID number. Include appropriate field dat Fish Observed? (Y/N) N Voucher? (Y/N) Salamanders O	er collections optional. NOTE: all voucher samples must be labeled with the s ta sheets from the Primary Headwater Habitat Assessment Manual) Observed? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N
Progs of radpoles Observed? (F/N) N Voucher? (F/N) N Aqua	atic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:	
1	
DRAWING AND NARRATIVE DESCRIPTION O	F STREAM REACH (This must be completed):
DRAMING AND HARMAN DE DECEMENTE	

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

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

SITE NAME/LOCATION NCL - alternate route	
Eversole RunSITE NUMBER_ Stream 9 RIVER BASINDRAINAGE AREA (mi ²) 0.6	67
LENGTH OF STREAM REACH (ft) 200 LAT. 40.18350 LONG83.21361 RIVER CODE RIVER MILE	
DATE 01/30/20 SCORER A. Sjollema COMMENTS Intermittent	
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 RECOVERING	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.	HHEI
TYPE PERCENT TYPE BLDR SLABS [16 pts] 0% ✓ SILT [3 pt] 20%	Metric Points
BOULDER (>256 mm) [16 pts] 0% LEAF PACK/WOODY DEBRIS [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] 10% MUCK [0 pts] 0% SAND (<2 mm) [6 pts]	12
Total of Percentages of 0.00% (A) Substrate Percentage 100% (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 3	
	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
	30
COMMENTS 11 inches MAXIMUM POOL DEPTH (centimeters): 28	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull
$ \begin{array}{ c c c c c } \hline > 4.0 \text{ meters} (> 13') [30 \text{ pts}] \\ \hline > 3.0 \text{ m} - 4.0 \text{ m} (> 9' 7" - 13') [25 \text{ pts}] \\ \hline \le 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \hline \le 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] \\ \end{array} $	Width Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
COMMENTS Bank full 4.5 feet wide/ 1.5 feet height AVERAGE BANKFULL WIDTH (meters): 1.40	15
OHWM 2.5'width/1.0' height	
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 Mature Forest, Wetland Conservation Tillage	
Moderate 5-10m Immature Forest, Shrub or Old	
Field Image: Antice of Field Image: Antice of Field Image: Antice of Field	
None Fenced Pasture Mining or Construction	
COMMENTS Outside oldfield riparian (phalaris) it was cornfield	
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 0.5 1.5 2.5 3.0	
STREAM GRADIENT ESTIMATE	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: Eversole Run Distance from Evaluated Stream 0.07 mi.	-
CWH Name: Distance from Evaluated Stream	-
EWH Name: Distance from Evaluated Stream	_
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION	
USGS Quadrangle Name: Shawnee Hills, OH NRCS Soil Map Page: NRCS Soil Map Stream Order	
County: Union Township / City: Jerome Township	
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation: 01/25/20 Quantity: 0.87 in.	
Photograph Information: upstream, downstream, substrates	
Elevated Turbidity? (Y/N): _N Canopy (% open): _100%	
Were samples collected for water chemistry? (Y/N): _Y (Note lab sample no. or id. and attach results) Lab Number:	
Field Measures: Temp (°C) 5.20 Dissolved Oxygen (mg/l) pH (S.U.) 8.00 Conductivity (μmhos/cm) 0.2	
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	_
Culverts emptying tiles into stream	
BIOTIC EVALUATION	
Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with th ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)	e site
Fish Observed? (Y/N) N Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N) N Voucher?	
Comments Regarding Biology:	
	-
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):	
Include Important landmarks and other features of Interest for site evaluation and a narrative description of the stream's location	
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HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION NCL - alternate route	
SITE NUMBER Stream 10 RIVER BASIN DRAINAGE AREA (mi²) 0	.12
LENGTH OF STREAM REACH (ft) 120 LAT. 40.16987 LONG83.22291 RIVER CODE RIVER MILE	
DATE 01/30/20 SCORER A. Sjollema 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. TYPE BLDR SLABS [16 pts] 0% Image: SILT [3 pt] PERCENT BUDDER (>256 mm) [16 pts] 0% Image: SILT [3 pt] 80% 0% BEDROCK [16 pt] 0% Image: SILT [3 pt] 80% 0% COBBLE (65-256 mm) [12 pts] 0% Image: SILT [3 pt] 0% 0% GRAVEL (2-64 mm) [9 pts] 0% Image: SAND (<2 mm) [6 pts]	HHEI Metric Points Substrate Max = 40 8 A + B
Bidr Slabs, Boulder, Cobble, Bedrock 6 TOTAL NUMBER OF SUBSTRATE TYPES: 6	A + B
 Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts] 	Pool Depth Max = 30
0 in altra	25
COMMENTS 8 Inches 20 MAXIMUM POOL DEPTH (centimeters): 20	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.0 m (<=3' 3") [5 pts]	Bankfull Width Max=30
COMMENTS Bank full 4 feet wide/ 1 feet height AVERAGE BANKFULL WIDTH (meters): 1.20	15
OHWM 2.5' width/ 0.6' height	
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream ☆ RIPARIAN WIDTH FLOODPLAIN QUALITY Conservation Tillage L R (Per Bank) L R Wide >10m Mature Forest, Wetland Conservation Tillage Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial	
Image: None Image: None	ιp -
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 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 (10 ft/10 ft))0 ft)

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: Sugar Run	_ Distance from Evaluated Stream 2.21 mi.
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHEI	DAREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Shawnee Hills, OH NRCS Soil Map F	Page: NRCS Soil Map Stream Order
County: Union Township / City: Jerom	e Township
MISCELLANEOUS	
Base Flow Conditions? (Y/N):Y Date of last precipitation:01/25/20	Quantity: 0.87 in.
Photograph Information: upstream, downstream, substrates	
Elevated Turbidity? (Y/N): N Canopy (% open): 100%	
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id.	and attach results) Lab Number:
Field Measures: Temp (°C) 6.30 Dissolved Oxygen (mg/l) pH (S.U.)	7.90 Conductivity (µmhos/cm) 0.79
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional ID number. Include appropriate field data sheets from the Pr 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 Macroinvertebra Comments Regarding Biology:	imary Headwater Habitat Assessment Manual)
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REA	
Include important landmarks and other features of interest for site evaluation and a r	narrative description of the stream's location
N Deci	field.
N. X NOC	
Letter 1	
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FLOW HUNN	PEM
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	ew tield .

June 20, 2006 Revision October 24, 2002 Revision PHWH Form Page - 2

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

SITE NAME/LOCATION NCL - alternate route	
SITE NUMBER Stream 11 RIVER BASIN DRAINAGE AREA (mi²) 0.2	0
LENGTH OF STREAM REACH (ft) 197 LAT. 40.16598 LONG83.22680 RIVER CODE RIVER MILE	
DATE 01/30/20 SCORER A. Sjollema COMMENTS Intermittent	
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 RECOVERING	/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.	HHEI
	Metric Points
BLDR SLABS [16 pts] 0% I SILT [3 pt] 80% BOULDER (>256 mm) [16 pts] 0% LEAF PACK/WOODY DEBRIS [3 pts] 0%	
BEDROCK [16 pt]	Substrate Max = 40
COBBLE (65-256 mm) [12 pts]	
GRAVEL (2-64 mm) [9 pts] 0% MUCK [0 pts] 0% SAND (<2 mm) [6 pts]	8
Total of Percentages of 0.00% (A) Substrate Percentage 100% (B)	A + B
Bldr Slabs, Boulder, Cobble, Bedrock 6 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	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]	25
COMMENTS 8 inches MAXIMUM POOL DEPTH (centimeters): 20	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bankfull
S. DARK FOLE WD FF (measured as the average of 5 4 measurements) (check one Folic box). > 4.0 meters (> 13') [30 pts] ✓ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Width
$ = > 3.0 \text{ m} - 4.0 \text{ m} (> 9' 7" - 13') [25 \text{ pts}] \le 1.0 \text{ m} (<=3' 3") [5 \text{ pts}] $	Max=30
Damk full A fact wide/ A fact beight	45
COMMENTS Bank full 4 feet wide/ 1 feet neight AVERAGE BANKFULL WIDTH (meters): 1.20 OHWM 2.6' width/ 0.6' height	15
This information must also be completed	
RIPARIAN ZONE AND FLOODPLAIN QUALITY	
RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Most Predominant per Bank) L	
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 Fenced Pasture Mining or Construction	
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):	
Stream Flowing Moist Channel, isolated pools, no flow (Intermittent)	
Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral) COMMENTS	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	
None 1.0 2.0 3.0	
✓ 0.5 1.5 2.5 >3	
STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe Severe (10 ft/100 ft)	ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):
QHEI PERFORMED? - Yes Vo QHEI Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)
WWH Name: Sugar Run _ Distance from Evaluated Stream _ 1.80 mi.
CWH Name: Distance from Evaluated Stream
EWH Name: Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Shawnee Hills, OH NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Union Township / City: Jerome Township
MISCELLANEOUS
Base Flow Conditions? (Y/N):_Y Date of last precipitation:01/25/20 Quantity:0.87 in
Photograph Information: _upstream, downstream, substrates
Elevated Turbidity? (Y/N): N Canopy (% open): 100%
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) 6.20 Dissolved Oxygen (mg/l) pH (S.U.) 7.30 Conductivity (µmhos/cm) 0.89
Is the sampling reach representative of the stream (Y/N)
Additional comments/description of pollution impacts:
BIOTIC EVALUATION Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) 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 must be completed):
the second state of the se
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location (100)
V (F)
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Grasses Pen
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DHIAN Form Page 2

PHWH Form Page - 2

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

SITE NAME/LOCATION NCL - alternate route	
SITE NUMBER Stream 12 RIVER BASIN DRAINAGE AREA (mi²) 0.	ô4
LENGTH OF STREAM REACH (ft) 200 LAT. 40.15104 LONG83.21764 RIVER CODE RIVER MILE	
DATE 01/15/20 SCORER A. Sjollema COMMENTS Intermittent	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	ctions
STREAM CHANNEL MODIFICATIONS: NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING RECENT OR NO RECOVERING RECENT OF NO RECOVERING RECENT OF NO RECOVERING RECENT OF NO RECENT OF NO RECOVERING RECENT OF NO RECENT OF NO RECOVERING RECENT OF NO RECOVERING RECENT OF NO	WERY
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 BLDR SLABS [16 pts] 0% SILT [3 pt] 0%	HHEI Metric Points
BOULDER (>256 mm) [16 pts] 0% LEAF PACK/WOODY DEBRIS [3 pts] 0%	Substrate
BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] 0% COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPAN [0 pt] 85%	Max = 40
GRAVEL (2-64 mm) [9 pts] 15% MUCK [0 pts] 0% SAND (<2 mm) [6 pts]	11
Total of Percentages of 0.00% (A) Substrate Percentage 100% (B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 2	
	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] > 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts] 	25
f inches	25
COMMENTS 6 Inches MAXIMUM POOL DEPTH (centimeters): 15	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankfull Width
= 54.0 m(cross (s + 3) [30 pts] $ = 51.0 m(s + 3 s + 4 s) [15 pts] $ $ = 51.0 m(s + 3 s + 4 s) [15 pts]$	Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
COMMENTS 2.5 feet wide/ 0.5' depth AVERAGE BANKFULL WIDTH (meters): 0.80	5
OHWM 1.5' width/ 0.4' depth	
This information <u>must</u> also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY স্থা NOTE: River Left (L) and Right (R) as looking downstream স্থ	
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	
)
Image: None Image: Fenced Pasture Image: Mining or Construction COMMENTS Image: Commentation of the second	
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 0.5 1.5 2.5 3.0	
STREAM GRADIENT ESTIMATE) ft)

DDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes 🗸 No QHEI Score (If Yes, Att	tach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Sugar Run	Distance from Evaluated Stream 1.50 mi.
CWH 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 LOCATION
SGS Quadrangle Name: Shawnee Hills NRCS Soil Map	Page: NRCS Soil Map Stream Order
unty: Union Township / City: Jeron	ne Township
MISCELLANEOUS	
se Flow Conditions? (Y/N):_Y Date of last precipitation:01/12/20	Quantity: 0.46 in.
otograph Information: _upstream, downstream, substrates	
evated Turbidity? (Y/N): N Canopy (% open): 85%	
ere samples collected for water chemistry? (Y/N): Y (Note lab sample no. or id.	and attach results) Lab Number:
eld Measures: Temp (°C) 5.00 Dissolved Oxygen (mg/l) pH (S.U.)	
the sampling reach representative of the stream (Y/N) If not, please explain:	, ,, ,
1	
Iditional comments/description of pollution impacts:	
ID number. Include appropriate field data sheets from the P sh Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N ogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) Aquatic Macroinvertebra omments Regarding Biology:	Voucher? (Y/N)
DRAWING AND NARRATIVE DESCRIPTION OF STREAM R Include Important landmarks and other features of Interest for site evaluation and Old Field FLOW	REACH (This must be completed): ad a narrative description of the stream's location
PHWH Form Page - 2 PHWH Form Page - 2	

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

SITE NAME/LOCATION NCL - alternative route	
SITE NUMBER Stream 13 RIVER BASIN DRAINAGE AREA (mi ²) 0.	.64
LENGTH OF STREAM REACH (ft) 200 LAT. 40.15021 LONG83.21679 RIVER CODE RIVER MILE	
DATE 01/15/20 SCORER A. Sjollema 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 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] 0% SILT [3 pt] 0% BOULDER (>256 mm) [16 pts] 0% Image: Least Pack/WOODY DEBRIS [3 pts] 20% BEDROCK [16 pt] 0% Image: Least Pack/WOODY DEBRIS [3 pts] 0% FINE DETRITUS [3 pts] 0% 0% 0% 0%	Points Substrate Max = 40
COBBLE (65-256 mm) [12 pts] 0% CLAY or HARDPAN [0 pt] 80% GRAVEL (2-64 mm) [9 pts] 0% MUCK [0 pts] 0% SAND (<2 mm) [6 pts]	5
Total of Percentages of Bidr Slabs, Boulder, Cobble, Bedrock 0.00% (A) Substrate Percentage 100% (B) SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3 TOTAL NUMBER OF SUBSTRATE TYPES: 2	A + B
2. Maximum Pool Depth (<i>Measure the maximum pool depth within the 61 meter (200 ft)</i> 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]	25
COMMENTS 6 inches MAXIMUM POOL DEPTH (centimeters): 15	
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] ✓ > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	Bankfull Width Max=30
COMMENTS 3 feet wide/ 1' depth AVERAGE BANKFULL WIDTH (meters): 0.90	5
OHWM 2.5' width/ 0.5' depth	5
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 Mature Forest, Wetland Conservation Tillage Moderate 5-10m Immature Forest, Shrub or Old Urban or Industrial	
	qu
Narrow <5m	-
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 \checkmark 1.0 2.0 3.0 0.51.5 2.5 >3	
STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate (2 ft/100 ft) Moderate (2 ft/100 ft) Severe (10 ft/100 ft))0 ft)

	es 🖌 No QHEI Score			
DOWNSTREAM DESIGNAT		Diata	unan from Evolution Stream	1.50 m
1			nce from Evaluated Stream	1.50 m
EWH Name:			nce from Evaluated Stream	
_	OF MAPS, INCLUDING THE ENTIRE	_		OCATION
SGS Quadrangle Name: Shawnee		_		
Union		CS Soil Map Page: City: Jerome Town	NRCS Soil Map Stream	
ounty: _	Township /	City:		
MISCELLANEOUS				
ase Flow Conditions? (Y/N):_		/1 2/20 Qu	uantity: 0.46 in.	
hotograph Information: _upstream, d	wnstream, substrates			
levated Turbidity? (Y/N): _ Y	Canopy (% open): 70%			
/ere samples collected for water chem	istry? (Y/N): _ Y (Note lab san	nple no. or id. and atta	ch results) Lab Number:	
ield Measures: Temp (°C) 5.60	Dissolved Oxygen (mg/l)	pH (S.U.) 7.60	Conductivity (µmhos/cm)	62
the sampling reach representative of				
stream becomes wetland, then w		-	n drains to subjort	
stream becomes wettand, then w	aler nows into a proken the subst			
dditional comments/description of poll	ution impacts:			
BIOTIC EVALUATION erformed? (Y/N): N (If Yes, ID numb	tecord all observations. Voucher coll er. Include appropriate field data she ? (Y/N) N Salamanders Obser	ections optional. NOTE ets from the Primary He	all voucher samples must be la adwater Habitat Assessment Ma ucher? (Y/N)	beled with t anual)
BIOTIC EVALUATION erformed? (Y/N): _N (If Yes, I ID numb rogs or Tadpoles Observed? (Y/N) N omments Regarding Biology: DRAWING AND NAI	Record all observations. Voucher coll er. Include appropriate field data she ? (Y/N) N Salamanders Obser	ections optional. NOTE ets from the Primary He ved? (Y/N) N Vot acroinvertebrates Obs OF STREAM REA	all voucher samples must be la adwater Habitat Assessment Ma ucher? (Y/N) N voucher? (N CH (This <u>must</u> be con	beled with t anual) Y/N) <mark>N</mark>
BIOTIC EVALUATION erformed? (Y/N): _N (If Yes, I ID numb rogs or Tadpoles Observed? (Y/N) N omments Regarding Biology: DRAWING AND NAI	Record all observations. Voucher coll er. Include appropriate field data she ? (Y/N) N Salamanders Obser Voucher? (Y/N) N Aquatic M RATIVE DESCRIPTION C	ections optional. NOTE ets from the Primary He ved? (Y/N) N Vot acroinvertebrates Observer OF STREAM REA ite evaluation and a nat	CH (This must be contrative description of the stream	beled with t anual) Y/N) <mark>N</mark>

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

SITE NAME/LOCATION NCL - alternative route	
SITE NUMBER Stream 14 RIVER BASIN DRAINAGE AREA (mi ²) 0.0	ô4
LENGTH OF STREAM REACH (ft) 200 LAT. 40.14230 LONG83.19329 RIVER CODE RIVER MILE	
DATE 01/16/20 SCORER A. Sjollema COMMENTS Perennial	
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	ctions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING	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 BLDR SLABS [16 pts] 0% Image: SILT [3 pt] 25% BOULDER (>256 mm) [16 pts] 0% Image: SILT [3 pt] 25% BEDROCK [16 pt] 0% Image: SILT [3 pt] 25% COBBLE (65-256 mm) [12 pts] 0% Image: SAND (<2 mm) [6 pts]	HHEI Metric Points Substrate Max = 40
Total of Percentages of 0.00% (A) Bldr Slabs, Boulder, Cobble, Bedrock 9 (B) (B) (Check 100% Check	A + B
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]	Pool Depth Max = 30
> 22.5 - 30 cm [30 pts] < 5 cm [5 pts]	25
COMMENTS 6 inches MAXIMUM POOL DEPTH (centimeters): 15	
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
COMMENTS Bankfull 2.5' feet width/ 1.0' depth AVERAGE BANKFULL WIDTH (meters): 1.52	20
OHWM 3.5' width/ 0.6' depth	
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 FLOODPLAIN QUALITY L R (Per Bank) L R ✓ Vide >10m ✓ Mature Forest, Wetland Conservation Tillage Moderate 5-10m ✓ Immature Forest, Shrub or Old Urban or Industrial	
Narrow <5m)
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 0.5 1.5 2.5 3.0	
STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate (2 ft/100 ft) Moderate to Severe (10 ft/100 ft)) ft)

DOWNSTREAM DESIGNATED USE(S)		
	_ Distance from Evaluated Stream	0.80 m
CWH Name:	_ Distance from Evaluated Stream	
EWH Name:	Distance from Evaluated Stream	
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHE	DAREA. CLEARLY MARK THE SITE LO	OCATION
USGS Quadrangle Name: Shawnee Hills NRCS Soil Map	Page: NRCS Soil Map Stream	Order
County: Union Township / City: Jeron	ne Township	
MISCELLANEOUS		
Base Flow Conditions? (Y/N):_Y Date of last precipitation:01/12/20	Quantity: 0.46 in.	
Photograph Information:		
Elevated Turbidity? (Y/N): Y Canopy (% open): 55%		
Y .	and attach results) Lab Number:	
5.50		.30
Is the sampling reach representative of the stream (Y/N) If not, please explain:		
Additional comments/description of pollution impacts:		
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N)	Voucher? (Y/N)	N
Frogs or Ladpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebra		
Comments Regarding Biology:		
Comments Regarding Biology:	House	
Comments Regarding Biology:	inter a second s	

PHWH Form Page - 2

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

SITE NAME/LOCATION NCL - alternative route			
SITE NUMBER Stream			<1
	40.14498 LONG83.19412 RIVER COE		
DATE 01/16/20 SCORER A. Sjollema	COMMENTS Ephemeral, culvert is feed	ding stream	
NOTE: Complete All Items On This Form - Refe	er to "Field Evaluation Manual for Ohio's	PHWH Streams" for Instru	uctions
STREAM CHANNEL NONE / NATURAL OR NODIFICATIONS:		IG 🔲 RECENT OR NO RECO	OVERY
1. SUBSTRATE (Estimate percent of every type	of substrate present. Check ONLY two predomi	nant substrate TYPE boxes	
	strate types found (Max of 8). Final metric score is		HHEI Metric
TYPE PERCEN BLDR SLABS [16 pts] 0%	T TYPE SILT [3 pt]	0%	Points
BOULDER (>256 mm) [16 pts]			
BEDROCK [16 pt] 0%	FINE DETRITUS [3 pts]	0%	Substrate Max = 40
COBBLE (65-256 mm) [12 pts]	CLAY or HARDPAN [0 pt]	45%	
GRAVEL (2-64 mm) [9 pts] 0%		0%	5
SAND (<2 mm) [6 pts]	ARTIFICIAL [3 pts]	0 78	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock	(A) Substrate Percentage 100%	(B)	A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE	TYPES: 3 TOTAL NUMBER OF SU	BSTRATE TYPES: 2	
	n pool depth within the 61 meter (200 ft) evalua		Pool Dept
evaluation. Avoid plunge pools from road culvert > 30 centimeters [20 pts]	ts or storm water pipes) (Check ONLY one box)):	Max = 30
> 22.5 - 30 cm [30 pts]	< 5 cm [5 pts]		
> 10 - 22.5 cm [25 pts]	NO WATER OR MOIST CH	ANNEL [0 pts]	5
COMMENTS 0.5 inches	MAXIMUM POOL DEI	PTH (centimeters):	
			1
3. BANK FULL WIDTH (Measured as the averag			Bankfull
> 4.0 meters (> 13') [30 pts]	> 1.0 m - 1.5 m (> 3' 3" - 4' 8"		Bankfull Width Max=30
			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 - 1.5 m (> 3' 3" - 4' 8" ✓ ≤ 1.0 m (<=3' 3") [5 pts]) [15 pts]	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" ✓ ≤ 1.0 m (<=3' 3") [5 pts]) [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 	> 1.0 m - 1.5 m (> 3' 3" - 4' 8" ≤ 1.0 m (<=3' 3") [5 pts]) [15 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 	> 1.0 m - 1.5 m (> 3' 3" - 4' 8" ≤ 1.0 m (<=3' 3") [5 pts]) [15 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 Bankfull 2.5' feet width/ 0.3' dep OHWM 2.0' width / 0.1' depth RIPARIAN ZONE AND FLOODPLAIN Q <u>RIPARIAN WIDTH</u>	> 1.0 m - 1.5 m (> 3' 3" - 4' 8" ≤ 1.0 m (<=3' 3") [5 pts]) [15 pts] L WIDTH (meters): 0.80	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 Bankfull 2.5' feet width/ 0.3' dep OHWM 2.0' width / 0.1' depth RIPARIAN ZONE AND FLOODPLAIN Q RIPARIAN WIDTH L R (Per Bank) L	> 1.0 m - 1.5 m (> 3' 3" - 4' 8" > 1.0 m (<=3' 3") [5 pts]) [15 pts] L WIDTH (meters): 0.80 2) as looking downstream 3	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 Bankfull 2.5' feet width/ 0.3' dept OHWM 2.0' width / 0.1' depth RIPARIAN ZONE AND FLOODPLAIN Q RIPARIAN WIDTH FLO ↓ ✓	> 1.0 m - 1.5 m (> 3' 3" - 4' 8" ≤ 1.0 m (<=3' 3") [5 pts]	L WIDTH (meters): 0.80	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 Bankfull 2.5' feet width/ 0.3' dep OHWM 2.0' width / 0.1' depth RIPARIAN ZONE AND FLOODPLAIN Q RIPARIAN WIDTH L R (Per Bank) L	> 1.0 m - 1.5 m (> 3' 3" - 4' 8" ≤ 1.0 m (<=3' 3") [5 pts]) [15 pts] L WIDTH (meters): 0.80 as looking downstream☆ Conservation Tillage 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 Bankfull 2.5' feet width/ 0.3' dept OHWM 2.0' width / 0.1' depth RIPARIAN ZONE AND FLOODPLAIN Q RIPARIAN WIDTH FLO ↓ ✓	> 1.0 m - 1.5 m (> 3' 3" - 4' 8" ≤ 1.0 m (<=3' 3") [5 pts]	L WIDTH (meters): 0.80	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 Bankfull 2.5' feet width/ 0.3' dep OHWM 2.0' width / 0.1' depth RIPARIAN ZONE AND FLOODPLAIN Q RIPARIAN WIDTH FLOO L R (Per Bank) L F ✓ Wide >10m ✓ Moderate 5-10m Narrow <5m None	> 1.0 m - 1.5 m (> 3' 3" - 4' 8" ≤ 1.0 m (<=3' 3") [5 pts]) [15 pts] L WIDTH (meters): 0.80 as looking downstream☆ Conservation Tillage 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 Bankfull 2.5' feet width/ 0.3' dep OHWM 2.0' width / 0.1' depth RIPARIAN ZONE AND FLOODPLAIN Q RIPARIAN WIDTH FLOO L R (Per Bank) L F ✓ ✓ Wide >10m ✓ ✓ Moderate 5-10m Marrow <5m	> 1.0 m - 1.5 m (> 3' 3" - 4' 8" ≤ 1.0 m (<=3' 3") [5 pts]) [15 pts] L WIDTH (meters): 0.80) as looking downstream☆ R 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] COMMENTS Bankfull 2.5' feet width/ 0.3' dep OHWM 2.0' width / 0.1' depth RIPARIAN ZONE AND FLOODPLAIN Q RIPARIAN WIDTH FLOO L R (Per Bank) L F ✓ Wide >10m ✓ Moderate 5-10m Narrow <5m None	> 1.0 m - 1.5 m (> 3' 3" - 4' 8" ≤ 1.0 m (<=3' 3") [5 pts]) [15 pts] L WIDTH (meters): 0.80 as looking downstream☆ R 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] COMMENTS Bankfull 2.5' feet width/ 0.3' dep OHWM 2.0' width / 0.1' depth RIPARIAN ZONE AND FLOODPLAIN Q RIPARIAN WIDTH FLOO L R (Per Bank) L F ✓ Wide >10m ✓ Moderate 5-10m Marrow <5m Narrow <5m None COMMENTS residential on right ba FLOW REGIME (At Time of Evaluation) Stream Flowing 	> 1.0 m - 1.5 m (> 3' 3" - 4' 8" > 1.0 m (<=3' 3") [5 pts]	p) [15 pts] L WIDTH (meters): 0.80 as looking downstream ☆ R Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction ed 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 Bankfull 2.5' feet width/ 0.3' dep OHWM 2.0' width / 0.1' depth RIPARIAN ZONE AND FLOODPLAIN Q RIPARIAN WIDTH FLOO L R (Per Bank) L F ✓ Wide >10m ✓ Moderate 5-10m Narrow <5m None COMMENTS residential on right ba FLOW REGIME (At Time of Evaluation) 	> 1.0 m - 1.5 m (> 3' 3" - 4' 8" > 1.0 m (<=3' 3") [5 pts]	p) [15 pts] L WIDTH (meters): 0.80 as looking downstream ☆ R Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction ed 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 Bankfull 2.5' feet width/ 0.3' degree of the output o	> 1.0 m - 1.5 m (> 3' 3" - 4' 8" ≤ 1.0 m (<=3' 3") [5 pts]	p) [15 pts] L WIDTH (meters): 0.80 as looking downstream ☆ R Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction ed 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 Bankfull 2.5' feet width/ 0.3' dep OHWM 2.0' width / 0.1' depth RIPARIAN ZONE AND FLOODPLAIN Q RIPARIAN WIDTH FLOO L R (Per Bank) L F Vide >10m I Moderate 5-10m I Narrow <5m I None None COMMENTS residential on right ba FLOW REGIME (At Time of Evaluation) Stream Flowing Subsurface flow with isolated pools (Inters COMMENTS_ 	> 1.0 m - 1.5 m (> 3' 3" - 4' 8" > 1.0 m (<=3' 3") [5 pts]	(15 pts] L WIDTH (meters): 0.80 as looking downstream ☆ R Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction ed pools, no flow (Intermittent) er (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 Bankfull 2.5' feet width/ 0.3' degree of the output o	> 1.0 m - 1.5 m (> 3' 3" - 4' 8" ≤ 1.0 m (<=3' 3") [5 pts]	p) [15 pts] L WIDTH (meters): 0.80 as looking downstream ☆ R Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction ed 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 Bankfull 2.5' feet width/ 0.3' degree of the original original of the original original of the original origin	> 1.0 m - 1.5 m (> 3' 3" - 4' 8" > 1.0 m (<=3' 3") [5 pts]	(15 pts) L WIDTH (meters): 0.80 as looking downstream ☆ R Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction ed pools, no flow (Intermittent) er (Ephemeral) 3.0 >3	Width Max=30

QHEI PERFORMED? - Yes 🗸 No G	QHEI Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	Distance from Evaluated Stream 1.00 mi.
WWH Name: Indian Run	
CWH Name:	Distance from Evaluated Stream Distance from Evaluated Stream
Chauman Hills	ICLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
	NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Union	Township / City: Jerome Township
MISCELLANEOUS	04/40/00
Base Flow Conditions? (Y/N):_Y Date of last p	
Photograph Information: _upstream, downstream, s	substrates
Elevated Turbidity? (Y/N): Canopy (%	6 open):25%
Were samples collected for water chemistry? (Y/N): _	N (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Ox	xygen (mg/l) pH (S.U.) Conductivity (μmhos/cm)
Is the sampling reach representative of the stream (Y	//N) Y If not, please explain:
· · · · · · · · · · · · · · · · · · ·	····, ·····,p······
Additional comments/description of pollution impacts:	·
. ,	ervations. Voucher collections optional. NOTE: all voucher samples must be labeled with the propriate field data sheets from the Primary Headwater Habitat Assessment Manual) Salamanders Observed? (Y/N) N Voucher? (Y/N) N (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N)
Include important landmarks and other	E DESCRIPTION OF STREAM REACH (This must be completed) r features of interest for site evaluation and a narrative description of the stream's location
41-121	rd growth
-07	
FLOW seep ditch/udf	Stream

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

SITE NAME/LOCATION NCL - alternative route	
SITE NUMBER Stream 16 RIVER BAS	
	83.18912 RIVER CODE RIVER MILE
DATE 01/16/20 SCORER A. Sjollema COMMENTS Inte	ermittent, stream culverted under road
NOTE: Complete All Items On This Form - Refer to "Field Evalu	ation Manual for Ohio's PHWH Streams" for Instructions
STREAM CHANNEL INONE / NATURAL CHANNEL REMODIFICATIONS:	COVERED RECOVERING RECENT OR NO RECOVERY
1. SUBSTRATE (Estimate percent of every type of substrate prese	nt. Check ONLY two predominant substrate TYPE boxes
(Max of 32). Add total number of significant substrate types found (N	Motri
TYPE PERCENT TYPE BLDR SLABS [16 pts] 0% Image: Comparison of the state o	SILT [3 pt]
	EAF PACK/WOODY DEBRIS [3 pts]
	FINE DETRITUS [3 pts] 20% Substrat Max = 4
	CLAY or HARDPAN [0 pt]
	MUCK [0 pts] 0% 6
	Substrate Percentage (B) A + B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3	TOTAL NUMBER OF SUBSTRATE TYPES: 3
2. Maximum Pool Depth (Measure the maximum pool depth within	
evaluation. Avoid plunge pools from road culverts or storm water pip	, , , , , , , , , , , , , , , , , , , ,
> 30 centimeters [20 pts] 22.5 - 30 cm [30 pts]	> 5 cm - 10 cm [15 pts]
✓ > 10 - 22.5 cm [25 pts]	NO WATER OR MOIST CHANNEL [0 pts] 25
COMMENTS 6 inches	MAXIMUM POOL DEPTH (centimeters): 15
3. BANK FULL WIDTH (Measured as the average of 3-4 measurem > 4.0 meters (> 13') [30 pts]	ents) (Check ONL Y one box): Bankfull > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] Width
> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	$\leq 1.0 \text{ m} (<=3' 3'') [5 \text{ pts}]$ Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	
COMMENTS Bankfull 2.5' width / 1.0' depth	AVERAGE BANKFULL WIDTH (meters): 0.80 5
OHWM 3.5' width / 0.7' depth	
	must also be completed
RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NO RIPARIAN WIDTH FLOODPLAIN QUALITY	E: River Left (L) and Right (R) as looking downstream 🛠
	inant per Bank) <u>L R</u>
Wide >10m Mature Forest	, Wetland Conservation Tillage
Moderate 5-10m Immature Ford	est, Shrub or Old Urban or Industrial
	ark, New Field Open Pasture, Row Crop
None Fenced Pastu	e Mining or Construction
COMMENTS Immature forest on left bank in floodpl	
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)
$\mathbf{O}(\mathbf{h}) = \mathbf{O}(\mathbf{h}) + O$	(Check ONL V one how):
SINUOSITY (Number of bends per 61 m (200 ft) of channel)	
None 1.0 \checkmark 0.5 1.5	2.0 2.5 3.0 >3
None 1.0	2.0 3.0

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - Yes 🖌 No QHEI Score (If Yes, Attack	h Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Indian Run	Distance from Evaluated Stream 1.30 mi.
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED A	AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name: Shawnee Hills NRCS Soil Map Page	ge: NRCS Soil Map Stream Order
County: Union Township / City: Jerome	Township
MISCELLANEOUS Base Flow Conditions? (Y/N):_Y Date of last precipitation: 01/12/20	Quantity: 0.46 in.
Photograph Information: _upstream, downstream, substrates	
Elevated Turbidity? (Y/N): N Canopy (% open): 90%	
Were samples collected for water chemistry? (Y/N): Y (Note lab sample no. or id. an	d attach results) Lab Number:
Field Measures: Temp (°C) 5.70 Dissolved Oxygen (mg/l) pH (S.U.) 7	2.40 Conductivity (μmhos/cm) 0.86
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
stream culverted for McKitrick Rd and substrates change on south side of road to	gravel, short segment until meets Stream 1
Additional comments/description of pollution impacts:	
Performed? (Y/N): _ N (If Yes, Record all observations. Voucher collections optional. ID number. Include appropriate field data sheets from the Prima 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 Macroinvertebrates Comments Regarding Biology:	ary Headwater Habitat Assessment Manual) Voucher? (Y/N)
DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH Include Important landmarks and other features of interest for site evaluation and a name from the feature of interest for site evaluation and a name from the feature of interest for site evaluation and a name from the feature of interest for site evaluation and a name from the feature of interest for site evaluation and a name from the feature of interest for site evaluation and a name from the feature of interest for site evaluation and a name from the feature of interest for site evaluation and a name from the feature of interest for site evaluation and a name from the feature of interest for site evaluation and a name from the feature of interest for site evaluation and a name from the feature of interest for site evaluation and a name from the feature of interest for site evaluation and a name from the feature of interest for site evaluation and a name from the feature of interest for site evaluation and a name from the feature of the feature of interest for site evaluation and a name from the feature of the feature of interest for site evaluation and a name from the feature of the feature	A (This <u>must</u> be completed): rative description of the stream's location

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

64

SITE NAME/LOCATION NCL - alternative route SITE NUMBER Stream 17 **RIVER BASIN** DRAINAGE AREA (mi²) 0.45 200 LAT. 40.15005 LONG. -83.18853 RIVER CODE LENGTH OF STREAM REACH (ft) **RIVER MILE** DATE 01/16/20 SCORER A. Sjollema COMMENTS Intermittent, stream culverted multiple times NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions NONE / NATURAL CHANNEL I RECOVERED RECOVERING RECENT OR NO RECOVERY STREAM CHANNEL **MODIFICATIONS:** SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes 1. HHEI (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. Metric TYPE PERCENT PERCENT TYPF Points BLDR SLABS [16 pts] SILT [3 pt] 15% 0% BOULDER (>256 mm) [16 pts] LEAF PACK/WOODY DEBRIS [3 pts] 1**0%** 0% Substrate 0% 0% FINE DETRITUS [3 pts] BEDROCK [16 pt] Max = 400% 0% COBBLE (65-256 mm) [12 pts] CLAY or HARDPAN [0 pt] 40% 0% 1 GRAVEL (2-64 mm) [9 pts] MUCK [0 pts] 19 35% 0% SAND (<2 mm) [6 pts] ARTIFICIAL [3 pts] Total of Percentages of (B) (A) 0.00% 100% A + BBldr Slabs, Boulder, Cobble, Bedrock 15 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 2. 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] 25 8 inches COMMENTS 20 **MAXIMUM POOL DEPTH (centimeters):** BANK FULL WIDTH (Measured as the average of 3-4 measurements) Bankfull 3 (Check ONLY one box): > 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] \leq 1.0 m (<=3' 3") [5 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS Bankfull 5' feet width / 1.5' depth AVERAGE BANKFULL WIDTH (meters): 1.52 20 OHWM 3.5' width / 0.8 depth This information must also be completed なNOTE: River Left (L) and Right (R) as looking downstream お **RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH** FLOODPLAIN QUALITY R (Per Bank) (Most Predominant per Bank) R Wide >10m $\overline{}$ \checkmark 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 None Mining or Construction COMMENTS Residential in floodplain as well FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermittent) Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0 0.5 1.5 2.5 >3 STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be	
QHEI PERFORMED? - Ves No QHEI Score 44.5	(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S) WWH Name: Indian Run	Distance from Evaluated Stream 1.40 mi.
	Distance from Evaluated Stream 1.40 ml.
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIR	
	CS Soil Map Page: NRCS Soil Map Stream Order
Dunty: Union Township	/ City:Jerome Township
MISCELLANEOUS	
ase Flow Conditions? (Y/N): Y Date of last precipitation: 01	/12/20 Quantity: 0.46 in.
otograph Information: upstream, downstream, substrates	
evated Turbidity? (Y/N): N Canopy (% open): 20%]
	mple no. or id. and attach results) Lab Number:
eld Measures: Temp (°C) 6.30 Dissolved Oxygen (mg/l)	pH (S.U.) 7.80 Conductivity (µmhos/cm) 0.74
the sampling reach representative of the stream (Y/N) If not, plea	ase explain:
ditional comments/description of pollution impacts:	
BIOTIC EVALUATION	
prformed2 (V/N): N (If Vee Decord all checklose Veucher cal	lastions actional NOTE all variable complex must be labeled with the
	lections optional. NOTE: all voucher samples must be labeled with the sets from the Primary Headwater Habitat Assessment Manual)
sh Observed? (Y/N) N Voucher? (Y/N) N Salamanders Obser ogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic M	rved? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Iacroinvertebrates Observed? (Y/N) Voucher? (Y/N)
omments Regarding Biology:	N
Star on Drawin w	
Stream Drawing:	Trees /
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Commission of Ohio Docketing Information System on

11/12/2020 2:06:00 PM

in

Case No(s). 20-1236-GA-BTX

Summary: Application Appendix D.2, Part 6 of 7 electronically filed by Ms. Melissa L. Thompson on behalf of Columbia Gas of Ohio, Inc.