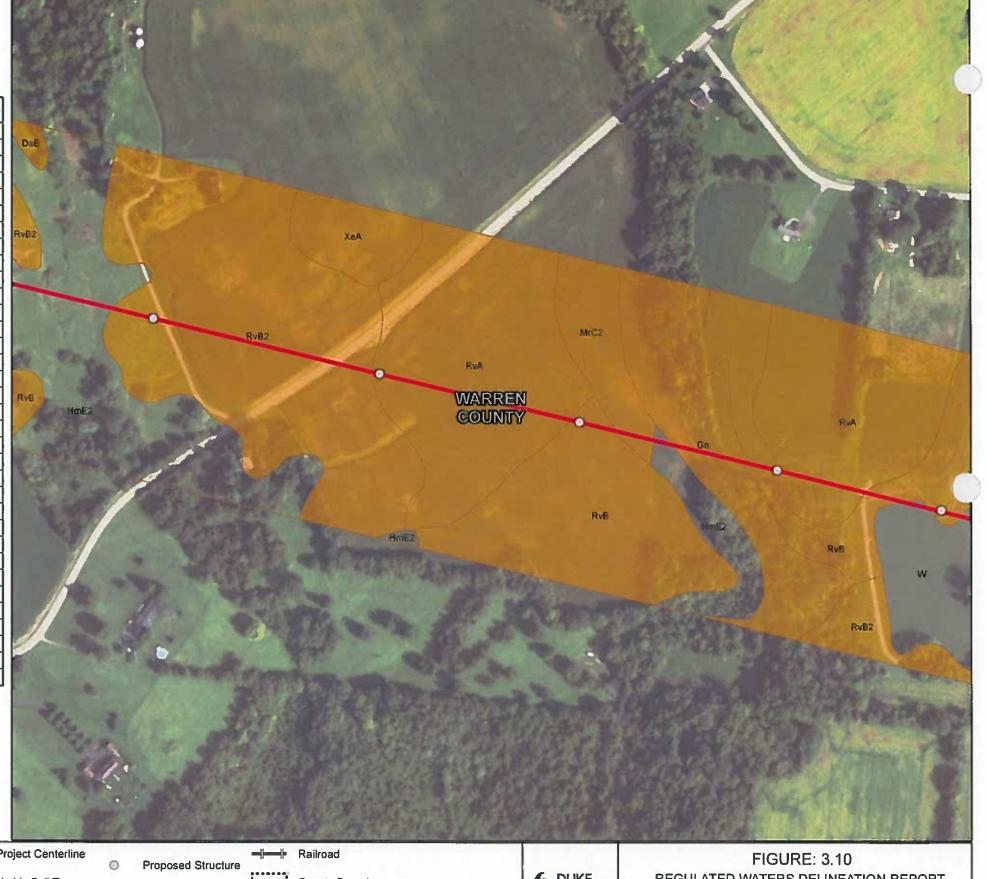
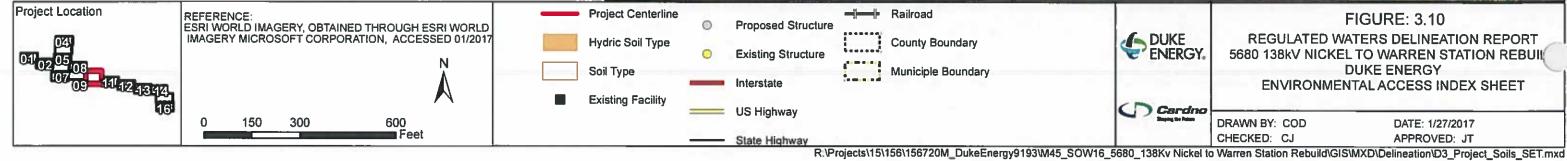
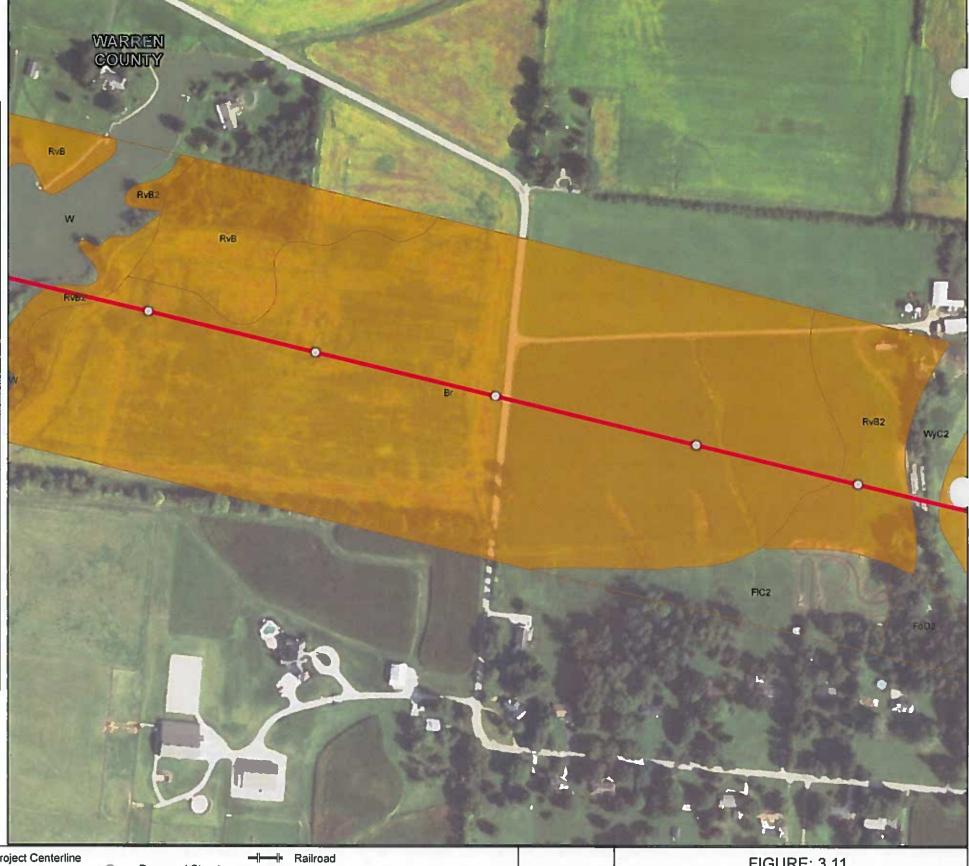
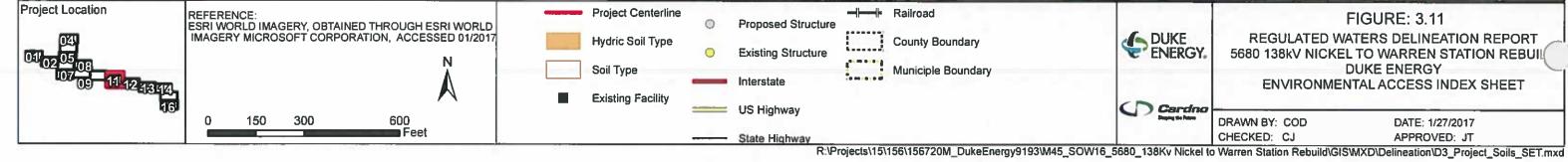
Soil Unit Symbol	Soll Unit Name	Acres	% in 1,000 ft Corridor	Hydric
Br	Brookston silty clay loam	69,83	9.62	Y
DaB	Dana silt loam, 0 to 2 percent slopes	4.92	0.68	Y
EdD2	Eden complex, 12 to 18 percent slopes, moderately eroded		1.84	N
Ed E2	Eden complex, 18 to 25 percent slopes, moderately eroded	21.29	2.93	N
Edf2	Eden complex, 25 to 35 percent slopes, moderately eroded	18.33	2,53	N
Ge .	Eel loam	4.82	0.66	Y
FaF2	Fairmount-Eden flaggy silty clay loams, 25 to 50 percent slopes, moderately eroded	21.70	2.99	N
FhA	Fincastle silt loam, 0 to 2 percent slopes	18.26	2.52	Y
FIC2	Fox loam, 6 to 12 percent slopes, moderately eroded	8.82	1.22	N
FoD2	Fox-Casco complex, 12 to 18 percent slopes, moderately eroded	1.74	0.24	N
Gn	Genesee loam	21.63	2.98	Y
HeF	Hennepin silt loam, 25 to 35 percent slopes	6.28	0.87	N
HeF2	Hennepin silt loam, 25 to 35 percent slopes, moderately eroded	2.56	0.35	N
Hm E2	Hennepin-Marrian silt loams, 18 to 25 percent slopes, moderately eroded	29.20	4.02	N
HnD3	Hennepin-Miamian complex, 12 to 18 percent slopes, severely eroded	5.58	0.77	N
Kg	Kings silty clay loam, thick surface variant	24.14	3.33	Υ
MmC3	Marrian clay loam, 6 to 12 percent slopes, severely eroded	4.97	0.68	Y
MnD2	Marrian-Hennepin silt loams, 12 to 18 percent slopes, moderately eroded	0.43	0.06	N
MrC2	Miamian-Russell sitt loams, 6 to 12 percent slopes, moderately eroded	19,51	2.69	Υ
Pb	Patton sit loam, sited	2.26	0.31	Y
Pc	Patton sity clay loam	111.17	15.31	Υ
PIB	Plattville silt loam, 1 to 6 percent slopes	5.40	0.74	Υ
PrB	Princeton fine sandy loam, 2 to 6 percent slopes	0.51	0.07	N
PrC2	Princeton fine sandy loam, 6 to 12 percent slopes, moderately eroded	2.78	0.38	N
RpB	Rainsboro sitt loam, 2 to 6 percent slopes	6,13	0.84	Y
RvA	Rusself-Maman silt loams, 0 to 2 percent slopes	16.74	2.31	Y
RvB	Rusself-Marrian silt loams, 2 to 6 percent slopes	50.55	6.98	Y
RvB2	Russell-Marrian silt loams, 2 to 6 percent slopes, moderately eroded	80,86	11.14	Y
W	Water	7,20	0.99	N
WyB	Wynn silt loam, 2 to 6 percent slopes	6.06	0.84	N
WyB2	Wynn silt loam, 2 to 6 percent slopes, moderately eroded	34.47	4.75	N
WyC2	Wynn silt loam, 6 to 12 percent slopes, moderately eroded	46.06	6.35	N
XeA	Xenia silt loam, 0 to 2 percent slopes	11,93	1.64	Υ
XeB	Xenia silt loam, 2 to 6 percent slopes	46.40	6.39	Y





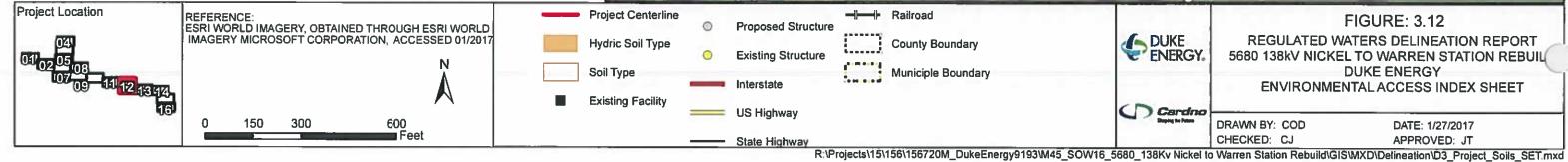
Soil Unit Symbol	Soil Unit Name	Acres	% in 1,000 ft Corridor	Hydric
Br	Brookston sitty clay loam	69.83	9 62	Y
DaB	Dana silt loam, 0 to 2 percent slopes	4.92	0.68	Υ
EdD2	Eden complex, 12 to 18 percent slopes, moderately eroded	13.38	1.84	N
EdE2	Eden complex, 18 to 25 percent slopes, moderately eroded	21.29	2.93	N
Edf2	Eden complex, 25 to 35 percent slopes, moderately eroded	18.33	2.53	N
Ee	Sel loam	4.82	0.66	Υ
FaF2	Fairmount-Eden flaggy sitty clay loams, 25 to 50 percent slopes, moderately eroded	21.70	2.99	N
FhA	Fincastle silt loam, 0 to 2 percent slopes	18.26	2.52	Υ
FIC2	Fox loam, 6 to 12 percent slopes, moderately eroded	8.82	1.22	N
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HnD3	Hennepin-Marrian complex, 12 to 18 percent slopes, severely eroded	5.58	0,77	N
Kg	Kings silty clay loam, thick surface variant	24.14	3.33	Y
MmC3	Marrian clay loam, 6 to 12 percent slopes, severely eroded	4.97	0.68	Y
MnD2	Marrian-Hennepin silt loams, 12 to 18 percent slopes, moderately eroded	0.43	0.06	N
MrC2	Mamian-Russell silt loams, 6 to 12 percent slopes, moderately eroded	19.51	2.69	Υ
Pb	Patton silt loam, silted	2.26	0.31	Y
Pc	Patton sity clay loam	111.17	15.31	Υ
PIB	Plattville silt loam, 1 to 6 percent slopes	5.40	0.74	Υ
PrB	Princeton fine sandy loam, 2 to 6 percent slopes	0.51	0.07	N
PrC2	Princeton fine sandy loam, 6 to 12 percent slopes, moderately eroded	2.78	0.38	N
RpB	Rainsboro silt loam, 2 to 6 percent slopes	6,13	0.84	Y
RvA	Russell-Marrian silt loams, 0 to 2 percent slopes	16.74	2.31	Y
RvB	Russell-Marrian sit loams, 2 to 6 percent slopes	50.55	6.96	Υ
RvB2	Russell-Mamian sit loams, 2 to 6 percent slopes, moderately eroded	80.86	11.14	Y
W	Water	7.20	0.99	N
WyB	Wynn silt loam, 2 to 6 percent slopes	6.06	0.84	N
WyB2	Wynn silt loam, 2 to 6 percent slopes, moderately eroded	34.47	4.75	N
WyC2	Wynn silt loam, 6 to 12 percent slopes, moderately eroded	46.06	6.35	N
XeA	Xenia silt loam, 0 to 2 percent slopes	11/93	1.64	Υ
XeB	Xenia silt loam, 2 to 6 percent slopes	46.40	6.39	Y



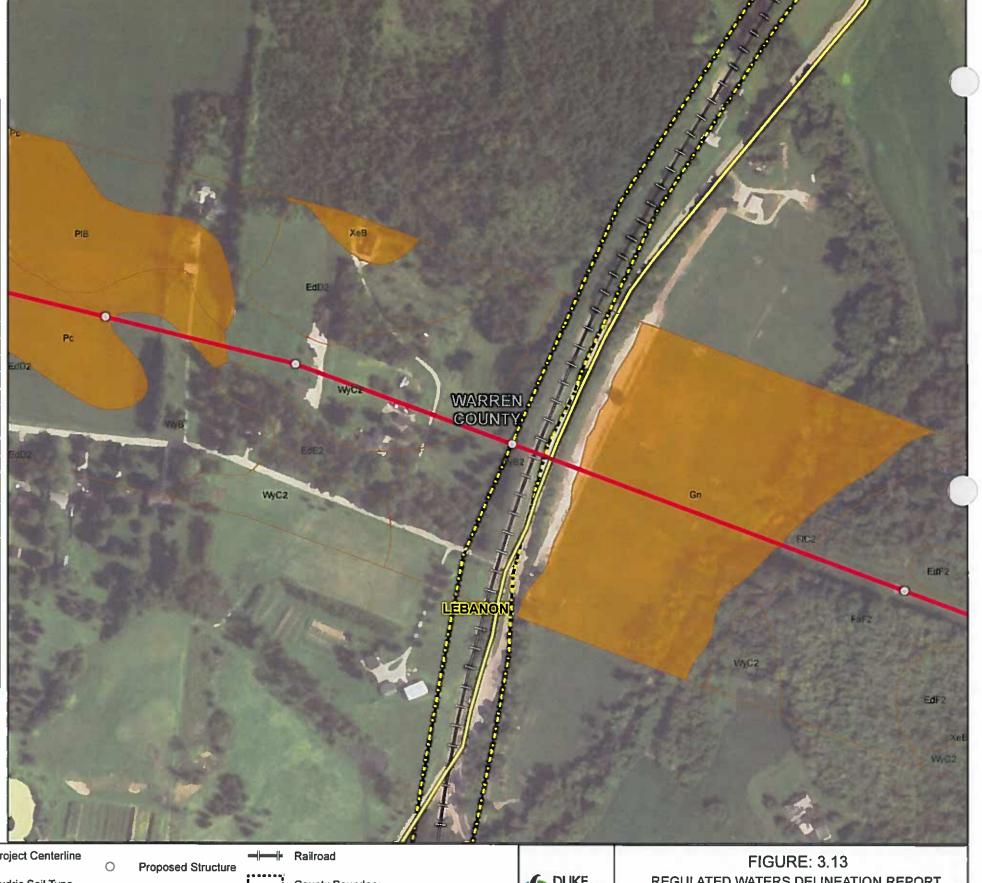


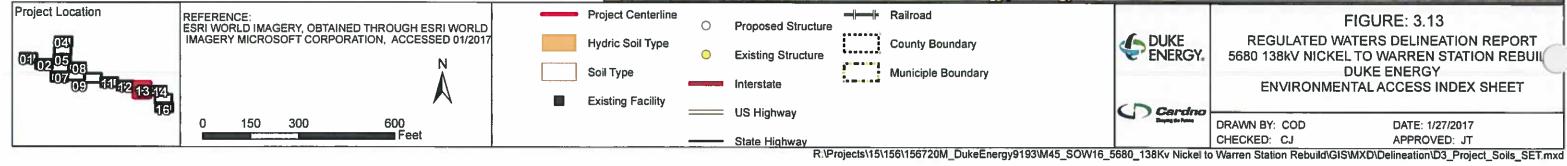
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MrC2	Marrian-Russell silt loams, 6 to 12 percent slopes, moderately eroded	19.51	2.69	Y
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Pc	Patton silty clay loam	111.17	15.31	Y
PIB	Plattville sit loam, 1 to 6 percent slopes	5,40	0.74	Y
PrB	Princeton fine sandy loam, 2 to 6 percent slopes	0.51	0.07	N
PrC2	Princeton fine sandy loam, 6 to 12 percent slopes, moderately eroded	2.78	0.38	N
RpB	Rainsboro silt loam, 2 to 6 percent slopes	6.13	0.84	Y
RvA	Russell-Marrian silt loams, 0 to 2 percent slopes	16.74	2.31	Y
RvB	Russell-Mamian silt loams, 2 to 6 percent slopes	50.55	6.96	Y
RvB2	Russell-Marrian silt loams, 2 to 6 percent slopes, moderately eroded	80.86	11.14	Y
w	Water	7.20	0.99	N
WyB	Wynn silt loam, 2 to 6 percent slopes	5.06	0.84	N
WyB2	Wynn silt loam, 2 to 6 percent slopes, moderately eroded	34.47	4.75	N
WyC2	Wynn silt loam, 6 to 12 percent slopes, moderately eroded	46.06	6.35	N
XeA	Xenia silt loam, 0 to 2 percent slopes	11,93	1.64	Y
XeB	Xenia silt loam, 2 to 6 percent slopes	46.40	6.39	Y



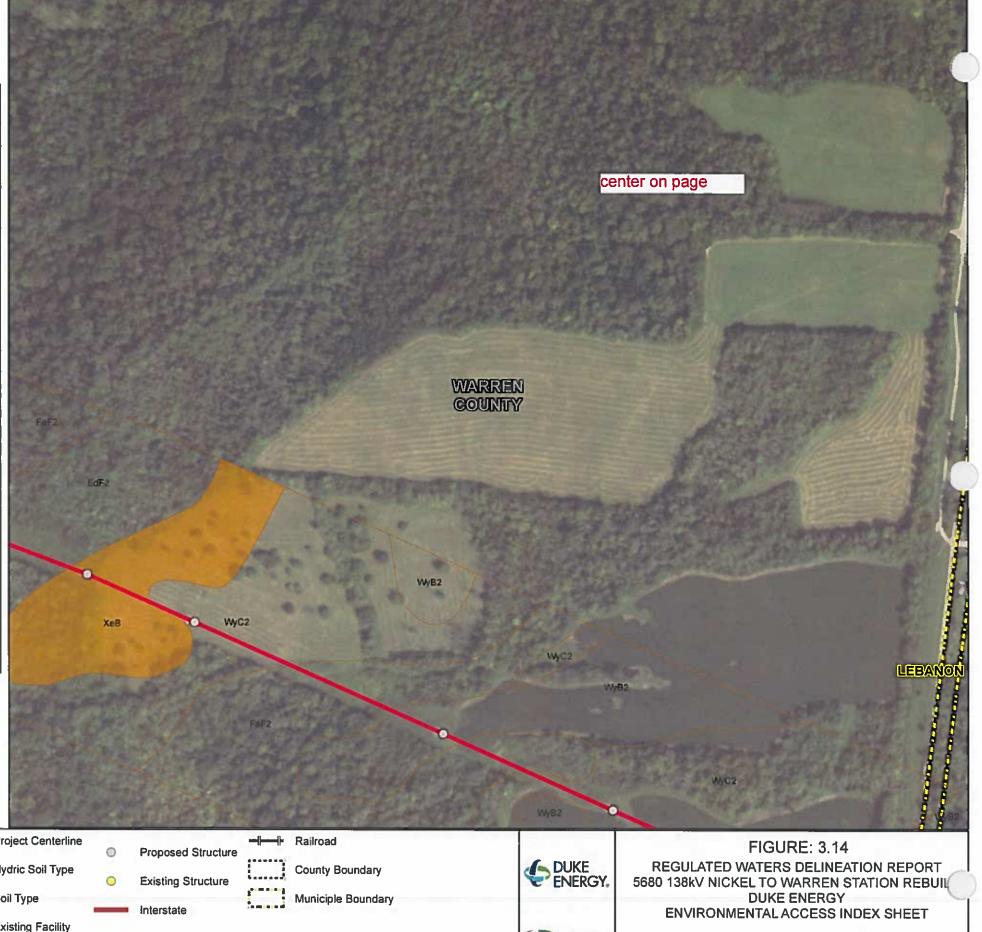


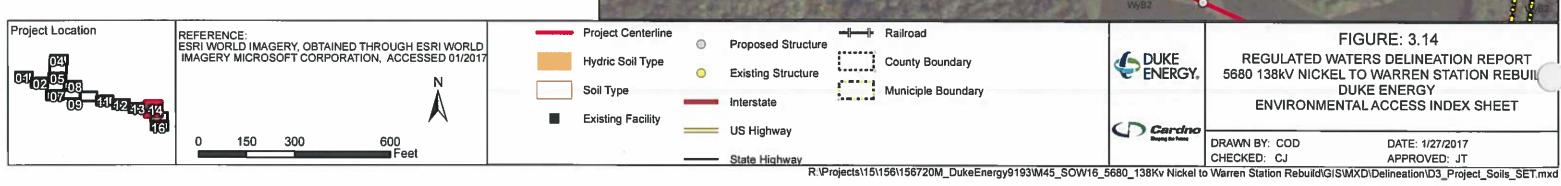
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Pb	Patton silt loam, silted	2.26	0.31	Υ
Pc	Patton silty clay loam	111.17	15.31	Y
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RvB	Russell-Marrian silt loams, 2 to 6 percent slopes	50,55	6.96	Υ
RvB2	Russell-Maman silt loams, 2 to 6 percent slopes, moderately eroded	80.86	11.14	Y
W	Water	7.20	0.99	N
WyB	Wynn silt loam, 2 to 6 percent slopes	6.06	0.84	N
WyB2	Wynn silt loam, 2 to 6 percent slopes, moderately eroded	34.47	4.75	N
WyC2	Wynn silt loam, 6 to 12 percent slopes, moderately eroded	46.06	6.35	N
XeA	Xenia silt loam, 0 to 2 percent slopes	11.93	1.64	Υ
XeB	Xenia silt loam, 2 to 6 percent slopes	46.40	6.39	Y



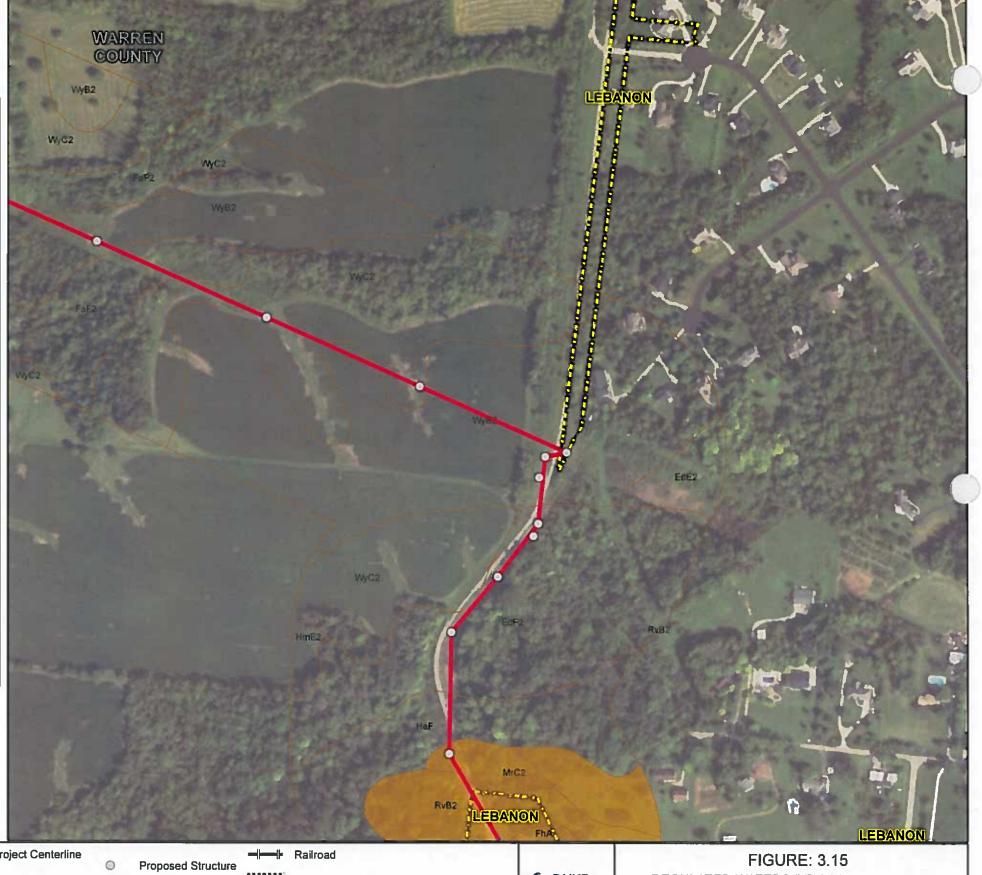


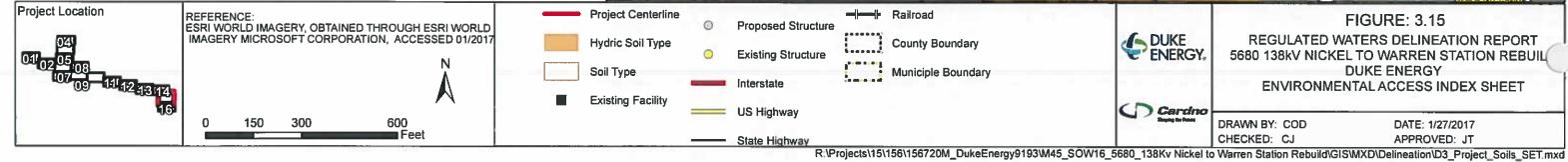
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FaF2	Fairmount-Eden flaggy silty clay loams, 25 to 50 percent slopes, moderately eroded	21.70	2.99	N
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Kg	Kings silty clay loam, thick surface variant	24.14	3.33	Y
MmC3	Marrian clay loam, 6 to 12 percent slopes, severely eroded	4,97	0.68	Y
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MrC2	Marrian-Russell silt loams, 6 to 12 percent slopes, moderately eroded	19.51	2.69	Y
Pb	Patton silt loam, silted	2.26	0.31	Y
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PIB	Plattville silt loam, 1 to 6 percent slopes	5,40	0.74	Y
PrB	Princeton fine sandy loam, 2 to 6 percent slopes	0.51	0.07	N
PrC2	Princeton fine sandy loam, 6 to 12 percent slopes, moderately eroded	2.78	0.38	N
RpB	Rainsboro silt loam, 2 to 6 percent slopes	6.13	0.84	Υ
RvA	Russell-Marrian silt loams, 0 to 2 percent stopes	16.74	2.31	Y
RvB	Russell-Maman silt loams, 2 to 6 percent slopes	50.55	6.96	Y
RvB2	Russell-Marrian silt loams, 2 to 6 percent slopes, moderately eroded	80.86	11.14	Y
W	Water	7.20	0.99	N
WyB	Wynn silt loam, 2 to 6 percent slopes	6.06	0.84	N
WyB2	Wynn silt loam, 2 to 6 percent slopes, moderately eroded	34,47	4.75	N
WyC2	Wynn sit loam, 6 to 12 percent slopes, moderately eroded	46.06	6.35	N
XeA	Xenia sitt loam, 0 to 2 percent slopes	11.93	1.64	Υ
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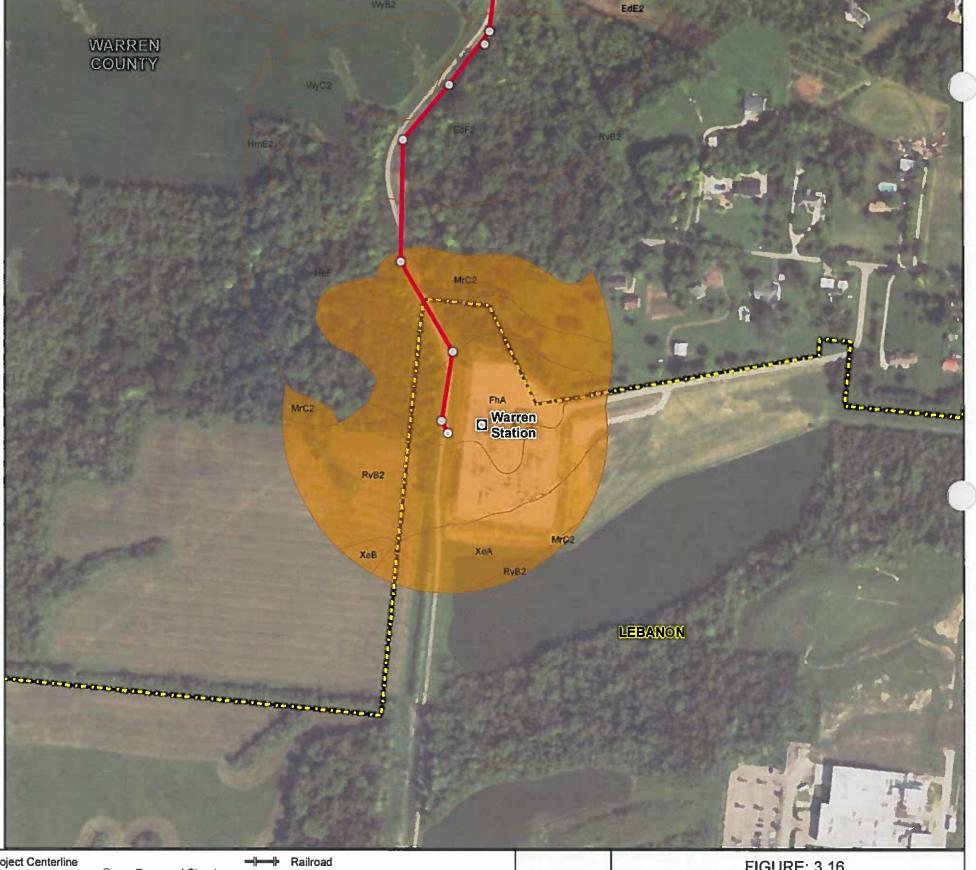


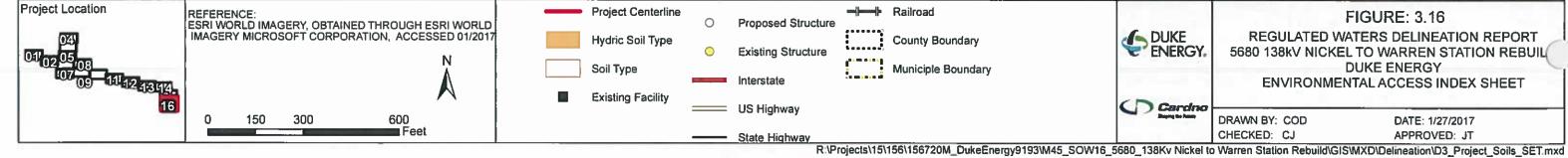
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Pb	Patton silt loam, silted	2.26	0.31	Υ
Pc	Patton silty clay loam	111.17	15.31	Υ
PIB	Plattville silt loam, 1 to 6 percent slopes	5.40	0.74	Y
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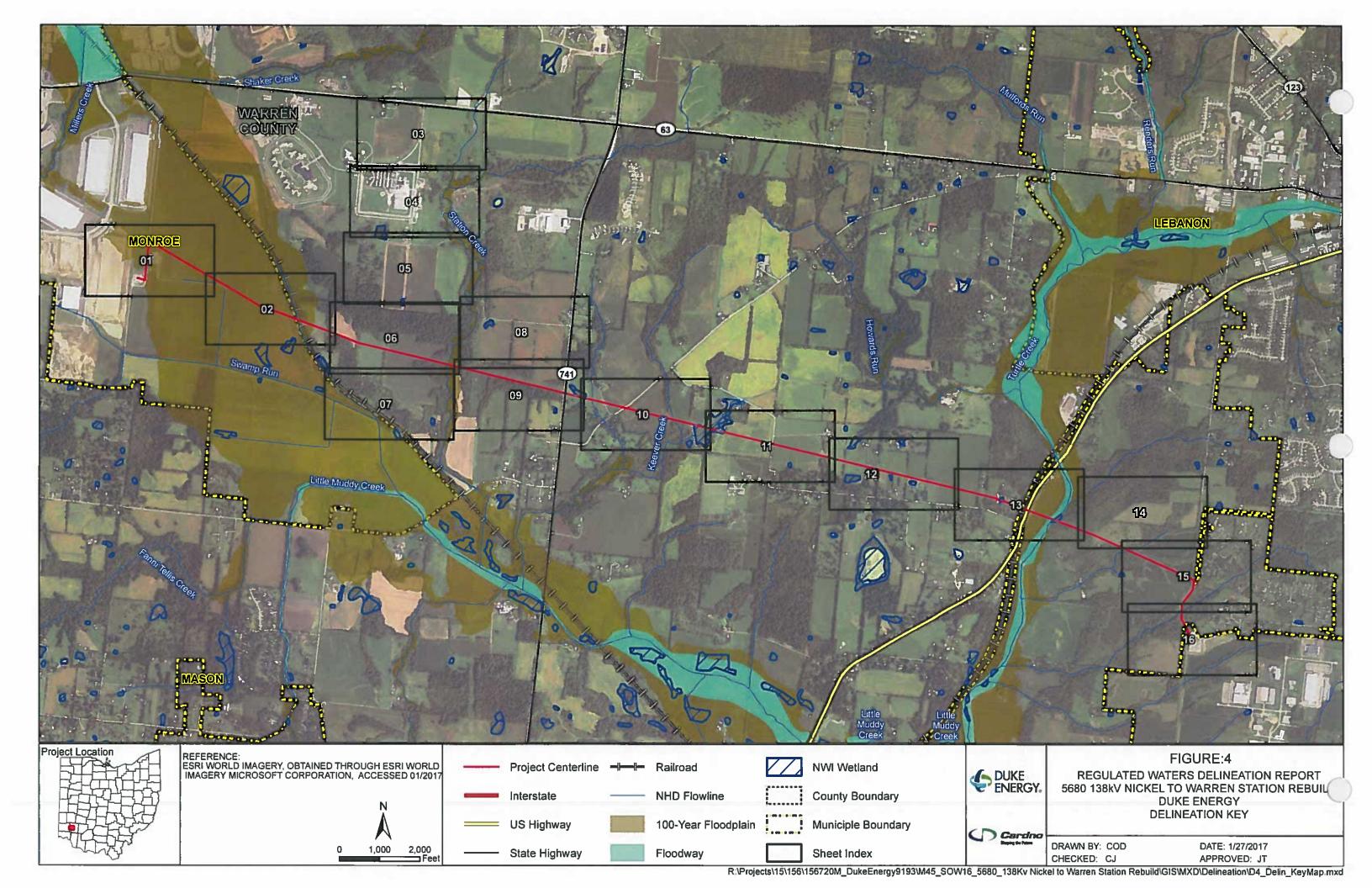


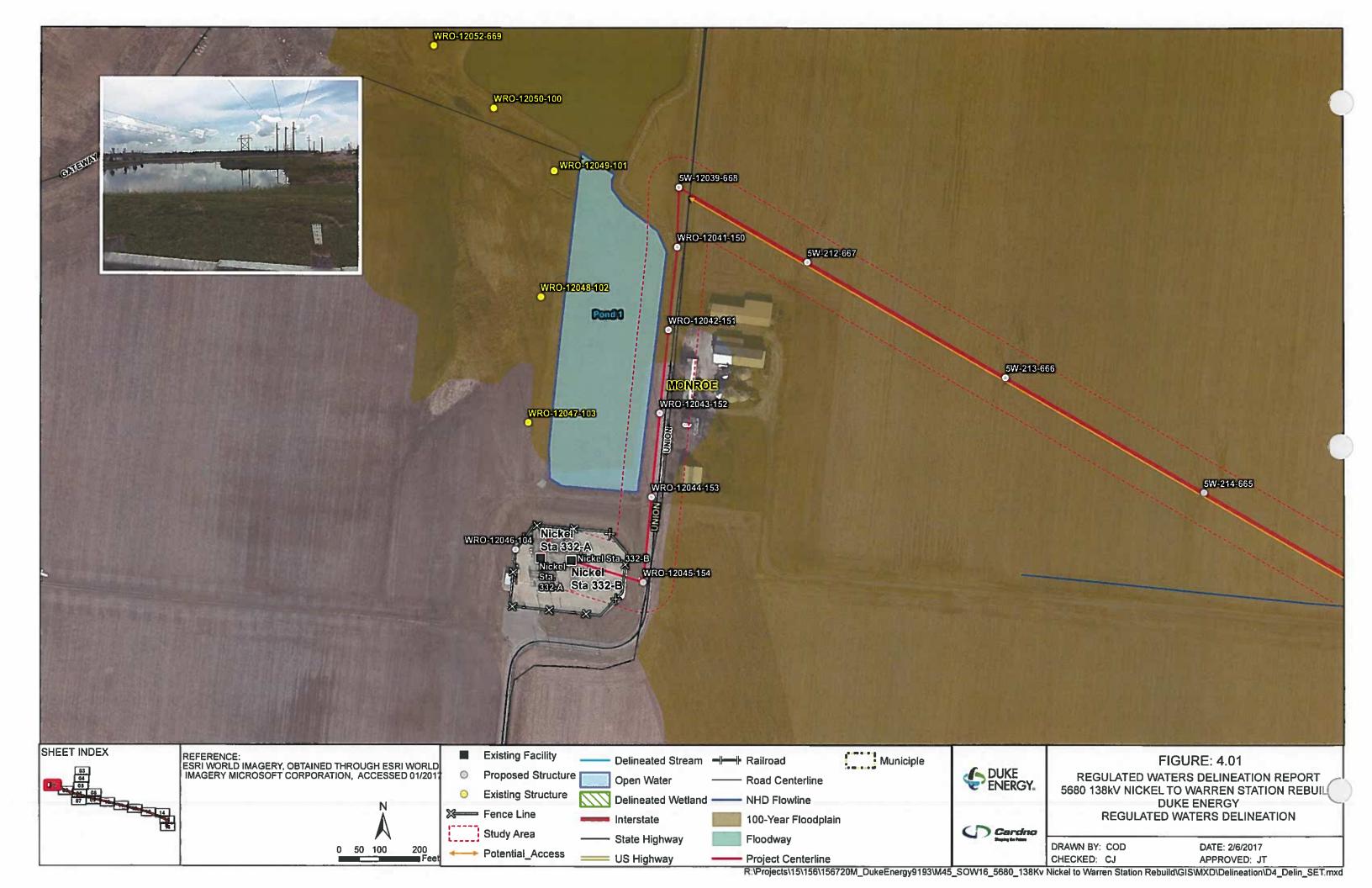


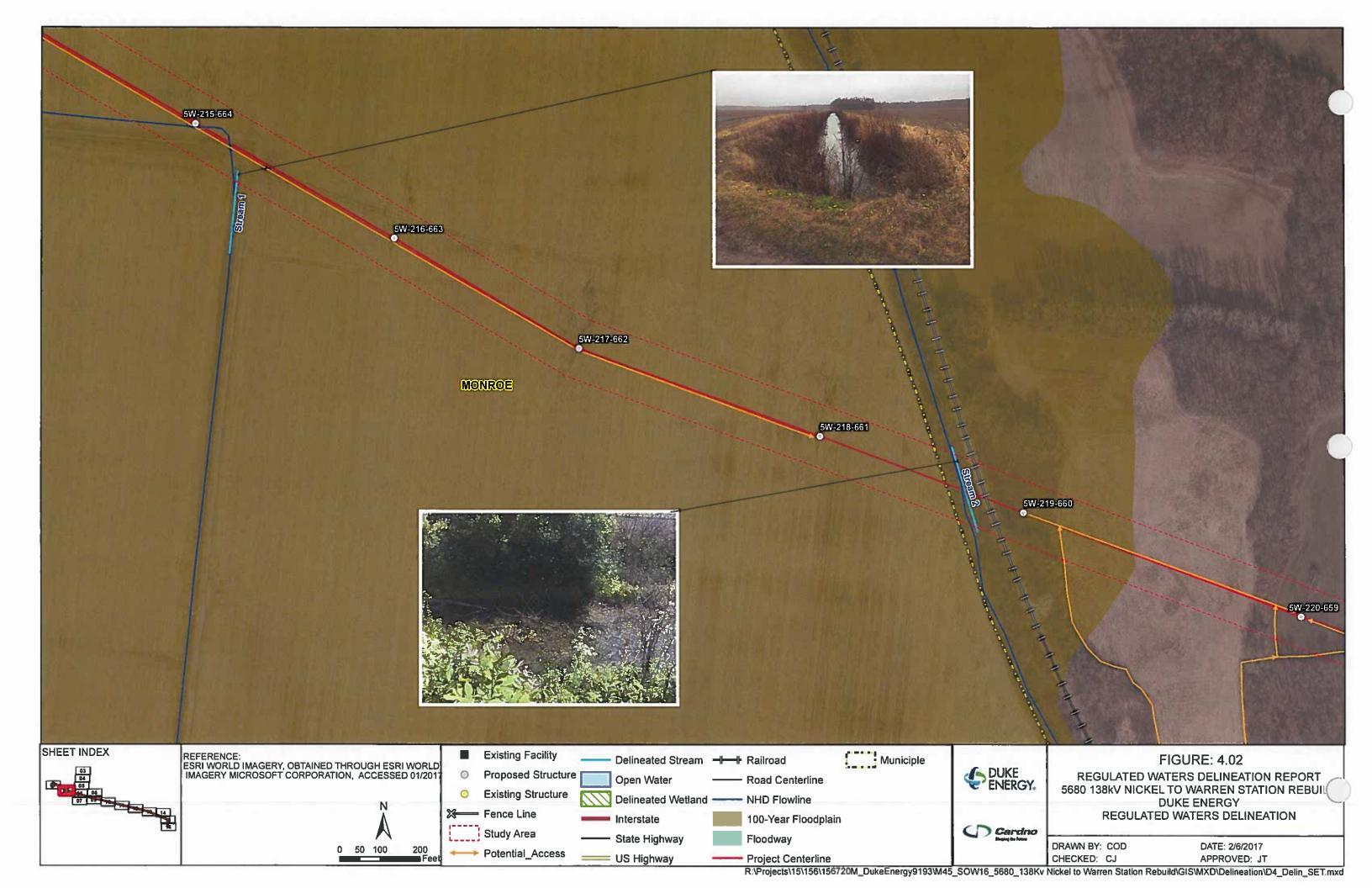
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W	Water	7.20	0.99	N
WyB	Wynn sit loam, 2 to 6 percent slopes	6.06	0.84	N
WyB2	Wynn silt loam, 2 to 6 percent slopes, moderately eroded	34,47	4.75	N
WyC2	Wynn silt loam, 6 to 12 percent slopes, moderately eroded	46.06	6.35	N
XeA	Xenia silt loam, 0 to 2 percent slopes	11.93	1.64	Y
XeB	Xenia silt loam, 2 to 6 percent stopes	46.40	6.39	Y

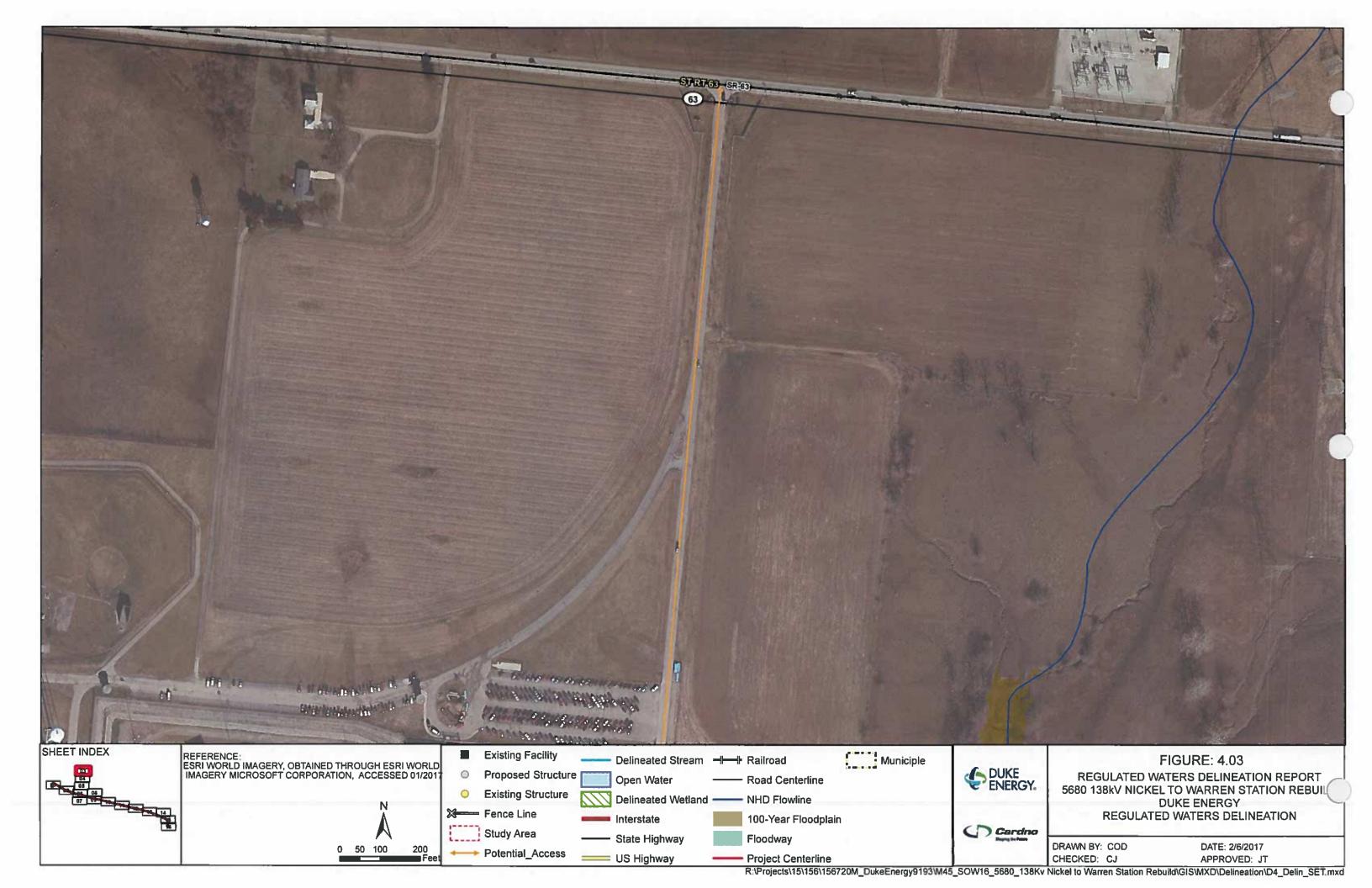


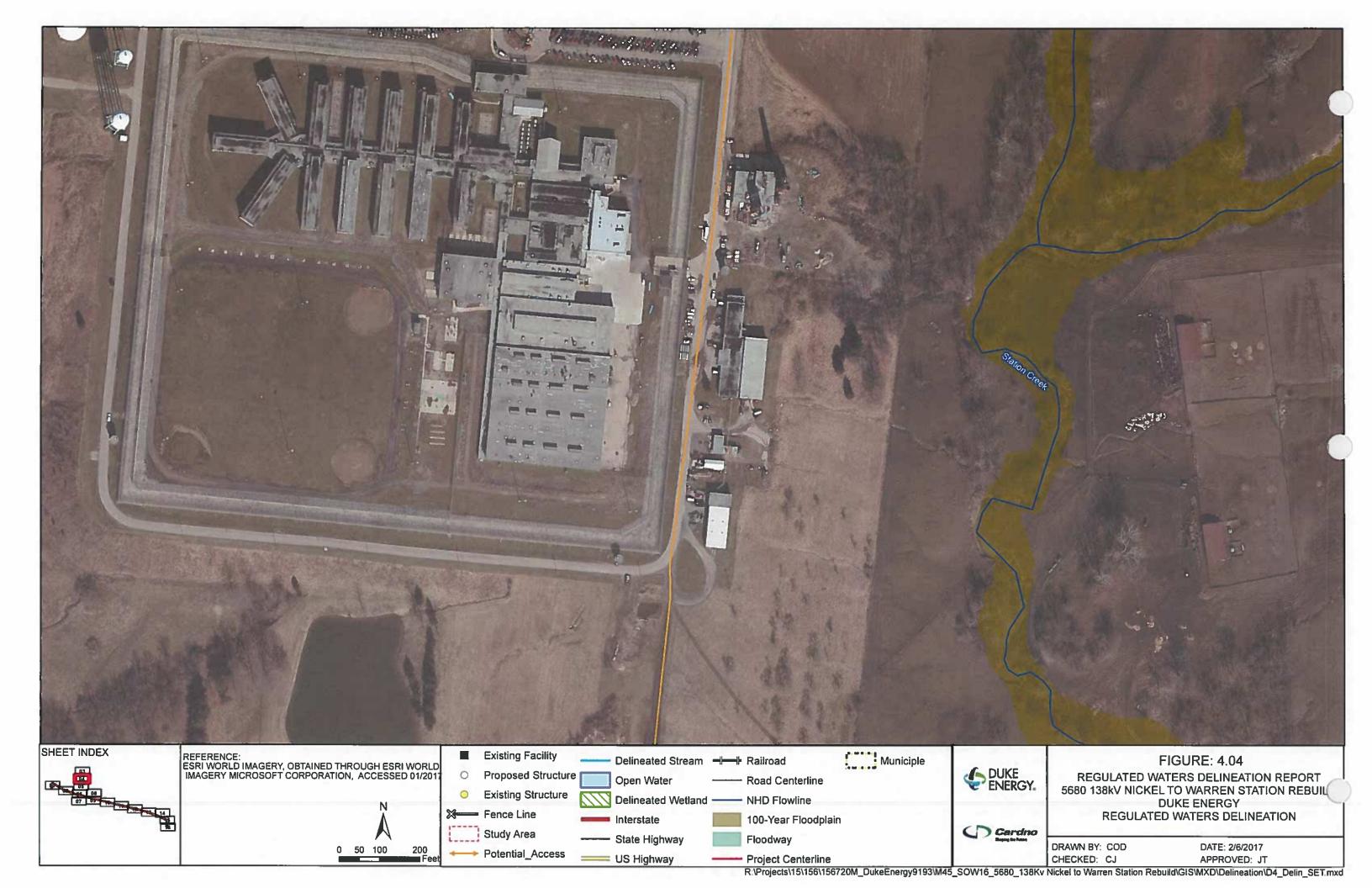


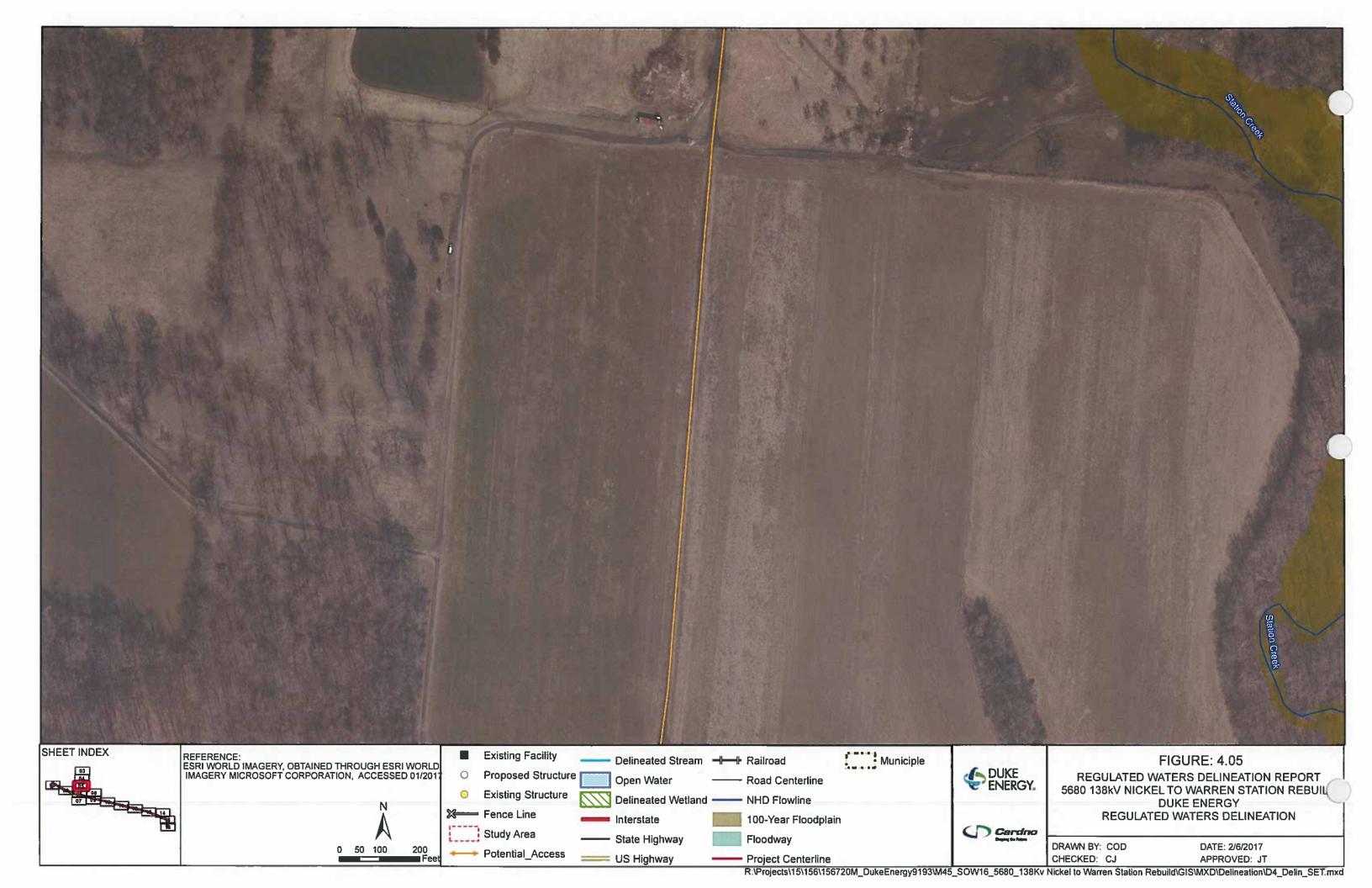


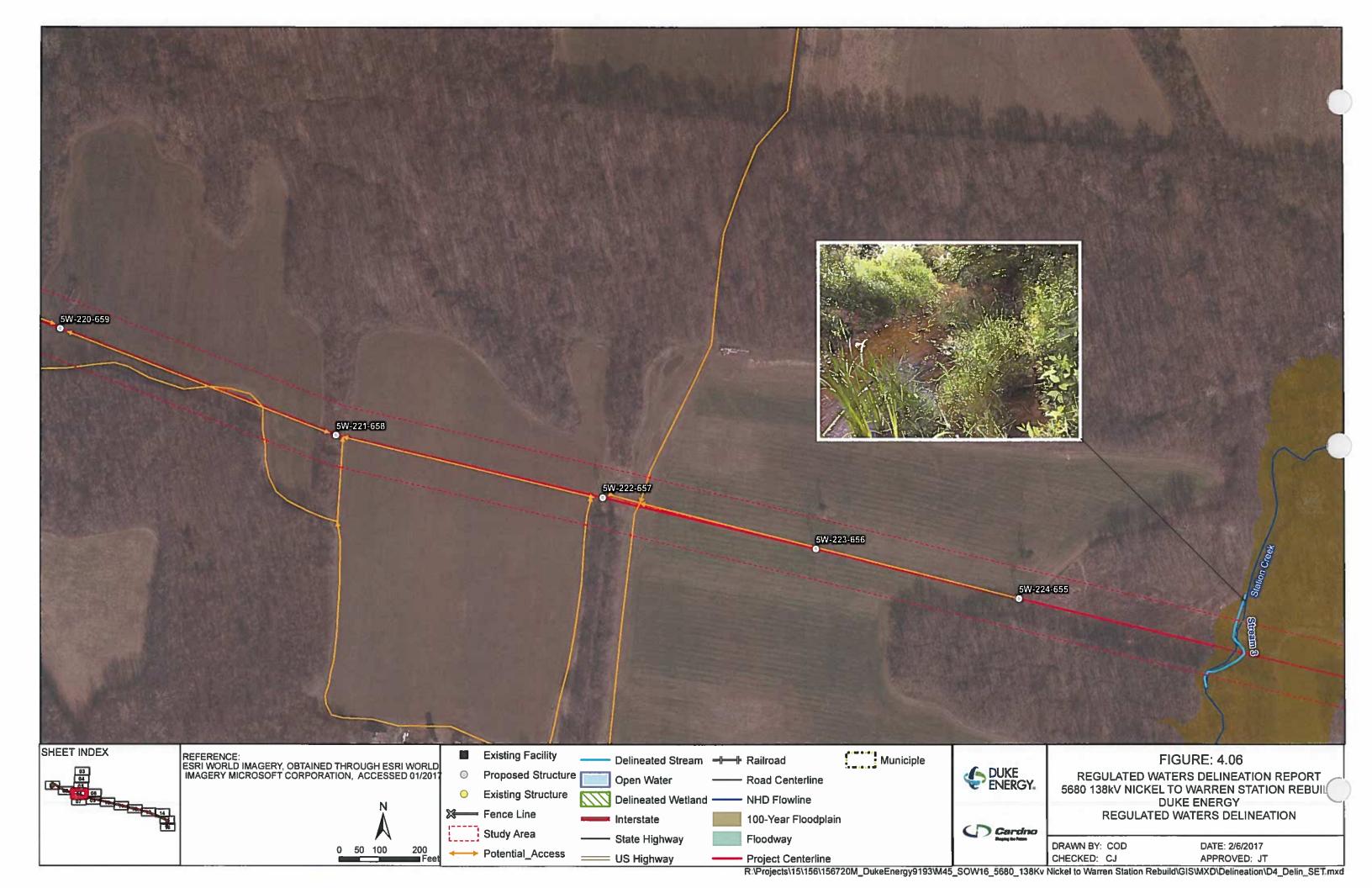


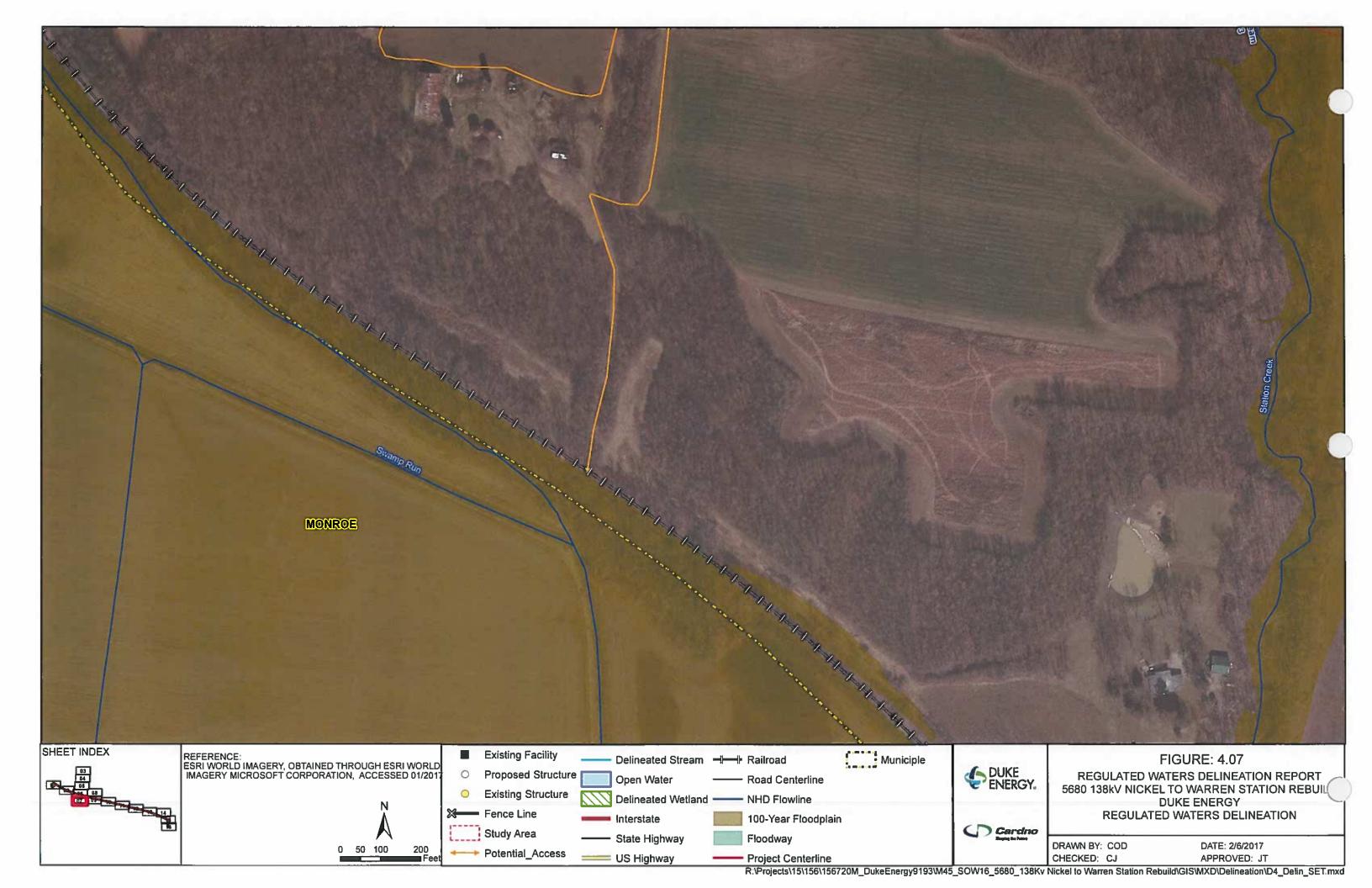


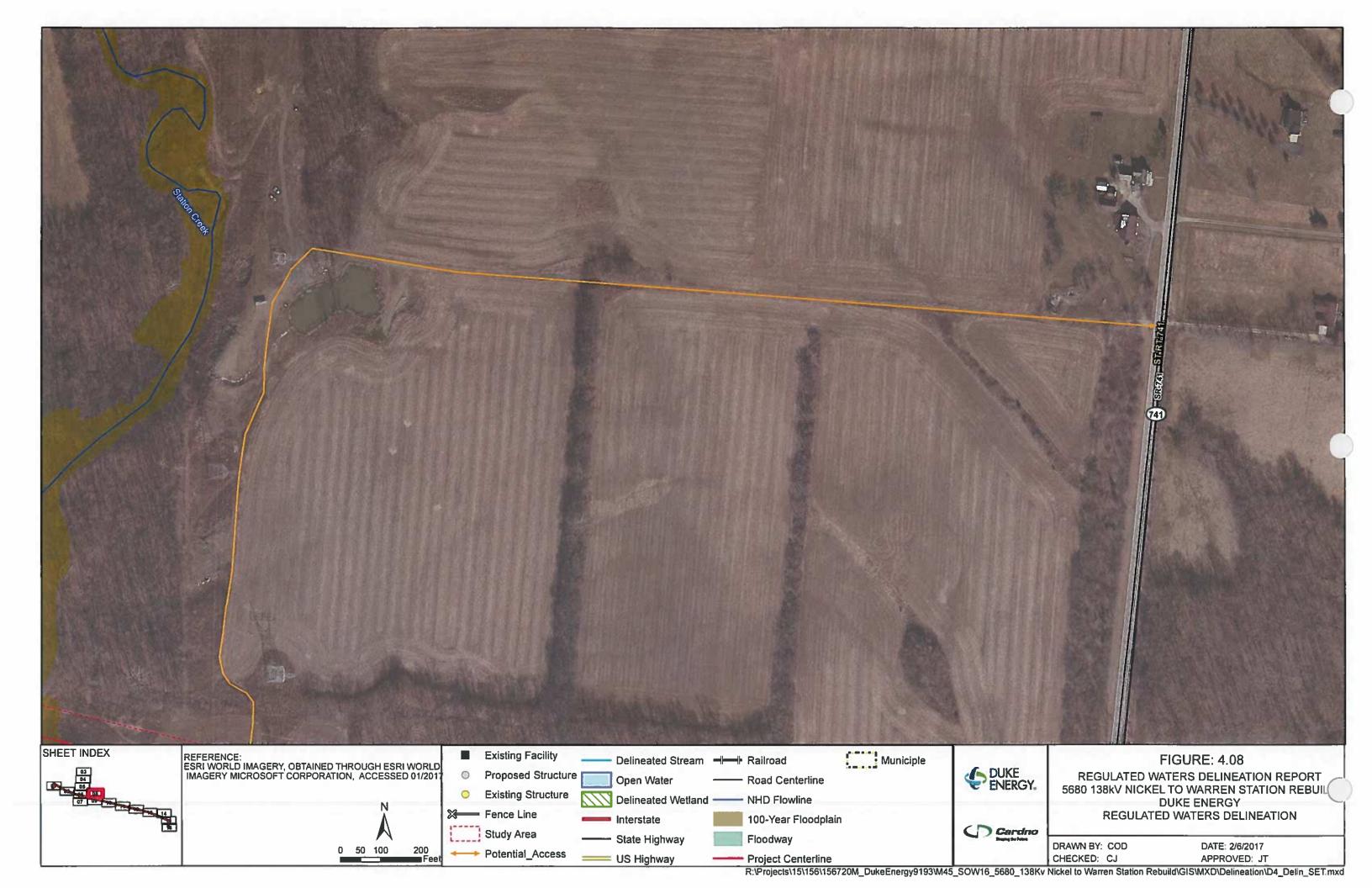


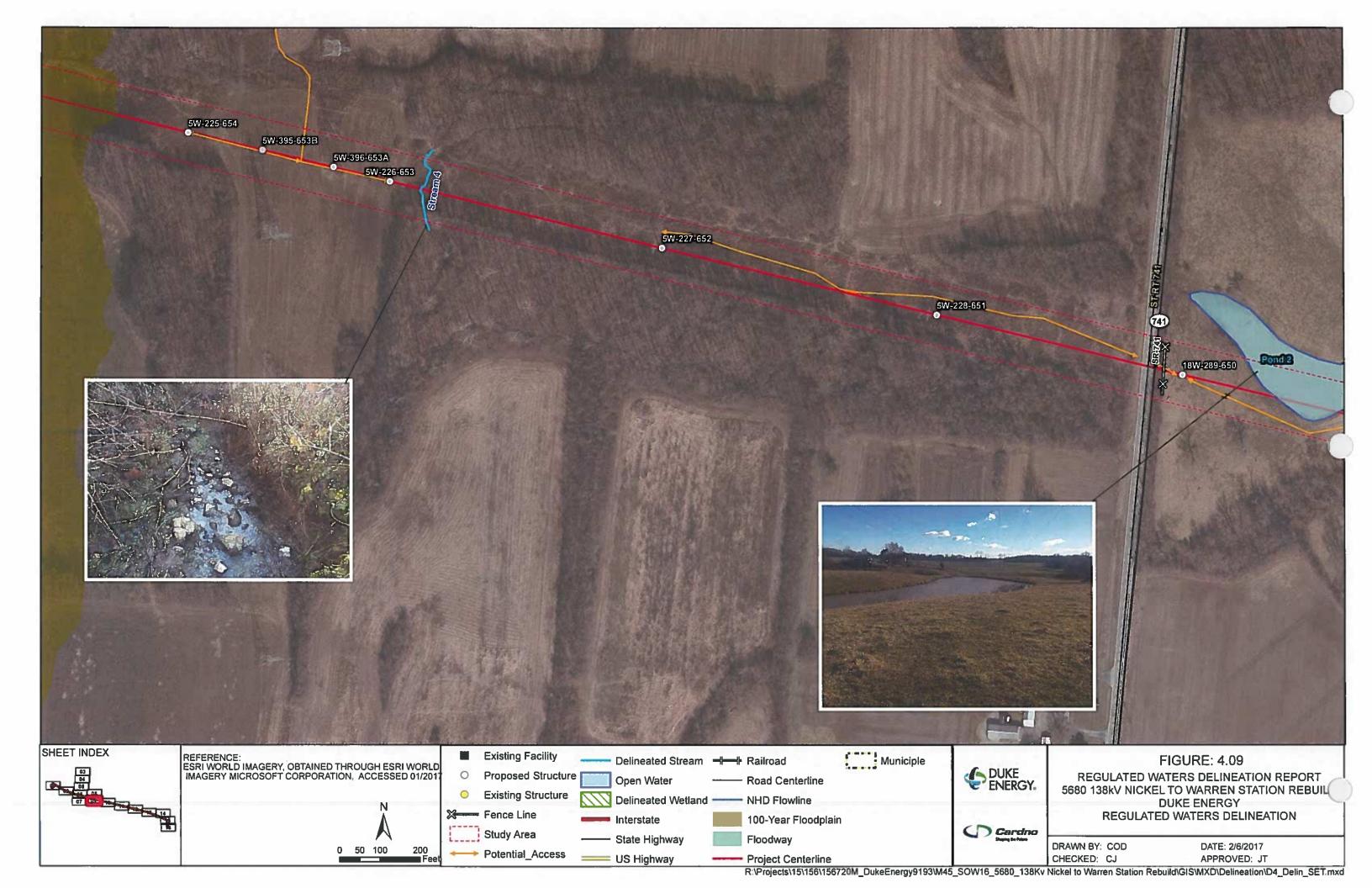


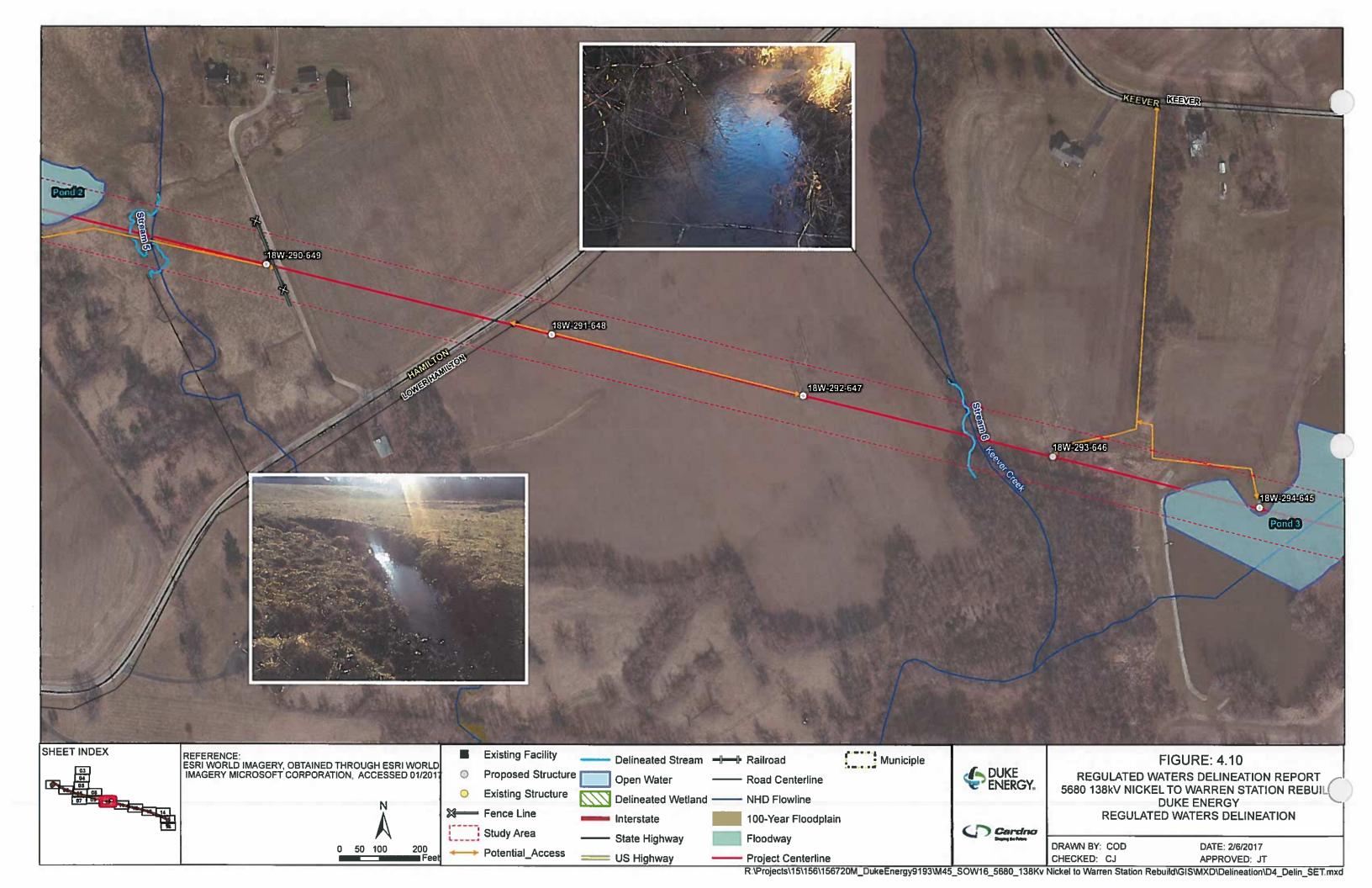


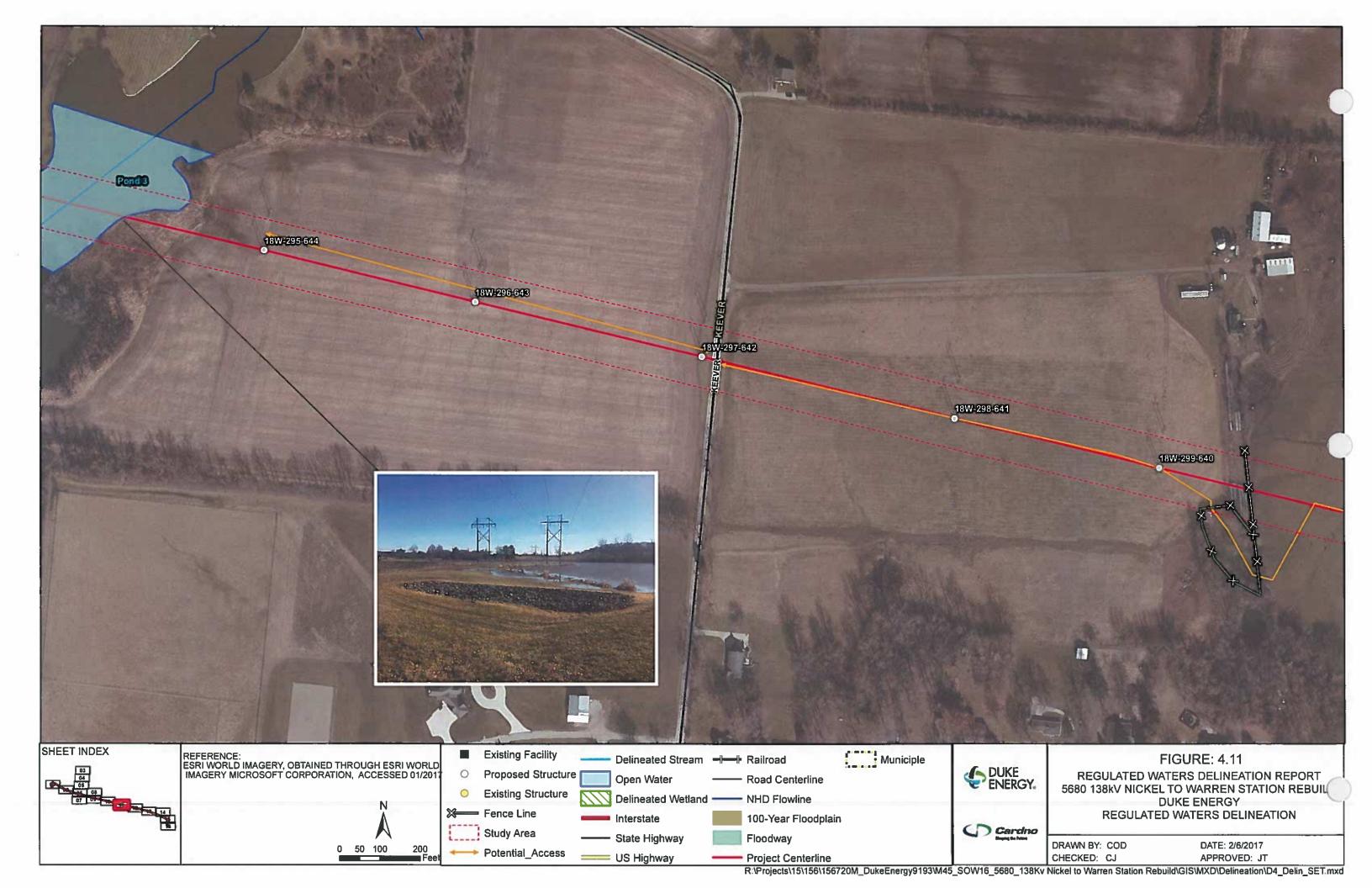


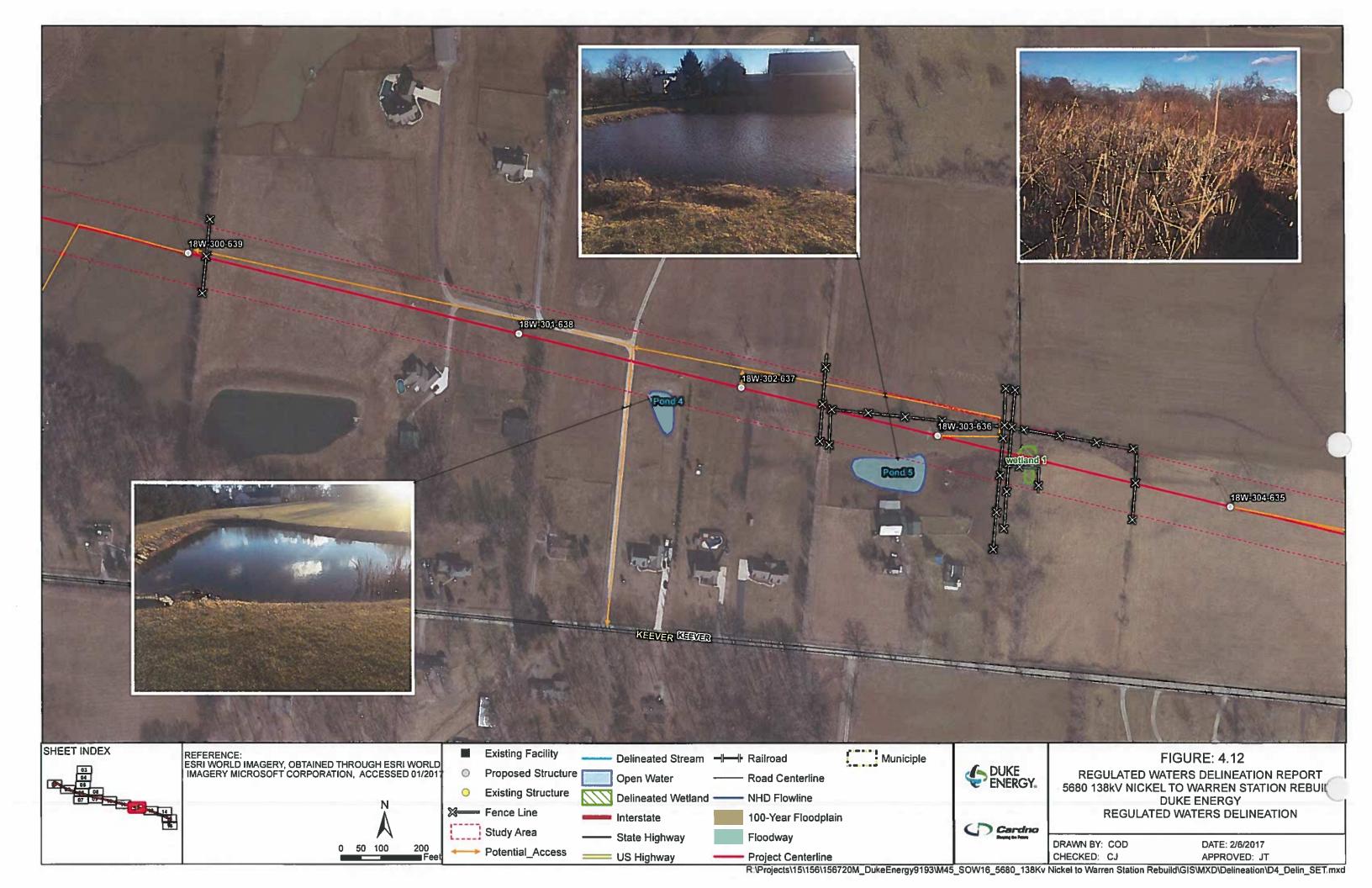


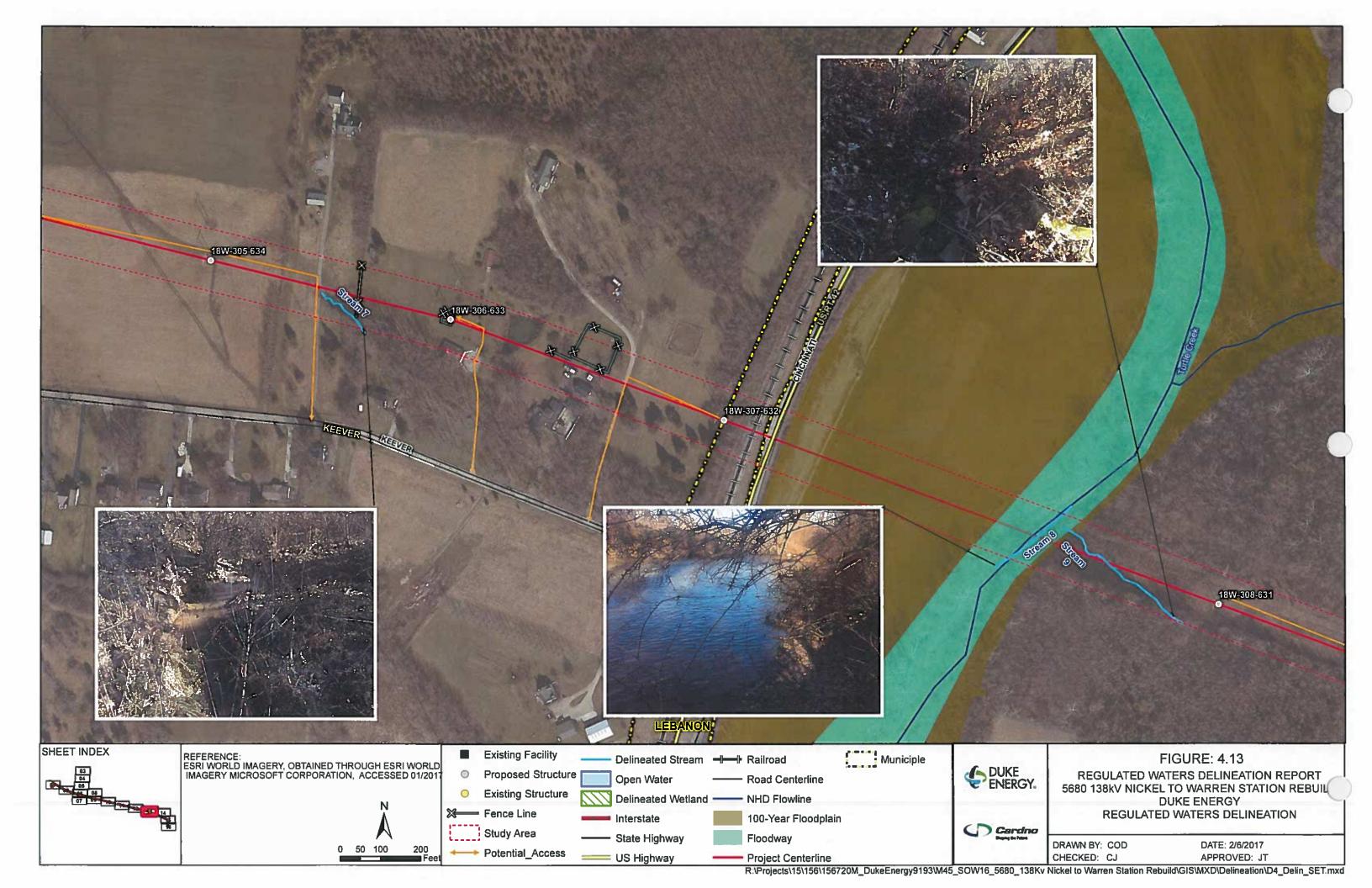


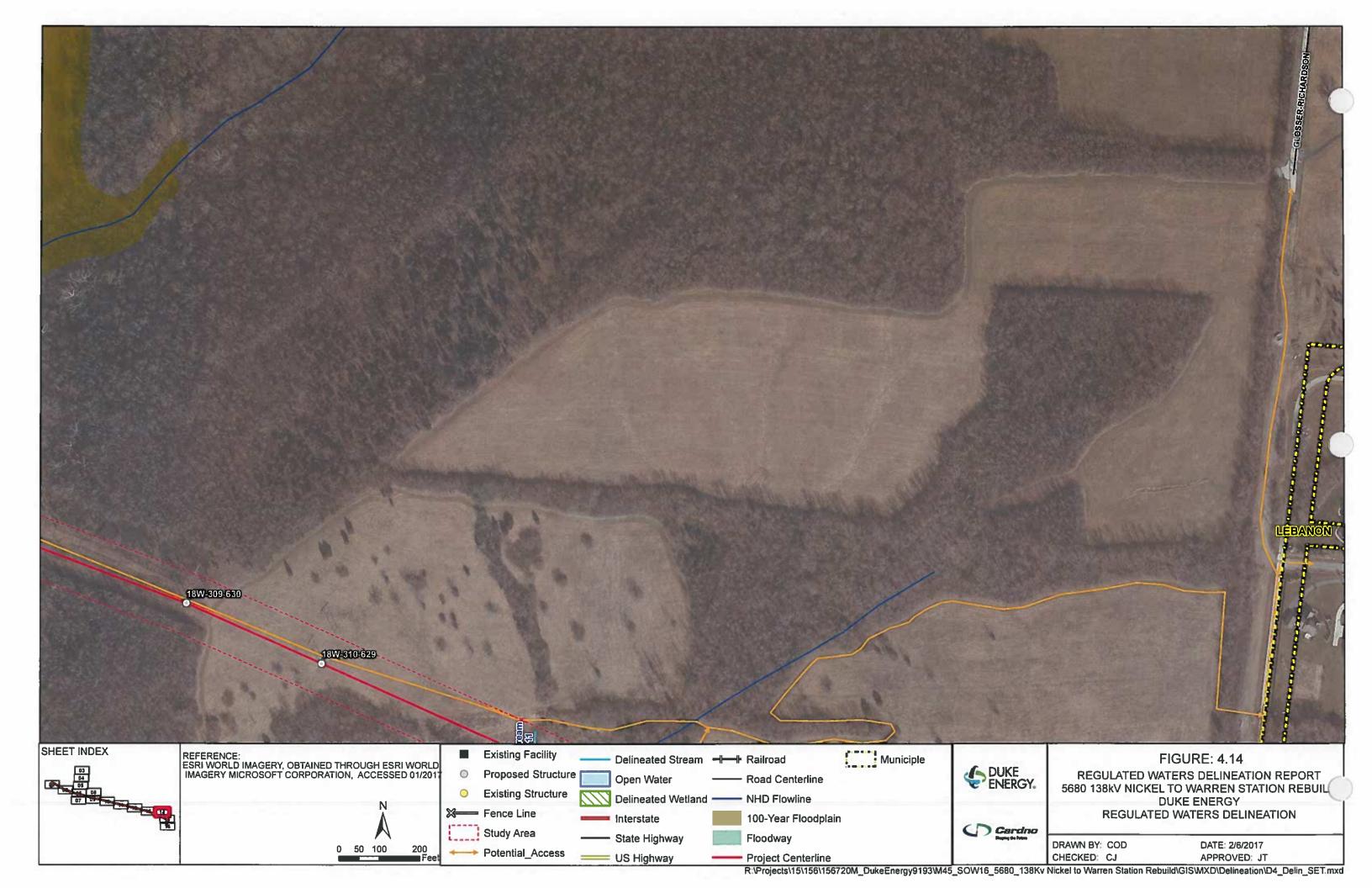


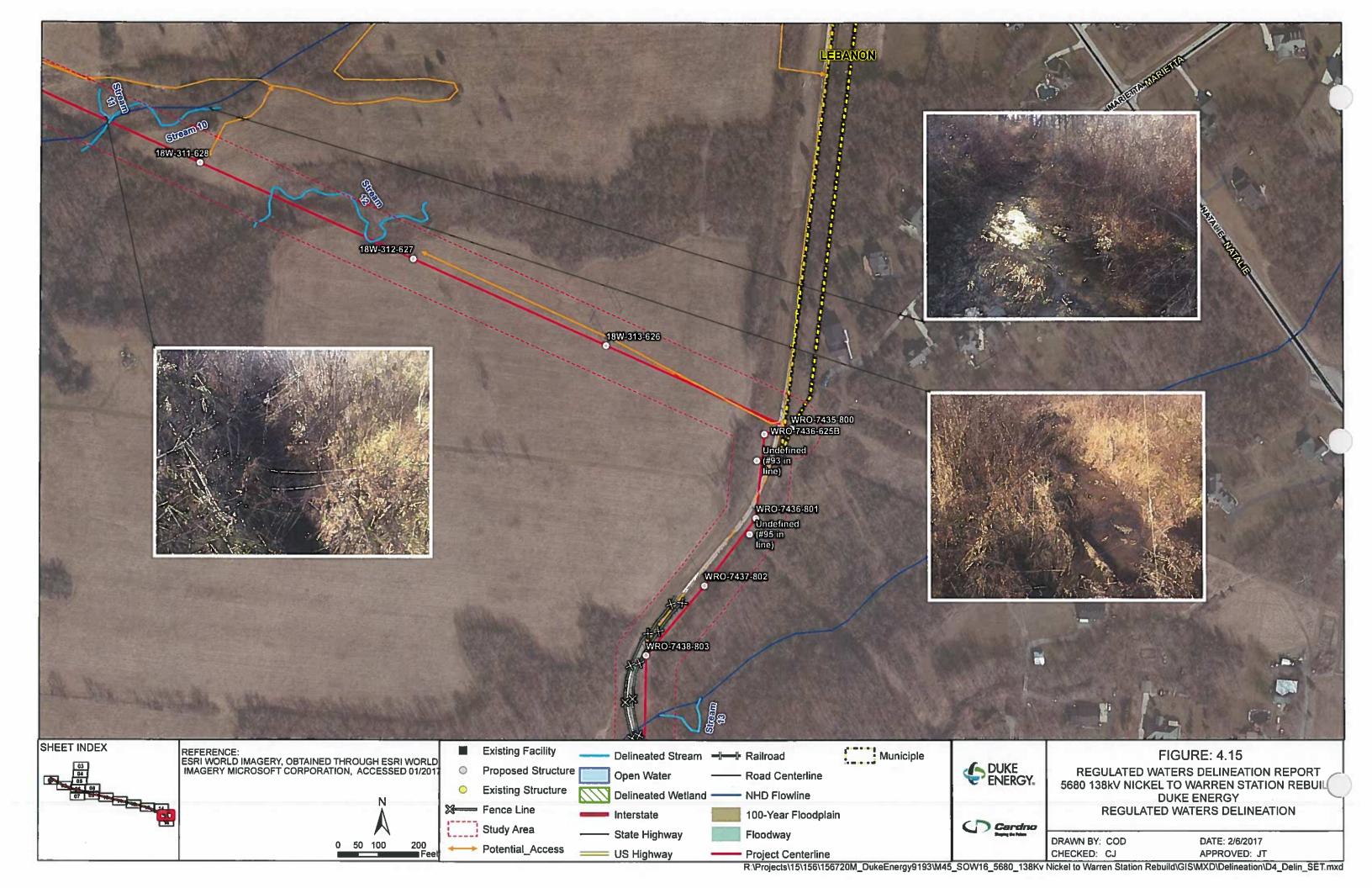


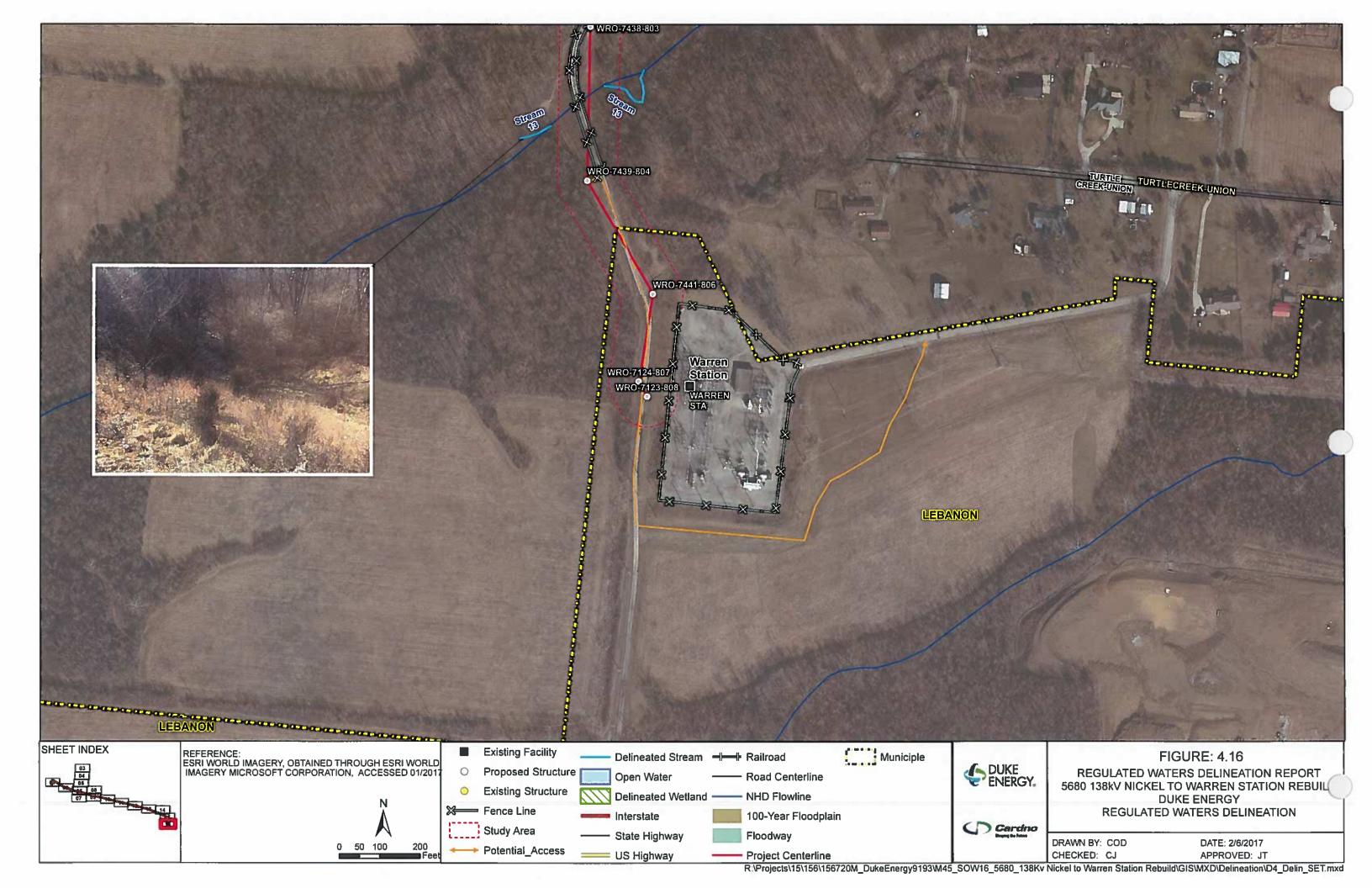












DUKE ENERGY NICKEL TO WARREN STATION

APPENDIX

A

SITE PHOTOGRAPHS



Photo 1: Stream 1, Looking Downstream.



Photo 3: Stream 3, Looking Upstream.



Photo 2: Stream 2, Looking west at the stream channel.



Photo 4: Stream 4, Looking Upstream.





Photo 5: Stream 5, Looking Upstream.



Photo 7: Stream 7, Looking Downstream.



Photo 6: Stream 6, Looking Upstream.



Photo 8: Stream 8, Looking Upstream.





Photo 9: Stream 9, looing downstream.



Photo 11: Stream 11, looking Upstream.



Photo 10: Stream 10, looking Downstream.



Photo 12: Stream 12, looking Upstream.





Photo 13: Stream 13, looing Downstream.



Photo 15: Pond 2, looking West



Photo 14: Pond 1, looking East.



Photo 16: Pond 3, looking East.

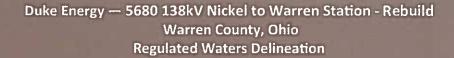






Photo 17: Pond 4, looing south.



Photo 19: Wetland 1, looking North.



Photo 18: Pond 5, looking South.



Photo 20: Maintained ROW west of SR 741, looking East.



Photo 21: Livestock fence within the ROW, looing East.



Photo 23: Agricultural field and lawn within ROW, looking West.



Photo 22: Roadside ditch along Hamilton Road, looking Northeast.



Photo 24: Eastern ROW through agricultural fields, looking West.



DUKE ENERGY NICKEL TO WARREN STATION

**APPENDIX** 

B

OHIO HHEI FORMS

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

52

	STREAM REACH (ft)	LAT. LO		RIVER MILE	
	04/17 SCORER DGV / CA				
NUTE: CO	omplete All Items On This Form				
STREAM C MODIFICA	CHANNEL NONE / NATIONS:	TURAL CHANNEL ZR	ECOVERED RECOVERING	RECENT OR NO RECO	OVERY
TYPE	SSTRATE (Estimate percent of ever x of 32). Add total number of signific PBLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts] BEDROCK [16 pt] COBBLE (65-256 mm) [12 pts] GRAVEL (2-64 mm) [9 pts]	ery type of substrate present substrate types found ERCENT TYPE 0% 7 0% 7 0% 7 0% 7 0% 7 0% 7 0% 7 0%	sent. Check ONLY two predomin. (Max of 8). Final metric score is a  SILT [3 pt]  LEAF PACK/WOODY DEBRIS  FINE DETRITUS [3 pts]  CLAY or HARDPAN [0 pt]  MUCK [0 pts]	sum of boxes A & B.  PERCENT  50%	HH Met Poir Subst
_	SAND (<2 mm) [6 pts]  Total of Percentages of	30% (A)	ARTIFICIAL [3 pts]	0% (B)	12 A+5
	r Slabs, Boulder, Cobble, Bedrock TWO MOST PREDOMINATE SUBS		TOTAL NUMBER OF SUE	SSTRATE TYPES: 3	
eval > 30	kimum Pool Depth (Measure the mi luation. Avoid plunge pools from road centimaters [20 pts]	naximum pool depth with d culverts or storm water p	pipes) (Check ONLY one box): > 5 cm - 10 cm [15 pts]	on reach at the time of	Pool D Max =
. 00		Trans.			
/ > 10	.5 - 30 cm [30 pts] - 22.5 cm [25 pts]		< 5 cm [5 pls] NO WATER OR MOIST CHAI MAXIMUM POOL DEP		25
COM 3. BAN >4.0	.5 - 30 cm [30 pts] - 22.5 cm [25 pts]  MMENTS  WK FULL WIDTH (Measured as the meters (> 13') [30 pts]		MAXIMUM POOL DEP  ments) (Check ONLY o > 1.0 m - 1.5 m (> 3'3" - 4'8")	TH (centimeters): 12	Bank
Z > 10 COM 3. BAN > 4.0 > 3.0	.5 - 30 cm [30 pts] - 22.5 cm [25 pts]  MMENTS  WK FULL WIDTH (Measured as the		MAXIMUM POOL DEP	TH (centimeters): 12	Bank Wid
COM 3. BAN > 4.0 > 3.0 > 1.5	.5 - 30 cm [30 pts] - 22.5 cm [25 pts]  MMENTS  WK FULL WIDTH (Measured as the meters (> 13') [30 pts] m - 4.0 m (> 9' 7° - 13') [25 pts] m - 3.0 m (> 9' 7° - 4' 8") [20 pts]		MAXIMUM POOL DEP  ments) (Check ONLY o  > 1.0 m - 1.5 m (> 3' 3" - 4' 8")  ≤ 1.0 m (<=3' 3") [5 pts]	TH (centimeters): 12	Bank Widi Max=
COM 3. BAN > 4.0 > 3.0 > 1.5	.5 - 30 cm [30 pts] - 22.5 cm [25 pts]  MMENTS  NK FULL WIDTH (Measured as the meters (> 13') [30 pts] m - 4.0 m (> 9' 7° - 13') [25 pts] m - 3.0 m (> 9' 7° - 4' 8") [20 pts]  MMENTS  RIPARIAN ZONE AND FLOODP RIPARIAN WIDTH	This informatio	MAXIMUM POOL DEP  ments) (Check ONLY o  > 1.0 m - 1.5 m (> 3' 3" - 4' 8")  ≤ 1.0 m (<=3' 3") (5 pts]  AVERAGE BANKFULL  n must also be completed  DTE: River Left (L) and Right (R)  TY  minant per Bank) L R	TH (centimeters): 12 ne box): [15 pts]  WIDTH (meters): 1.30 as looking downstream ☆	Bank Wid Max=
COM  3. BAN  > 4.0  > 3.0  > 1.5  COM	.5 - 30 cm [30 pts] - 22.5 cm [25 pts]  MMENTS  NK FULL WIDTH (Measured as the meters (> 13') [30 pts] m - 4.0 m (> 9' 7° - 13') [25 pts] m - 3.0 m (> 9' 7° - 4' 8°) [20 pts]  MMENTS  RIPARIAN ZONE AND FLOODP RIPARIAN WIDTH R (Per Bank) Wide >10m Moderate 5-10m  Narrow <5m / None	This information PLAIN QUALITY TO NOT FLOODPLAIN QUALITY  L R (Most Predo Mature Fore Immature Fore Field  Residential, Fenced Pasi	MAXIMUM POOL DEP  ments) (Check ONLY o  > 1.0 m - 1.5 m (> 3' 3" - 4' 8")  ≤ 1.0 m (<=3' 3") [5 pts]  AVERAGE BANKFULL  n must also be completed  OTE: River Left (L) and Right (R)  TY minant per Bank)  st, Wetland orest, Shrub or Old  Park, New Field	TH (centimeters): 12  Ine box): [15 pts]  WIDTH (meters): 1.30  as looking downstream  Conservation Tillage Urban or Industrial Open Pasture, Row Cro	Bank Wid Max=
Z > 10 COM 3. BAN > 4.0 > 1.5 COM	.5 - 30 cm [30 pts] - 22.5 cm [25 pts]  MMENTS  NK FULL WIDTH (Measured as the meters (> 13') [30 pts] m - 4.0 m (> 9' 7° - 13') [25 pts] m - 3.0 m (> 9' 7° - 4' 8°) [20 pts]  MMENTS  RIPARIAN ZONE AND FLOODP RIPARIAN WIDTH R (Per Bank) Wide >10m Moderate 5-10m  Narrow <5m	This information PLAIN QUALITY TO NOT FLOODPLAIN QUALITY  L R (Most Predo Mature Fore Immature Fore Field  Residential, Fenced Pasi	MAXIMUM POOL DEP  ments) (Check ONLY o  > 1.0 m - 1.5 m (> 3' 3" - 4' 8")  ≤ 1.0 m (<=3' 3") [5 pts]  AVERAGE BANKFULL  n must also be completed  OTE: River Left (L) and Right (R)  TY minant per Bank)  st, Wetland orest, Shrub or Old  Park, New Field	TH (centimeters): 12 Ine box): [15 pts]  WIDTH (meters): 1.30  as looking downstream  Conservation Tillage Urban or Industrial Open Pasture, Row Crop	Bank Wid Max=
Z > 10 COM 3. BAN > 4.0 > 1.5 COM	.5 - 30 cm [30 pts] - 22.5 cm [25 pts]  MMENTS  NK FULL WIDTH (Measured as the meters (> 13') [30 pts] m - 4.0 m (> 9' 7° - 13') [25 pts] m - 3.0 m (> 9' 7° - 4' 8°) [20 pts]  MMENTS  RIPARIAN ZONE AND FLOODP RIPARIAN WIDTH R (Per Bank) Wide >10m Moderate 5-10m  Narrow <5m / None	This information PLAIN QUALITY TANG FLOODPLAIN QUALITY L R (Most Predo Mature Fore Immature Fore Field Residential, Fenced Past tained ROW - adiacent	MAXIMUM POOL DEP' ments) (Check ONLY o > 1.0 m - 1.5 m (> 3' 3" - 4' 8") ≤ 1.0 m (<=3' 3") (5 pts]  AVERAGE BANKFULL  AVERAGE BANKFULL  The must also be completed OTE: River Left (L) and Right (R)  EY minant per Bank)  St, Wetland orest, Shrub or Old  Park, New Field  ture  L A Grield  The box):	TH (centimeters): 12  ne box): [15 pts]  WIDTH (meters): 1.30  as looking downstream  Conservation Tillage Urban or Industrial Open Pasture, Row Cro Mining or Construction  d pools, no flow (intermittent)	Bank Widi Max=

ADDITIONAL STREAM INFORMATION (This Information Must Also be Co	ompleted):	
QHEI PERFORMED? - Yes V No QHEI Score	(If Yes, Attach Completed QHEi Form)	
DOWNSTREAM DESIGNATED USE(S)		
/ WWH Name: Little Muddy Creek	_ Distance from Evaluated Stream	1.56
CWH Name:	Distance from Evaluated Stream	
EWH Name:	Distance from Evaluated Stream	
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE	VATERSHED AREA. CLEARLY MARK THE SITE LC	CATION
USGS Quadrangle Name: NRC	S Soil Map Page: NRCS Soil Map Stream	Order
County: Warren Township / C	ity: Monroe	
MISCELLANEOUS		
Base Flow Conditions? (Y/N):_Y Date of last precipitation:	Quantity: 0.00	
Photograph Information: See Photolog on Figures		
Elevated Turbidity? (Y/N): N Canopy (% open): 90%		
M	le no. or id. and attach results) Lab Number:	
	pH (S.U.) Conductivity (μπλοs/cm)	
Is the sampling reach representative of the stream (Y/N) 4f not, please	explain:	
Additional comments/description of pollution impacts:		
	= ======	
BIOTIC EVALUATION		
Performed? (Y/N): N (If Yes, Record all observations. Voucher collections)	tions optional. NOTE: all voucher samples must be lat	beled with the si
ID number. Include appropriate field data sheet	s from the Primary Headwater Habitat Assessment Ma	nual)
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observe Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Mac	d? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)	(/N) N
Comments Regarding Biology:	Tables observed (1777)	- Commission
Sommand Hogarang sizing).		
DRAWING AND NARRATIVE DESCRIPTION OF S	TREAM REACH (This must be completed	ed):
Include important landmarks and other features of interest for site e	valuation and a narrative description of the stream	n's location
4. N AG FIELD		
K N. Pool		
1000		
	g - white the Baraganga A	
FLOW		
		The state of the s
A \$1000		
AG FIELD		
•		

Save as pdf

Reset Form

## ChieFPA Primary Headwater Habitat Evaluation Form

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

LENGTH	SITE NUMBER	Stream 2	RIVER	ASIN Little Miami	River	DRAINAGE AREA (mi²)	0.20
	H OF STREAM REACH (ft)	and the same of th			IVER CODE		- Concrete
	01/04/17 SCORER DGV /					WATEL INFE	Lessen
_	: Complete All Items On This Fo		-	dunting Managed Sa	- Oblei- Cl	DAILL CAMPAGE TO FEE !	
NOTE	Complete All Items On This F	om - Keier	to "Fleid Eva	iluation Manual fo	r Unio's Pr	IWH Streams" for Ins	struction
		NATURAL CH	ANNEL ZR	ECOVERED RE	COVERING	RECENT OR NO RE	ECOVERY
MODII	FICATIONS:						
1.	SUBSTRATE (Estimate percent of	even, type of	substrate pro-	ant Chark ON Van	0 0000000000000000000000000000000000000	et exhatesta TVDC haves	
	(Max of 32). Add total number of sign	nificant substra	te types found	(Max of 8). Final met	ic score is su	in of boxes A & B.	i HH
TYPE		PERCENT	TYPE			PERCENT	Met
	BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts]	0%		SILT [3 pt]	W DEDOID !!	50%	Poi
HH	BEDROCK [16 pt]	<u>0%</u> 0%	岩님	LEAF PACK/WOOD		3 pts] 0%	Subs
HH	COBBLE (65-256 mm) [12 pts]	0%		CLAY or HARDPAN		0%	Max
	GRAVEL (2-64 mm) [9 pts]	20%		MUCK [0 pts]	[o bi]	0%	
	SAND (<2 mm) [6 pts]	30%		ARTIFICIAL [3 pts]		0%	12
	Total of Percentages of					for t	Maria
	Bldr Slabs, Boulder, Cobble, Bedrock	0.00%	(A)	Substitute and	180%	(B)	A+
SCORE	OF TWO MOST PREDOMINATE SU		PES: 9	TOTAL NUMB	ER OF SUBS	STRATE TYPES: 3	
2.	Maximum Deal Panth (15)		1	9 at an a			-
	Maximum Pool Depth (Measure the evaluation. Avoid plunge pools from a	e maximum po road culverts n	o <b>oi depth with</b> It storm water i	iin the 61 meter (200 lines) - (Check ON)	rt) evaluation Yone hov):	n reach at the time of	Pool I
	> 30 centimeters [20 pts]		7	> 5 cm - 10 cm [15			Wax
	> 22.5 - 30 cm [30 pts]			< 5 cm [5 pts]			
	> 10 - 22.5 cm [25 pts]		Almost	NO WATER OR M	IOIST CHAN	NEL [0 pts]	15
	COMMENTS			MAXIMUM I	POOL DEPTI	H (centimeters): 12	
. —	DANK FOR LANDSTON					lane and	
3.	BANK FULL WIDTH (Measured as > 4.0 meters (> 13') [30 pts]	trie average o	T 3-4 measure	ments) (Che > 1.0 m - 1.5 m (>	ck <i>ONLY</i> on 3' 3" = 4' 8") [1		Bani Wid
	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]		7	≤ 1.0 m (<=3° 3") [8			Max
1 1 2	> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]		Mar I			Country	
_	> 1.5 m - 3.0 m (> 9 7 - 4 8 ) (20 ps)						1 101
	COMMENTS			AVERAGE	BANKFULL \	NIDTH (meters): 0.90	5
				AVERAGE	BANKFULL \	WIDTH (meters): 0.90	5
		TI	his informatio			WIDTH (meters): 0.90	5
		DDPLAIN QUA	LITY AN	n <u>must</u> also be com OTE: River Left (L) ar	pleted	MIDTH (meters): 0.90 s looking downstream☆	5
	RIPARIAN ZONE AND FLOOR RIPARIAN WIDTH	DDPLAIN QUA FLOOD	LITY AND PLAIN QUALI	n <u>must</u> also be com DTE: River Left (L) ar <u>TY</u>	pleted d Right (R) a	L	5
	RIPARIAN ZONE AND FLOOR RIPARIAN WIDTH  L R (Per Bank)	DDPLAIN QUA	LITY AND PLAIN QUALIT (Most Predo	n <u>must</u> also be com DTE: River Left (L) ar <u>FY</u> minant per Bank)	pleted	s looking downstreamಭ	
	RIPARIAN ZONE AND FLOOR RIPARIAN WIDTH  L R (Per Bank) Wide >10m	DDPLAIN QUA FLOOD	LITY AND PLAIN QUALI (Most Predo Mature Fore	n <u>must</u> also be com DTE: River Left (L) ar <u>FY</u> minant per Bank) st, Welland	pleted d Right (R) a	s looking downstream☆ Conservation Tillage	
	RIPARIAN ZONE AND FLOOR RIPARIAN WIDTH  L R (Per Bank)	DDPLAIN QUA FLOOD	LITY AND PLAIN QUALI (Most Predo Mature Fore	n <u>must</u> also be com DTE: River Left (L) ar <u>FY</u> minant per Bank)	pleted d Right (R) a	s looking downstream & Conservation Tillage Urban or Industrial	
	RIPARIAN ZONE AND FLOOR RIPARIAN WIDTH  L R (Per Bank) Wide >10m	DDPLAIN QUA FLOOD	CLITY AND PLAIN QUALITY (Most Predo Mature Fore Immature For Field	n <u>must</u> also be com DTE: River Left (L) ar <u>FY</u> minant per Bank) st, Welland	pleted d Right (R) a	s looking downstream☆ Conservation Tillage	
	RIPARIAN ZONE AND FLOOR RIPARIAN WIDTH  L R (Per Bank) Wide >10m Moderate 5-10m	DDPLAIN QUA FLOOD	ALITY AND PLAIN QUALITY (Most Predo Mature Fore Immature Fore Field Residential,	n <u>must</u> also be com OTE: River Left (L) ar <u>FY</u> minant per Bank) st, Wetland orest, Shrub or Old Park, New Field	pleted d Right (R) a	s looking downstream & Conservation Tillage Urban or Industrial Open Pasture, Row	Crop
	RIPARIAN ZONE AND FLOOR RIPARIAN WIDTH  L R (Per Bank) Wide >10m Moderate 5-10m Narrow <5m	DDPLAIN QUA	ALITY AND PLAIN QUALITY (Most Predo Mature Fore Immature Fore Field Residential, Fenced Pasi	n <u>must</u> also be com OTE: River Left (L) ar <u>FY</u> minant per Bank) st, Wetland orest, Shrub or Old Park, New Field	pleted d Right (R) a	s looking downstream & Conservation Tillage Urban or Industrial	Crop
	RIPARIAN ZONE AND FLOOR RIPARIAN WIDTH  L R (Per Bank) Wide > 10m Moderate 5-10m Narrow < 5m None COMMENTS All within ma	DDPLAIN QUA	CLITY AND PLAIN QUALITY (Most Predo Malure Fore Immalure Fore Immalure Fore Immalure Fore Immalure Foreid Residential, Fenced Pass W - adiacon	n must also be com OTE: River Left (L) ar IY minant per Bank) st, Wetland orest, Shrub or Old Park, New Field ture	pleted d Right (R) a	s looking downstream & Conservation Tillage Urban or Industrial Open Pasture, Row	Crop
	RIPARIAN ZONE AND FLOOR RIPARIAN WIDTH  L R (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None	DDPLAIN QUA	CLITY AND PLAIN QUALITY (Most Predo Malure Fore Immalure Fore Immalure Fore Immalure Fore Immalure Foreid Residential, Fenced Pass W - adiacon	n must also be com OTE: River Left (L) ar TY minant per Bank) st, Wetland prest, Shrub or Old Park, New Field ture LLO RR tracks & A	pleted d Right (R) a	s looking downstream to Conservation Tillage Urban or Industrial Open Pasture, Row Mining or Construction	Crop
	RIPARIAN ZONE AND FLOOR RIPARIAN WIDTH  L R (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None COMMENTS All within ma FLOW REGIME (At Time of the Stream Flowing Subsurface flow with isolated	DDPLAIN QUA FLOOD L R R D D D D D D D D D D D D D D D D D D	Check ONLY or	n must also be com OTE: River Left (L) ar OTE	pleted d Right (R) a	s looking downstream & Conservation Tillage Urban or Industrial Open Pasture, Row Mining or Construction	Crop
	RIPARIAN ZONE AND FLOOR RIPARIAN WIDTH  (Per Bank) Wide > 10m Moderate 5-10m Narrow < 5m None COMMENTS All within ma	DDPLAIN QUA FLOOD L R R D D D D D D D D D D D D D D D D D D	Check ONLY or	n must also be com OTE: River Left (L) ar OTE	pleted d Right (R) a	s looking downstream & Conservation Tillage Urban or Industrial Open Pasture, Row Mining or Construction	Crop
	RIPARIAN ZONE AND FLOOR RIPARIAN WIDTH  L R (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None COMMENTS All within ma FLOW REGIME (At Time of the Stream Flowing Subsurface flow with isolated COMMENTS recent rain	DDPLAIN QUA FLOOD L R L R L R L R L R L R L R L R L R L R	ALITY AND PLAIN QUALITY (Most Predo Malure Fore Immalure Fore Immalure Fore Immalure Fore Immalure Foreid Residential, Fenced Passiw - adiacom	n must also be comote: River Left (L) and the comote th	pleted d Right (R) a  L R  D D  pleted  annel, isolated el no water (	s looking downstream & Conservation Tillage Urban or Industrial Open Pasture, Row Mining or Construction	Crop
	RIPARIAN ZONE AND FLOOR RIPARIAN WIDTH  L R (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None COMMENTS All within ma FLOW REGIME (At Time of the Stream Flowing Subsurface flow with isolated COMMENTS recent rain None	DPLAIN QUA FLOOD L R R DEVALUATION CO POOLS (Interstiti	ALITY AND PLAIN QUALITY (Most Predo Malure Fore Immalure Fore Immalure Fore Immalure Fore Immalure Foreid Residential, Fenced Passiw - adiacom	n must also be comote: River Left (L) and the comote th	pleted d Right (R) a  L R  D D  pleted  annel, isolated el no water (	s looking downstream & Conservation Tillage Urban or Industrial Open Pasture, Row Mining or Construction	Crop
	RIPARIAN ZONE AND FLOOR RIPARIAN WIDTH  L R (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None COMMENTS All within ma FLOW REGIME (At Time of the Stream Flowing Subsurface flow with isolated COMMENTS recent rain	DDPLAIN QUA FLOOD L R R DDPLAIN QUA FLOOD L R CO R DOOL R	ALITY AND PLAIN QUALITY (Most Predo Malure Fore Immalure Fore Immalure Fore Immalure Fore Immalure Foreid Residential, Fenced Passiw - adiacom	n must also be com OTE: River Left (L) ar OTE	pleted d Right (R) a  L R  D D  pleted  annel, isolated el no water (	s looking downstream to Conservation Tillage Urban or Industrial Open Pasture, Row Mining or Construction pools, no flow (Intermitte Epherneral)	Crop
	RIPARIAN ZONE AND FLOOR RIPARIAN WIDTH  L R (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None COMMENTS All within ma FLOW REGIME (At Time of the Stream Flowing Subsurface flow with isolated COMMENTS recent rain None	DPLAIN QUA FLOOD L R R DEVALUATION CO POOLS (Interstiti	ALITY AND PLAIN QUALITY (Most Predo Malure Fore Immalure Fore Immalure Fore Immalure Fore Immalure Foreid Residential, Fenced Passiw - adiacom	n must also be comote: River Left (L) and the comote th	pleted d Right (R) a  L R  D D  pleted  annel, isolated el no water (	s looking downstream to Conservation Tillage Urban or Industrial Open Pasture, Row Mining or Construction pools, no flow (Intermitte Ephemeral)	Crop

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: Little Muddy Creek	_ Distance from Evaluated Stream1.01
CWH Name:	Distance from Evaluated Stream  Distance from Evaluated Stream
	The second secon
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIR	E WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
general contraction and contra	RCS Soil Map Page NRCS Soil Map Stream Order
County: Warren Township	/ City: Monroe
MISCELLANEOUS	
base Flow Conditions? (Y/N): Y Date of last precipitation	Quantity: 0.00
hotograph Information: See Photolog on Figures	
outlopy (A opan)	phonomenon one are a real and a r
/ere samples collected for water chemistry? (Y/N): N (Note lab sai	mple no. or id. and attach results) Lab Number:
ield Measures: Temp (°C) Dissolved Oxygen (mg/l)	pH (S.U.) Conductivity (µmhos/cm)
the sampling reach representative of the stream (Y/N)	ase explain:
	To separate and the set that is the set of t
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dditional comments/description of pollution impacts:	
ish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observeds or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic N	lections optional. NOTE: all voucher samples must be labeled with the site sets from the Primary Headwater Habitat Assessment Manual)  rved? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N
comments Regarding Biology:	
DRAWING AND NARRATIVE DESCRIPTION OF	STREAM REACH (This must be completed):
Include Important landmarks and other features of interest for site	AND White of the contract with the first the contract of the c
North -	N. C.
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PHWH Form	n Page - 2

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

-	STREAM REACH (ft)	AT. LONG	SIN Little Miami River  G. RIVER CODE	RIVER MILE	
DATE 01/0	04/17 SCORER DGV / CAJ	COMMENTS			
NOTE: Co	omplete All Items On This Form -	Refer to "Field Evalu	uation Manual for Ohio's P	HWH Streams" for Instr	ructions
STREAM O	CHANNEL NONE / NATU	RAL CHANNEL	COVERED RECOVERING	RECENT OR NO REC	COVERY
(Ma		type of substrate presets substrate lypes found (I	ent. Check <i>ONLY</i> two predominations of 8). Final metric score is a	ant substrate TYPE boxes sum of boxes A & B. PERCENT	HHI
	BOULDER (>256 mm) [16 pts] 0 BEDROCK [16 pt] 0	%	SILT (3 pt) LEAF PACK/WOODY DEBRIS FINE DETRITUS [3 pts]	0%	Poir Subst
	GRAVEL (2-64 mm) [9 pts] 2	0%	CLAY or HARDPAN [0 pt] MUCK [0 pts] ARTIFICIAL [3 pts]	0% 0%	13
Bidi	Total of Percentages of 10. r Slabs, Boulder, Cobble, Bedrock TWO MOST PREDOMINATE SUBSTR		Substitute 100% TOTAL NUMBER OF SUE	(B)	A+1
2. Max	kimum Pool Depth (Measure the max luation. Avoid plunge pools from road o centimeters [20 pts]	imum pool depth withii	n the 61 meter (200 ft) evaluati	on reach at the time of	Pool D Max =
	.5 - 30 cm [30 pts] - 22.5 cm [25 pts]		< 5 cm [5 pts] NO WATER OR MOIST CHAI	NNEL (0 pts)	15
COL	MARKENTO				1
901	MMENTS		MAXIMUM POOL DEP	TH (centimeters): 10	
3. BAI > 4.0 > 3.0	NK FULL WIDTH (Measured as the av ) meters (> 13') [30 pts] ) m - 4.0 m (> 9' 7" - 13') [25 pts]			ne box):	Wid
3. BAI > 4.0 > 3.0 > 1.5	NK FULL WIDTH (Measured as the av ) meters (> 13') [30 pts] ) m - 4.0 m (> 9' 7" - 13') [25 pts] i m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	verage of 3-4 measurem	ents) (Check ONLY o	ne box): [15 pts]	Wid Maxs
3. BAI > 4.0 > 3.0 > 1.5	NK FULL WIDTH (Measured as the av ) meters (> 13') [30 pts] ) m - 4.0 m (> 9' 7" - 13') [25 pts] i m - 3.0 m (> 9' 7" - 4' 8") [20 pts] MMENTS  RIPARIAN ZONE AND FLOODPLA	This Information AIN QUALITY ANO FLOODPLAIN QUALITY L R (Most Predom	ents) (Check ONLY o > 1.0 m - 1.5 m (> 3' 3" - 4' 8") ≤ 1.0 m (<=3' 3") [5 pts]  AVERAGE BANKFULL  must also be completed TE: River Left (L) and Right (R)  / sinant per Bank) L R	ne box): [15 pts]  WIDTH (meters): 1.10  as looking downstream	Wid Maxe
3. BAI > 4.0 > 3.0 > 1.5	NK FULL WIDTH (Measured as the av ) meters (> 13') [30 pts] ) m - 4.0 m (> 9' 7" - 13') [25 pts] i m - 3.0 m (> 9' 7" - 4' 8") [20 pts] MMENTS  RIPARIAN ZONE AND FLOODPLA RIPARIAN WIDTH  R (Per Bank)	This Information AIN QUALITY &NO FLOODPLAIN QUALIT  L R (Most Predom Malure Forest	ents) (Check ONLY o > 1.0 m - 1.5 m (> 3' 3" - 4' 8") ≤ 1.0 m (<=3' 3") [5 pts]  AVERAGE BANKFULL  must also be completed TE: River Left (L) and Right (R)  / sinant per Bank) L R	ne box): [15 pts]  WIDTH (meters): 1.10  as looking downstream  Conservation Tillage Urban or Industrial	Bank Wid Max=
3. BAI > 4.0 > 3.0 > 1.5	NK FULL WIDTH (Measured as the average of the average of the second of t	This information AIN QUALITY ANO FLOODPLAIN QUALITY L R (Most Predoct Mature Forest Immature For Field Residential, P	ents) (Check ONLY o > 1.0 m - 1.5 m (> 3' 3" - 4' 8") ≤ 1.0 m (<=3' 3") [5 pts]  AVERAGE BANKFULL  must also be completed TE: River Left (L) and Right (R) (/ sinant per Bank) L R I, Wetland est, Shrub or Old	ne box): [15 pts]  WIDTH (meters): 1.10  as looking downstream  Conservation Tillage Urban or Industrial Open Pasture, Row Cr  Mining or Construction	Wid Max=
3. BAI > 4.0 > 3.0 > 1.5 CO	NK FULL WIDTH (Measured as the average of the set) meters (> 13') [30 pts] 2 m - 4.0 m (> 9' 7" - 13') [25 pts] 3 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  MMENTS  RIPARIAN ZONE AND FLOODPLIA RIPARIAN WIDTH  R (Per Bank) Wide > 10 m  Moderate 5-10 m  Narrow < 5 m  V None	This information AN QUALITY ANO FLOODPLAIN QUALITY L R (Most Predom Mature Forest Immature Forest Residential, P Fenced Pastuned ROW - Narrow R ation) (Check ONLY one	ents) (Check ONLY or > 1.0 m - 1.5 m (> 3' 3" - 4' 8")  ≤ 1.0 m (<=3' 3") [5 pts]  AVERAGE BANKFULL  must also be completed TE: River Left (L) and Right (R) foliant per Bank) L R linant per Bank	ne box): [15 pts]  WIDTH (meters):  1.10  as looking downstream  Conservation Tillage Urban or Industrial Open Pasture, Row Cr Mining or Construction OW	Wid Max=
3. BAI > 4.0 > 3.0 > 1.5 CO	NK FULL WIDTH (Measured as the average of the avera	This information AIN QUALITY ANO FLOODPLAIN QUALITY  L R (Most Predom Mature Forest Immature Forest Immature Forest Immature Forest Immature Forest Residential, P Fenced Pastu ned ROW - Narrow R ation) (Check ONLY one	ents) (Check ONLY of 2 1.0 m - 1.5 m (> 3' 3" - 4' 8")  ≤ 1.0 m (<=3' 3") [5 pts]  AVERAGE BANKFULL  Must also be completed TE: River Left (L) and Right (R)  (I)  (I)  (I)  (I)  (I)  (I)  (I)	ne box): [15 pts]  WIDTH (meters):  1.10  as looking downstream  Conservation Tillage Urban or Industrial Open Pasture, Row Cr Mining or Construction OW	Wid Max=

QHEI PERFORMED? - Yes / No QHE	El Score (If Yes, Attach Completed QHEI Form)	
DOWNSTREAM DESIGNATED USE(S)		
/ WWH Name: Little Muddy Creek	_ bistario irwii Evaluated Stream	1.10
CWH Name:	Distance from Evaluated Stream	-
EWH Name;	Distance from Evaluated Stream	-
MAPPING: ATTACH COPIES OF MAPS, INCLI	UDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCA	HOIT
JSGS Quadrangle Name:	NRCS Soil Map Page: NRCS Soil Map Stream Ord	ter
County: Warren	Township / City: Deerfield Twp	
MISCELLANEOUS		
Base Flow Conditions? (Y/N): Y Date of last pred	cipitation: Quantity: 0.00	
Photograph Information: See Photolog on Figures		
Elevated Turbidity? (Y/N): N Canopy (% op	pen): 90%	
Nere samples collected for water chemistry? (Y/N):		
	en (mp/l)pH (S.U.)Conductivity (µmhos/cm)	
s the sampling reach representative of the stream (Y/N)	If not, please explain:	
Additional comments/description of pollution impacts:		
BIOTIC EVALUATION		
Performed? (Y/N):  N  (If Yes, Record all observe ID number. Include appropriate ID number. Include ID number.	ations. Voucher collections optional. NOTE: all voucher samples must be labele opriate field data sheets from the Primary Headwater Habitat Assessment Manual Salamanders Observed? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N)	I)
Performed? (Y/N):    N	opriate field data sheets from the Primary Headwater Habitat Assessment Manual Salamanders Observed? (Y/N) N Voucher? (Y/N) N	I) N
Performed? (Y/N):    N	opriate field data sheets from the Primary Headwater Habitat Assessment Manual Salamanders Observed? (Y/N) N Voucher? (Y/N) N	I) N
Performed? (Y/N):    N	opriate field data sheets from the Primary Headwater Habitat Assessment Manual Salamanders Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N)	N
Performed? (Y/N):    N	periate field data sheets from the Primary Headwater Habitat Assessment Manual Salamanders Observed? (Y/N) N Voucher? (Y/N) N	):
Performed? (Y/N):    N	opriate field data sheets from the Primary Headwater Habitat Assessment Manual Salamanders Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N)	):
Performed? (Y/N):  N  (If Yes, Record all observed ID number. Include approving the Include approving the Include approving to ID number. Include approving the ID nu	Scription of the evaluation and a narrative description of the stream's	):
Performed? (Y/N):  N  (If Yes, Record all observed ID number. Include approving the Include approving the Include approving to ID number. Include approving the ID number. Include approving the ID number. Include approving the ID number. Include important landmarks and other features.	Scription of stream's	):
Performed? (Y/N):  N  (If Yes, Record all observed ID number. Include appropriate include appropriate includes the control of	Scription of the evaluation and a narrative description of the stream's	):
Performed? (Y/N):  N  (If Yes, Record all observed ID number. Include appropriate Programments (Y/N) N  Frogs or Tadpoles Observed? (Y/N) N  Comments Regarding Biology.  DRAWING AND NARRATIVE DES  Include Important landmarks and other features	Scription of Stream Reach (This must be completed of Interest for site evaluation and a narrative description of the stream's	):
Performed? (Y/N):  N  (If Yes, Record all observed ID number. Include approving ID number. Include ID number. Include ID number. Include approving ID number. Include	Scription of Stream Reach (This must be completed of Interest for site evaluation and a narrative description of the stream's	):

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October 24, 2002 Revision

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

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	SITE NUMBER		Narren Stati		er DRAII	IAGE AREA (mi²)	0.25
LENGTH OF	STREAM REACH (ft)	7				T	
DATE 01/0	D4/17 SCORER DGV / C	АЈ СОММЕ	NTS				
NOTE: Co	omplete All Items On This Fon	m - Refer to "Fi	eld Evaluatio	n Manual for Ol	nio's PHWH S	Streams" for Inst	ructions
STREAM (		TURAL CHANNE	L TRECOVE	RED RECOV	ÆRING R	ECENT OR NO REC	COVERY
	BSTRATE (Estimate percent of evo						
(Ma	ex of 32). Add total number of signific		es found (Max of TYPE	f 8). Final metric so	ore is sum of b		HH Met
	BLDR SLABS [16 pts]	PERCENT 0%	I SILT			PERCENT 40%	Poi
Transfer Committee	BOULDER (>256 mm) [16 pts]	0%		PACKWOODY D		0%	Subst
	BEDROCK [16 pt]  COBBLE (65-256 mm) [12 pts]	10%		DETRITUS [3 pts or HARDPAN [0		0%	Max
	GRAVEL (2-64 mm) [9 pts]	20%		C [0 pts]	Pij	0%	42
	SAND (<2 mm) [6 pts]	30%	ARTII	FICIAL [3 pts]		0%	13
	Total of Percentages of	10.00% (A)	Sicere	an Physical Age 1005		(B)	A+
	r Slabs, Boulder, Cobble, Bedrock _ TWO MOST PREDOMINATE SUB:	STRATE TYPES:		OTAL NUMBER (		F TYPES: 4	
2. Max eva	kimum Pool Depth (Measure the n luation. Avoid plunge pools from roa	naximum pool de id culverts or storr	pth within the n water pipes)	61 meter (200 ft) 6 (Check ONLY on	evaluation react e box):	n at the time of	Pool I
> 30	centimeters [20 pts]		7 > 5	cm - 10 cm [15 pts			
	.5 - 30 cm [30 pts] - 22.5 cm [25 pts]			cm [5 pts] WATER OR MOIS	T CHANNEL (0	ptsl	15
	MMENTS			7	. <u></u>		
CO	MINICIAI 3			- MAXIMUM PUU	L DEPTH (cen	timeters):   10	-
						[	1
	NK FULL WIDTH (Measured as the	average of 3-4 i		(Check C	ONLY one box	(	1
> 4.0	) meters (> 13') [30 pts] ) m = 4.0 m (> 9' 7" - 13') [25 pts]	e average of 3-4 r	7 > 1.0		ONLY one box) - 4' 8") [15 pts]	[hagasana and]	Wid
> 4.0	) meters (> 13') [30 pts]	e average of 3-4 r	7 > 1.0	(Check 0	ONLY one box) - 4' 8") [15 pts]	Emparama and	Wid
> 4.0 > 3.0 > 1.5	) meters (> 13') [30 pts] ) m = 4.0 m (> 9' 7" - 13') [25 pts]	e average of 3-4 r	7 > 1.0	(Check 0	ONLY one box) - 4' 8") [15 pts]	(manusing description)	Wid Max
> 4.0 > 3.0 > 1.5	0 meters (> 13') [30 pts] 0 m - 4.0 m (> 9' 7" - 13') [25 pts] 5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	e average of 3-4 r	7 > 1.0	(Check C 1 m - 1.5 m (> 3' 3" 0 m (<=3' 3") [5 pts	ONLY one box) - 4' 8") [15 pts]	(manusing description)	Wid Max
> 4.0 > 3.0 > 1.5	0 meters (> 13') [30 pts] 0 m - 4.0 m (> 9' 7" - 13') [25 pts] 5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] MMENTS	This in	✓ > 1.1 ≤ 1.	(Check () m - 1.5 m (> 3' 3") [5 pts    AVERAGE BAN also be complete	ONLY one box) - 4' 8") [15 pts]   KFULL WIDTH	(meters): 1.20	Wid Max
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> 4.0 > 3.0 > 1.5	meters (> 13') [30 pts]	This in: PLAIN QUALITY FLOODPLAIN L R (Mo	formation must  ANOTE: R  QUALITY  est Predominant	(Check (C	ONLY one box) - 4' 8") [15 pts]  KFULL WIDTH  ed ght (R) as looki	(meters): 1.20	Wid Max
> 4.0 > 3.0 > 1.5	meters (> 13') [30 pts]	This in: PLAIN QUALITY FLOODPLAIN L R (Mc	Formation must  ANOTE: R	(Check C ) m - 1.5 m (> 3' 3") 0 m (<=3' 3") [5 pts  AVERAGE BAN silso be complete (ver Left (L) and Ri per Bank)	ONLY one box) - 4' 8") [15 pts]  KFULL WIDTH  ad ght (R) as look	(meters): 1.20 ing downstream ঐ	Wid Max
> 4.0 > 3.0 > 1.5	meters (> 13') [30 pts]	This in: PLAIN QUALITY FLOODPLAIN L R (Mc	formation must  Trivote: R  OUALITY  est Predominant ture Forest, Wet nature Forest, S	(Check C ) m - 1.5 m (> 3' 3") 0 m (<=3' 3") [5 pts  AVERAGE BAN silso be complete (ver Left (L) and Ri per Bank)	ONLY one box) - 4' 8") [15 pts]  KFULL WIDTH  ad ght (R) as looki	ng downstream û	Wid Max
> 4.0 > 3.0 > 1.5	meters (> 13') [30 pts]   m - 4.0 m (> 9' 7" - 13') [25 pts]   m - 3.0 m (> 9' 7" - 4' 8") [20 pts]   m - 3.0 m (> 9' 7" - 4' 8") [20 pts]   mments	This in: PLAIN QUALITY FLOODPLAIN L R (Mo	formation must  Trivote: R  OUALITY  est Predominant ture Forest, Wet nature Forest, S	(Check Common to the common to	COLLY ONE BOX	(meters): 1.20 ing downstream ঐ	Wid Max
> 4.0 > 3.0 > 1.5	Meters (> 13') [30 pts]	This interpretation of the property of the pro	Formation must  ANOTE: R  OUALITY  est Predominant ture Forest, Wet nature Forest, S  id  sidential, Park, N aced Pasture	(Check Common to the common to	COLLY ONE BOX	ng downstream û	Wid Max
> 4.0 > 3.0 > 1.5 COI	Meters (> 13') [30 pts]	This interpretation of the property of the pro	Formation must  ANOTE: R  QUALITY  est Predominant ture Forest, Wet nature Forest, S  d  sidential, Park, N  ced Pasture	(Check (C) m - 1.5 m (> 3' 3") [5 pts]  AVERAGE BAN  also be complete iver Left (L) and Ri  per Bank) land hrub or Old  lew Field	COLLY ONE BOX	ng downstream to conservation Tillage ban or Industrial pen Pasture, Row Co	Wid Max
> 4.0 > 3.0 > 1.5	Meters (> 13') [30 pts]	This interpretation of the property of the pro	Formation must  ANOTE: R  QUALITY  est Predominant ture Forest, Wet nature Forest, S  d  sidential, Park, N  ced Pasture	(Check Common to the common to the common to the complete complete complete complete common to the c	COLLY one box - 4' 8") [15 pts]  KFULL WIDTH  ad ght (R) as looki  L R Co	ng downstream ☆ onservation Tillage ban or Industrial pen Pasture, Row Co	Wid Max*
> 4.0 > 3.0 > 1.5 COI	Meters (> 13') [30 pts]  m - 4.0 m (> 9' 7" - 13') [25 pts]  m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  MMENTS  RIPARIAN ZONE AND FLOODI RIPARIAN WIDTH  R (Per Bank) Wide > 10m Moderate 5-10m  Nerrow <5m None COMMENTS All within main FLOW REGIME (At Time of Events Stream Flowing Subsurface flow with isolated points.)	This in: PLAIN QUALITY FLOODPLAIN L R (Mo Mal Imn Fiel Res Fen tained ROW - N	Formation must  ANOTE: R  QUALITY  est Predominant ture Forest, Wet nature Forest, S  d  sidential, Park, N  ced Pasture	(Check Common to the common to the common to the complete complete complete complete common to the c	DNLY one box  - 4' 8") [15 pts]  KFULL WIDTH  ad ght (R) as looki  L R Co Ur Op Mi e of ROW	meters): 1.20 ing downstream  conservation Tillage ban or Industrial oen Pasture, Row Co	Wid Max
> 4.0 > 3.0 > 1.5 COI	Meters (> 13') [30 pts]  m - 4.0 m (> 9' 7" - 13') [25 pts]  m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  MMENTS  RIPARIAN ZONE AND FLOODI RIPARIAN WIDTH  R (Per Bank) Wide >10m Moderate 5-10m  Nerrow <5m Nerrow <5m None COMMENTS All within main FLOW REGIME (At Time of Events of Eve	This in: PLAIN QUALITY FLOODPLAIN L R (Mc Mai Imn Fiel Res Fen tained ROW - N aluation) (Check	formation must & 1.0 s 1	(Check Common to the common to the common to the complete complete complete complete common to the c	ONLY one box  - 4' 8") [15 pts]  KFULL WIDTH  ad ght (R) as looki  L R Co Un On Mi e of ROW  isolated pools, water (Epher	meters): 1.20 ing downstream  conservation Tillage ban or Industrial oen Pasture, Row Co	Wid Max
> 4.0 > 3.0 > 1.5 COI	meters (> 13') [30 pts]  m - 4.0 m (> 9' 7" - 13') [25 pts]  m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  mmeters (> 13') [30 pts]  m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  mmeters (> 9' 7" - 4' 8") [20 pts]  mmeters (> 13') [25 pts]  m	This in: PLAIN QUALITY FLOODPLAIN L R (Mo I Mal Imn Fiel Res Fen tained ROW - N aluation) (Check ols (Interstitial)	formation must & 1.0 s 1	(Check Control (Check	CALY one box  - 4' 8") [15 pts]  KFULL WIDTH  ad ght (R) as looki  L R Cal Ur  Or  Isolated pools, o water (Epher	ing downstream ☆ onservation Tillage ban or Industrial oen Pasture, Row Co	Wid Max
> 4.0 > 3.0 > 1.5 COI	Meters (> 13') [30 pts]  m - 4.0 m (> 9' 7" - 13') [25 pts]  m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  MMENTS  RIPARIAN ZONE AND FLOODI RIPARIAN WIDTH  R (Per Bank) Wide >10m Moderate 5-10m  Nerrow <5m Nerrow <5m None COMMENTS All within main FLOW REGIME (At Time of Events of Eve	This in: PLAIN QUALITY FLOODPLAIN L R (Mc Mai Imn Fiel Res Fen tained ROW - N aluation) (Check	formation must & 1.0 s 1	(Check Common to the common to the common to the complete complete complete complete common to the c	CALY one box  - 4' 8") [15 pts]  KFULL WIDTH  ad ght (R) as looki  L R Cal Ur  Or  Isolated pools, o water (Epher	meters): 1.20 ing downstream  conservation Tillage ban or Industrial oen Pasture, Row Co	]_
> 4.0 > 3.0 > 1.5 COI	meters (> 13') [30 pts]  m - 4.0 m (> 9' 7" - 13') [25 pts]  m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  MMENTS  RIPARIAN ZONE AND FLOODI RIPARIAN WIDTH  R (Per Bank) Wide >10m Moderate 5-10m  Nerrow <5m  Nerrow <5m  None COMMENTS All within main FLOW REGIME (At Time of Evi Stream Flowing Subsurface flow with isolated por COMMENTS recent rain  SINUOSITY (Number of bends None	This in: PLAIN QUALITY FLOODPLAIN L R (Mc Mai Imm Fiel Res Fen tained ROW - N aluation) (Check ols (Interstitiat)  per 61 m (200 ft) of 1.0	formation must & 1.0 s 1	(Check Control (Check	CALY one box  - 4' 8") [15 pts]  KFULL WIDTH  ad ght (R) as looki  L R Cal Ur  Or  Isolated pools, o water (Epher	ing downstream ☆ onservation Tillage ban or Industrial oen Pasture, Row Co ning or Construction no flow (Intermitten neral)	Wid Max=

ADDITIONAL STREAM INFORMATION (This	Information Must Also b	e Completed):		-
QHEI PERFORMED? - Yes	No QHEI Score	(If Yes, Attach	Completed QHEI Form)	
DOWNSTREAM DESIGNATED US	E(S)		92	
WWH Name: Little Muddy Creek			Distance from Evaluated Stream	0.90
1			Distance from Evaluated Stream	
EWH Name:			Distance from Evaluated Stream	
MAPPING: ATTACH COPIES OF MA	PS, INCLUDING THE <u>ENTI</u>	RE WATERSHED A	REA. CLEARLY MARK THE SITE L	OCATION
JSGS Quadrangle Name:		IRCS Soil Map Pag	e: NRCS Soil Map Stream	Order _
County: Warren	Township	o / City: Deerfield	Тwp	
MISCELLANEOUS				
Base Flow Conditions? (Y/N): Y Date of	of last precipitation:		Quantity: 0.00	
Photograph Information   See Photolog on F				
		7		
Elevated Turbidity? (Y/N): N Can				
Were samples collected for water chemistry?	(Y/N): N (Note lab s	ample no. or id. and	l attach results) Lab Number:	
Field Measures: Temp (*C)	ved Oxygen (mg/l)	pH (S.U.)	Conductivity (µmhos/cm)	
s the sampling reach representative of the str	eam (Y/N) If not, pl	ease explain:		
Performed? (Y/N): N (If Yes, Record ID number. Inc	lude appropriate field data si  N Salamanders Obs	neets from the Prima erved? (Y/N)	IOTE: all voucher samples must be li ry Headwater Habitat Assessment M Voucher? (Y/N) N Observed? (Y/N) N	anual)
Comments Regarding Biology:		·····	Paris .	
	***************************************			
DRAWING AND NARRATI	VE DESCRIPTION O	F STREAM RE	ACH (This <u>must</u> be comple	ted):
include important landmarks and othe	r features of Interest for s	te evaluation and s	narrative description of the stree	im's location
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ur	6	-10

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

62	
25	

	STREAM REACH (ft)	The second second	ER BASIN Little Miami River LONG. RIVER CO	DRAINAGE AREA (mi²) 0	
DATE 01/0			rs		7
			d Evaluation Manual for Ohio's		
11012.00					
STREAM C MODIFICA		TURAL CHANNEL	RECOVERED RECOVERI	NG RECENT OR NO REC	OVERY
(Ma) TYPE	k of 32). Add lotal number of signifi	cant substrate types	te present. Check ONLY two predom found (Max of 8). Final metric score i PE SILT [3 pt]	inant substrate TYPE boxes s sum of boxes A & B.  PERCENT 40%	HH Met Poir
	BOULDER (>256 mm) [16 pts] [BEDROCK [16 pt]	0%	LEAF PACK/WOODY DEBR FINE DETRITUS [3 pts]	0%	Subst Max =
	COBBLE (65-256 mm) [12 pts]  GRAVEL (2-64 mm) [9 pts]  SAND (<2 mm) [6 pts]	5%	CLAY or HARDPAN [0 pt]  MUCK [0 pts]  ARTIFICIAL [3 pts]	0% 0%	13
_		5.00% (A)	100%	(B)	A+1
SCORE OF T	TWO MOST PREDOMINATE SUB	STRATE TYPES:	9 TOTAL NUMBER OF S	JBSTRATE TYPES: 4	
eval:	uation. Avoid plunge pools from roa centImeters [20 pts]	naximum pool dept	h within the 61 meter (200 ft) evaluater pipes) (Check ONLY one box	ation reach at the time of	Pool D Max
	5 - 30 cm [30 pts] - 22.5 cm [25 pts]		< 5 cm [5 pts] NO WATER OR MOIST CH	ANNUEL CO mint	0.5
	- EE 0 0(11 [20 pts]		LI NO WATER OR MOIST CH	ANNEL [U PIS]	25
CON	MMENTS		MAXIMUM POOL DE	PTH (centimeters): 15	10000
3. BAN	K FULL WIDTH (Measured as th	e average of 3-4 me			Bank
	meters (> 13') [30 pts] m - 4.0 m (> 9' 7" - 13') [25 pts] 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]	Wid Max=
	111 - 3.0 111 (> 8 1 - 4 6 ) [20 ps]				
> 1.5			AVEDAGE DANKEIII	L WIDTH (malace). 1 10	4.5
> 1.5			AVERAGE BANKFU	LL WIDTH (meters): 1.10	15
> 1.5 CON	RIPARIAN ZONE AND FLOOD	This infor PLAIN QUALITY FLOODPLAIN C	mation <u>must</u> also be completed పNOTE: River Left (L) and Right (i	ী as looking downstream ঐ	15
> 1.5	RIPARIAN ZONE AND FLOOD	This Infor PLAIN QUALITY FLOODPLAIN C L R (Most	mation <u>must</u> also be completed ☆NOTE: River Left (L) and Right (i	ী as looking downstream ঐ	15
> 1.5 CON	RIPARIAN ZONE AND FLOOD RIPARIAN WIDTH R (Per Bank)	This infor PLAIN QUALITY  FLOODPLAIN C L R (Most Mature	mation <u>must</u> also be completed హNOTE: River Left (L) and Right (i <u>NUALITY</u> Predominant per Bank) L	্রী as looking downstream ঐ	15
> 1.5 CON	RIPARIAN ZONE AND FLOOD RIPARIAN WIDTH R (Per Bank) Wide > 10m Moderate 5-10m	This infor PLAIN QUALITY FLOODPLAIN C L R (Most Mature Immat	mation must also be completed  ANOTE: River Left (L) and Right (in the complete of the complet	R Conservation Tillage	I and a second
> 1.5 CON	RIPARIAN ZONE AND FLOOD RIPARIAN WIDTH  (Per Bank) Wide > 10m Moderate 5-10m Narrow < 5m	This infor PLAIN QUALITY  FLOODPLAIN C L R (Most Mature Immal Field Reside	mation must also be completed  ☆NOTE: River Left (L) and Right (i) DUALITY Predominant per Bank)  E Forest, Wetland	R) as looking downstream A  R  Conservation Tillage  Urban or Industrial  Open Pasture, Row Cro	
> 1.5 COM	RIPARIAN ZONE AND FLOOD RIPARIAN WIDTH R (Per Bank) Wide >10m Moderate 5-10m Narrow <5m None	This Infor PLAIN QUALITY  FLOODPLAIN C L R (Most Immat Field Reside	mation must also be completed  ANOTE: River Left (L) and Right (in the complete description of the complete descri	R) as looking downstream &  Conservation Tillage  Urban or Industrial  Open Pasture, Row Cro  Mining or Construction	
> 1.5 CON	RIPARIAN ZONE AND FLOOD RIPARIAN WIDTH R (Per Bank) Wide > 10m Moderate 5-10m Narrow < 5m None COMMENTS All within main FLOW REGIME (At Time of Exceptions) Stream Flowing Subsurface flow with isolated po	This Infor PLAIN QUALITY FLOODPLAIN C L R (Most Immat Field Reside Fence tained ROW - Nat	mation must also be completed  ANOTE: River Left (L) and Right (I DUALITY  Predominant per Bank)  E Forest, Wetland  Jure Forest, Shrub or Old  ential, Park, New Field  d Pasture  Trow Riparian buffer outside of	R) as looking downstream &  Conservation Tillage Urban or Industrial Open Pasture, Row Cro Mining or Construction ROW	op -
> 1.5 COM	RIPARIAN ZONE AND FLOOD RIPARIAN WIDTH R (Per Bank) Wide > 10m Moderate 5-10m Narrow < 5m None COMMENTS All within main FLOW REGIME (At Time of Extended to 10m) Subsurface flow with isolated por COMMENTS recent rain	This Infor PLAIN QUALITY FLOODPLAIN Q L R (Most Mature Immal Field Reside Fence stained ROW - Nai	mation must also be completed  ANOTE: River Left (L) and Right (in a complete complete)  Predominant per Bank)  Be Forest, Wetland  Sure Forest, Shrub or Old  Bential, Park, New Field  d Pasture  Trow Riparian buffer outside of the complete compl	R) as looking downstream &  Conservation Tillage Urban or Industrial Open Pasture, Row Cro Mining or Construction ROW	

ADDITIONAL STREAM INFORMATION (This Information	lon Must Also be Completed):
QHEI PERFORMED? - Yes V No QHE	El Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
/ WWH Name: Little Muddy Creek	_ Distance from Evaluated Stream 1.38
	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCL.	UDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
JSGS Quadrangle Name:	NRCS Soil Map Page: NRCS Soll Map Stream Order
County: Warren	Township / City: Deerfield Twp
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last pred	cipitation: Quantity: 0.00
Photograph Information: See Photolog on Figures	
Elevated Turbidity? (Y/N) N Canopy (% op	90%
Were samples collected for water chemistry? (Y/N):	
	, , , , , , , , , , , , , , , , , , ,
	en (mg/l) pH (S.U.) Conductivity (µmhos/cm)
s the sampling reach representative of the stream (Y/N)	If not, please explain:
dditional comments/description of pollution impacts:	
ID number. Include appro	ations. Voucher collections optional. NOTE: all voucher samples must be labeled with the appriate field data sheets from the Primary Headwater Habitat Assessment Manual)  Salamanders Observed? (Y/N) N Voucher?
DRAWING AND NADDATIVE DES	CRIPTION OF STREAM REACH (This must be completed):
	of interest for site evaluation and a narrative description of the stream's location
	2.516.
Pos	RIFFER
	) Miles
PLOW PLEFIE	
THE WELL	The state of the s
Jan 1	



AL	and E	FDA
Or	图	PA

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	STREAM REACH (ft)	Terror and the second	R BASIN Little Miami R			-10
DATE 01/0	4/17 SCORER DGV / C	AJ COMMENTS	LONG.	ER CODE	RIVER MILE	
	mplete All Items On This For					ections
STREAM C MODIFICA	TIONS:	ATURAL CHANNEL [	RECOVERED REC	OVERINGR	ECENT OR NO RECO	OVERY
1. SUE	STRATE (Estimate percent of ev	ery type of substrate	present, Check ONLY two	oredominant subs	trate TYPE boxes	
(Max	of 32). Add total number of signifi	cant substrate types fo PERCENT TYP	,	score is sum of b		HH Met
	BLDR SLABS [16 pts]		SILT [3 pt]		PERCENT 40%	Poi
	3OULDER (>256 mm) [16 pts]	0%	LEAF PACK/WOODY		0%	Subst
	BEDROCK [16 pt] COBBLE (65-256 mm) [12 pts]	0%	FINE DETRITUS [3]		0%	Max
Control Control	GRAVEL (2-64 mm) [9 pls]	25%	CLAY or HARDPAN   MUCK [0 pts]	u ptJ	0%	
	SAND (<2 mm) [6 pts]	35%	ARTIFICIAL [3 pts]		0%	12
_	Total of Percentages of	n.nn% (A)	Supstrate		(B)	
	Slabs, Boulder, Cobble, Bedrock _	0.0070	Che 10	0%	(6)	A+1
SCORE OF 1	WO MOST PREDOMINATE SUB	STRATE TYPES: S	TOTAL NUMBER	OF SUBSTRATI	E TYPES: 3	
. Max	imum Pool Depth (Measure the r	naximum pool depth	within the 61 meter (200 fi	) evaluation reach	at the time of	Pool D
eval	uation. Avoid plunge pools from roa centimeters (20 pts)	ad culverts or storm wa	iter pipes) (Check ONLY	one box);		Max
	5 - 30 cm (30 pts)		> 5 cm - 10 cm [15 p	tsj		
	- 22.5 cm [25 pts]		NO WATER OR MO	IST CHANNEL [0	pts]	25
COL						
	MENTS		MAXIMUM PO	OL DEPTH (cent	timeters): 14	(come
			20.0 00.0 00.0	OL DEPTH (cent		E
BAN	K FULL WIDTH (Measured as th	e average of 3-4 mea	surements) (Check	ONLY one box):		
BAN > 4.0 > 3.0	K FULL WIDTH (Measured as the meters (> 13') [30 pts] m - 4.0 m (> 9' 7" - 13') [25 pts]	e average of 3-4 mea	20.0 00.0 00.0	: ONLY one box): 3" - 4' 8") [15 pts]		Wic
BAN > 4.0 > 3.0	K FULL WIDTH (Measured as the	e average of 3-4 mea	surements) (Chec) > 1.0 m - 1.5 m (> 3'	: ONLY one box): 3" - 4' 8") [15 pts]		Wid
3. BAN > 4.0 > 3.0 > 1.5	IK FULL WIDTH (Measured as the meters (> 13') [30 pts] m - 4.0 m (> 9' 7" - 13') [25 pts] m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	e average of 3-4 mea	surements) (Check  > 1.0 m - 1.5 m (> 3')  < 1.0 m (<=3' 3") [5 p	ONLY one box): 3" - 4' 8") [15 pts] ts]		Wid
3. BAN > 4.0 > 3.0 > 1.5	IK FULL WIDTH (Measured as the meters (> 13') [30 pts] m - 4.0 m (> 9' 7" - 13') [25 pts] m - 3.0 m (> 9' 7" - 4' 8") [20 pts]		surements) (Check  > 1.0 m - 1.5 m (> 3')  < 1.0 m (<=3' 3") [5 p	ONLY one box): 3" - 4' 8") [15 pts] ts]		Wic
> 4.0 > 3.0 > 1.5	IK FULL WIDTH (Measured as the meters (> 13') [30 pts] m - 4.0 m (> 9' 7" - 13') [25 pts] m - 3.0 m (> 9' 7" - 4' 8") [20 pts] IMENTS	This inform	Check   Chec	: ONLY one box): 3" - 4' 8") [15 pts] ts] .NKFULL WIDTH	(meters):	Wid
> 4.0 > 3.0 > 1.5	IK FULL WIDTH (Measured as the meters (> 13') [30 pts] m - 4.0 m (> 9' 7" - 13') [25 pts] m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	This inform	Surements) (Check  > 1.0 m - 1.5 m (> 3')  ≤ 1.0 m (<=3' 3") [5 p  AVERAGE BA  Lation must also be completed with the complete of the complet	: ONLY one box): 3" - 4' 8") [15 pts] ts] .NKFULL WIDTH	(meters):	Wid
> 4.0 > 3.0 > 1.5	IK FULL WIDTH (Measured as the meters (> 13') [30 pts] m - 4.0 m (> 9' 7" - 13') [25 pts] m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  IMENTS  RIPARIAN ZONE AND FLOOD RIPARIAN WIDTH R (Per Bank)	This inform PLAIN QUALITY FLOODPLAIN QU L R (Most P	AVERAGE BA  AVERAGE BA  atton must also be complete ANOTE: River Left (L) and IALITY redominant per Bank)	ONLY one box): 3" - 4' 8") [15 pts] ts] NKFULL WIDTH sted Right (R) as looking	(meters): 1.10	Wid
> 4.0 > 3.0 > 1.5	K FULL WIDTH (Measured as the meters (> 13') [30 pts] m - 4.0 m (> 9' 7" - 13') [25 pts] m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  IMENTS  RIPARIAN ZONE AND FLOOD RIPARIAN WIDTH R (Per Bank) Wide >10m	This inform PLAIN QUALITY FLOODPLAIN QU L R (Most P	AVERAGE BA  AVERAGE BA  atton must also be complete with NOTE: River Left (L) and IALITY redominant per Bank) Forest, Wetland	ONLY one box): 3" - 4' 8") [15 pts] ts] NKFULL WIDTH sted Right (R) as looking	(meters):	Wid
BAN > 4.0 > 3.0 > 1.5	IK FULL WIDTH (Measured as the meters (> 13') [30 pts] m - 4.0 m (> 9' 7" - 13') [25 pts] m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  IMENTS  RIPARIAN ZONE AND FLOOD RIPARIAN WIDTH R (Per Bank)	This inform PLAIN QUALITY FLOODPLAIN QU L R (Most P	AVERAGE BA  AVERAGE BA  atton must also be complete ANOTE: River Left (L) and IALITY redominant per Bank)	ONLY one box): 3" - 4' 8") [15 pts] ts]  NKFULL WIDTH  Hed Right (R) as looking	(meters): 1.10	Wid
> 4.0 > 3.0 > 1.5 COM	K FULL WIDTH (Measured as the meters (> 13') [30 pts] m - 4.0 m (> 9' 7" - 13') [25 pts] m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  IMENTS  RIPARIAN ZONE AND FLOOD RIPARIAN WIDTH R (Per Bank) Wide >10m	This Inform PLAIN QUALITY FLOODPLAIN QU L R (Most P) Mature Immatur Field	AVERAGE BA  AVERAGE BA  atton must also be complete with NOTE: River Left (L) and IALITY redominant per Bank) Forest, Wetland	ONLY one box): 3" - 4' 8") [15 pts] ts]  NKFULL WIDTH  Sted Right (R) as looki	(meters): 1.10	Wid Max*
> 4.0 > 3.0 > 1.5 COM	K FULL WIDTH (Measured as the meters (> 13') [30 pts] m - 4.0 m (> 9' 7" - 13') [25 pts] m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  IMENTS  RIPARIAN ZONE AND FLOOD RIPARIAN WIDTH R (Per Bank) Wide >10m Moderate 5-10m  Narrow <5m None	This inform PLAIN QUALITY  FLOODPLAIN QU L R (Most P) Mature Immature Field Residen Fenced	AVERAGE BA  AVERAG	ONLY one box): 3" - 4' 8") [15 pts] ts]  NKFULL WIDTH  Right (R) as looking  L R Co	(meters): 1.10  ng downstream tr  nservation Tillage pan or Industrial en Pasture, Row Cro	Wid Max
> 4.0 > 3.0 > 1.5 COM	K FULL WIDTH (Measured as the meters (> 13') [30 pts] m - 4.0 m (> 9' 7" - 13') [25 pts] m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  IMENTS  RIPARIAN ZONE AND FLOOD RIPARIAN WIDTH R (Per Bank) Wide >10m Moderate 5-10m  Narrow <5m	This inform PLAIN QUALITY  FLOODPLAIN QU L R (Most P) Mature Immature Field Residen Fenced	AVERAGE BA  AVERAG	ONLY one box): 3" - 4' 8") [15 pts] ts]  NKFULL WIDTH  Right (R) as looking  L R Co	(meters): 1.10  Ing downstream &  Inservation Tillage  pan or Industrial	Wid Max
> 4.0 > 3.0 > 1.5 COM	K FULL WIDTH (Measured as the meters (> 13') [30 pts] m - 4.0 m (> 9' 7" - 13') [25 pts] m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  IMENTS  RIPARIAN ZONE AND FLOOD RIPARIAN WIDTH (Per Bank) Wide >10m Moderate 5-10m  Narrow <5m None COMMENTS All within main	This inform PLAIN QUALITY  FLOODPLAIN QU L R (Most P) Mature Immalui Field Residen Fenced	AVERAGE BA  AVERAG	ONLY one box): 3" - 4' 8") [15 pts] ts]  NKFULL WIDTH  Right (R) as looking  L R Co	(meters): 1.10  ng downstream tr  nservation Tillage pan or Industrial en Pasture, Row Cro	Wid Max*
BAN > 4.0 > 3.0 > 1.5 COM	K FULL WIDTH (Measured as the meters (> 13') [30 pts] m - 4.0 m (> 9' 7" - 13') [25 pts] m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  MENTS  RIPARIAN ZONE AND FLOOD RIPARIAN WIDTH (Per Bank) Wide >10m Moderate 5-10m  Narrow <5m None COMMENTS All within main FLOW REGIME (At Time of Ev. Stream Flowing	This Inform PLAIN QUALITY FLOODPLAIN QU L R (Most P) Mature Immatur Field Residen Fenced Itained ROW - Narre	AVERAGE BA  AVERAG	ONLY one box): 3" - 4' 8") [15 pts] ts]  NKFULL WIDTH  Right (R) as looking the control of the c	(meters): 1.10  Ing downstream  Inservation Tillage pan or Industrial en Pasture, Row Croning or Construction  The flow (Intermittent)	Wid Max*
> 4.0 > 3.0 > 1.5 COM	K FULL WIDTH (Measured as the meters (> 13') [30 pts] m - 4.0 m (> 9' 7" - 13') [25 pts] m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  MENTS  RIPARIAN ZONE AND FLOOD RIPARIAN WIDTH (Per Bank) Wide >10m Moderate 5-10m  Narrow <5m None COMMENTS All within main FLOW REGIME (At Time of Ev. Stream Flowing Subsurface flow with isolated po	This Inform PLAIN QUALITY FLOODPLAIN QU L R (Most P) Mature Immatur Field Residen Fenced Itained ROW - Narre	AVERAGE BA  AVERAG	ONLY one box): 3" - 4' 8") [15 pts] ts]  NKFULL WIDTH  Right (R) as looking the control of the c	(meters): 1.10  Ing downstream  Inservation Tillage pan or Industrial en Pasture, Row Croning or Construction  The flow (Intermittent)	Wid Max*
BAN > 4.0 > 3.0 > 1.5 COM	K FULL WIDTH (Measured as the meters (> 13') [30 pts] m - 4.0 m (> 9' 7" - 13') [25 pts] m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  MENTS  RIPARIAN ZONE AND FLOOD RIPARIAN WIDTH (Per Bank) Wide > 10m Moderate 5-10m  Narrow < 5m None COMMENTS All within main FLOW REGIME (At Time of Ev. Stream Flowing Subsurface flow with isolated po COMMENTS recent rain	This inform PLAIN QUALITY FLOODPLAIN QU L R (Most P Mature Immatur Field Residen Fenced stained ROW - Narro	AVERAGE BA  attion must also be comple ANOTE: River Left (L) and ALITY redominant per Bank) Forest, Welland re Forest, Shrub or Old  attial, Park, New Field Pasture ow Riparian buffer outs  Y one box):  Moist Channel	CONLY one box): 3" - 4' 8") [15 pts] ts]  NKFULL WIDTH  Pred Right (R) as looking  L R Co  Urt  Op  Miride of ROW  al, isolated pools, no water (Ephern	(meters): 1.10  Ing downstream  Inservation Tillage pan or Industrial en Pasture, Row Croning or Construction  The flow (Intermittent)	Wid Max*
> 4.0 > 3.0 > 1.5 COM	K FULL WIDTH (Measured as the meters (> 13') [30 pts] m - 4.0 m (> 9' 7" - 13') [25 pts] m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  MENTS  RIPARIAN ZONE AND FLOOD RIPARIAN WIDTH (Per Bank) Wide > 10m Moderate 5-10m  Narrow < 5m None COMMENTS All within main FLOW REGIME (At Time of Ev. Stream Flowing Subsurface flow with isolated po COMMENTS recent rain SINUOSITY (Number of bends	This Inform PLAIN QUALITY FLOODPLAIN QU L R (Most P) Mature Immatur Field Residen Fenced ntained ROW - Narre raluation) (Check ONL	AVERAGE BA  attion must also be completed with the complete state of the complete state	CONLY one box): 3" - 4' 8") [15 pts] ts]  NKFULL WIDTH  Right (R) as looking the control of ROW  al, isolated pools, no water (Ephermox):	(meters): 1.10  Ing downstream tr  Inservation Tillage Inservation Pasture, Row Cro Ining or Construction  In flow (intermittent) Interest (intermittent)	Wid Max*
> 4.0 > 3.0 > 1.5 COM	K FULL WIDTH (Measured as the meters (> 13') [30 pts] m - 4.0 m (> 9' 7" - 13') [25 pts] m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  MENTS  RIPARIAN ZONE AND FLOOD RIPARIAN WIDTH (Per Bank) Wide > 10m Moderate 5-10m  Narrow < 5m None COMMENTS All within main FLOW REGIME (At Time of Ev. Stream Flowing Subsurface flow with isolated po COMMENTS recent rain	This inform PLAIN QUALITY FLOODPLAIN QU L R (Most P Mature Immatur Field Residen Fenced stained ROW - Narro	AVERAGE BA  attion must also be completed NOTE: River Left (L) and ALITY redominant per Bank) Forest, Wetland re Forest, Shrub or Old  attial, Park, New Field Pasture ow Riparian buffer outs  Y one box):  Moist Channel  Check ONLY one to 2.0	CONLY one box): 3" - 4' 8") [15 pts] ts]  NKFULL WIDTH  Right (R) as looking the control of the	(meters): 1.10  Ing downstream  Inservation Tillage pan or Industrial en Pasture, Row Croning or Construction  The flow (Intermittent)	27
BAN > 4.0 > 3.0 > 1.5 COM	K FULL WIDTH (Measured as the meters (> 13') [30 pts] m - 4.0 m (> 9' 7" - 13') [25 pts] m - 3.0 m (> 9' 7" - 4' 8") [20 pts]  MENTS  RIPARIAN ZONE AND FLOOD RIPARIAN WIDTH R (Per Bank) Wide >10m Moderate 5-10m  V Narrow <5m None COMMENTS All within main FLOW REGIME (At Time of Ev. Stream Flowing Subsurface flow with isolated po COMMENTS recent rain  SINUOSITY (Number of bends None	This inform PLAIN QUALITY FLOODPLAIN QU L R (Most P) Mature Immature Field Residen Fenced Itained ROW - Narro raluation) (Check ONL rols (Interstitial)  per 61 m (200 ft) of ch 1.0	AVERAGE BA  attion must also be completed with the complete state of the complete state	CONLY one box): 3" - 4' 8") [15 pts] ts]  NKFULL WIDTH  Right (R) as looking the control of the	(meters): 1.10  Ing downstream tr  Inservation Tillage Dan or Industrial Inservation In Pasture, Row Cro Ining or Construction In of flow (Intermittent) Interval	Wid Max*

QHEI PERFORMED? - Yes V No QHEI Score (If Yes, Atlach Completed QHEI Form)  DOWNSTREAM DESIGNATED USE(S)  Distance from Evaluated Stream 1.60  MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION NRCS Soil Map Pege NRCS Soil Map Stream Order 1.60  MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION NRCS Soil Map Pege NRCS Soil Map Stream Order 1.60  MISCELLANEOUS  See Flow Conditions? (YIN): V Date of last precipitation: Quantity. Quantity	DOWNSTREAM DESIGNATED USE(S)  WWH Name: Little Muddy Creek  CWH Name: Distance from Evaluated Stream  AMPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA, CLEARLY MARK THE SITE LOCATION  MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA, CLEARLY MARK THE SITE LOCATION  MAPPING: MISCELLANEOUS  ase Flow Conditions? (Y/N); Y Date of last precipitation		
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SILDR SLABS [16 pts]	2.1		ASIN Little Miami River	_ DRAINAGE AREA (mi²) 0.3	SU
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohlo's PHWH Streams" for Instruction STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVER MODIFICATIONS:  1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32), Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. N. PERCENT.  1. SUBSTRATE (Estimate percent of every type of substrate types found (Max of 8). Final metric score is sum of boxes A & B. N. PERCENT.  1. SUBSTRATE (Estimate percent of every type of substrate types found (Max of 8). Final metric score is sum of boxes A & B. N. PERCENT.  1. SUBSTRATE (Estimate percent of every type of substrate types found (Max of 8). Final metric score is sum of boxes A & B. N. PERCENT.  1. SUBSTRATE (Estimate percent of every type of substrate types found (Max of 8). Final metric score is sum of boxes A & B. N. PERCENT.  1. SUBSTRATE (Estimate percent of every type of substrate types found (Max of 8). Final metric score is sum of boxes A & B. N. PERCENT.  1. SUBSTRATE (Estimate percent of every type of substrate types found (Max of 8). Final metric score is sum of boxes A & B. N. PERCENT.  1. SUBSTRATE (Estimate percent of every type of substrate types found (Max of 8). Final metric score is sum of boxes A & B. PERCENT.  1. SUBSTRATE (Estimate percent of every type found for the final percent of every type of every type of the final percent of every type of e			IGRIVER COD	ERIVER MILE	122711
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BOULDER (>256 mm) [16 pts]	TYPE				Met
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COBBLE (55-256 mm) [12 pts]					Subst
GRAVEL (2-64 mm) [9 pts]   25%   MUCK [0 pts]   0%	A COMMENT OF THE PARTY OF THE P		The City of Street, and the County of the City of the		Max :
SAND (<2 mm) [6 pts]   35%			THE RESERVE THE PROPERTY OF THE PARTY OF THE		
Total of Percentages of Bidr Slabs, Boulder, Cobble, Bedrock    SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9  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 centimalers (20 pts)		35%	1,000,000,000,000,000,000,000,000,000,0		12
Bildr Slabs, Boulder, Cobble, Bedrock  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 (30 pts)    20 - 22.5 cm (30 pts)   20 - 22.5 cm (30 pts)    20 - 22.5 cm (30 pts)    20 - 22.5 cm (30 pts)    20 - 22.5 cm (30 pts)    20 - 22.5 cm (30 pts)    20 - 22.5 cm (30 pts)    20 - 22.5 cm (30 pts)    20 - 22.5 cm (30 pts)    20 - 22.5 cm (30 pts)    20 - 22.5 cm (30 pts)    20 - 22.5 cm (30 pts)    20 - 22.5 cm (30 pts)    20 - 22.5 cm (30 pts)    20 - 22.5 cm (30 pts)    20 - 22.5 cm (30 pts)    20 - 22.5 cm (30 pts)    20 - 22.5 cm (30 pts)    20 - 22.5 cm (30 pts)   20 - 22.5 cm (30 pts)    20 - 22.5 cm (30 pts)   2					6.00
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 fts)  > 40 meters (20 fts)    10 - 22.5 cm [25 pts]   10		0.00% (A)		(B)	A +
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):  > 30 centimeters (20 pts)	SCORE OF TWO MOST PREDOMINATE SUB	STRATE TYPES: 9	TOTAL NUMBER OF SUI	BSTRATE TYPES: 3	
evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):  > 30 centimeters (20 pts)	Maximum Dari Parth //face		7- AL - P.4 4 - 288 A PIL - 4	Line of the state	
> 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts]  > 10 - 22.5 cm [25 pts]  NO WATER OR MOIST CHANNEL [0 pts]  COMMENTS  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]  > 1.0 m - 1.5 m (> 3' 3' - 4' 8') [15 pts]  > 1.5 m - 3.0 m (> 9' 7' - 13') [25 pts]  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  ANOTE: River Left (L) and Right (R) as looking downstream (Most Predominant per Bank)  Wide >10m Mature Forest, Welland  Moderate 5-10m Field Open Pasture, Row Crop  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 All within maintained ROW & Lawn - Narrow Riparian buffer outside of ROW  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing Subsurface flow with isolated pools (interstitial)  Dry channel, no water (Ephemeral)  COMMENTS Freeont rain  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None 1.0 2.0 3.0 2.5 3.0 2.5 3.0	evaluation. Avoid plunde pools from re	maximum pool depth with: ad culverts or storm water r	in the bit meter (200 ft) evaluat ipes) - (Check ONI Yone box)	ion reach at the time of	Pool I Max
> 10 - 22.5 cm [25 pts]  COMMENTS  MAXIMUM POOL DEPTH (centimeters): 6  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  EXAMPLE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream Mature Forest, Wetland  Wide > 10 m Mature Forest, Wetland  Moderate 5-10 m Mature Forest, Wetland  Wide > 10 m Mature Forest, Wetland  Open Pasture, Row Crop  None  COMMENTS All within maintained ROW & Lawn - Narrow Riparian buffer outside of ROW  FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Intersitital)  COMMENTS Frecent rain  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 3.0 3.0 3.0 3	> 30 centimaters (20 pts)	E/A			IIIGA .
COMMENTS  BANK FULL WIDTH (Measured as the average of 3-4 measurements)  3. BANK FULL WIDTH (Measured as the average of 3-4 measurements)  4.0 meters (> 13') [30 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]  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  ANOTE: River Left (L) and Right (R) as looking downstream A  RIPARIAN WIDTH  FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream A  RIPARIAN WIDTH  FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream A  RIPARIAN WIDTH  FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream A  RIPARIAN WIDTH  FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream A  RIPARIAN WIDTH  FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream A  RIPARIAN WIDTH  FLOODPLAIN QUALITY  ANOTE: River Left (L) and Right (R) as looking downstream A  RIPARIAN WIDTH (meters): 0.70  Malure Forest, Welland  Conservation Tillage  Urban or Industrial  Field  Open Pasture, Row Crop  None  Fenced Pasture  Mining or Construction  COMMENTS At Within maintained ROW & Lawn - Narrow Riparian buffer outside of ROW  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface A  Moist Channel, isolated pools, no flow (intermittent)  Dry channel, no water (Ephemeral)  COMMENTS Frecent rain  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					
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  (Per Bank)  Wide > 10m  Mature Forest, Wetland  Moderate 5-10m  Immature Forest, Wetland  Open Pasture, Row Crop  None  Residential, Park, New Field  Open Pasture, Row Crop  None  Fenced Pasture  Mining or Construction  COMMENTS All within maintained ROW & Lawn - Narrow Riparian buffer outside of ROW  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (interstitial)  COMMENTS Frecent rain  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None  7 1.0  2.0  3.0  3.0  3.0  3.0  3.0  3.0  3	> 10 - 22.5 cm [25 pts]		NO WATER OR MOIST CHA	NNEL (0 pts)	15
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 representation of the state of	COMMENTS		MAXIMUM POOL DEP	TH (centimeters): 6	
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> 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 (meters): 0.70  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  R (Per Bank)  Wide >10 m  Mature Forest, Wetland  Moderate 5-10 m  Moderate 5-10 m  Residential, Park, New Field  Open Pasture, Row Crop  None  COMMENTS All within maintained ROW & Lawn - Narrow Riparian buffer outside of ROW  FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Subsurface flow with isolated pools (Interstitial)  COMMENTS recent rain  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None  7 1.0  2.0  3.0  3.0  3.0  3.0  3.0  3.0  3		e average of 3-4 measurer			Bani Wid
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream to RIPARIAN WIDTH  RIPARIAN WIDTH FLOODPLAIN QUALITY  RIPARIAN WIDTH FLOODPLAIN QUALITY  Moderate 5-10m  Mature Forest, Wetland  Moderate 5-10m  Mature Forest, Shrub or Old Field  Moderate 5-10m  Residential, Park, New Field  Open Pasture, Row Crop  None COMMENTS All within maintained ROW & Lawn - Narrow Riparian buffer outside of ROW  FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial)  COMMENTS Fecent rain  SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None  7 1.0  2.0  3.0  3.0  0.5		7		(10 he)	Max:
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RIPARIAN WIDTH  R (Per Bank)  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Residential, Park, New Field  None  COMMENTS All within maintained ROW & Lawn - Narrow Riparian buffer outside of ROW  FLOW REGIME (At Time of Evaluation)  COMMENTS recent rain  SINUOSITY (Number of bends per 61 m²(200 ft) of channel)  None  SINUOSITY (Number of bends per 61 m²(200 ft) of channel)  Occupation  COMMENTS (Number of bends per 61 m²(200 ft) of channel)  Comment (Check ONLY one box):  None  Occupation  Comment (Check ONLY one box):	RIPARIAN ZONE AND FLOOR	This information M& TILLAIN OUALITY	1 <u>must</u> also be completed TF: Rivert eft (L) and Right (R)	as looking downstream?	
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Moderate 5-10m   Immature Forest, Shrub or Old   Urban or Industrial    V Narrow <5m   Residential, Park, New Field   Open Pasture, Row Crop    None   Fenced Pasture   Mining or Construction    COMMENTS All within maintained ROW & Lawn - Narrow Riparian buffer outside of ROW    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   recent rain    SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None   7   1.0   2.0   3.0    0.5   1.5   2.5   >3				2	
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Subsurface flow with isolated pools (Interstitial)  COMMENTS recent rain  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  3.0	COMMENTS All within main				
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):  None  1.0 2.0 3.0 0.5 3.0 >3	COMMENTS All within main	raluation) (Check ONLY on	Wanted I		
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None 2.0 3.0 3.0 5.5 1.5 2.5 5.3	FLOW REGIME (At Time of Ex Stream Flowing Subsurface flow with isolated po		Moist Channel, isolate		
0.5 1.5 2.5 >3	FLOW REGIME (At Time of Ex Stream Flowing Subsurface flow with isolated po COMMENTS recent rain	pols (Interstitial)	Moist Channel, isolate Dry channel, no wate		
	FLOW REGIME (At Time of Ex Stream Flowing Subsurface flow with isolated por COMMENTS recent rain	per 61 m'(200 ft) of channe	Moist Channel, isolate Dry channel, no wate  (Check ONLY one box):	r (Ephemeral)	
	FLOW REGIME (At Time of Ex Stream Flowing Subsurface flow with isolated por COMMENTS recent rain SINUOSITY (Number of bends None	pols (Interstitial)  per 61 m <sup>2</sup> (200 ft) of channe	Moist Channel, isolate Dry channel, no wate  (Check ONLY one box): 2.0	r (Ephemeral)	
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ADDITIONAL STREAM INFORMATION (This Information Must Als	so be Completed):
QHEI PERFORMED? - Yes V No QHEI Score	(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(5)  WWH Name: Turtle Creek  CWH Name: EWH Name:	
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: Warren Town	nship / City: Deerfield Twp
MISCELLANEOUS  Base Flow Conditions? (Y/N):  Y  Date of last precipitation:	Quantity: 0.00
Photograph Information: See Photolog on Figures	
Elevated Turbidity? (Y/N): N Canopy (% open): 80	3%
Were samples collected for water chemistry? (Y/N): N (Note I	ab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (*C) Dissolved Oxygen (mg/l)  Is the sampling reach representative of the stream (Y/N)	
is the sampling recent representative of the stream (TMV) The	л, ровое ехрант.
Additional comments/description of pollution impacts	
	ner collections optional. NOTE: all voucher samples must be labeled with the site standard 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 Voucher? (Y/N) N Voucher? (Y/N) N
	teration to
	N OF STREAM REACH (This <u>must</u> be completed):  for site evaluation and a narrative description of the stream's location
N 253	755 Page
FLOW	GFILE.



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44	

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

	CITE AN IMPEO	Stream 9	ER BASIN Little Miami Riv	or	0.05
LENGTH OF	The second secon	The state of the s	LONG. RIVER		
DATE 01/0	4/17 SCORER DGV		TS		1
NOTE: Co	mplete All Items On This F		d Evaluation Manual for Oi		structions
STREAM C	HANNEL NONE/	NATURAL CHANNEL	RECOVERED RECOV	PERING RECENT OR NO R	ECOVERY
1. SUB (Max	STRATE (Estimate percent of cof 32). Add total number of sign	ificant substrate types	te present. Check ONLY two pre found (Max of 8). Final metric so PE	dominant substrate TYPE boxes ore is sum of boxes A & B. PERCENT	HHE
	BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts]	0%	SILT [3 pt] LEAF PACK/WOODY D	50% EBRIS (3 pts) 0%	Poin
Printed Street	BEDROCK [16 pt] COBBLE (65-256 mm) [12 pts]	0%	FINE DETRITUS [3 pts]  CLAY or HARDPAN [0]		Substra Max =
	GRAVEL (2-64 mm) [9 pts] GAND (<2 mm) [6 pts]	10%	MUCK [0 pts]  ARTIFICIAL [3 pts]	0%	12
Bldr	Total of Percentages of Slabs, Boulder, Cobble, Bedrock	0.00% (A)	100%	(B)	A+B
	WO MOST PREDOMINATE SU		9 TOTAL NUMBER C	F SUBSTRATE TYPES: 3	
evalu	imum Pool Depth (Measure the wation. Avoid plunge pools from a centimeters [20 pts]	e maximum pool dept road culverts or storm	th within the 61 meter (200 ft) e	e box):	Pool De
> 22.5	5 - 30 cm [30 pts]		> 5 cm - 10 cm [15 pts]		
> 10	- 22.5 cm [25 pts]		NO WATER OR MOIS	CHANNEL [0 pls]	5
COM	IMENTS		MAXIMUM POO	L DEPTH (centimeters): 4	-
	K FULL WIDTH (Measured as	the average of 3-4 me		NLY one box):	Bankf
> 3.0	meters (> 13') [30 pts] m - 4.0 m (> 9' 7" - 13') [25 pts]		> 1.0 m - 1.5 m (> 3' 3" ≤ 1.0 m (<=3' 3") [5 pts]		Width Max=3
> 1.5	- 20 - Is DI TH ALDER 100 -1-1				1
	m - 3.0 m (> 9' 7" - 4" 8") [20 pts]			for distance dellarge across	111
	The difficulty which is the second of the se		AVERAGE BANI	KFULL WIDTH (meters): 0.70	5
	The difficulty which is the second of the se				5
	RIPARIAN ZONE AND FLOO	This Info	mation <u>must</u> also be complets ຜ່າNOTE: River Left (L) and Rig		5
	RIPARIAN ZONE AND FLOORIPARIAN WIDTH	This infor	mation <u>must</u> also be complete ൻNOTE: River Left (L) and Rig <u>NALITY</u>	d pht (R) as looking downstreamជា	5
сом	RIPARIAN ZONE AND FLOO	This information of the complete of the comple	mation <u>must</u> also be complets 쇼NOTE: River Left (L) and Rig <u>QUALITY</u> Predominant per Bank) e Forest, Wetland	d	
сом	RIPARIAN ZONE AND FLOOR RIPARIAN WIDTH R (Per Bank)	This information of the complete of the comple	mation <u>must</u> also be complete భNOTE: River Left (L) and Rig <u>NALITY</u> Predominant per Bank)	d ght (R) as looking downstream &	
COM	RIPARIAN ZONE AND FLOO RIPARIAN WIDTH (Per Bank) Wide >10m Moderate 5-10m	This Information of the Informat	mation <u>must</u> also be complets 쇼NOTE: River Left (L) and Rig <u>QUALITY</u> Predominant per Bank) e Forest, Wetland	d ght (R) as looking downstream & Conservation Tillage	
сом	RIPARIAN ZONE AND FLOO RIPARIAN WIDTH R (Per Bank) Wide >10m Moderate 5-10m Narrow <5m	This Information of Page 1991	mation must also be complete  ANOTE: River Left (L) and Rig  UALITY  Predominant per Bank) e Forest, Wetland ture Forest, Shrub or Old  ential, Park, New Field d Pasture	d ant (R) as looking downstream to L R Conservation Tillage Urban or Industrial Open Pasture, Row Mining or Construction	Crop
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COM	RIPARIAN ZONE AND FLOO RIPARIAN WIDTH R (Per Bank) Wide >10m Moderate 5-10m Narrow <5m	This Information of the Information of Information of the Information of Information	mation must also be complete ANOTE: River Left (L) and Right Another Left (L) and Right Another Left (L) and River Left (L) an	d ant (R) as looking downstream to L R Conservation Tillage Urban or Industrial Open Pasture, Row Mining or Construction	Crop
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COM	RIPARIAN ZONE AND FLOOR RIPARIAN WIDTH  (Per Bank) Wide > 10m Moderate 5-10m  Narrow < 5m None COMMENTS All within ma  FLOW REGIME (At Time of E Stream Flowing Subsurface flow with isolated COMMENTS recent rain	This information of the control of t	mation must also be complete ANOTE: River Left (L) and Right Another Left (L) and Right Another Left (L) and River Left (L) an	d pht (R) as looking downstream the L R Conservation Tillage Urban or Industrial Open Pasture, Row Mining or Construction ROW  isolated pools, no flow (Intermitted water (Ephemeral)	Crop
COM	RIPARIAN ZONE AND FLOOR RIPARIAN WIDTH  (Per Bank) Wide >10m Moderate 5-10m  Narrow <5m None COMMENTS All within ma FLOW REGIME (At Time of E Stream Flowing Subsurface flow with isolated of COMMENTS recent rain  SINUOSITY (Number of benchance) 0.5  EAM GRADIENT ESTIMATE	This information of the control of t	rmation must also be complete &NOTE: River Left (L) and Right (L) and Ri	d ght (R) as looking downstream & L R Conservation Tillage Urban or industrial Open Pasture, Row Mining or Construction Row (Intermitted water (Ephemeral))	Crop on ent)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Com	pleted):	
QHEI PERFORMED? - Yes / No QHEI Score (II	Yes, Attach Completed QHEI Form)	
DOWNSTREAM DESIGNATED USE(S)		
WWH Name: Turtle Creek		0.00
CWH Name:	Distance from Evaluated Stream	
EWH Name:	Distance from Evaluated Stream	
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WA	TERSHED AREA. CLEARLY MARK THE SITE LO	CATION
SGS Quadrangle Name: NRCS S	Soil Map Page: NRCS Soil Map Stream	Order
County: Warren Township / City:	Deerfield Twp	
MISCELLANEOUS		
Base Flow Conditions? (Y/N): Y Date of last precipitation	Quantity: 0.00	
Photograph Information: See Photolog on Figures		
Datisty (1997)	pro-	
Vere samples collected for water chemistry? (Y/N): N (Note lab sample	no. or id. and attach results) Lab Number:	
rield Measures: Temp (*C) Dissolved Oxygen (mg/l) pH	(S.U.) Conductivity (µmhos/cm)	自
s the sampling reach representative of the stream (Y/N) Y If not, please ex	xplain:	
, , , , , , , , , , , , , , , , , , ,		
Additional comments/description of pollution impacts:		
Fish Observed? (Y/N) N Salamanders Observed?	om the Primary Headwaler Habitat Assessment Ma	nual)
DRAWING AND NARRATIVE DESCRIPTION OF ST	REAM REACH (This must be completed	ed):
include important landmarks and other features of interest for site eval		•
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## Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3):

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LENGTH	SITE NUMBER Stream 10 RIVER BASIN LITTLE DRAINAGE AREA (mi¹) 0.1  OF STREAM REACH (ft) LAT. LONG RIVER CODE RIVER MILE	
DATE 0	/04/17 SCORER DGV / CAJ COMMENTS	
	Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruc	ctions
	CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING.	VERY
1.	IDSTDATE (Entire to parcent of over-time of out-the total Charles Char	
. (	JBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes lax of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	НН
TYPE	PERCENT TYPE PERCENT	Met
		Poir
		Subst
HH.		Max =
	GRAVEL (2-64 mm) [9 pts] 20% MUCK [0 pts] 0%	
	SAND (<2 mm) [6 pts] 30% ARTIFICIAL [3 pts] 0%	13
	dr Slabs, Boulder, Cobble, Bedrock 10.00 /8	A+1
SCORE (	TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 4	
2.	aximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Pool D
	aluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):	Max :
	0 centimeters [20 pts] > 5 cm - 10 cm [15 pts] 2.5 - 30 cm [30 pts] < 5 cm [5 pts]	1-00
	0 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts]	25
		2,
,	DMMENTS MAXIMUM POOL DEPTH (centimeters): 15	-
3	ANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):	Bank
3. 1	ANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  .0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Wid
3.	ANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  .0 meters (> 13') [30 pts]	Wid
3.	ANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  .0 meters (> 13') [30 pts]	Wid
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3.	ANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  .0 meters (> 13') [30 pts]	Wid Max=
3.	ANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  .0 meters (> 13') [30 pts]	Wid Max=

MISCELLANEOUS  ase Flow Conditions? (Y/N). Y Date of last precipitation. Quantity: 0.00  hotograph Information: See Photolog on Figures levated Turbidity? (Y/N): N Canopy (% open): 90%  //ere samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Leb Number:  //eld Measures: Temp (*C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)  // in the sampling reach representative of the stream (Y/N). If not, please explain:  // in the sampling reach representative of the stream (Y/N). If not, please explain:  // BIOTIC EVALUATION  // If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with 10 number. Include appropriate field data sheets from the Primary Headwater Habital Assessment Manual)  // ish Observed? (Y/N). N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N Voucher? (Y/N) N Aqualic Macroinvortebrates Observed? (Y/N) N Voucher? (Y/N) N Ownments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):  Include Important landmarks and other features of Interest for site evaluation and a narrative description of the stream's local.	QHEI PERFORMED? - Yes V	o QHEI Score (If Yes, Attach Completed QHEI Form)
Distance from Evaluated Stream NRCS Soil Map Page NRCS Soil Map Stream Order Township / City Described Twp  MISCELLANEOUS ass Flow Conditions? (YIN)  MISCELLANEOUS  ass Flow Conditions? (YIN)  Canopy (% open):  See Photolog on Figures  Bevated Turbidity? (YIN):  Canopy (% open):  90%  Vere samples collected for water chemistry? (YIN):  No (Note lab sample no. or id. and attach results) Lab Number:  Isleid Measures: Temp ("C) Dissolved Oxygen (mg/l)  pH (S.U.): Conductivity (jumhos/cm)  ithe sampling reach representative of the stream (YIN):  Ithe sampling reach representative of the stream (YIN):  In not, please explain:  BIOTIC EVALUATION  artermed? (YIN):  No (If Yes, Racord all observations, Voucher collections optional, NOTE; all voucher samples must be labeled with 10 number. Include appropriate field data sheets from the Primary Headwater Hobital Assessment Manuar)  Ish Observed? (YIN):  Voucher? (YIN):  Voucher? (YIN):  Voucher? (YIN):  Nourher? (YIN):  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 local  LOW:  LOW:  Applied The stream's local  Applied The stream's local		3)
EWH Name:  MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION  SGS Quadrangle Name:  NRCS Soil Map Page:  NRCS Soil Map Stream Order  NRCS Soil Map Page:  NRCS Soil Map Stream Order  Ounty:  Warren  Township / City.  Deerfield Twp  MISCELLANEOUS  ase Photolog on Figures  leveled Turbidity? (Y/N):  N Canopy (% open):  90%  fere samples collected for water chemistry? (Y/N):  N (Note lab sample no. or id. and attach results) Lab Number:  leteld Measures: Temp ("C):  Dissolved Oxygen (mg/l):  the sampling reach representative of the stream (Y/N):  If not, please explain:  BIOTIC EVALUATION  officer of the stream of the stream (Y/N):  If not, please explain:  NOTE: all voucher samples must be labeled with 10 number. Include appropriate field data sheets from the Primary Headwater Habital Assessment Manual)  Ish Observed? (Y/N):  N Voucher? (Y/N):  N		_ Distance work Cyalobide One Bill
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION  SGS Quadrangle Name:  Ounty: Warren  MISCELLANEOUS  ass Flow Conditions? (Y/N).  MISCELLANEOUS  ass Flow Conditions? (Y/N).  Date of last precipitation:  Quantity:  Quantity:		
SGS Quadrangle Name.    NRCS Soll Map Page		
MISCELLANEOUS  asse Flow Conditions? (Y/N). Y Date of last precipitation: Quantity: 0.00  hotograph Information: See Phototolog on Figures  levaled Turbidity? (Y/N): N Canopy (% open): 90%  //ere samples collected for water chemistry? (Y/N): N (Note lab sample no. or ld. and attach results) Lab Number: leid Measures: Temp (*C): Dissolved Oxygen (mg/l): pH (S.U.): Conductivity (µmhos/cm): the sampling reach representative of the stream (Y/N). Y If not, please explain:  BIOTIC EVALUATION  erformed? (Y/N): N (If Yes, Record all observations: Voucher collections optional. NOTE: all voucher samples must be lebeled with 10 number: Include appropriate field data sheets from the Primary Headweter Habilat Assessment Manual) (sh Observed? (Y/N)): N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N N Repart of Include Important landmarks and other features of Interest for site evaluation and a narrative description of the stream's location.	MAPPING: ATTACH COPIES OF MAPS	I, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
ase Flow Conditions? (Y/N). V Date of last precipitation: Quantity: 0.00	ISGS Quadrangle Name:	
ase Flow Conditions? (V/N): V Date of last precipitation: Quantity: 0.00 hotograph Information: See Photolog on Figures levated Turbidity? (Y/N): N Canopy (% open): 90% levated Turbidi	ounty: Warren	Township / City: Deerfield Twp
hotograph Information:  See Photolog on Figures  levated Turbidity? (Y/N):  N	MISCELLANEOUS	
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is the sampling reach representative of the stream (Y/N)   If not, please explain:  BIOTIC EVALUATION  arformed? (Y/N):  N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with 10 number. Include appropriate field data sheets from the Primary Headwater Habital Assessment Manual)  Is hobserved? (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 Aquatic Macroinvertebrates Observed? (Y/N):  N Voucher? (Y/N):  N Voucher? (Y/N):  N Normants Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):  Include Important landmarks and other fastures of Interest for alls evaluation and a narrative description of the stream's location.	levated Turbidity? (Y/N): Canop	y (% open): 90%
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BIOTIC EVALUATION arformed? (Y/N):    N		
BIOTIC EVALUATION  erformed? (Y/N):  N  (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with 1D number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)  ish Observed? (Y/N)  Voucher? (Y/N)  Voucher? (Y/N)  Voucher? (Y/N)  N  Voucher? (Y/N)  Aquatic Macroinvertebrates Observed? (Y/N)  DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):  Include Important landmarks and other features of interest for site evaluation and a narrative description of the stream's location		
BIOTIC EVALUATION  erformed? (Y/N):    N	s the sampling reach representative of the stream	m (Y/N) If not, please explain:
BIOTIC EVALUATION  erformed? (Y/N):    N		
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location.	Fish Observed? (Y/N) N Voucher? (Y/N) N	e appropriate field data sheets from the Primary Headwater Habitat Assessment Manuat)  Salamanders Observed? (Y/N)  Voucher? (Y/N)
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location.		
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.	DRAWING AND NARRATIVE	DESCRIPTION OF STREAM REACH (This must be completed):
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Pool	Include Important landmarks and other fa	
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## Primary Headwater Habitat Evaluation Form HHE! Score (sum of metrics 1, 2, 3):

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DAIL		LAT. LONG. COMMENTS	RIVER CODE RIVER N	NLE
		n - Refer to "Field Evaluation Manua		Instructions
	M CHANNEL NONE / NAT	TURAL CHANNEL RECOVERED	RECOVERING RECENT OR NO	O RECOVERY
1. S	Max of 32). Add total number of significa	ry type of substrate present. Check ONL ant substrate types found (Max of 8). Final of ERCENT TYPE  0% SILT [3 pt]  LEAF PACKWO  0% FINE DETRITU  0% CLAY or HARD  10% MUCK [0 pts]  40% ARTIFICIAL [3]	DODY DEBRIS [3 pts]  S [3 pts]  PAN [0 pt]  DOWN BOWN BOWN BOWN BOWN BOWN BOWN BOWN B	HHI Metr Poin Substr Max =
	Total of Percentages of OBIdr Slabs, Boulder, Cobble, Bedrock DF TWO MOST PREDOMINATE SUBS	.00% (A) TRATE TYPES: 9 TOTAL NU	100% (B) MBER OF SUBSTRATE TYPES: 3	A+B
<b>=</b> ,	Maximum Pool Depth (Measure the missaluation, Avoid plunge pools from road 30 centimeters [20 pts] 22.5 - 30 cm [30 pts] 10 - 22.5 cm [25 pts]	aximum pool depth within the 61 meter ( d culverts or storm water pipes) (Check C	DNLY one box):	Pool D Max =
,	BANK FULL WIDTH (Measured as the 4.0 meters (> 13') [30 pts] 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS	> 1.0 m - 1.5 π ≤ 1.0 m (<=3° 3	Total Control of the	Bank Widt Max=
	RIPARIAN ZONE AND FLOODP RIPARIAN WIDTH L R (Per Bank) Wide >10m	This information must also be of LAIN QUALITY &NOTE: River Left (LEFLOODPLAIN QUALITY  LR (Most Predominant per Bank)  Mature Forest, Wetland Immature Forest, Shrub or Oke	) and Right (R) as looking downstrean  L R  Conservation Till	age
[ [ [	Moderate 5-10m  Narrow <5m  None  COMMENTS All within mainta	Residential, Park, New Field Fenced Pasture ained ROW wider Riparian buffer ou	Open Pasture, R  Mining or Constructed to the construction of ROW	ow Crop
	Narrow <5m None	Residential, Park, New Field Fenced Pasture ained ROW wider Riparian buffer ou  fuetion) (Check ONLY one box):  Moist C	Mining or Constr	ow Crop uction

QHEI PERFORMED? - Yes No QHEI Score (If Ye DOWNSTREAM DESIGNATED USE(S)  WWH Name: Turtle Creek  CWH Name:  EWH Name:  MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATE	_ Distance from Evaluated Stream0.60	•
WWH Name: Turtle Creek  CWH Name: EWH Name:	Distance from Evaluated Stream	)
	Distance from Evaluated Stream	
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATE		
The second of th	RSHED AREA. CLEARLY MARK THE SITE LOCATION	IN
JSGS Quadrangle Name: NRCS Soil	Map Page:NRCS Soil Map Stream Order	
County: Warren Township / City:	Deerfield Twp	
MISCELLANEOUS		
tase Flow Conditions? (Y/N): Y Date of last precipitation:	Quantity: 0.00	_
hotograph Information: See Photolog on Figures		
Elevated Turbidity? (Y/N): N Canopy (% open). 95%		
Vere samples collected for water chemistry? (Y/N): N (Note lab sample no.	. or id. and attach results) Lab Number:	
ield Measures: Temp ("C) Dissolved Oxygen (mg/l) pH (S	S.U.) Conductivity (µmhos/cm)	
the sampling reach representative of the stream (Y/N)	aln:	
erformed? (Y/N): N (If Yes, Record all observations. Voucher collections of ID number. Include appropriate field data sheets from Sish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Aquatic Macroinve	//N) N Voucher? (Y/N) N	dth t
Comments Regarding Biology:	34	
DRAWING AND NARRATIVE DESCRIPTION OF STRE		atto
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SITE NA	AME/LOCATION DUK	E - 5680 1381	«V Nickel to	o Warren				THE RESIDENCE AND ADDRESS OF THE PERSON OF T	
	sı	TE NUMBER SI	ream 12	RIVER B/	ASIN Little	Miami Ri	ver D	RAINAGE ARE	A (mi²) 0.10
LENGTI	H OF STREAM REACH (		1			RIVE			RMILE
		ER DGV/CA	The state of the s						
NOTE	: Complete All Items				duation M	anual for O	hio's PHV	/H Streams"	for Instructio
	AM CHANNEL FICATIONS:	NONE / NAT	URAL CHANN	IEL LR	ECOVERED	P ∐ RECO	VERING L	_ RECENT OF	NO RECOVER
1.	SUBSTRATE (Estimate (Max of 32). Add total no	percent of ever	ry type of sub	strate pres	ent. Check	ONLY two p	redominant	substrate TYPE	boxes
TYPE			ERCENT	TYPE	(IVIBA UI O).	ruidi illetiit s	core is sum	PERCE!	B.0.
	BLDR SLABS [16 pt	ls	0%		SILT [3 pt]			40%	<u> </u>
	BOULDER (>256 mi		0%			CK/WOODY I			Sut
	BEDROCK [16 pt]	the second section is a second section of	10%			RITUS [3 pt		0%	Ma
HH	GRAVEL (2-64 mm)		20%		MUCK [0]	IARDPAN (C	ptj	0%	+ 1
	SAND (<2 mm) [6 pt		30%	HH	ARTIFICIA	and the same of the same of		0%	7 4
	Total of Percenta				,	Ia hial			
	Bldr Slabs, Boulder, Col		0.00% <sup>(/</sup>	A)	0.5 60t	100	%	(B)	_ A
SCORE	OF TWO MOST PREDO	OMINATE SUBS	TRATE TYPES	s: 9	TOTA	L NUMBER	OF SUBST	RATE TYPES:	4
2. —	Maximum Pool Depth	(Measure the m	aximum poet	depth with	in the 61 m	eter (200 fil	evaluation -	each at the time	e of Poo
	evaluation. Avoid plunge	e pools from road	culverts or str	orm water p	ipes) (Ch	eck ONLY o	evaluation i ne box):	coru at nic illii	Ma
	> 30 centimeters [20 pts]					10 cm [15 pb	3]		96
	> 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts]				< 5 cm (5	pls] ER OR MOIS	ET CHANNE	I fo stell	
	p								_   2
	COMMENTS				M/	AXIMUM POO	DL DEPTH (	centimeters):	17
3	BANK FULL WIDTH (M	easured as the	average of 3-	4 measure	ments)	(Check	ONLY one I	ox):	Ba
	> 4.0 meters (> 13') [30 pt			7		1.5 m (> 3' 3	" - 4" 8") [15		W
	> 3.0 m - 4.0 m (> 9' 7" - ' > 1.5 m - 3.0 m (> 9' 7" - '				≤ 1.0 m (	<=3' 3") (5 pts	3)		Ma
	COMMENTS				AV	ERAGE BAI	KFULL WI	DTH (meters):	1.20 1
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	DIDADIAN 70NI	E AND FLOODP	This	informatio	n must also	be complet	ed		
	RIPARIAN WID		FLOODPLA	IN QUALIT	TY RIVER	.en (L) and R	igni (K) as i	ooking downstr	eamu
	L R (Per Bank)		LR (		minant per f	Bank)	LR		
	Wide >10m			fature Fores				Conservation	Tillage
	Moderate 5-1	0m	1 11 1	nmalure Fo Teld	rest, Shrub	or Old		Urban or Indu	strial
	Narrow <5m				Park, New F	Field		Open Pasture	, Row Crop
	None None		L	enced Past		roru		\$41=2	
		l within mainta				er outside r	of ROW	Mining or Cor	siruction
	1						11701		-
	Et out because	TAT TIME OF EVAL	uation) (Chec	ж ONLY on		laiat Channal	icolated as	ois, no flow (ini	ermitteet\
	FLOW REGIME Stream Flowing	1, 11 , 111, 10 , 11, 11, 11							ennuell)
	Stream Flowing Subsurface flow	with isolated pool	s (Interstitial)			ry channel n			
	✓ Stream Flowing	with isolated pool	s (Interstitial)						
	Stream Flowing Subsurface flow v COMMENTS	with isolated pool ecent rain		) of channe		ry channel n	o water (Ep		The second secon
	Stream Flowing Subsurface flow v COMMENTS_FE SINUOSITY (Nur None	with isolated pool	er 61 m (200 ft	l) of channe	(Check (	one bo	o water (Ep		•
	Stream Flowing Subsurface flow v COMMENTS_FE	with isolated pool ecent rain	er 61 m (200 ft	l) of channe	(Check	one bo	o water (Ep	hemeral)	
	Stream Flowing Subsurface flow v COMMENTS_G SINUOSITY (Num None 0.5 STREAM GRADIENT ES	with isolated pool ecent rain mber of bends pe	er 61 m (200 ft	i) of channe	(Check (	one bo	o water (Ep	hemeral)	•

DDITIONAL STREAM INFORMATION (This Information Must Als	12310123
QHEI PERFORMED? - Yes V No QHEI Score	(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name: Turtle Creek	_ Distance from Evaluated Stream 0.68
CWH Name:EWH Name:	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:	NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Warren Town	ship / City:Deerfield Twp
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Y Date of last precipitation:	Quantity: 0.00
Photograph Information: See Photolog on Figures	
Elevated Turbidity? (Y/N): N Canopy (% open) 90	%
Were samples collected for water chemistry? (Y/N): Note la	b sample no. or id. and attach results) Lab Number:
	pH (S.U.) Conductivity (µmhos/cm)
s the sampling reach representative of the stream (Y/N)	, please explain:
Additional comments/description of pollution Impacts:	
Partners 1 111 partners	
BIOTIC EVALUATION	
Performed? (Y/N): N (If Yes, Record all observations. Vouche ID number. Include appropriate field date	ar collections optional. NOTE: all voucher samples must be labeled with a sheets from the Primary Headwater Habitat Assessment Manual)  Observed? (Y/N) N Voucher? (Y/N) N Vouch
Performed? (Y/N): N  (If Yes, Record all observations. Voucher ID number. Include appropriate field date of the ID number include appropriate field date of the ID number. Include appro	a sheets from the Primary Headwater Habitat Assessment Manual)  Observed? (Y/N)  Voucher? (Y/N)
Performed? (Y/N): N  (If Yes, Record all observations. Voucher ID number. Include appropriate field date of the ID number include appropriate field date of the ID number. Include appro	a sheets from the Primary Headwater Habitat Assessment Manual)  Observed? (Y/N)  Voucher? (Y/N)
Performed? (Y/N): N (If Yes, Record all observations. Voucher ID number. Include appropriate field date of the first Observed? (Y/N) N Voucher? (Y/N) N Salamanders Comments Regarding Biology:	a sheets from the Primary Headwater Habitat Assessment Manual)  Observed? (Y/N) N Voucher?
Performed? (Y/N): N (If Yes, Record all observations. Voucher ID number. Include appropriate field date of the first observed? (Y/N) N Voucher? (Y/N) N Salamanders Comments Regarding Biology:	a sheets from the Primary Headwater Habitat Assessment Manual)  Observed? (Y/N)  Voucher? (Y/N)
Performed? (Y/N): N (If Yes, Record all observations. Voucher ID number. Include appropriate field date of the first Observed? (Y/N) N Voucher? (Y/N) N Salamanders Comments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION Include important landmarks and other features of interest for the features of interest features of interest for the features of interest f	a sheets from the Primary Headwater Habitat Assessment Manual)  Observed? (Y/N) N Voucher?
Performed? (Y/N): N (If Yes, Record all observations. Voucher ID number. Include appropriate field date of the ID number. Include field date of the ID number. Include field date of the	Deserved? (Y/N) Voucher? (Y/N) Voucher? (Y/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 ID number. Include appropriate field determined from the Programment of Toronto o	Disserved? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) N Voucher? (Y/
Performed? (Y/N): N (If Yes, Record all observations. Voucher ID number. Include appropriate field determined from the Programment of Toronto o	Deserved? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) N Voucher? (Y/N

Reset Form

Save as pdf

October 24, 2002 Revision

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

E2	
JJ	

	ME/LOCATION DUK	TE NUMBER Stream		ASIN Little Miami Riv	/er neal	IAGE AREA (mi²)	30
LENGTH	OF STREAM REACH (		Lancon and the same of the sam	processors and the second	R CODE	RIVER MILE	
	CONTRACTOR	ER DGV/CAJ					
NOTE:	Complete All Items	On This Form - Re	efer to "Field Ev	aluation Manual for O	hio's PHWH S	treams" for Instr	uctions
	M CHANNEL FICATIONS:	□ NONE / NATURA	L CHANNEL	RECOVERED RECO	VERING RE	ECENT OR NO REC	OVERY
1.	SUBSTRATE (Estimate	e percent of every type	e of substrate on	esent. Check ONLY two pr	edominant subs	trate TVPF hoves	-
(	(Max of 32). Add total ne	umber of significant su	ıbstrate types foun	d (Max of 8). Final metric s	core is sum of b	oxes A & B.	HHI
TYPE	BLDR SLABS [16 pl	ts] PERCE	NT TYPE	SILT [3 pt]		PERCENT 30%	Meti Poin
	BOULDER (>256 m			LEAF PACK/WOODY	DEBRIS [3 pts]	0%	
	BEDROCK [16 pt]	Contract of the Contract of th		FINE DETRITUS [3 pts		0%	Substi Max =
HH	GRAVEL (2-64 mm)	The second secon		CLAY or HARDPAN [0	pt]	0%	
	SAND (<2 mm) [6 p	/ [o bro]		MUCK (0 pts) ARTIFICIAL (3 pts)		0%	13
				1	-		Language of the language of th
	Total of Percenta Bldr Slabs, Boulder, Co		% (A)	Character + property 100	%	(8)	A + E
SCORE	OF TWO MOST PREDO	OMINATE SUBSTRAT	E TYPES: 9	TOTAL NUMBER	OF SUBSTRAT	E TYPES: 4	
2. —	Maximum Pool Depth	(Measure the maxim	um pool depth wil	thin the 61 meter (200 ft)	evaluation reach	at the time of	Pool D
_	evaluation. Avoid plunge	e pools from road culv	erts or storm water	pipes) (Check ONLY or	ne box):		Max =
	<ul> <li>30 centimeters (20 pts)</li> <li>22.5 - 30 cm (30 pts)</li> </ul>		-	> 5 cm - 10 cm (15 pb < 5 cm (5 pbs)			
	10 - 22.5 cm [25 pts]			NO WATER OR MOIS	ST CHANNEL (0	pts]	25
	COMMENTS			MAXIMUM POO	N DEPTH (con	timeters): 15	No. of Contrast
						E-mail	
	BANK FULL WIDTH (N	Measured as the avera		ements) (Check	DNLY one box)	E-mail	
	BANK FULL WIDTH (M 4.0 meters (> 13') [30 pt 3.0 m - 4.0 m (> 9' 7" -	Measured as the avera ts] 13') [25 pts]			ONLY one box):	E-mail	Wid
	BANK FULL WIDTH (M	Measured as the avera ts] 13') [25 pts]		ements) (Check of 2 1.0 m - 1.5 m (> 3' 3'	ONLY one box):	E-mail	Wid
3	BANK FULL WIDTH (M 4.0 meters (> 13') [30 pt 3.0 m - 4.0 m (> 9' 7" -	Measured as the avera ts] 13') [25 pts]		ements) (Check of 2 1.0 m - 1.5 m (> 3' 3'	ONLY one box): ' - 4' 8") [15 pts]		Widt Max=
	BANK FULL WIDTH (N 4.0 meters (> 13') [30 pt 3.0 m - 4.0 m (> 9' 7" -	Measured as the avera ts] 13') [25 pts]		ements) (Check > 1.0 m - 1.5 m (> 3' 3' ≤ 1.0 m (<=3' 3") [5 pts	ONLY one box): ' - 4' 8") [15 pts]		Widt Max=
3	BANK FULL WIDTH (N  4.0 meters (> 13') [30 pt  3.0 m - 4.0 m (> 9' 7" -  1.5 m - 3.0 m (> 9' 7" -	fleasured as the avera ts] 13') [25 pts] 4' 8") [20 pts]	age of 3-4 measur	ements) (Check   > 1.0 m - 1.5 m (> 3' 3'   ≤ 1.0 m (<=3' 3") [5 pts  AVERAGE BAN on must also be completed	ONLY one box): ' - 4' 8") [15 pts]  IKFULL WIDTH	(meters): 1.20	Widt Max=
3	BANK FULL WIDTH (N  4.0 meters (> 13') [30 pt  3.0 m - 4.0 m (> 9' 7" -  1.5 m - 3.0 m (> 9' 7" -	fleasured as the average (15) 13') [25 pts] 4' 6") [20 pts]	age of 3-4 measur	ements) (Check   > 1.0 m - 1.5 m (> 3' 3'   ≤ 1.0 m (<=3' 3") [5 pts  AVERAGE BAN  on must also be complet	ONLY one box): ' - 4' 8") [15 pts]  IKFULL WIDTH	(meters): 1.20	Widt Max=
	BANK FULL WIDTH (N 4.0 meters (> 13') [30 pt 3.0 m - 4.0 m (> 9' 7" - 1.5 m - 3.0 m (> 9' 7" - COMMENTS  RIPARIAN ZON RIPARIAN WILL L R (Per Bank)	fleasured as the avera ts] 13') [25 pts] 4' 6") [20 pts] EE AND FLOODPLAIN DTH FL	This Informati QUALITY & OODPLAIN QUAL R (Most Pred	ements) (Check to be completed and Reference to the completed	ONLY one box): ' - 4' 8") [15 pts] i) IKFULL WIDTH ed ight (R) as looki	(meters): 1.20	Widt Max=
3	BANK FULL WIDTH (M  4.0 meters (> 13') [30 pt  3.0 m - 4.0 m (> 9' 7" -  1.5 m - 3.0 m (> 9' 7" -  COMMENTS  RIPARIAN ZON  RIPARIAN WII  L R (Per Bank)  Wide >10m	fleasured as the average (15) 13') [25 pts] 4' 8') [20 pts] EE AND FLOODPLAIN DTH L	This Informati QUALITY & OODPLAIN QUAL R (Most Pred	ements) (Check to be completed and completed also be completed and compl	ONLY one box)  ' - 4' 8") [15 pts]  NKFULL WIDTH  ad ight (R) as looki	(meters): 1.20	Widt Max=
3	BANK FULL WIDTH (N 4.0 meters (> 13') [30 pt 3.0 m - 4.0 m (> 9' 7" - 1.5 m - 3.0 m (> 9' 7" - COMMENTS  RIPARIAN ZON RIPARIAN WILL L R (Per Bank)	fleasured as the average (15) 13') [25 pts] 4' 8') [20 pts] EE AND FLOODPLAIN DTH L	This Informati QUALITY & OODPLAIN QUAL R (Most Pred	ements) (Check to be completed by the co	ONLY one box): '-4' 8") [15 pts]  IKFULL WIDTH  ed ight (R) as looki	(meters): 1.20 Ing downstream ☆ Inservation Tillage pan or Industrial	Widi Max=
	BANK FULL WIDTH (M  4.0 meters (> 13') [30 pt  3.0 m - 4.0 m (> 9' 7" -  1.5 m - 3.0 m (> 9' 7" -  COMMENTS  RIPARIAN ZON RIPARIAN WIL  L R (Per Bank) Wide >10m  Moderate 5-1  Narrow <5m	fleasured as the average (15) 13') [25 pts] 4' 8') [20 pts] EE AND FLOODPLAIN DTH L	This informati QUALITY &: OODPLAIN QUAL R (Most Pred Mature For	ements) (Check to be completed and completed also be completed and compl	ONLY one box): '-4' 8") [15 pts]  IKFULL WIDTH  ed ight (R) as looki	(meters): 1.20	Widi Max=
	BANK FULL WIDTH (N 4.0 meters (> 13') [30 pi 3.0 m - 4.0 m (> 9' 7" - 1.5 m - 3.0 m (> 9' 7" - COMMENTS  RIPARIAN ZON RIPARIAN WII L R (Per Bank) Wide > 10m Moderate 5-1 Narrow < 5m / / None	Measured as the average   13') [25 pts] 4' 8") [20 pts]  EE AND FLOODPLAIN DTH L L L L L L L L L L L L L L L L L L L	This informati QUALITY At OODPLAIN QUAL R (Most Pred Mature For Immature I Field Residentia	ements) (Check to be a state of the complete o	ONLY one box): ' - 4' 8") [15 pts]  IKFULL WIDTH  ed ight (R) as looking  L R Co	(meters): 1.20 Ing downstream ☆ Inservation Tillage pan or Industrial	Widi Max=
	BANK FULL WIDTH (N 4.0 meters (> 13') [30 pi 3.0 m - 4.0 m (> 9' 7" - 1.5 m - 3.0 m (> 9' 7" - COMMENTS  RIPARIAN ZON RIPARIAN WII L R (Per Bank) Wide > 10m Moderate 5-1 Narrow < 5m / / None	Measured as the average   13') [25 pts] 4' 8") [20 pts]  EE AND FLOODPLAIN DTH L L L L L L L L L L L L L L L L L L L	This informati QUALITY At OODPLAIN QUAL R (Most Pred Mature For Immature I Field Residentia	ements) (Check to be completed as a	ONLY one box): ' - 4' 8") [15 pts]  IKFULL WIDTH  ed ight (R) as looking  L R Co	(meters): 1.20 Ing downstream ☆ Inservation Tillage pan or Industrial en Pasture, Row Cro	Widi Max=
	BANK FULL WIDTH (N 4.0 meters (> 13') [30 pi 3.0 m - 4.0 m (> 9' 7" - 1.5 m - 3.0 m (> 9' 7" - COMMENTS  RIPARIAN ZON RIPARIAN WII L R (Per Bank) Wide > 10m Moderate 5-1 Narrow < 5m V None COMMENTS	Measured as the average   13') [25 pts] 4' 8") [20 pts]  EE AND FLOODPLAIN DTH L L L L L L L L L L L L L L L L L L L	This informati QUALITY AT OODPLAIN QUAL R (Most Pred Mature For Immature I Field Residentia Fenced Pa	ements) (Check to be a second to be	ONLY one box)  - 4' 8") [15 pts]  IKFULL WIDTH  ed ight (R) as looking  L R Co  Uni Op  Mirot ROW	(meters): 1.20 Ing downstream   Inservation Tillage pan or Industrial en Pasture, Row Croning or Construction	Widi Max=
	BANK FULL WIDTH (N 4.0 meters (> 13') [30 pt 3.0 m - 4.0 m (> 9' 7" - 1.5 m - 3.0 m (> 9' 7" - COMMENTS  RIPARIAN ZON RIPARIAN WII L R (Per Bank) Wide >10m Moderate 5-1 Narrow <5m V None COMMENTS  FLOW REGIME Stream Flowing	Measured as the averates  13') [25 pts]  4' 8') [20 pts]  E AND FLOODPLAIN  DTH  L  10m  L  II within maintained  E (At Time of Evaluation	This informati QUALITY AT OODPLAIN QUAL R (Most Pred Mature For Immature I Field Residentia Fenced Pa d ROW wider Ri n) (Check ONLY of	ements) (Check	ONLY one box):  '-4'8") [15 pts]  IKFULL WIDTH  ed ight (R) as looking  LR Co  United  Op  Minor ROW	(meters): 1.20 Ing downstream  Inservation Tillage pan or Industrial en Pasture, Row Croning or Construction no flow (Intermittent)	Widi Max=
	BANK FULL WIDTH (N 4.0 meters (> 13') [30 pt 3.0 m - 4.0 m (> 9' 7" - 1.5 m - 3.0 m (> 9' 7" - COMMENTS  RIPARIAN ZON RIPARIAN WII L R (Per Bank) Wide >10m Moderate 5-1 Narrow <5m V None COMMENTS  FLOW REGIME Stream Flowing	Measured as the averates  13') [25 pts]  4' 8') [20 pts]  E AND FLOODPLAIN  DTH  L  10m  L  I within maintained  E (At Time of Evaluation  with isolated pools (Interpretation)	This informati QUALITY AT OODPLAIN QUAL R (Most Pred Mature For Immature I Field Residentia Fenced Pa d ROW wider Ri n) (Check ONLY of	ements) (Check	ONLY one box)  - 4' 8") [15 pts]  IKFULL WIDTH  ed ight (R) as looking  L R Co  Uni Op  Mirot ROW	(meters): 1.20 Ing downstream  Inservation Tillage pan or Industrial en Pasture, Row Croning or Construction no flow (Intermittent)	Widi Max=
	BANK FULL WIDTH (N 4.0 meters (> 13') [30 pt 3.0 m - 4.0 m (> 9' 7" - 1.5 m - 3.0 m (> 9' 7" - COMMENTS  RIPARIAN ZON RIPARIAN WIL L R (Per Bank) Wide >10m Moderate 5-1 Narrow <5m V None COMMENTS  FLOW REGIME Stream Flowing Subsurface flow COMMENTS	Measured as the averals  13') [25 pts]  4' 8') [20 pts]  E AND FLOODPLAIN  DTH  L  10m  L  (At Time of Evaluation with isolated pools (Introduced)	This informati QUALITY & OODPLAIN QUAL R (Most Pred Mature For Immature I Field Residentia Fenced Pa d ROW wider Ri n) (Check ONLY (	ements) (Check	ONLY one box):  '-4'8") [15 pts]  IKFULL WIDTH  Ight (R) as looking  LR Co  Uni  Op  Min  FROW  Isolated pools, o water (Ephen	(meters): 1.20 Ing downstream  Inservation Tillage pan or Industrial en Pasture, Row Croning or Construction no flow (Intermittent)	Widi Max=
	BANK FULL WIDTH (N 4.0 meters (> 13') [30 pt 3.0 m - 4.0 m (> 9' 7" - 1.5 m - 3.0 m (> 9' 7" - COMMENTS  RIPARIAN ZON RIPARIAN WIL L R (Per Bank) Wide >10m Moderate 5-1 Narrow <5m V None COMMENTS  FLOW REGIME Stream Flowing Subsurface flow COMMENTS	Measured as the averals  13') [25 pts]  4' 8') [20 pts]  E AND FLOODPLAIN  DTH  L  10m  L  (At Time of Evaluation with isolated pools (Introduced)	This informati QUALITY AT OODPLAIN QUAL R (Most Pred Mature For Immature I Field Residentia Fenced Pa d ROW wider Ri n) (Check ONLY ( erstitial)	ements) (Check	ONLY one box):  '-4'8") [15 pts]  IKFULL WIDTH  ad ight (R) as looking  LR Co  Uni  Op  Min  FROW  Isolated pools, o water (Ephern	(meters): 1.20 Ing downstream   Inservation Tillage pan or Industrial en Pasture, Row Croning or Construction no flow (Intermittent)	Widi Max=
	BANK FULL WIDTH (No. 4.0 meters (> 13') [30 pt 3.0 m - 4.0 m (> 9' 7" - 1.5 m - 3.0 m (> 9' 7" - 1.5 m (> 9' 7"	Measured as the averals  13') [25 pts]  4' 8') [20 pts]  E AND FLOODPLAIN  OTH  I U  I Within maintained  E (At Time of Evaluation  with isolated pools (Introcent rain  umber of bends per 61	This Informati QUALITY & AT OODPLAIN QUAL R (Most Pred Mature Foil Immature I Field Residentia Fenced Pa d ROW wider Ri n) (Check ONLY) erstitial)  m (200 ft) of change	ements) (Check   > 1.0 m - 1.5 m (> 3' 3'   > 1.0 m (<=3' 3")   5 pts    AVERAGE BAN  On must also be complet   NOTE: River Left (L) and R ITY	ONLY one box):  '-4'8") [15 pts]  IKFULL WIDTH  ad ight (R) as looking  L R Co  Uni  Op  Min  FROW  Isolated pools, o water (Ephen	(meters): 1.20 Ing downstream  Inservation Tillage pan or Industrial en Pasture, Row Croning or Construction on flow (Intermittent)	•
	BANK FULL WIDTH (No. 4.0 meters (> 13') [30 pt 3.0 m - 4.0 m (> 9' 7" - 1.5 m - 3.0 m (> 9' 7" - 1.5 m (> 9' 7" -	Measured as the average  [13] [13] [25 pts] [4' 6') [20 pts]  [E AND FLOODPLAIN [DTH FL [I]	This Informati QUALITY & AT OODPLAIN QUAL R (Most Pred Mature Foil Immature I Field Residentia Fenced Pa d ROW wider Ri n) (Check ONLY) erstitial)  m (200 ft) of change	ements) (Check   > 1.0 m - 1.5 m (> 3' 3'   > 1.0 m (<=3' 3")   5 pts    AVERAGE BAN  AVERAGE BAN  On must also be completed of the completed	ONLY one box):  '-4'8") [15 pts]  IKFULL WIDTH  ad ight (R) as looking  L R Co  Uni  Op  Min  FROW  Isolated pools, o water (Ephen	(meters): 1.20 Ing downstream  Inservation Tillage pan or Industrial pen Pasture, Row Croning or Construction on flow (Intermittent) peral)	Widi Max=

ADDITIONAL STREAM INFORMATION (This Information Must Also be Compl	rted):	
QHEI PERFORMED? - Yes / No QHEI Score (II'Y	es, Attach Completed QHEI Form)	
DOWNSTREAM DESIGNATED USE(S)	Standarder flankrings op	Matabilianipus y singapusya sig
WWH Name: Turtle Creek	Distance from Evaluated Stream	0.68
CWH Name: _	Distance from Evaluated Stream	
EWH Name:	Distance from Evaluated Stream	
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATE	RSHED AREA. CLEARLY MARK THE SITE LOCA	TION
	Map Page: NRCS Soil Map Stream On	der
County: Warren Township / City:	Deerfield Twp	
MISCELLANEOUS		
Base Flow Conditions? (Y/N): Y Date of last precipitation	Quantity: 0.00	rocker P 1885 of the drift of the selecting
Photograph Information: See Photolog on Figures		
Elevated Turbidity? (Y/N): N Canopy (% open): 90%		
Were samples collected for water chemistry? (Y/N): N (Note lab sample no	or id. and attach results) Lab Number:	
property and a second section of the section of the second section of the s	S.U.) Conductivity (µmhos/cm)	Principal and State and St
		, t
s the sampling reach representative of the stream (Y/N) Y If not, please exp	ain:	
Additional comments/description of pollution impacts:		
BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations, Voucher collections ID number, Include appropriate field data sheets from Fish Observed? (Y/N) N Salamanders Observed? (Y/N)	the Primary Headwater Habitat Assessment Manua	s)
BIOTIC EVALUATION  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? (Y/N): N Aquatic Macroinv	the Primary Headwater Habitat Assessment Manua /N) N Voucher? (Y/N) N	s)
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BIOTIC EVALUATION  Performed? (Y/N): N (If Yes, Record all observations. Voucher collections ID number, Include appropriate field data sheets from Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (YFrogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroiny Comments Regarding Biology:	the Primary Headwater Habitat Assessment Manual (N) N Voucher? (Y/N) N Vou	N
Performed? (Y/N):    N	the Primary Headwater Habitat Assessment Manual (N) N Voucher? (Y/N) N Vou	N
BIOTIC EVALUATION  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? (Y/N) N Voucher? (Y/N) N Aquatic Macroinv Comments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF STRI	the Primary Headwater Habitat Assessment Manual (N) N Voucher? (Y/N) N Vou	N N I):
BIOTIC EVALUATION  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? (Y/N) N Voucher? (Y/N) N Aquatic Macroinv Comments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF STRI	the Primary Headwater Habitat Assessment Manual (N) N Voucher? (Y/N) N Vou	N N I):
BIOTIC EVALUATION  Performed? (Y/N):    N	the Primary Headwater Habitat Assessment Manual (N) N Voucher? (Y/N) N Vou	N
BIOTIC EVALUATION  Performed? (Y/N):    N	the Primary Headwater Habitat Assessment Manual (N) N Voucher? (Y/N) N Vou	N N I):
BIOTIC EVALUATION  Performed? (Y/N):    N	the Primary Headwater Habitat Assessment Manual (N) N Voucher? (Y/N) N Vou	N): location
BIOTIC EVALUATION  (If Yes, Record all observations, Voucher collections ID number, Include appropriate field data sheets from Voucher? (Y/N) N Salamanders Observed? (YFO) N Voucher? (Y/N) N Aquatic Macroinv Comments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTION OF STRIP Include important landmarks and other features of Interest for site evaluations.	the Primary Headwater Habitat Assessment Manual (N) N Voucher? (Y/N) N Vou	N): location
BIOTIC EVALUATION  Performed? (Y/N):    N	the Primary Headwater Habitat Assessment Manual (N) N Voucher? (Y/N) N Vou	N N I):
BIOTIC EVALUATION  Output  Out	the Primary Headwater Habitat Assessment Manual (N) N Voucher? (Y/N) N Vou	N): location

### DUKE ENERGY NICKEL TO WARREN STATION

## **APPENDIX**

C

OHIO RAPID ASSESSMENT METHOD 5.0 FORM AND USACE WETLAND DELINEATION DATA SHEETS

#### WETLAND DETERMINATION DATA FORM -- Midwest Region

Investigator(s): C.Jansing, D. Vandewater Section, Township, Range: 2E 3N S5  Landform (hillstope, terrace, etc.): Shoulder Local relief (cencave, convex, none): none	Project/Site:	5680 - 138 kV Nickel to Warren	Station Rebuild	City/County: Tu	irtle Creek 1	Twp, Warren Co Sampling Date: 1/4/2017
Landown Politics   Name   Section	Applicant/Owner:			State: OH	Н	Sampling Point: DP01
State	Investigator(s):			Section	, Township	, Range: 2E 3N S5
Sel May Dut Name	Landform (hillslope	terrace etc.): Shoulder	<u> </u>			elief (concave, convex, none): none
As distance in hydrologic conditions on the sist hypical for this time of year?  We Vogatation  N	10000			Long:	-1	84.25153 Datum: NAD83 UTM16N
Name						12 11
Management   Man			V		_ No_	(If no, explain in Remarks.)
SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important figurors, etc.	-					
No.	-					
Note					ns, trans	sects, important features, etc.
No					•	
VEGETATION - Use scientific names of plants.   Absolute   Dominant   Indicator   Species 7   Bittus   UPL   Dominant   Species   That Are OBL, FACW, or FAC   1   (A)	1 '			within a W	Vetland7	Yes X No
VEGETATION - Use scientific names of plants.   Absolute		763				
Absolute   Deminant   Indicator   No vegetation   No vegetat	remarks.					
Absolute   Deminant   Indicator   No vegetation   No vegetat						
Absolute   Deminant   Indicator   No vegetation   No vegetat						
Absolute   Deminant   Indicator   No vegetation   No vegetat	VEGETATION -	- Use scientific names of	plants.	- 5		
1. No vegetation				Dominant Inc	dicator	
2   Number of Dominant Species   That Are GBL, FACW, or FAC   1 (A)   5   Total Number of Dominant Species   That Are GBL, FACW, or FAC   1 (A)   5   Total Number of Dominant Species   That Are GBL, FACW, or FAC   1 (B)   5   Total Number of Dominant Species   That Are GBL, FACW, or FAC   1 (B)   6   Total Number of Dominant Species   That Are GBL, FACW, or FAC   1 (B)   7   Total Number of Dominant Species   That Are GBL, FACW, or FAC   1 (B)   7   Total Number of Dominant Species   That Are GBL, FACW, or FAC   1 (B)   7   Total Number of Dominant Species   That Are GBL, FACW, or FAC   1 (B)   7   Total Number of Dominant Species   That Are GBL, FACW, or FAC   1 (B)   7   Total Number of Dominant Species   That Are GBL, FACW, or FAC   1 (B)   7   Total Number of Dominant Species   That Are GBL, FACW, or FAC   1 (B)   7   Total Number of Dominant Species   That Are GBL, FACW, or FAC   1 (B)   7   Total Number of Dominant Species   That Are GBL, FACW, or FAC   1 (B)   7   Total Number of Dominant Species   That Are GBL, FACW, or FAC   1 (B)   7   Total Number of Dominant Species   That Are GBL, FACW, or FAC   1 (B)   7   Total Number of Dominant Species   That Are GBL, FACW, or FAC   1 (B)   7   Total Number of Dominant Species   That Are GBL, FACW, or FAC   1 (B)   7   Total Number of Dominant Species   That Are GBL, FACW, or FAC   1 (B)   7   Total Number of Dominant Species   That Are GBL, FACW, or FAC   1 (B)   7   Total Number of Dominant Species   That Are GBL, FACW, or FAC   1 (B)   7   Total Number of Dominant Species   That Are GBL, FACW, or FAC	Tree Stratum (Plot	size: 30' radius )	% Cover	Species? S	Status	Dominance Test worksheet:
That Are DBL. FACW, or FAC	1: No vegetation			200.200	UPL	
### Total Number of Dominant   Species Across AR Strata.   1	-	<u> </u>				Number of Dominant Species
Species Across AS Stata. 1 (8)	3					That Are OBL, FACW, or FAC 1 (A)
Species Across AS Stata. 1 (8)	41					
Percent of Dominant Species   100%   (A/B)	5					Total Number of Dominant
1. No vegetation				= Total Cover	أ	Species Across AN Strata: 1 (B)
1. No vegetation						
2 3 4 5 7 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		ım (Piol size: 15' radius	)			Percent of Dominant Species
3				(3)	UPL	That Are OBL, FACW, or FAC: 100% (A/B)
Prevalence Index workshaet:			<del></del>			
Total Not Cover of:	3					
Total % Cover of:	4				j <sup>,</sup>	Prevalence Index worksheet:
That Are OBL, FACW, or FAC:	5.				<u> </u>	
Stratum   Plot size:   5' radius   1   7   7   7   7   7   7   7   7   7				= Total Cover	ŀ	
1. Typhs X glauce	Harb Stratum (Diot	eiro: El madica à				
2   Came s ap   5% No UPL   FAC species   x3 =		sico. S radius		N	- 1	
Saliz nigra						
UPL species   5%   x5 =   0.25						
Column Totals:   1.00   (A)   1.2   (B)	4		276			
6.	5		<del></del>		<del></del>	
8. 9. 1. Hydrophytic Vegetation Indicators:    X   1-Rapid Test for Hydrophytic Vegetation     X   2-Dominance Test is >50%     X   3-Prevalence Index is \$3.0%     Y   4-Morphological Adaptations   (Provide supporting data in Remarks or on a separate sheet)     Problematic Hydrophytic Vegetation     Y   1-Rapid Test for Hydrophytic Vegetation     X   1-Rapid Test for Hydrophytic Vegetation     X   2-Dominance Test is \$3.0%     X   1-Rapid Test for Hydrophytic Vegetation     Y   1-Rapid Test fo	6				— I	Column I otals: 1.00 (A) 1.2 (B)
8. 9. 1. Hydrophytic Vegetation Indicators:    X   1-Rapid Test for Hydrophytic Vegetation     X   2-Dominance Test is >50%     X   3-Prevalence Index is \$3.0%     Y   4-Morphological Adaptations   (Provide supporting data in Remarks or on a separate sheet)     Problematic Hydrophytic Vegetation     Y   1-Rapid Test for Hydrophytic Vegetation     X   1-Rapid Test for Hydrophytic Vegetation     X   2-Dominance Test is \$3.0%     X   1-Rapid Test for Hydrophytic Vegetation     Y   1-Rapid Test fo	7	<del></del>			— I	BU U A 4 6 5 BU S
1.	B				<u> </u>	Prevalence Index = B/A = 1.20
1.	<u> </u>				<del></del>  -	
1.	10				— I,	Abodes who she had no next on the state of
X 1-Rapid Test for Hydrophytic Vegetation X 2-Dominance Test is >50% X 3-Prevalence Index is \$3.0° 4-Morphological Adaptations* (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation* Problematic Hydrophytic Vegetation*  1 Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  100% * Total Cover    Woody Vine Stratum* (Plot size: 30' radius )   No vegetation   UPL   Vegetation					l'	riydropnysic vegetation indicators:
X 2-Dominance Test is >50% X 3-Prevalence Index is \$30° 4-Morphotogical Adaptations (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation (Explain)  1 Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  100% = Total Cover    Woody Vine Stratum (Plot size: 30' radius )   No vegetation   UPL   Vegetation					<del></del>	W. A Barris Warrens Marie Const.
X 3-Prevalence Index is ≤3 0°					— I	30.0
4-Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)  7					<u> </u>	
data in Remarks or on a separate sheet)  problematic Hydrophytic Vegetation (Explain)  fundactors of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  100% = Total Cover  Hydrophytic  Vegetation  Total Cover  Total Cover  Emarks: (Include photo numbers here or on a separate sheet.)					<u> </u>	
Problematic Hydrophytic Vegetation (Explain)  1 Indicators of hydric soll and wetland hydrology must be present, unless disturbed or problematic.  100% = Total Cover    Voody Vine Stratum (Plot size: 30' radius )					— [	
8. 9. 1Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  100% = Total Cover    Voody Vine Stratum (Plot size: 30' radius )	*				<u></u> -	
9. Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  100% = Total Cover    Yoody Vine Stratum (Plot size: 30' radius )			·····		<del></del>	Problement rystrophytic Vegetation (Explain)
be present, unless disturbed or problematic.    100% = Total Cover   Hydrophytic			<del></del>		—— I,	Indicators of hydric on and watered had
Total Cover						
Noody Vine Stratum (Plot size: 30' radius )  1. No vegetation UPL Vegetation  2					'	pe present, unless disturbed or problematic.
1. No vegetation  2. Total Cover  Temarks: (Include photo numbers here or on a separate sheet.)  Vegetation Present? Yes X No  Present?			100%	- iotal Cover		
1. No vegetation  2. Total Cover  Temarks: (Include photo numbers here or on a separate sheet.)  Vegetation Present? Yes X No  Present?	Woody Vine Steet	(Plot eize: 200 cm disse	<u> </u>		— I.	Undershield
2 Present? Yes X No  = Total Cover  temarks: (Include photo numbers here or on a separate sheet.)		(Filet Size. 30 Milis				
= Total Cover  Remarks: (Include photo numbers here or on a separate sheet.)		<del></del>				<del>-</del>
temarks: (Include photo numbers here or on a separate sheet.)		<del></del>			—— l'	Present? Yes X No
temarks: (Include photo numbers here or on a separate sheet.)  Vetland 1 appears to be an excavated detention basin associated with adjoaent commercial/inductrial facilities constructed in after 2006 based on historic aerials.				Fiolal Cover		
Vertising 1 appears to be an excavated detention basin associated with adjoaent commercial/inductrial facilities constructed in after 2006 based on historic serials.	Damerka: (heatest	hate combase have as	ate about 1			<del></del>
	meniarius: (include p Wetland 1 appears t	now numbers nere of on a separa to be an excavated detention hear	ne sheet.)   associated with adicaent com	marcial/industrial fo	acilities co-	nstructed in after 2006 hazard an historia
			receive a court magaziners bills			THE PARTY AND DESIGN OF HISTORY SCIENCE.

Sampling Point:	DP01

	ription: (Describe to t	ne depth needed			onfirm the a	bsence of	indicators.)	
Depth (inches)	Matrix			dox Features	- 1			_
(inches)	Color (moist)		Color (moist)		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-12"	10YR 3/2	90	10YR 4/2	10		M	Slity Clay Loam	
	<u> </u>		<u></u>					
								<del></del>
<sup>1</sup> Type: C=C	oncentration, D=Depleti	on, RM=Reduced	Matrix, CS=Covere	d or Coated S	and Grains,	2Locatio	on: PL=Pore Lining,	M=Matrix
Hydric Soil II	ndicators:					Indica	stors for Problema	tic Hydric Soils <sup>1</sup> :
Histosol	(A1)			ed Matrix (S4)			Coast Prairi	e Redox (A16)
	pipedon (A2)		Sandy Redo	x (S5)			Iron-Mangai	nese Masses (F12)
	istic (A3)		Stripped Ma	, ,			Dark Surface	•
	en Sulfide (A4)			ky Mineral (F1)				/ Dark Surface (TF12)
	d Layers (A5)		_ ·	ed Matrix (F2)			Other (Expla	ain in Remarks)
	uck (A10)	8.443	x_ Depleted Ma	, ,				
	d Below Dark Surface ( ark Surface (A12)	471)		Surface (F6)			3	
	Aucky Mineral (S1)			rk Surface (F7	()			ophytic vegetation and
·	icky Peat or Peat (S3)		Redox Depre	essions (FB)			*	ogy must be present, ped or problematic.
							uniess disturt	Ded or problematic.
	ayer (if observed):							
Type: Depth (ir	nchas):					14.3-1.6	D-11 D10	
Remarks:						Hydric	Soil Present?	Yes X No
HYDROLO	NCV.							
	<del></del>							
-	rology Indicators:		27				L	
	ators (minimum of one i	s required; check		-d I (D0				ors (minimum of two required)
	Water (A1)			ed Leaves (B9	')		Surface Soil	
X Saturation	iter Table (A2)		Aquatic Faur				X Drainage Pa	• •
	larks (B1)			: Plants (B14) ulfide Odor (C			Crayfish Bur	Water Table (C2)
	nt Deposits (B2)			izospheres on	UCSV	: /C3)		rows (Co) isible on Aerial Imagery (C9)
	oosits (B3)		_	Reduced Iron	_	s (C3)		tressed Plants (D1)
	at or Crust (B4)		_	Reduction in T		:6)		Position (D2)
_	osits (B5)		Thin Muck S		111CG CO113 (C	,0,	X FAC-Neutral	, ,
	on Visible on Aerial Ima	gerv (B7)	Gauge or We	, ,				, , , , , , , , , , , , , , , , , , , ,
	Vegetated Concave S			in in Remarks	)			
Field Observa	ations:	<del></del>			· 		<del></del> .	<del>-</del>
Surface Wate		'es x No	Depth (inches)	): 1				
Water Table F		es x No	Depth (inches)					
Saturation Pre		'es x No	Depth (inches)		Wetland	Hydrolog	y Present?	Yes X No
(includes capi			_ , , ,				,	
Describe Rec	orded Data (stream gau	ge, monitoring w	ell, aerial photos, pre	evious inspect	tions), if avail	able:		
Domadai	<del></del>							<del></del>
Remarks:								

#### WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site:	5680 = 138 kV Nickel to Warren Station Rebuild City/County: Turtle Cri				Turtle Creel	k Twp, Warren Co	Sampling Date: 1/4/2017	
Applicant/Owner	Duke Energy	ke Energy State: OH			OH	Sampling Point:	DP02	
Investigator(s)	gator(s) C.Jansing D. Vandewater Section, Towns			ction, Townsh	ship, Range: 2E 3N S5			
Landform (hillslope,	The state of the s				Local	cal relief (concave, convex, none): none		
Slope (%):	Slope (%): 0% Lat: 39.41418 Long:			Long:		-84.2516	Datum: NAD83 UTM16N	
Soil Map Unit Name	: Miamian-Russel	l sitt loam (MrC2)				NWI class	ification; none	
Are climatic / hydrol	logic conditions on the site	typical for this time of	of year?	Yes	X No	(If no, exptain in Remart	us.)	
Are Vegetation	N Soil N	or Hydrology	N_significantly d	isturbed?	Are "No	ormal Circumstances" present?	Yes _ X _ No	
Are Vegetation	N Soil N				(If need	ted, explain any answers in Rei	marks.)	
SUMMARY OF	FINDINGS - Attach	site map show	— ring sampling			nsects, important featu		
Hydrophytic Vegeta		Yes			Sampled Are			
Hydric Soil Present		Yes			a Wetland?		No X	
Wetland Hydrology	Present?	Yes	No X					
Remarks:							<del></del>	
<b>VEGETATION</b>	Use scientific паг	nes of plants.						
			Absolute	Dominant	Indicator	<u> </u>		
Tree Stratum (Plot	size: 30' radius	_)	% Cover	Species?	Status	Dominance Test workshee	t:	
1. No vegetation					UPL			
2						Number of Dominant Specie	5	
3.						That Are OBL, FACW, or FA	C: 0 (A)	
4								
5.						Total Number of Dominant		
				Total Cover		Species Across All Strata:	2 (B)	
Sapling/Shrub Strate	um (Plot size: 15' radio	ıs )				Percent of Dominant Species		
1. Lonicers morror	wii		5%	Yes	FACU	That Are OBL, FACW, or FA	C: 0% (A/B)	
2.								
3.								
4						Prevalence Index workshee	<b>*</b> •	
5.						Providence most workships		
3.			5%	- Total Cours		Total & Course of	A.B. Miller, Inc.	
			376	= Total Cover		Total % Cover of: That Are OBL, FACW, or FAC	Multiply by:  A/B	
Herb Stratum (Plot	size: 5' radius	,				OBL species	x1=	
1; Artemisia annui		.′	60%	Yes	FACU	FACW species		
2. Daucus carota	<u> </u>		15%	No	UPL	FAC species 5%	x2 =	
3. Ambrosia artem	nielifalia		10%	No	FACU	FACU species 75%	x3 = 0,15 x4 = 3	
4. Poe pretensis	#30100E		5%	No	FAC			
					FAC		x5 * 0 75	
5						Column Totals: 0.95	(A) 3 9 (B)	
6							5. 5.00	
7						Prevalence Index =	B/A = 4.11	
B								
9								
10						Hydrophytic Vegetation Inc	licators:	
11,		_						
12		_				1-Rapid Test for Hy	drophytic Vegetation	
13						2-Dominance Test i	s >50%	
14.						3-Prevalence Index	is ≤3.0 <sup>1</sup>	
15.						4-Morphological Ad	eptations (Provide supporting	
16.						data in Remarks or	on a separate sheet)	
17/-						1	ohytic Vegetation" (Explain)	
18.						_		
19.						Indicators of hydric soil and	wetland hydrology must	
20.						be present, unless disturbed	3/2	
I	<del></del> -		90%	= Total Cover		bioseiir manas maminen	we pro Whitelesses.	
			9078	- 10121 00181			<del></del>	
Woody Vine Stratun	n /Pint size: 200	in 1				Mudanahuda		
	n (Plot size: 30' radio	<u>is</u> )			) 150	Hydrophytic		
1. No vegetation					UPL_	Vegetation	BI - M	
2.						Present? Yes	No X	
				= Total Cover				
	photo numbers here or on		milita mallament and		delet de ellere		l an historia av Inte	
Assuming 1 appears	to no sii sxcevstad 06(60)	on desin essocialed	with majorient cor	mmercal/induc	INTERPOLITIES C	constructed in after 2006 based	on mistone aenais.	
I								

SOIL							Consol	ina Caint. D	Dog
								ing Point: D	P02
	ription: (Describe to t	the depth need			onfirm the a	bsence o	f indicators.)		
Depth (inches)	Matrix	<u></u> —		ox Features	T1	. 2			
(inches)	Color (moist)		Color (moist)	%	Type <sup>1</sup>	Loc²	Texture	Remarks	
0-12"	10YR 4/2	100			<u> </u>	M	Silty Clay Loam		
			<u> </u>						
								<u> </u>	
¹Type: C=Cd	oncentration, D=Deplet	ion. RM=Reduc	ed Matrix, CS=Covere	d or Coated S	and Grains	<sup>2</sup> Locatio	on: PL=Pore Lining, I	M=Matrix	
Hydric Soil Ir		, , , , , , , , , , , , , , , , , ,		2 01 000100 0	ana oramo.		ators for Problemati		
Histosol			Sandy Gleve	d Matrix (S4)		***************************************		Redox (A16)	
Histic E	pipedon (A2)		Sandy Redo					ese Masses (F12)	
Black H	istic (A3)		Stripped Mar				Dark Surface	(S7)	
Hydroge	en Sulfide (A4)		Loamy Muck	y Mineral (F1	)		Very Shallow	Dark Surface (TF12)	
Stratified	d Layers (A5)		Loamy Gley	ed Matrix (F2)			Other (Explai	in in Remarks)	
2 cm Mu	uck (A10)		Depleted Ma	trix (F3)					
	d Below Dark Surface (	(A11)	Redox Dark	Surface (F6)					
	ark Surface (A12)			rk Surface (F7	7)		<sup>3</sup> Indicators of hydro	phytic vegetation and	
_	Mucky Mineral (S1)		Redox Depre	Redox Depressions (F8)			wetland hydrology must be present,		
5 cm Mi	ucky Peat or Peat (S3)						unless disturb	ed or problematic.	
Restrictive L	ayer (if observed):	***					<del></del> -		
Туре: _									
Depth (in	nches):					Hydric	Soil Present?	Yes	No X
Remarks:									
HYDROLO	OGY			-				·	
Wetland Hyd	rology Indicators:								
	ators (minimum of one	is required; che	ck all that apply)				Secondary Indicate	ors (minimum of two rec	uired)
	Water (A1)	·		ed Leaves (B9	)		Surface Soil		,,
High Wa	ater Table (A2)		Aquatic Fau	na (B13)			Drainage Pat	terns (B10)	
Saturati	on (A3)		True Aquatio	Plants (B14)				Water Table (C2)	
Water M	Marks (B1)		Hydrogen St	ılfide Odor (C	1)		Crayfish Burr	rows (C8)	
Sedimer	nt Deposits (B2)		Oxidized Rh	zospheres on	Living Root	s (C3)	Saturation Vi	sible on Aerial Imagery	(C9)
Drift Dep	posits (B3)		Presence of	Reduced Iron	(C4)		Stunted or St	ressed Plants (D1)	
Algal Ma	at or Crust (84)		Recent Iron	Reduction in 1	Filled Soils (C	26)	Geomorphic	Position (D2)	
Iron Dep	oosits (B5)		Thin Muck S	urface (C7)			FAC-Neutral	Test (D5)	
Inundati	on Visible on Aerial Im	agery (B7)	Gauge or W	ell Data (D9)					
Sparsely	y Vegetated Concave S	Surface (B8)	Other (Expla	in in Remarks	i)				
Field Observ	ations:								
Surface Wate		Yes No	X Depth (inches	>18"					
Water Table I		Yes No							
Saturation Pr		Yes No			Wetland	Hydrolog	gy Present?	Yes	No X
(includes cap									
Describe Rec	corded Data (stream ga	uge, monitoring	well, aerial photos, pre	evious inspec	tions), if avai	lable:			

Remarks:

				_		<u> </u>	January 4, 2017
	3						
			Project:	5680 -1	38kV Nickel to Warrer	n Station	
0	subtotal thi						
max 10 pi	t: subtotal	Metric 5. Special Wetlands Check all that apply and score as indicated					
		Bog (10) Fen (10) Old growth forest (10) Mature forested wetland (5) Lake Erie coastal/tributary wetland-r Lake Plain Sand Prairies (Oak Opening Relict Wet Prairies (10) Known occurrence state/federal thre Significant migratory songbird/water Category 1 Wetland. See Question 1 x Not Applicable (0)	estricted hydrologs) (10) atened or endan fowl habitat or u	ogy (5 ogered spo usage (10	ecies (10		
3	3						
		Metric 6. Plant communities, inte	•				
max 20 pt	subtotal	6a. Wetland Vegetation Communities. Score all present using 0 to 3 scale.	Vegetation Co			-0.41 (0.3474-	
		Aquatic bed			Absent or comprises Present and either co		
		1 Emergent	1				ality, or comprises a
		Shrub			significant part b		
		Forest Mudflats	2		Present and either co		nt part of wetland'! ality or comprises a smal
		Open water	-		part and is of hig		anty or comprises a smar
		Other	3				, or more, of wetland's
		6b. Horizontal (plan view) Interspersion			vegetation and is	s of high quality	<u> </u>
		Select only one. High (5)	Marrative Dec	!!	f Vanatatina Overlin		
		Moderately high (4)		cription o	f Vegetation Quality  Low spp diversity and	l/or predominant	e of nonnative or
		Moderate (3)	low			rant native specie	
		Moderately low (2)			Native spp are domin	ant component o	f the vegetation
		x Low (1)			although nonnat	ive and/or distur	bance tolerant native spr
		None (0) 6c. Coverage of invasive plants. Refer	mod				liversity moderate to
		to Table 1 ORAM long form for list. Add			threatened or en		o presence of rare
		or deduct points for coverage	-		A predominance of n		h nonnative spr
		Extensive >75% cover (-5)	high				e spp absent or virtually
		Moderate 25-75% cover (-3)	nign				l often, but no always
		Sparse 5-25% cover (-1)			the presence of i	rare, threatened,	or endangered spr
		Nearly absent <5% cover (0)  x Absent (1)	Mudflat and C	Inen Wat	er Class Quality		
		6d. Microtopography.	0		Absent < 0.1ha (0.247	acresi	· .
		Score all present using 0 to 3 scale.	1		Present very small an		common
		O Vegetated hummocks/tussocks			of marginal quali		
		O Coarse woody debris >15cm (6in) O Standing dead >25cm (10in) dbh	2		Present in moderate		
		O Amphibian breading pools			quality or in sma Present in moderate		
			3		and of highest qu	_	
18 lefer to the n	most recent ORAN	(max 100 pts)  1 Score Calibration Report for the scoring breakpoints between w	etland categories at th	ne following :	address: http://www.epa.sta	te.oh.us/dsw/401/401	ihtml

DUKE ENERGY NICKEL TO WARREN STATION

**APPENDIX** 

D

ENDANGERED, THREATENED, AND RARE SPECIES

### **Cori Jansing**

From:

susan\_zimmermann@fws.gov on behalf of Ohio, FW3 <ohio@fws.gov>

Sent:

Tuesday, January 24, 2017 2:44 PM

To:

Cori Jansing

Cc:

nathan.reardon@dnr.state.oh.us; kate.parsons@dnr.state.oh.us

Subject:

5680 Nickel to Warren Station Rebuild, Warren Co. OH



UNITED STATES DEPARTMENT OF THE INTERIOR
U.S. Fish and Wildlife Service
Ecological Services Office
4625 Morse Road, Suite 104
Columbus, Ohio 43230
(614) 416-8993 / Fax (614) 416-8994



TAILS# 03E15000-2017-TA-0598

Dear Ms. Jansing,

We have received your recent correspondence requesting information about the subject proposal. There are no federal wilderness areas, wildlife refuges or designated critical habitat within the vicinity of the project area. The following comments and recommendations will assist you in fulfilling the requirements for consultation under section 7 of the Endangered Species Act of 1973, as amended (ESA).

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

FEDERALLY LISTED SPECIES COMMENTS: All projects in the State of Ohio lie within the range of the federally endangered **Indiana bat** (*Myotis sodalis*) and the federally threatened **northern long-eared bat** (*Myotis septentrionalis*). In Ohio, presence of the Indiana bat and northern long-eared bat is assumed wherever suitable habitat occurs unless a presence/absence survey has been performed to document absence. Suitable summer habitat for Indiana bats and northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags ≥3 inches diameter at breast height (dbh) that have any exfoliating bark, cracks, crevices, hollows and/or cavities), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense

or loose aggregates of trees with variable amounts of canopy closure. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet (305 meters) of other forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat. In the winter, Indiana bats and northern long-eared bats hibernate in caves and abandoned mines.

Should the proposed site contain trees  $\geq 3$  inches dbh, we recommend that trees be saved wherever possible. If any caves or abandoned mines may be disturbed, further coordination with this office is requested to determine if fall or spring portal surveys are warranted. If no caves or abandoned mines are present and trees  $\geq 3$  inches dbh cannot be avoided, we recommend that removal of any trees  $\geq 3$  inches dbh only occur between October 1 and March 31. Seasonal clearing is being recommended to avoid adverse effects to Indiana bats and northern long-eared bats. While incidental take of northern long-eared bats from most tree clearing is exempted by a 4(d) rule (see <a href="http://www.fws.gov/midwest/endangered/mammals/nleb/index.html">http://www.fws.gov/midwest/endangered/mammals/nleb/index.html</a>), incidental take of Indiana bats is still prohibited without a project-specific exemption. Thus, seasonal clearing is recommended where Indiana bats are assumed present.

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

If there is a federal nexus for the project (e.g., federal funding provided, federal permits required to construct), no tree clearing should occur on any portion of the project area until consultation under section 7 of the ESA, between the Service and the federal action agency, is completed. We recommend that the federal action agency submit a determination of effects to this office, relative to the Indiana bat and northern long-eared bat, for our review and concurrence.

The proposed project lies within the range of **running buffalo clover** (*Trifolium stoloniferum*), a federally listed endangered species. This plant can be found in partially shaded woodlots, mowed areas (lawns, parks, cemeteries), and along streams and trails. Running buffalo clover requires periodic disturbance and a somewhat open habitat to successfully flourish, but cannot tolerate full-sun, full-shade, or severe disturbance. If suitable habitat is present, we recommend that surveys for this species be conducted by a trained botanist in May or June when the plant is in flower. The survey must be coordinated with this office in advance.

Due to the project type, size, and location, we do not anticipate adverse effects to any other federally endangered, threatened, proposed, or candidate species. Should the project design change, or during the term of this action, additional information on listed or proposed species or their critical

habitat become available, or if new information reveals effects of the action that were not previously considered, consultation with the Service should be initiated to assess any potential impacts.

These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), the ESA, and are consistent with the intent of the National Environmental Policy Act of 1969 and the Service's Mitigation Policy. This letter provides technical assistance only and does not serve as a completed section 7 consultation document. We recommend that the project be coordinated with the Ohio Department of Natural Resources due to the potential for the project to affect state listed species and/or state lands. Contact John Kessler, Environmental Services Administrator, at (614) 265-6621 or at john.kessler@dnr.state.oh.us.

If you have questions, or if we can be of further assistance in this matter, please contact our office at (614) 416-8993 or <a href="mailto:ohio@fws.gov">ohio@fws.gov</a>.

Sincerely,

Dan Everson

Field Office Supervisor

cc: Nathan Reardon, ODNR-DOW

Kate Parsons, ODNR-DOW



## Ohio Department of Natural Resources

JOHN R. KASICH, GOVERNOR

JAMES ZEHRINGER, DIRECTOR

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

March 6, 2017

Cori Jansing Cardno 11121 Canal Road Cincinnati, Ohio 45241

Re: 17-076; 5680 Nickel to Warren Station Rebuild - Threatened and Endangered Species Consultation Request

**Project:** The proposed project involves removal and replacement of approximately 5.72 miles of existing transmission.

Location: The proposed project extends from the City of Monroe to the City of Lebanon, Warren County, Ohio.

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

Natural Heritage Database: The Natural Heritage Database has no records at or within a onemile radius of the project area.

A review of the Ohio Natural Heritage Database indicates there are no records of state or federal listed plants or animals within the project area. We are unaware of any unique ecological sites, geologic features, animal assemblages, scenic rivers, state nature preserves, state or national parks, state or national forests, or national wildlife refuges within the project area. The review was performed on the project area you specified in your request as well as an additional one-mile radius. Records searched date from 1980.

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

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

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

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

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

http://wildlife.ohiodnr.gov/portals/wildlife/pdfs/licenses%20&%20permits/OH%20Mussel%20Survey%20Protocol.pdf

The project is within the range of the northern brook lamprey (*Ichthyomyzon fossor*), a state endangered fish, the goldeye (*Hiodon alosoides*), a state endangered fish, the mountain brook

lamprey (*Ichthyomyzon greeleyi*), a state endangered fish, the bigeye shiner (*Notropis boops*) a state threatened fish, the American eel (*Anguilla rostrata*), a state threatened fish, and the paddlefish (*Polyodon spathula*) a state threatened fish. The DOW recommends no in-water work in perennial streams at least April 15 to June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed, this project is not likely to impact these or other aquatic species.

The project is within the range of the eastern massasauga (Sistrurus catenatus), a state endangered and federally threatened snake species. The eastern massasauga uses a range of habitats including wet prairies, fens, and other wetlands, as well as drier upland habitat. Due to the location, the type of habitat present at the project site and within the vicinity of the project area, and the type of work proposed, this project is not likely to impact this species.

The project is within the range of the spotted turtle (*Clemmys guttata*), a state threatened species. This species prefers fens, bogs and marshes, but is also known to inhabit wet prairies, meadows, pond edges, wet woods, and the shallow sluggish waters of small streams and ditches. Due to the location, the type of habitat present at the project site and within the vicinity of the project area, and the type of work proposed, this project is not likely to impact this species.

The project is within the range of the Kirtland's snake (*Clonophis kirtlandii*), a state threatened species. This secretive species prefers wet fields and meadows. Due to the location, the type of habitat present at the project site and within the vicinity of the project area, and the type of work proposed, this project is not likely to impact this species.

The project is within the range of the northern harrier (*Circus cyaneus*), a state endangered bird. This is a common migrant and winter species. Nesters are much rarer, although they occasionally breed in large marshes and grasslands. Harriers often nest in loose colonies. The female builds a nest out of sticks on the ground, often on top of a mound. Harriers hunt over grasslands. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 15 to August 1. If this habitat will not be impacted, this project is not likely to impact this species.

The project is within the range of the Sloan's crayfish (*Orconectes sloanii*), a state threatened species. In-water work within isolated pools of perennial streams should be avoided as to not impact Sloan's crayfish that have become trapped within the pool. If there is no in-water work proposed, this project is not likely to impact this species.

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

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

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

http://water.ohiodnr.gov/water-use-planning/floodplain-management#PUB

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

John Kessler

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

City of Monroe & Warren County Flood Damage Prevention Regulations

### **Cori Jansing**

From:

Dan Arthur <arthurd@monroeohio.org>

Sent:

Wednesday, July 06, 2016 9:03 AM

To:

Cori Jansing

Subject:

RE: Special Flood Hazard Form

You do not have to fill out the flood hazard form since you are not doing any earth work and you are only removing and replacing existing facilities on your system.

Have a great day!

Thank You,

Daniel J. Arthur, P.E. Director of Public Works City of Monroe, Ohio Ph. 513.727.8953

From: Cori Jansing [mailto:cori.jansing@cardno.com]

Sent: Tuesday, July 5, 2016 4:18 PM

To: Dan Arthur <arthurd@monroeohio.org>
Subject: RE: Special Flood Hazard Form

Dan,

I contacted you earlier today regarding clarification of whether or not a Duke Energy line removal and structure replacement project would be considered exempt from filing a floodway permit within the City of Monroe. The project involves the removal of 13 existing structures and the replacement of 10 existing structures located within a designated FEMA 100 YR flood zone. I am having a hard time locating the City of Monroe's floodway regulations but have been able to determine that the project is considered exempt from floodplain permit requirements per Section 4.2 (c) of Butler County's Flood Damage Prevention Regulations. I just want to make sure we advise Duke on the correct level of coordination, whether a local stormwater permit and/or Construction in a Flood is needed, and what if anything else is necessary for transmission line work in your jurisdiction.

Thanks for your help,

Cori

### Cori Jansing

SENIOR STAFF SCIENTIST ENGINEERING & ENVIRONMENTAL SERVICES DIVISION CARDNO

Office (+1) 513-489-2402 Ext 112 Mobile (+1) 513-833-6392 Fax (+1) 513-489-2404 Address 11121 Canal Road, Cincinnati, OH 45241 Email <a href="mailto:cori.jansing@cardno.com">cori.jansing@cardno.com</a> Web <a href="https://www.cardno.com">www.cardno.com</a>

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email the sender by replying to this message and immediately delete and destroy any copies of this email and any attachments. The views or opinions expressed are the author's own and may not reflect the views or opinions of Cardno.

From: Dan Arthur [mailto:arthurd@monroeohio.org]

Sent: Friday, July 01, 2016 2:39 PM

To: Cori Jansing < cori.jansing@cardno.com >

Subject: Special Flood Hazard Form

Cori,

Attached is the special flood hazard form for the City of Monroe. Please fill this out and scan it back to us for this project. If you have any questions, please do not hesitate to contact me.

Have a happy 4th of July!

Thank You,

Daniel J. Arthur, P.E. Director of Public Works City of Monroe, Ohio Ph. 513.727.8953

### **Cori Jansing**

From:

Spurling, Jerry <Jerry.Spurling@co.warren.oh.us>

Sent:

Thursday, January 19, 2017 10:04 AM

To:

Cori Jansing

Subject:

RE: Duke Energy\_Construction or Development in a Flood Hazard Permit

Ms. Jansing,

No flood zone permits are required within Warren County for the work you have described.

Thank You.

*Jerry Spurling*Warren County
Chief Building Official
513-695-2650

From: Cori Jansing [mailto:cori.jansing@cardno.com]

Sent: Thursday, January 19, 2017 9:51 AM

To: Spurling, Jerry

Subject: Duke Energy\_Construction or Development in a Flood Hazard Permit

Mr. Spurling,

I am currently working on a Duke Energy Rebuild Project (overhead power line) that contains eleven existing structures located in a designated FEMA 100 YR flood zone that will be removed and replaced in place within the original footprint located in Turtle Creek Township. This is also a location where the City of Monroe also has jurisdiction and has previously considered the activities exempt from City of Monroe's floodway regulations. Can you please confirm that the project in question is exempt from the Warren County Construction or Development in a Flood Hazard Area permit?

If you have any questions please don't hesitate to contact me at (513)833-6392 or by email cori.jansing@cardno.com.

Best,

Cori

### Cori Jansing

SENIOR STAFF SCIENTIST ENGINEERING & ENVIRONMENTAL SERVICES DIVISION CARDNO



Office (+1) 513-489-2402 Ext 112 Mobile (+1) 513-833-6392 Fax (+1) 513-489-2404 Address 11121 Canal Road, Cincinnati, OH 45241 Email <a href="mailto:cori.jansing@cardno.com">cori.jansing@cardno.com</a> Web <a href="https://www.cardno.com">www.cardno.com</a>

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**Attachment I-**

**Property Owner Notification Letter** 





December 27, 2017

PROPERTY OWNER ADDRESS

Re: Notice of Electric Transmission Line Project

Dear Property Owner or Tenant

Duke Energy Ohio, Inc., (Duke Energy Ohio) is proposing an electric transmission line project in your area. This project will allow the rebuilding of an existing 138-kilovolt (kV) line in order to increase its capacity for transmission of electricity. The project will extend approximately 5.8 miles and is proposed to begin at Duke Energy Ohio's Warren Substation, located at W. 765 Turtle Creek Union Road, in Lebanon, Ohio. The project ends at Duke Energy Ohio's Nickel Substation at 895 Union Road in Monroe, Ohio. A map of the project area is included with this letter.

A Letter of Notification to construct, operate and maintain this facility is now pending before the Ohio Power Siting Board (OPSB) in Columbus, Ohio. Interested persons may participate in the process by filing comments in the docket, or by seeking permission to formally intervene in the case. You also may request notification of the filing documents in the case by signing up with the OPSB for electronic notice of filings, or by sending a letter to the OPSB to indicate your interest. The case may be found on the OPSB's website, identified as Case No. 17-2500-EL-BN. The OPSB can be reached by email at **contactOPSB@puc.state.oh.us**, by phone, at 866.270.6772, or by mail addressed to: The Ohio Power Siting Board, 180 East Broad Street, Columbus, OH 43215.

A copy of the application is available for public inspection at the main office of Duke Energy Ohio, at 139 East Fourth St., Cincinnati, Ohio, and at the offices of the OPSB, 180 East Broad St., Columbus, Ohio 43215. It also is available on the Duke Energy Ohio website: www.duke-energy.com/transmission-projects, and on the Ohio Power Siting Board's website: http://www.opsb.ohio.gov/.

Thank you for working with us as we move forward with this important project to meet your energy needs.

Sincerely,

Duke Energy Ohio, Inc.

This foregoing document was electronically filed with the Public Utilities

**Commission of Ohio Docketing Information System on** 

12/20/2017 12:58:47 PM

in

Case No(s). 17-2500-EL-BLN

Summary: Application of Duke Energy 5680-138kV Nickel to Warren Rebuild, Part 3 electronically filed by Carys Cochern on behalf of Kingery, Jeanne W Ms.