#### Chiefa

EPA 4520

## Qualitative Habitat Evaluation Index and Use Assessment Field Sheet



06/16/06

Stream & Location: W-00 - Blue Creek RM: Date: 6/1/5/06/3	
Scorers Full Name & Affiliation: MCV - West wood	
River Code: STORET #: Lat./Long.: 18 . Office verified Location	
1] SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present Check ONE (Or 2 & average)	
BEST TYPES POOL RIFFLE OTHER TYPES POOL RIFFLE ORIGIN QUALITY    BLDR /SLABS [10]	
NUMBER OF BEST TYPES: 4 or more [2] sludge from point-sources)  SHALE [-1]  Comments  (Score natural substrates; ignore   RIP/RAP [0]   Maximum 20  SHALE [-1]   NONE [1]	
2] INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.    UNDERGUT BANKS [1]	
Cover Maximum 20	
3] CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average)  SINUOSITY DEVELOPMENT CHANNELIZATION STABILITY  HIGH [4] EXCELLENT [7] NONE [6] HIGH [3]  MODERATE [3] GOOD [5] RECOVERED [4] MODERATE [2]	
Channel Door [1] Poor [1] Recent or no recovery [1] Channel Maximum 20	
4] BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average)  River right looking downstream RIPARIAN WIDTH FLOOD PLAIN QUALITY  EROSION	
Comments  Maximum 10	
Solution   Pool   Glide And Riffle   Run Quality	
Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Check ONE (Or 2 & average).  RIFFLE DEPTH RUN DEPTH RIFFLE / RUN SUBSTRATE RIFFLE / RUN EMBEDDEDNESS  BEST AREAS > 10cm [2]	
6] GRADIENT ( 3 ft/mi) Very Low Low [2-4] %POOL: 20 %GLIDE: 40 Gradient Maximum ( 25 mi²) High-very High [10-6] %RUN: 40 %RIFFLE: 0	

WADE LINE	LACII	iomment RE: Reach consistency/ Is	reach typical of steam?, Recreation	s/Observed - Inferred, Other	Sampling observations, Concerns, Acc	ess directions, etc.
DISTANCE   0.5 Km   0.2 Km   0.15 Km   0.12 Km	CLARITY Sample past— Zas 20 cm 13-40 cm 10-70 cm 10 cm 1st cm 25 cm 26 cm 1cm cm 27 cm 27 cm 27 cm 28 cm 28 cm	BJAESTHETICS    NUISANCE ALGAE   INVASIVE MACROPHYTES   EXCESS TURBIDITY   DISCOLORATION   FOAM / SCUM   OIL SHEEN   TRASH / LITTER   NUISANCE ODOR   SLUDGE DEPOSITS   CSOS/SSOS/OUTFALLS  ATION AREA DEPTH POOL:   >100ft2   >3ft	D] MAINTENANCE PUBLIC / PRIVATE / BOTH / NA ACTIVE / HISTORIC / BOTH / NA YOUNG-SUCCESSION-OLD SPRAY / SNAG / REMOVED MODIFIED / DIPPED OUT / NA LEVEED / ONE SIDED RELOCATED / CUTOFFS MOVING-BEDLOAD-STABLE ARMOURED / SLUMPS ISLANDS / SCOURED IMPOUNDED / DESICCATED FLOOD CONTROL / DRAINAGE	Circle some & COMMENT	E] ISSUES  WWTP / CSO / NPDES / INDUSTRY  HARDENED / URBAN / DIRT&GRIME CONTAMINATED / LANDFILL  BMPs-CONSTRUCTION-SEDIMENT LOGGING / IRRIGATION / COOLING BANK / EROSION / SURFACE FALSE BANK / MANURE / LAGOON WASH H <sub>2</sub> 0 / TILE / H <sub>2</sub> 0 TABLE ACID / MINE / QUARRY / FLOW NATURAL / WETLAND / STAGNANT PARK / GOLF / LAWN / HOME ATMOSPHERE / DATA PAUCITY	F] MEASUREMENTS  X width X depth max, depth T bankfull Width bankfull X depth W/D ratio bankfull max, depth floodprone x² width entrench, ratio Legacy Tree:

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

SITE NAME/LOCATION  WOLLD SITE NUMBER RIVER BASIN Blue Cheek DRAINAGE AREA (mil)	
LENGTH OF STREAM REACH (R) 200 LAT. LONG: RIVER CODE RIVER MILE DATE 4-15-13 SCORER MCV COMMENTS ROLD COMMENTS ROLD COMMENTS	• 05
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Ins	tructions
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OF NO REMODIFICATIONS:	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate present, Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.  TYPE    D	HHEI Metric Points Substrate Max = 40 3 BRAZIONE
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts of storm water pipes). (Check ONLY one box):  30 centimeters [20 pts]   >5 cm - 10 cm [15 pts]  >22.5 = 30 cm [30 pts]   <5 cm [5 pts]  >10 - 22.5 cm [25 pts]   NO WATER OR MOIST CHANNEL [0 pts]	Pool Depth Max = 30
COMMENTS   MAXIMUM POOL DEPTH (centimeters):	Bankfull Width Max=30
This information <u>must</u> also be completed	and the second
RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream A RIPARIAN WIDTH  L R (Per Bank) L R (Most Predominant per Bank) L R (Conservation Tillage Immature Forest, Shrub or Old Field  Narrow <5m None  Residential, Park; New Field  Open Pasture, Row Grop Mining or Construction	
COMMENTS  FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS  Modst Channel, isolated pools, no flow (Intermitten Dry channel, no water (Ephemeral)	
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):   None	
STREAM GRADIENT ESTIMATE  Flat (0.5 m/100 m)	(00 ft) .

ADDITIONAL STREAM INFORMATION (This information Must Also be Comp	leted):
QHEI PERFORMED? - TYPES ONO QHEI Score 18 (If	Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
☐ WWH Name:	
CWH Name:	
☐ ÉWH Name:	
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WAT	
USGS Quadrangle Name:NRCS S	Soil Map Page: NRCS Soil Map Stream Order
)	
MISCELLANEOUS 4-1C	- 17 26
Base Flow Collaborate (174).	- 13 Quantity: _ 25
Photograph Information: See affacted Report  Elevated Turbidity? (Y/N):	
	no. or id. and attach results) Lab Number:
A STATE OF THE PROPERTY OF THE	**
- (A) A - A) B - A - B - B - B - B - B - B - B - B -	I (S.U.)Conductivity (μmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please ex	xplain:
Additional comments/description of pollution impacts:  BIOTIC EVALUATION	
Performed? (Y/N): (If Yes, Record all observations. Voucher collection ID number. Include appropriate field data sheets f	ons optional. NOTE: all voucher samples must be labeled with the site from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macro Comments Regarding Biology	? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)
DRAWING AND NARRATIVE DESCRIPTION OF ST Include Important landmarks and other features of interest for site ev	aluation and a narrative description of the stream's location
FLOW Ditch	
County Road	87
	A 2-4-4

AL	-	39	
Of	(3)	Y	4

QHEI Score:	(18)

Stream & Location:	W-01	Ditch	F	RM: Date	:41 151 96 13
Stream & Location	W 01	Scorers Full Na	me & Affiliation:	mcv- wes	Lucal
River Code: -	- STORET#		ona.:	18 .	Office verified location
11 SUBSTRATE Check	ONLY Two substrate TYPE I	BOXES;		NE (Or 2 & average)	
estima:	OOL RIFFLE OTHER  HARD DETR DIMUCK SILT CONTROL OF CONT	TYPES POOL RIFFLE PAN [4] TUS [3] [2] [2]	ORIGIN  LIMESTONE [1]  TILLS [1]  THE LANDS [0]	QU HEAV SILT MODI	ERATE [-1] Substrate MAL [0] [1] NSIVE [-2] ERATE [-1] MAL [0]  Substrate  Maximum 20
- It - O I II-best socility in	GETATION [1] RO	its (e.g., very large boulder eep / fast water, or deep, v DES > 70cm [2] OTWADS [1]	rs in deen or fast water	large Check ONI pools. EXTENS RS [1] MODER ES [1] SPARSE	MOUNT E (Or 2 & average) E VE > 75% [11] ATE 25.75% [7] E 5.<25% [3] ABSENT < 5% [1]  Cover  Maximum 20
SINUOSITY DEV	XCELLENT [7] NONE SOOD [5] REGO AIR [3] REGO	NNELIZATION	STABILITY  HIGH [3]  MODERATE [2]  LOW [1]	ī	Channel Maximum 20
A] BANK EROSION A River right looking downstree EROSION NONE / LITTLE [3] MAL MODERATE [2] HEAVY / SEVERE [1] Comments	R   WIDE > 50m [4]     MODERATE 10-50     NARROW 5-10m [2	TH LR FLO LR FOREST, S n [3] SHRUB OR 2] RESIDENT 5m [1] PRESIDENT	OD PLAIN QUALIT WAMP [3] OLD FIELD [2] AL, PARK, NEW FIELD	TY □ □ conserv □ □ urban of	ATION TILLAGE [1] R INDUSTRIAL [0] ONSTRUCTION [0] ant land use(s)
MAXIMUM DEPTH  Check ONE (ONLY!)  □ > 1m [6] □ 0.7 < 1m [4] □ 0.4 < 0.7m [2]  ■ 0.2 < 0.4m [1] □ < 0.2m [0]  Comments	Check ONE (Or 2 & a  POOL WIDTH > RIFFLE  POOL WIDTH = RIFFLE  POOL WIDTH > RIFFLE	DTH CUR average) C WIDTH [2]	RENT VELOCITY heck ALL that apply TIAL [-1] M SLOW [1] ST [1] INTERSTIT INTERMIT INTERMIT INTERMIT INTERMIT INTERMIT INTERMIT	Prim Secon (circle one lifes,	ttion Potential ary Contact and comment on back)  Pool / Current Maximum 12
of riffle-obligate RIFFLE DEPTH □ BEST AREAS > 10cm [ □ BEST AREAS 5-10cm [ □ BEST AREAS < 5cm [metric=	RUN DEPTH 2  MAXIMUM > 50cm [ 1] MAXIMUM < 50cm [	eas must be large en Check ONE (Or 2 & av RIFFLE / RUN S 2] STABLE (e.g., Cobb j] MOD, STABLE (e.g. UNSTABLE (e.g., Fi	erage). IUBSTRATE RIFF ble, Boulder) [2] , Large Gravel) [1]	a population FLE / RUN EMBE I NONE [2] I LOW [1] I MODERATI	FIOI Riffle /
6] GRADIENT ( 3) DRAINAGE ARE	ft/mi) VERY LOW MODERATE I	6-10]	%POOL: (**) %RUN: (**)	%GLIDE: 100 %RIFFLE: Ö	Gradient Maximum 10

A] SAMPLE	ED REACH C	omment RE: Reach consistency/ Is	s reach typical of steam?, Recreation	n/Observed - Inferred, Other	Sampling observations, Concerns, Acc	ess directions, etc.
METHOD	STAGE					
BOAT WADE L LINE OTHER	HIGH   -					
DISTANCE	BLOW B					
0.5 Km	CLARITY	B] AESTHETICS	D] MAINTENANCE	Circle some & COMMENT	E] ISSUES	F] MEASUREMENTS
0.2 Km 0.15 Km	EN se com	NUSANGE ALGAE   NVASIVE MACROPHYTES   EXCESS TURBILITY   DISCOLORATION    FOAM / SCUN    OIL SHEEN:   TRASH / LITTER   NUSANCE ODOR   SLUDGE DEPOSITS   CSOLISSOLIOUTEALLS   ATION AREA DEPTH   POOL:   >100ft2   >3ft	PUBLIC / PRIVATE / BOTH / NA ACTIVE / HISTORIC / BOTH / NA YOUNG-SUCCESSION-OLD SPRAY / SNAG / REMOVED MODIFIED / DIPPED OUT / NA LEVEED / ONE SIDED RELOCATED / CUTOFFS MOVING-BEDLOAD-STABLE ARMOURED / SLUMPS ISLANDS / SCOURED IMPOUNDED / DESICCATED FLOOD CONTROL / DRAINAGE		WWTP / CSO / NPDES / INDUSTRY HARDENED / URBAN / DIRT&GRIME CONTAMINATED / LANDFILL BMPS-CONSTRUCTION-SEDIMENT LOGGING / IRRIGATION / COOLING BANK / EROSION / SURFACE FALSE BANK / MANURE / LAGOON WASH H <sub>2</sub> 0 / TILE / H <sub>2</sub> 0 TABLE ACID / MINE / QUARRY / FLOW NATURAL / WETLAND / STAGNANT PARK / GOLF / LAWN / HOME ATMOSPHERE / DATA PAUCITY	x width x depth max depth x bankfull width bankfull X depth W/D ratio bankfull max, depth floodprone x² width entrench, (allo Legacy Tree:

#### ChoEPA Primary Headwater Habitat Evaluation Form

1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
SITE NAME/LOCATION	-75
LENGTH OF STREAM REACH (ft) 200 LAT. LONG. RIVER CODE RIVER MILE	- 13
DATE 4-15-13 SCORER MCV COMMENTS Read ditch	23. 1232 21.
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru	Activities to the con-
STREAM CHANNEL NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERING RECENT OR NO RECOVERED RECOVERING RECOVERING RECENT OR NO RECOVERED RECOVERING REC	IVERY
1. SUBSTRATE (Estimate percent of every type of substrate present, Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HHEL
TYPE    PERCENT   TYPE   PERCENT	Metric Points
□ □ BOULDER (>256 mm) [16 pts] □ □ LEAF PACKWOODY DEBRIS [3 pts] □ □ BEDROCK [16 pt] □ □ FINE DETRITUS [3 pts]	Substrate
☐ ☐ COBBLE (65-256 mm) [12 pts] ☐ ☐ CLAY or HARDPAN [0 pt]	Max = 40
□ □ GRAVEL (2-64 mm) [9 pts]       □ □ MUCK [0 pts]         □ □ SAND (<2 mm) [6 pts]	3
Total of Percentages of (A) (B) (B) (B) (B)	A+B
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES:	
<ol> <li>Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes). (Check ONLY one box):</li> </ol>	Pool Depth Max = 30
□ > 30 centimeters [20 pts]	Wax = 50
NO.WATER OR MOIST CHANNEL [0 pts]	
COMMENTS MAXIMUM POOL DEPTH (centimeters):	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):  3. Check ONLY one box):  4. Check ONLY one box):  4. Check ONLY one box):  4. Check ONLY one box):  5. Check ONLY one box):  5. Check ONLY one box):  5. Check ONLY one box):  6. Check ONLY one box):  7. Check ONLY one box):  8. Check ONLY one box):  8. Check ONLY one box):  9. Check ONLY one box:	Bankfull Width
□ >15m +3.0m (>4'8'-9'7')[20 pts]	Max=30
COMMENTS AVERAGE BANKFULL WIDTH (meters)	
"Milyaria Person addition are and a province and an ex-	Postaron
This information <u>must</u> also be completed  RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream A	
RIPARIAN ZONE AND FLOODPLAIN QUALITY & NOTE: River Left (L) and Right (R) as looking downstream A  RIPARIAN WIDTH FLOODPLAIN QUALITY  L R (Per Bank) L R (Most Predominant per Bank) L R	
RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream A  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  L R (Most Predominant per Bank)  L R  Wide >10m  Mature Forest, Wetland  Moderate 5-10m  Moderate 5-10m  Immature Forest, Shrub or Old	
RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream A  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  L R (Most Predominant per Bank)  L R  Wide ≽10m  Mature Forest, Wetland  Immature Forest, Shrub or Old  Field  Narrow <5m  Residential, Park, New Field  Open Pasture, Row	
RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream A RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank) L R (Most Predominant per Bank) L R  Wide >10m Mature Forest, Wetland  Wide >10m Urban or Industrial  Field  Narrow <5m Residential, Park, New Field  Residential, Park, New Field  None  Fenced Pasture	
RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream A RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) L R (Most Predominant per Bank) L R (Conservation Tillage Mide >10m Mature Forest, Wetland D D Urban or Industrial Field Narrow <5m Residential, Park; New Field Open Pasture, Row Crop None COMMENTS  Residential Park; New Field Mining or Construction	
RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream A RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank) L R (Most Predominant per Bank) L R  Wide >10m Mature Forest, Wetland  Wide >10m Urban or Industrial  Field  Narrow <5m Residential, Park, New Field  Residential, Park, New Field  None  Fenced Pasture	
RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L. R. (Per Bank)  Wide >10m	
RIPARIAN ZONE AND FLOODPLAIN QUALITY  RIPARIAN WIDTH  FLOODPLAIN QUALITY  L R (Per Bank)  Wide >10m	

ADDITIONAL STREAM INFORMATION (This Info		
QHEI PERFORMED? - Yes O No	QHEI Score (If Yes, Attach Comple	eted QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	Diefone	ce from Evaluated Stream
OWH Name:		
J CWH Name:	Distanc	e from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS,	INCLUDING THE ENTIRE WATERSHED AREA. C	LEARLY MARK THE SITE LOCATION
USGS Quadrangle Name:	NRCS Soil Map Page:	NRCS Soil Map Stream Order
county: Paulding	Township / City:	
MISCELLANEOUS	E11 11 12	25
( 11	st precipitation: <u>34-15-1</u> 3 Qua	ntity:
Photograph Information: See a Hac		
	(% open): 100%	Co. B.A. Ch. Militabate
Were samples collected for water chemistry? (Y/N		
Field Measures: Temp (°C)Dissolver	l Oxygen (mg/l) pH (S.U.)	Conductivity (Hininos/cm)
Is the sampling reach representative of the stream	(Y/N) If not, please explain:	
2	4 4 4	
Additional comments/description of pollution impa	icts:	
		V
ID number. Inclu	observations. Voucher collections optional. NOTE: le appropriate field data sheets from the Primary Her Salamanders Observed? (Y/N) Vou	adwater Habitat Assessment Manual)
Frogs or Tadpoles Observed? (Y/N) Vouci	er? (Y/N) Aquatic Macroinvertebrates Obse	rved? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:	- Walter State of	
DRAWING AND NARRATIV	TE DESCRIPTION OF STREAM REACH  Teatures of interest for site evaluation and a nar  Crof	H (This <u>must</u> be completed): rative description of the stream's location
FLOW	Ditch	
FLOW •		
C	ounty Road 9	25
June 20, 2008 Revision	PHWH Form Page - 2	

2)

#### ChicERA

QHEI Score:	(16)
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Stream & Location:	X-01		RM: Date: 4   /SI 9613
		orers Full Name & Affiliation:	000
River Code:	STORET #:	Lat./ Long.: (NAD 83 - decimal °)	/8 Office verified location
estima	ETRICES DE LE ETTE DE LE CONTROL DE LE CONTR	POOL RIFFLE ORIGIN    UMESTONE [1]   TILLS [1]   WETLANDS [0]   HARDPAN [0]   SANDSTONE [0]	□ NONE [1]
quality; 3-Highest quality in	quality; 2-Moderate amounts, but not a moderate or greater amounts (e.g., v well developed rootwad in deep / fast [1] POOLS > 70.  GETATION [1] ROOTWADS	[1] AQUATIC MACROPHY	check-ONE (Or 2 & average) If pools.  EXTENSIVE >75% [11]  MODERATE 25-75% [7]  TES [1]  SPARSE 5-<25% [3]
SINUOSITY DEV  HIGH [4]  MODERATE [3]  SINUOSITY DEV  LOW [2]  SINUOSITY DEV	COLOGY Check ONE in each categor ELOPMENT CHANNELIZ XCELLENT [7] NONE [6] OOD [5] RECOVERED [ AIR [3] RECOVERING OOR [1] RECENT OR NO	ZATION STABILITY    HIGH [3]  4]   MODERATE [2]	Channel Maximum 20
4] BANK EROSION A River right looking downstrea  EROSION NONE / LITTLE [3] MODERATE [2] A HEAVY / SEVERE [1]  Comments	RIPARIAN WIDTH    WIDE > 50m [4]   WIDE > 50m [3]   WIDE	SHRUB OR OLD FIELD [2]	ITY CONSERVATION TILLAGE [1] CURBAN OR INDUSTRIAL [0] CURBAN OR INDUSTR
5] POOL / GLIDE AN MAXIMUM DEPTH Check ONE (ONLY!)    > 1m [6]   0.7 < 1m [4]   0.4 < 0.7 m [2]   > 0.2 < 0.4 m [1]   < 0.2 m [0]  Comments	D RIFFLE / RUN QUALITY CHANNEL WIDTH Check ONE (Or 2 & average) □ POOL WIDTH > RIFFLE WIDTH 12 □ POOL WIDTH = RIFFLE WIDTH 14 □ POOL WIDTH > RIFFLE WIDTH 10	I □ VERY FAST [1] ☐ INTERST	Primary Contact Secondary Contact (circle one and comment on back)  Pool /
of riffle-obligate RIFFLE DEPTH BEST AREAS > 10cm [2] BEST AREAS 5-10cm [1] BEST AREAS < 5cm [metric=0]	species: Check RUN DEPTH RIF    MAXIMUM > 50cm [2] STAI   MAXIMUM < 50cm [1] MOD   UNS	BLE (e.g., Cobble, Boulder) [2] ). STABLE (e.g., Large Gravel) [1] TABLE (e.g., Fine Gravel, Sand) [0]	FLE / RUN EMBEDDEDNESS    NONE [2]   Low [1]   MODERATE [0] Riffle / Run   EXTENSIVE [-1] Maximum 8
6] GRADIENT (3 DRAINAGE AREA	ft/mi)	,ur 602.	) %GLIDE: 100 Gradient Maximum 10

AJ SAMPLED REAC Check ALL that app METHOD STA BOAT, 10 to 10	y – GE	omment RE: Reach consistency/ Is	reach typical of steam?, Recreation	/ Observed - Inferred, Other	/ Sampling observations, Concerns, Acc	ess directions, etc.
0.5 Km	RITY  PROFILE AND THE PROFILE	BJAESTHETICS  NUISANCE ALGAE INVASIVE MACROPHYTES EXCESS TURBIDITY DISCOLORATION FOAM / SCUM OIL SHEEN TRASH / LITTER NUISANCE ODOR SLUDGE DEPOSITS CSOS/SSOS/OUTFALLS  ATION AREA DEPTH POOL: \( \square\) > 100ft2 \( \square\) > 3ft	DJ MAINTENANCE PUBLIC / PRIVATE / BOTH / NA ACTIVE / HISTORIC / BOTH / NA YOUNG-SUCCESSION-OLD SPRAY / SNAG / REMOVED MODIFIED / DIPPED OUT / NA LEVEED / ONE SIDED RELOCATED / CUTOFFS MOVING-BEDLOAD-STABLE ARMOURED / SLUMPS ISLANDS / SCOURED IMPOUNDED / DESICCATED FLOOD CONTROL / DRAINAGE	Circle some & COMMENT	EJ ISSUES  WWTP / CSO / NPDES / INDUSTRY HARDENED / URBAN / DIRT&GRIME CONTAMINATED / LANDFILL BMPS-CONSTRUCTION-SEDIMENT LOGGING / IRRIGATION / COOLING BANK / EROSION / SURFACE FALSE BANK / MANURE / LAGOON WASH H <sub>2</sub> 0 / TILE / H <sub>2</sub> 0 TABLE ACID / MINE / QUARRY / FLOW NATURAL / WETLAND / STAGNANT PARK / GOLF / LAWN / HOME ATMOSPHERE / DATA PAUCITY	FI MEASUREMENTS  T width T depth T depth T bankfull width bankfull T depth W/D ratio bankfull max depth floodprone x² width entrench ratio Legacy Tree:

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

	4111		
	-	-	
	1	- 4	
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,	1.00		,
,	-		

SITE NAME/LOCATION SITE	NUMBER	RIVER BASIN_	Blue Ch	aL De	AINAGE AREA (mi²)	2
LENGTH OF STREAM REACH (#)	200 LAT	LONG:	RIVE	R CODE	RIVER MILE	· · · · · · · · · · · · · · · · · · ·
DATE SCORER	mcu o	OMMENTS	5 Ditc	$\dot{p}$		
NOTE: Complete All Items (	Entra de reconsideration de la companya de la comp	and the same of the same of the same of the same	The second second second second second second	14 14 14 14 14 14 14 14		
STREAM CHANNEL [	JNONE/NATURAL CH	ANNEL LJ RECOV	ERED & RECO	VERING [	RECENT OR NO RECO	OVERY
the state of the same of						
<ol> <li>SUBSTRATE (Estimate p (Max of 40). Add total num</li> </ol>	percent of every type of oper of significant substra	substrate present, o te types found (Max	theck ONLY two prof 8). Final metric s	edominant si core is sum c	ibstrate TYPE boxes of boxes A & B.	HHEI
TYPE BLDR SLABS [16 pts	PERCENT	TYPE	[3 pt]		PERCENT	Metric Points
BOULDER (>256 mm) BEDROCK [16 pt]	[16 pts]	O D LEA	F PACKWOODY D		5]	Substrate
□ □ COBBLE (65-256 mm)		OO   CLA	Y or HARDPAN [0			Max = 40
GRAVEL (2-64 mm) [1	CONTRACTOR DESIGNATION OF THE PARTY OF THE P		CK [0 pts] IFICIAL [3 pts]		<del></del>	3
Total of Percentage	* ************************************	(A)	100000000000000000000000000000000000000		(B) (B)	DRIVER STREET
Bidr Slabs, Boulder, Cobb SCORE OF TWO MOST PREDOM	1 1 1 1 2 1 1 2 1 1 2 1 1 1 1 1 1 1 1 1		TOTAL NUMBER	AÈ CHECTE	131	A+B
2. Maximum Pool Depth (M		ny noora Dedeler elementen elementen elementen	4-1-1-1-1-1-1-1-1-1-1-1-1		Pedededededededededede	The constitution of the
evaluation. Avoid plunge p > 30 centimeters [20 pts]	pools from road culverts o	or storm water pipes).	(Check ONLY on	e box):	con at the time of	Pool Depth Max = 30
> 22.5 - 30 cm [30 pts]		<b>⊠</b> _ < 5	cm - 10 cm [15 pts cm [5 pts]			1<
and the same of th		AND LINE	WATER OR MOIS	ST: CHANNEL	[0 pts] /S	
COMMENTS					entimeters):	
3. BANK FULL WIDTH (Mea > 4.0 meters (> 13') [30 pts]			(Check) 0 m = 1.5 m (> 3' 3"	ONLY one bo - 4' 8") [15 pt	ox): s]	Bankfull Width
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7' - 13 > 1.5 m - 3.0 m (> 4' 8" - 9'		اک تا	.0 m (≤ 3' 3") <b>[</b> 5 pts			Max=30
COMMENTS	Actually and the second		AVERAGE BAN	KFULL WID	TH (meters)	IS
					en governu	Description
	and floodplain qua	Information must a	so be completed iver Left (L) and Ri	ght (R) as lo	king downstream☆	
RIPARIAN WIDT  L. R. (Per Bank)	H FLOOD L R	PLAIN QUALITY (Most Predominan		î. R		
☐ ☐ Wide >10m	QQ	Mature Forest, We Immature Forest,	tland		Conservation Tillage	
Moderate 5-10n	V 100 Mar	Field			Urban or Industrial	
Narrow <5m	00	Residential, Park,	New Field	-	Open Pasture, Row Crop	
OMMENTS	0.0 	Fenced Pasture	<u>pagaga paga</u>		Mining or Construction	
FLOW REGIME (A	At Time of Evaluation) (0	Check ONLY one box				
<ul> <li>Subsurface flow with</li> </ul>	h isolated pools (Interstit	(al)	Moist Channel, Dry channel, no		ls, no flow (Intermittent) emeral)	
COMMENTS	en le el le l'ancière les l'anti-anti-			<del>~:</del>		
None	ber of bends per 61 m (20	00 ft) of channel) (C	neck ONLY one bo		3,0	
0,5	☐ 1,5	Ö	2.5	Q	>3	
STREAM GRADIENT EST		derate (2 t/100 ft)	Moderate to 8	Severe	Severe (10 m/10)	o ms
					1 + + + + + + + + + + + + + + + + + + +	2.76

ADDITIONAL STREAM INFORMATION (This Information	ation Must Also be Completed):
QHEI PERFORMED? - EYes No QI	HEI Score (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WWH Name:	Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
	Distance from Evaluated Stream
	LUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
/ )	NRCS Soil Map Page: NRCS Soil Map Stream Order
county: Paulding	Township / City:
MISCELLANEOUS	1/1/2 13
( -1) 1	recipitation: 4-15-13 quantity: 35
Photograph Information: See affect	V
	open):
. The first of the control of the co	(Note lab sample no. or id. and attach results) Lab Number:
	ygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Ya	(N) Y If not, please explain:
Additional comments/description of pollution impacts:	
Additional communicacion of baseline	
the decreased the secretarial and the	<u> Anna an an an Airm an </u>
BIOTIC EVALUATION	
Performed? (Y/N): // (If Yes, Record all obs	ervations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site
ID number. Include ap	opropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) Voucher? (Y/N)	Salamanders Observed? (Y/N) Voucher? (Y/N)
Frogs or Tadpoles Observed? (Y/N) Voucher?	(Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology	
DRAWING AND NARRATIVE D	DESCRIPTION OF STREAM REACH (This must be completed):
	ures of interest for site evaluation and a narrative description of the stream's location
*	
	Croppel field
	01/
FLOW	Ditch
	1.
1/1	
/\ / / '	Chopped first
/ V /	- The title
,	® . <b>¥</b> 1

#### **ChieEPA**

QHEI	Score:		16	1
		0	THE REAL PROPERTY.	

Stream & Location:	X-03 RM: Date: 41/519613
River Code: -	Scorers Full Name & Affiliation: MCV - WestwardSTORET #: Lat./ Long.: 18 . Office verified location  location
11 SUBSTRATE Check	ONLY Two substrate TYPE BOXES:
BEST TYPES  BEST TYPES  BEDR /SLABS [10]  BOULDER [9]  GOBBLE [8]  GRAVEL [7]  SAND [6]  BEDROCK [5]	Check ONE (Or 2 & average) OTHER TYPES OTH
quality: 3-Highest quality	SETATION [1] O ROOTWADS [1] AQUATIC MACROPHYTES [1] (74)SPARSE 5-<25% [3]
SINUOSITY DEV	CLOGY Check ONE in each category (Or 2 & average)  ELOPMENT CHANNELIZATION STABILITY  GELLENT [7] NONE [6] HIGH [3]  DOD [5] RECOVERED [4] MODERATE [2]  IR [3] RECOVERING [3]  FOR [1] RECENT OR NO RECOVERY [1]
4] BANK EROSION	ND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average)
River right looking downstre  REROSION  NONE / LITTLE [3]  MODERATE [2]  HEAVY / SEVERE [1]  Comments	RIPARIAN WIDTH  RIPARIAN WIDTH
MAXIMUM DEPTH Check ONE (ONLY!) □ > 1 m [6] □ 0.7 < 1 m [4]	RIFFLE / RUN QUALITY   CHANNEL WIDTH   CURRENT VELOCITY   Check ONE (Or 2 & average)   Check ALL that apply   Check ALL that apply   TORRENTIAL [-1]   SLOW [1]   INTERSTITIAL [-1]   INTERSTITIAL [-1]   INTERSTITIAL [-1]   INTERSTITIAL [-1]   INTERMITTENT [-2]   MODERATE [1]   EDDIES [1]   Indicate for reach - pools and riffles.
Indicate for function of riffle-obligate RIFFLE DEPTH BEST AREAS > 10cm [2] BEST AREAS < 5cm [metric=0]	onal riffles; Best areas must be large enough to support a population
6] GRADIENT 3 DRAINAGE AREA	ft/mi) VERY LOW LOW [2-4] %POOL: 6 %GLIDE: 100 Gradient Maximum Maximum Maximum 10

AJ SAMPLE Check A METHOD BOAT WADE LINE OTHER DISTANCE	STAGE  1st eample pass-2nd — HIGH	omment RE: Reach consistency/ Is	reach typical of steam?, Recreation	/ Observed - Inferred, Other	Sampling observations, Concerns, Acce	ess directions, etc.
0.5 Km	CLARITY  1stsample pass- 2nd    < 20 cm	BJAESTHETICS    NUISANCE ALGAE   INVASIVE MAGROPHYTES   EXCESS TURBIDITY   DISCOLORATION   FOAM / SCUM   OIL SHEEN   TRASH / LITTER   NUISANCE ODOR   SLUDGE DEPOSITS   CSOS/SSOS/OUTFALLS    ATION AREA DEPTH   POOL:   >100ff2   >3ft	DJ MAINTENANCE PUBLIC / PRIVATE / BOTH / NA ACTIVE / HISTORIC / BOTH / NA YOUNG-SUCCESSION-OLD SPRAY / SNAG / REMOVED MODIFIED / DIPPED OUT / NA LEVEED / ONE SIDED RELOCATED / CUTOFFS MOVING-BEDLOAD-STABLE ARMOURED / SLUMPS ISLANDS / SCOURED IMPOUNDED / DESICCATED FLOOD CONTROL / DRAINAGE	Circle some & COMMENT	EJ ISSUES  WWTP / CSO / NPDES / INDUSTRY HARDENED / URBAN / DIRTAGRIME CONTAMINATED / LANDFILL BMPS-CONSTRUCTION-SEDIMENT LOGGING / IRRIGATION / COOLING BANK / EROSION / SURFACE FALSE BANK / MANURE / LAGOON WASH H <sub>2</sub> 0 / TILE / H <sub>2</sub> 0 TABLE ACID / MINE / QUARRY / FLOW NATURAL / WETLAND / STAGNANT PARK / GOLF / LAWN / HOME ATMOSPHERE / DATA PAUCITY	F) MEASUREMENTS  \$\overline{x}\$ width \$\overline{x}\$ depth max. depth \$\overline{x}\$ bankfull width bankfull \$\overline{x}\$ depth W/D ratio bankfull max. depth floodprone x2 width entrench. ratio  Legacy Tree:

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

SITE NAME/LOCATION		
X-63 SITE NUMBER	RIVER BASIN Blue C	heel DRAINAGE AREA (mi²) ZZ
LENGTH OF STREAM REACH (fi) 200	LÄT. LÖNG	PIVER CODE PIVER MILE
DATE 4-15-13 SCORER MCU	COMMENTS Creek	Through As Pet
NOTE: Complete All Items On This For	m - Refer to "Field Evaluation Manual f	or Ohjo's PHWH Streams" for Instructions
		ECOVERING TRECENT OF NO RECOVERY
MODIFICATIONS:		
SUBSTRATE (Estimate percent of ever (Max of 40). Add total number of signific	ery type of substrate present. Check <i>ONLY</i> to ant substrate types found (Max of 8). Final mel	NO predominant substrate TYPE boxes tric score is sum of boxes A & B.
	ERCENT TYPE	PERCENT Metric
☐ ☐ BOULDER (>256 mm) [16 pfs]	SILT [3 pt] LEAF PACKWOO	DY DEBRIS (3 pts)
BEDROCK [16 pt]  COBBLE (65-256 mm) [12 pts]	🖸 🖸 FINE DETRITUS	[3 pts] Substrate
	☐ CLAY of HARDPA Æ Æ Æ MUCK [0 pis]	N [0 pt]
SAND (<2 mm) [6 pts]	ARTIFICIAL 13 pts	1
Total of Percentages of	(A) //	(B) A+B
Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBS	TRATE TYPES: 6	BER OF SUBSTRATE TYPES:
evaluation. Avoid plunge pools from road	aximum pool depth within the 61 meter (200 d culverts or storm water pipes) (Check ONL	ft) evaluation reach at the time of Pool Depth Yone box): Page 10
> 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts]	☐ > 5 cm - 10 cm [1 ☐ < 5 cm [5 pts]	
3 × 10 - 22.5 cm [25 pts]	☐ NO WATER OR N	MOIST CHANNEL [0 pts]
COMMENTS	MAXIMUM.	POOL DEPTH (centimeters):
BANK FULL WIDTH (Measured as the	11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	eck ONLY one box): Bankfull
> 4.0 meters (> 13') [30 pts] > 3.0 m = 4.0 m (> 9' 7" = 13') [25 pts]	☐ ≥ 1.0 m - 1.5 m (>	3' 3" - 4' 8") [15 pts] Width
> 1.5 m = 3.0 m (> 4'8"= 9'7") [20 pts]	□ F≰1.0m(§3°3")[5	Managed as a series of the control o
COMMENTS	AVERAGE	BANKFULL WIDTH (meters) 30 30
		Total (mode) 5)
RIPARIAN ZONE AND FLOODP	This information must also be comple	ted
RIPARIAN WIDTH	FLOODPLAIN QUALITY	d Right (R) as looking downstream☆
L Ř (Peř Bánk) □ □ Wide ≥10m	L R. (Most Predominant per Bank)  Mature Forest, Wetland	L R. Conservation Tillage
☐ ☐ Moderate 5-10m	Immature Forest, Shrub or Old	- Parison in a salar i
Narrow <5m	Field	
□□ None	□ □ Residential, Park; New Field □ □ Fenced Pasture	Crop
COMMENTS	→ → Vallead Lastinia	□ □ Mining or Construction
FLOW REGIME (At Time of Evalu	uation) (Check ONLY one box);	and the second s
Stream Flowing Subsurface flow with isolated pools	☐ Moist Char	nnel, isolated pools, no flow (Intermittent) al, no. water (Ephemeral)
COMMENTS		st, no. water (Epitemeral)
SINUOSITY (Number of bends pe	of 61 m (200 ft) of channel) (Check ONLY one	
None D	1.0	3,0
	7.07	- C.
STREAM GRADIENT ESTIMATE	(A)	
STREAM GRADIENT ESTIMATE Flat (0.5 n/100 n)	Moderate (2 s/100 m) Moderate	to Severe Severe (10 m/100 h)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):	
QHEI PERFORMED? - A Yes O No QHEI Score 47 (If Yes, Attac	ch Completed QHE( Form)
DOWNSTREAM DESIGNATED USE(S)  WWH Name: CWH Name: EWH Name:	Distance from Evaluated Stream  Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED	
county: Paulding Township/City	Page: NRCS Soil Map Stream Order
Miscellaneous  Base Flow Conditions? (Y/N): Date of last precipitation: 4-15-13  Photograph Information: See affacted Report	Quantity:25
	and attach results) Lab Number:
Is the sampling reach representative of the stream (Y/N) If not, please explain:	
Additional comments/description of pollution impacts:	and the second s
Performed? (Y/N): (If Yes, Record all observations, Voucher collections option ID number. Include appropriate field data sheets from the P	al. NOTE: all voucher samples must be labeled with the site rimary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebra	Voucher? (Y/N) ates Observed? (Y/N) Voucher? (Y/N)
Include Important landmarks and other features of Interest for site evaluation  Cooper Cooper Cooper	A REACH (This must be completed):  and a narrative description of the stream's location
FLOW - Cheek	
Chappel Field	

>

#### **ChieEPA**

QHEI Score: 47	
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Stream & Location:	V-17	R).	Charle	Date Date	. // . // //
Stream & Location:	X-OB	Blue	Creek	IM al a	1911518617
River Code: -	- STORE		Full Name & Affiliation Lat / Long :		Office verified
		DE POVES	Lat./Long.: NAD 83 - decimal °)		location -
BEST TYPES BEST TYPES BEST TYPES BEDR /SLABS [10] BOULDER [9] GOBBLE [8] GRAVEL [7] SAND [6] BEDROCK [5] NUMBER OF BEST Comments	POOL RIFFLE OTH	ER TYPES ARDPAN [4] TRITUS [3] JCK [2] LT [2] RTIFICIAL [0] Coore natural substrates [2] sludge from point-se	ORIGIN  LIMESTONE [1]  TILLS [1]  WETLANDS [0]  HARDPAN [0]  SANDSTONE [0]	SILT HEAV SILT NODE NORM FREE SPECIAL NODE NODE NORM NONE	RATE [-1] Substrate IAL [0] [1] NSIVE [-2] RATE [-1] Maximum 20
quality: 3-Highest quality	quality; 2-Moderate an in moderate or greater an e, well developed rootwad (S.[1] EGETATION [1]	nounts, but not of highen nounts (e.g., very large	mall amounts or if more comment quality or in small amound boulders in deep or fast wardeep, well-defined, function OXBOWS, BACKWA AQUATIC MACROPLEOGS OR WOODY D	nts of highest ter, large hal pools. Check ONE TERS [1] MODERA IYTES [1] SPARSE	(OUNT (Or 2 & average) VE >75% [11] VE 25-75% [7] 5-<25% [3] ABSENT <5% [1] Cover Maximum 20
☐ HIGH [4] ☐ ☐ MODERATE [3] ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	VELOPMENT C EXCELLENT [7] NC GOOD [5] RE FAIR [3] KE	n each category (Or 2 of HANNELIZATION INE [6] COVERED [4] COVERING [3] CENT OR NO RECOV	STABILITY  HIGH [3]  MODERATE [ LOW [1]	2]	Channel Maximum 20
4] BANK EROSION A River right looking downstre  EROSION  NONE / LITTLE [3]  MODERATE [2]  HEAVY / SEVERE [4]	RIPARIAN W RIPARIAN W WIDE > 50m [4] MODERATE 10: D NARROW 5-10r	/IDTH	n category for EACH BANK ( FLOOD PLAIN QUAI EST, SWAMP [3] UB OR OLD FIELD [2] IDENTIAL, PARK, NEW FIEL CED PASTURE [1] N PASTURE, ROWCROP [6]	LITY  CONSERVAT  CONSE	TION TILLAGE [1] INDUSTRIAL [0] INSTRUCTION [0] It land use(s) Riparian Maximum 10
5] POOL / GLIDE AN MAXIMUM DEPTH Check ONE (ONLY!)  > 1m [6] 0.7 < 1m [4] 0.4 < 0.7 m [2] 0.2 < 0.4 m [1] 0.2 < 0.2 m [0]  Comments		NIDTH & average) LEWIDTH [2] □ TO LEWIDTH [1] ▼VE LEWIDTH [0] □ FA: □ MC	CURRENT VELOCIT Check ALL that apply RRENTIAL [-1] SLOW [1] RY FAST [1] INTERS ST [1] INTERM DERATE [1] EDDIES Idicate for reach - pools and	Primal Second (circle one and	on Potential ry Contact dry Contact decomment on back)  Pool/ Current Maximum 12
Indicate for fund of riffle-obligate RIFFLE DEPTH BEST AREAS > 10cm [: BEST AREAS < 5cm [metric=0]	species: RUN DEPTH  ZI □ MAXIMUM > 50cm	Check ONE (Or RIFFLE / R [2] STABLE (e.g., [1] MOD. STABLE		t a population  FFLE / RUN EMBED  □ NONE [2] □ LOW [1] □ MODERATE [I	O RIFFLE [metric=0] DEDNESS
6] GRADIENT ( 3 DRAINAGE AREA ( )	ft/mi) 🗷 VERY LOW MODERATE mi²) 🗖 HIGH = VER	[6-10]	%POOL: 70 %RUN: 40	) %GLIDE: Uo )%RIFFLE: O	Gradient Maximum 10

Check ALL that apply METHOD STAGE  BOAT HIGH WADE UP L LINE NORMAL OTHER LOW	Comment RE: Reach consistency/ Is	reach typical of steam?, Recreation	/ Observed - Inferred, Other	/ Sampling observations, Concerns, Acce	
Distance   Distance	☐ FOAM / SCUM ☐ OIL SHEEN ☐ TRASH / LITTER ☐ NUISANGE ODOR ☐ SLUDGE DEPOSITS ☐ CSOS/SSOS/OUTFALLS	DJ MAINTENANCE PUBLIC / PRIVATE / BOTH / NA ACTIVE / HISTORIC / BOTH / NA YOUNG-SUCCESSION-OLD SPRAY / SNAG / REMOVED MODIFIED / DIPPED OUT / NA LEVEED / ONE SIDED RELOCATED / CUTOFFS MOVING-BEDLOAD-STABLE ARMOURED / SLUMPS ISLANDS / SCOURED IMPOUNDED / DESICCATED FLOOD CONTROL / DRAINAGE	Circle some & COMMENT	EJ ISSUES  WWTP / CSO / NPDES / INDUSTRY HARDENED / URBAN / DIRT&GRIME CONTAMINATED / LANDFILL BMPS-CONSTRUCTION-SEDIMENT LOGGING / IRRIGATION / COOLING BANK / EROSION / SURFACE FALSE BANK / MANURE / LAGOON WASH H <sub>2</sub> 0 / TILE / H <sub>2</sub> 0 TABLE ACID / MINE / QUARRY / FLOW NATURAL / WETLAND / STAGNANT PARK / GOLF / LAWN / HOME ATMOSPHERE / DATA PAUCITY	F] MEASUREMENTS  X width  X depth max. depth X bankfull width bankfull X depth W/D ratio bankfull max. depth floodprone x² width entrench: ratio Legacy Tree:

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

SITE NAME/LOCATION	RIVER BASIN BLC C	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	
LENGTH OF STREAM REACH (ft) ZCO LATE U-15-13 SCORER MCV  NOTE: Complete All Items On This Form - 1	TLONG	RIVER CODE	uctions
MODIFICATIONS:			
1. SUBSTRATE (Estimate percent of every the (Max of 40). Add total number of significant substrated by the control of the cont	substrate types found (Max of 8). Final me SENT TYPE SILT IS pt] LEAF PACKWOO FINE DETRITUS CLAY or HARDP. MUCK [0 pts] ARTIFICIAL [3 pt	DDY DEBRIS [3 pts]  [3 pts]  AN [0 pt]  [6)	HHEI Metric Points Substrate Max = 40
2. Maximum Pool Depth (Measure the maxinevaluation. Avoid plunge pools from foed cultiples of the second cultiples of the seco	num pool depth within the 61 meter (20 Nerts of storm water pipes) (Check ON S 5 cm - 10 cm [ 20 S 5 cm [5 pts] NO WATER OR	LY one box):	Pool Depth Max = 30
3. BANK FULL WIDTH (Measured as the ave > 4.0 meters (> 13') [30 pts]   > 3.0 m - 4.0 m (> 9'.7" - 13') [25 pts]   > 1.5 m - 3.0 m (> 4'.8" - 9'.7") [20 pts]	rage of 3-4 measurements) (CI	heck <i>ONLY</i> one box): > 3' 3' - 4' 8") [15 pts] [5 pts]	Bankfull Width Max=30
COMMENTS	AVERAGI	EBANKFULL WIDTH (meters)	- Parameter S
LR (Per Bank) □ □ Wide >10m	FLOODPLAIN QUALITY  L. R. (Most Predominant per Bank)  J. D. Mature Forest, Wetland  Immature Forest, Shrub or Old	leted and Right (R) as looking downstream☆ L R □ □ Conservation Tillage	
	→ Field  □ Residential, Park, New Field □ □ Fenced Pasture	Open Pasture, Row Crop D Mining or Construction	<u>.</u>
FLOW REGIME (At Time of Evaluation Stream Flowing Subsurface flow with isolated pools (In COMMENTS	nterstitial) Moist Ch	annel, isolated pools, no flow (intermittent) nel, no. water (Ephemeral)	±.
None 🔲	1 in (200 ft) of channel) (Check ONLY of 1.0 2.0 1.5	ne box): 3,0 S3	
STREAM GRADIENT ESTIMATE  Flat (0.5 f/100 ft)	Moderate (2.6/100.11) Modera	ate to Severe Severe (10 M/1	pô hý

DDITIONAL STREAM INFOR	MATION (This Information Must	Also be Completed):		
QHEI PERFORMED?	Y-AYes DNo QHEIScore_	(If Yes, Attach C	ompleted QHEI Form)	
DOWNSTREAM DES				
			stance from Evaluated Stream	
EWH Name:			stance from Evaluated Stream	n
	COPIES OF MAPS, INCLUDING THI	AND CONTRACTOR OF THE PROPERTY		
sunty: Paulding		A0.51 (7.53)	NRCS Soil Map Str	
MISCELLANEOUS		***	_	
ase Flow Conditions? (Y/N):_	Date of last precipitation:	4-15-13	Quantity:2S	
notograph Information:	ee attachd	Report		
evated Turbidity? (Y/N):	Canopy (% open):	100%		
ere samples collected for wat	ter chemistry? (Y/N): // (Not	e lab sample no. or id. and a	ttach results) Lab Number:	
	Dissolved Oxygen (mg/l)			
the sampling reach represen	tative of the stream (Y/N) 4	not, please explain:		
omments Regarding Biology.	(If Yes, Record all observations, Vo ID number. Include appropriate fiel Voucher? (Y/N) Salamand (Y/N) Voucher? (Y/N) A	d data sheets from the Priman ers Observed? (Y/N) Aquatic Macroinvertebrates C	y Headwater Habitat Assessme Voucher? (Y/N) Observed? (Y/N) Vouch	nt Manual) er? (Y/N)
DRAWING AN	ND NARRATIVE DESCRIPT	TION OF STREAM REA	ACH (This must be co	mpleted):
Include Important land	marks and other features of intere	est for site evaluation and a	narrative description of the	stream's location
	Cropped	field		,37
FLOW-	Dit	ch		
L040-1709-	CLOPP	ed field		.2
		Will Phon Dogg 2		
	PI	HWH Form Page - 2		

June 20, 2008 Revision

### ChieEPA

QHEI	Score:		16	1
		0	-	e)

Stream & Location:	-01-	Pitch			RM:	Date:	1-1-1-1
51. 0.1.			corers Fi	ull Name & Affiliation:_ _at./ Long.:		ncv-ha	Office verified
River Code:		STORET #:	(N	AD 83 - decimal °)	/8	·	location
estimate	% or note eve	ery type present OTHER TYPE:    HARDPAN [4]   DETRITUS [3]   MUCK [2]   SILT [2]   ARTIFICIAL [1] (Score natural	POOL RI	ORIGIN  LIMESTONE [1]  TILLS [1]  WETLANDS [0]  HARDPAN [0]  SANDSTONE [0]	SILT	& average) QUAI  HEAVY MODER NORMA FREE II  EXTENS MODER NORMA	[-2] ATE [-1] Substrate L [0]
quality; 3-Highest quality in n diameter log that is stable, w  O UNDERCUT BANKS; O OVERHANGING VEGI O SHALLOWS (IN SLOV ROOTMATS [1]  Comments	quality; 2-Moc noderate or gr ell developed ij ETATION [1] V WATER) [1]	lerate amounts, but it eater amounts (e.g., rootwad in deep / far POOLS > 7 ROOTWAD BOULDERS	not of higher very large to st water, or of the control of the con	st quality or in small amounts soulders in deep or fast water, deep, well-defined, functional OXBOWS, BACKWATE AQUATIC MAGROPHY LOGS OR WOODY DEE	of highest , large pools. RS [1] [ES [1]	Check ONE ( EXTENSIVE MODERATE SPARSE 5	E 25-75% [7]
☐ HIGH [4] ☐ EXC ☐ MODERATE [3] ☐ GOO	LOPMENT CELLENT [7] OD [5] R [3]	CHANNEL  CHANNEL  NONE [6]  RECOVERED  RECOVERING  RECENT OR 1	ZATION  [4]  3 [3]	STABILITY  HIGH [3]  MODERATE [2]  Cow [1]			Channel Maximum 20
☐ ☐ NONE / LITTLE [3] ☐ MODERATE [2]	RIPAR     WIDE >     MODER	RIAN WIDTH  50m [4]	L R D FORE D SHRU D RESII	category for EACH BANK (Or FLOOD PLAIN QUALITIEST, SWAMP [3] UB OR OLD FIELD [2] DENTIAL, PARK, NEW FIELD EED PASTURE [1] I PASTURE, ROWGROP [0]	TY B	CONSERVATION OR IN	Riparian Maximum
□ 0.7-<1m [4] □	CHAI Check Of POOL WIDT POOL WIDT	RUN QUALITY NNEL WIDTH NE (Or 2 & average) H > RIFFLE WIDTH H = RIFFLE WIDTH H > RIFFLE WIDTH	2]	CURRENT VELOCITY Check ALL that apply RENTIAL [-1] SLOW [1] LY FAST [1] INTERSTIT T [1] INTERMIT DERATE [1] DEDDIES [1] dicate for reach - pools and rife	ΓΕΝΤ [-2] ]	Primary Seconda	n Potential Contact Contact Comment on back)  Pool/Current Maximum 12
of riffle-obligate sp RIFFLE DEPTH  BEST AREAS > 10cm [2]  BEST AREAS 5-10cm [1]  BEST AREAS < 5cm [metric=0]  Comments	Decies: RUN E  MAXIMUT  MAXIMUT	Checl DEPTH RIF M > 50cm [2] □ STA M < 50cm [1] □ MO	ONE (OR 2 FLE / RU ABLE (e.g., D. STABLE STABLE (e.	ge enough to support at a verage).  JN SUBSTRATE RIFF Cobble, Boulder) [2] (e.g., Large Gravel) [1] g., Fine Gravel, Sand) [0]	LE / RU	N EMBEDD NONE [2] NOW [1] NODERATE [0] EXTENSIVE [-1]	Riffle / Run Maximum 8
DRAINAGE AREA	□тис	DERATE [6-10] GH - VERY HIGH [10		=	%GLIDI %RIFFLI	E:(160) E:(6)	Gradient Maximum 10

AJ SAMPLEI Check AL METHOD BOAT WADE LLINE OTHER DISTANCE	L that apply STAGE  1st sample pass 2nd HIGH UP NORMAL LOW LOW	omment RE: Reach consistency/ Is	reach typical of steam?, Recreation	/ Observed - Inferred, Other	/Sampling observations, Concerns, Acc	ess directions, etc.
0.5 Km 0.2 Km 0.15 Km 0.12 Km OTHER	CLARITY  1stsample pass- 2nd    < 20 cm	BJAESTHETICS    NUISANCE ALGAE   INVASIVE MACROPHYTES   EXCESS TURBIDITY   DISCOLORATION   FOAM / SCUM   OIL SHEEN   TRASH / LITTER   NUISANCE ODOR   SLUDGE DEPOSITS   CSOS/SSOS/OUTFALLS  ATION AREA DEPTH POOL:   >100ft2   >3ft	DJ MAINTENANCE PUBLIC / PRIVATE / BOTH / NA ACTIVE / HISTORIC / BOTH / NA YOUNG-SUCCESSION-OLD SPRAY / SNAG / REMOVED MODIFIED / DIPPED OUT / NA LEVEED / ONE SIDED RELOCATED / CUTOFFS MOVING-BEDLOAD-STABLE ARMOURED / SLUMPS ISLANDS / SCOURED IMPOUNDED / DESICCATED FLOOD CONTROL / DRAINAGE	Circle some & COMMENT	EJISSUES  WWTP / CSO / NPDES / INDUSTRY HARDENED / URBAN / DIRT&GRIME CONTAMINATED / LANDFILL BMPS-CONSTRUCTION-SEDIMENT LOGGING / IRRIGATION / COOLING BANK / EROSION / SURFACE FASE BANK / MANURE / LAGOON WASH H <sub>2</sub> 0 / TILE / H <sub>2</sub> 0 TABLE ACID / MINE / QUARRY / FLOW NATURAL / WETLAND / STAGNANT PARK / GOLF / LAWN / HOME ATMOSPHERE / DATA PAUCITY	FJ MEASUREMENTS  X width X depth max.depth X bankfull width bankfull X depth W/D ratio bankfull max. depth floodprone x2 width entrench. ratio Legacy Tree:

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

SITE NAME/LOCATION	
Z-01 SITE NUMBER RIVER BASIN Blue Check DRAINAGE AREA (mir)	1
LENGTH OF STREAM REACH (II) 200 LAT. LONG: LONG: RIVER CODE RIVER MILE DATE 4-15-13 SCORER MCV COMMENTS 45/Read 1:10-	en e
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Onlo's PHWH Streams" for In	structions
STREAM CHANNEL NONE / NATURAL CHANNEL TRECOVERED RECOVERING TRECENT OR NO REMODIFICATIONS:	for the territor to the territor
1. SUBSTRATE (Estimate percent of every type of substrate present, Check ONLY two predominant substrate TYPE boxes	i i i i i i i i i i i i i i i i i i i
(Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.	HHEI Metric
BLDR SLABS (16 pts) SILT (3 pt)	Points
□ □ BEDROCK [16 pt] □ □ FINE DETRITUS, [3 pts]	Substrate
☐ ☐ COBBLE (65-256 mm) [12 pts] ☐ ☐ CLAY or HARDPAN [0 pt] ☐ ☐ GRAVEL (2-64 mm) [9 pts] ☐ ☐ MUCK [0 pts]	Max = 40
☐ ☐ GRAVEL (2-64 mm) [9 pts] ☐ ☐ MUCK [0 pts] ☐ ☐ ARTIFICIAL [3 pts]	13
Total of Percentages of (A)	A+B
Bidr Slabs, Boulder, Copple, Bedrock	NEB
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of	Brow Brook
evaluation. Avoid plunge pools from road culverts of storm water pipes). (Check ONLY one box):	Pool Depth Max = 30
> 22.5 - 30 cm [30 pts]	2<
NO WATER OR MOIST CHANNEL [0 pts]	
COMMENTS MAXIMUM POOL DEPTH (centimeters):	
3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	Bankfull
□ >3.0m -4.0m (>9 7'-13) [25 pts] □ ≤1.0m (≤3'3') [5 pts] □ ≤1.0m (≤3'3') [5 pts]	Width Max=30
1ZO	1 Z0
COMMENTS AVERAGE BANKFULL WIDTH (meters)	Description
This information must also be completed	
RIPARIAN ZONE AND FLOODPLAIN QUALITY 公NOTE: River Left (L) and Right (R) as looking downstream会 RIPARIAN WIDTH FLOODPLAIN QUALITY	
LR (Per Bank) LR (Most Predominant per Bank) LR □ □ Wide >10m □ □ Mature Forest, Wetland □ □ Conservation Tillage	
Manual Folest, Wettand Conservation Inlage	
Narrow ≤5m ☐ Residential, Park; New Field Open Pasture, Row	
□□ None □□ Fenced Pasture □□ Mining or Constructio	·
COMMENTS	, <del></del>
FLOW REGIME (At Time of Evaluation) (Check ONLY one box):  Stream Flowing  Most Channel isolated peous no flow (Intermittee	rs.
Stream Flowing Subsurface flow with Isolated pools (Interstitial) COMMENTS  Most Channel, isolated pools, no flow (Intermitter Dry channel, no water (Ephemeral)	Ŋ
	<del>: //</del>
SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):	
STREAM GRADIENT ESTIMATE  Flat (0.5 f/100 ft)	iọo hi

	ØYes □No QHEISco	ore / 8 (If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIG		Distance from Evaluated Stream
CWH Name:		Distance from Evaluated Stream
EWH Name:		Distance from Evaluated Stream
MAPPING: ATTACH CO	PIES OF MAPS, INCLUDING	G THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION  NRCS Soil Map Page: NRCS Soil Map Stream Order
ounty: Yauldin		Township / City
MISCELLANEOUS		11-15-17
ase Flow Conditions? (Y/N):	Date of last precipitate  A Hachd	Reart Quantity: 25
levated Turbidity? (Y/N):	Canopy (% open):	100
Vere samples collected for wate		(Note lab sample no. or id. and attach results) Lab Number:
		mg/l) pH (S.U.)Conductivity (μmhos/cm)
the sampling reach representa	ative of the stream (Y/N)	If not, please explain:
		and the second s
Performed? (Y/N):	(If Yes, Record all observation ID number. Include appropriate	ins. Voucher collections optional. NOTE: all voucher samples must be labeled with the sate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) Frogs or Tadpoles Observed? ( Comments Regarding Biology.	Voucher? (Y/N) Salan Y/N) Voucher? (Y/N)	amanders Observed? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)
Fish Observed? (Y/Ñ) Frogs or Tadpoles Observed? ( Comments Regarding Biology	Voucher? (Y/N) Salan Y/N) Voucher? (Y/N) ND NARRATIVE DESC	amanders Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)
Fish Observed? (Y/N)Frogs or Tadpoles Observed? (Comments Regarding Biology	Voucher? (Y/N) Salan Y/N) Voucher? (Y/N) ND NARRATIVE DESC	amanders Observed? (Y/N) Voucher? (Y/N) Vou
Fish Observed? (Y/N)Frogs or Tadpoles Observed? ( Comments Regarding Biology	Voucher? (Y/N) Salan Y/N) Voucher? (Y/N) ID NARRATIVE DESC marks and other features of	amanders Observed? (Y/N) Voucher? (Y/N) V
Fish Observed? (Y/N)Frogs or Tadpoles Observed? (Comments Regarding Biology	Voucher? (Y/N) Salan Y/N) Voucher? (Y/N) ID NARRATIVE DESC marks and other features of	amanders Observed? (Y/N) Voucher? (Y/N) Vo

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### ChieEPA

EPA 4520

## Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

18	J
	18

06/16/06

Stream & Location:	2-01	*	RM: Date: 4   /5   9613
		Scorers Full Name & Affiliation:	MCV- West wood
River Code:	STORET #:	(NAD 83 - decimal *)	
BEST TYPES  BEST TYPES  BEDR /SLABS [10]  BOULDER [9]  COBBLE [8]  GRAVEL [7]  SAND [6]  BEDROCK [5]  NUMBER OF BEST	HARDE  HARDE  DETRI  MUCK  ARTIFI  (Score  TYPES: 4 or more [2] slut  3 or less [0]	TYPES POOL RIFFLE ORIGIN  LIMESTONE [1]  [2]  [2]  [3]  [4]  [4]  [5]  [6]  [7]  [7]  [8]  [9]  [9]  [1]  [9]  [1]  [1]  [9]  [1]  [9]  [9	NONEIN
quality; 3-Highest quality diameter log that is stable UNDERCUT BANK OVERHANGING V SHALLOWS (IN SI ROOTMATS [1]	quality; 2-Moderate amount in moderate or greater amount by well developed rootwad in de (S [1] POO EGETATION [1] ROO BOU WATER) [1] BOU	Absent; 1-Very small amounts or if more comm is, but not of highest quality or in small amounts s (e.g., very large boulders in deep or fast water, or deep, well-defined, functional LS > 70cm [2] OXBOWS. BACKWAT TWADS [1] AQUATIC MACROPHY LOGS OR WOODY DE	Check-ONE (Or 2 & average)     pools
SINUOSITY DEV	EXCELLENT [7] NONE   GOOD [5] RECOV FAIR [3] RECOV	NELIZATION STABILITY	Channel Maximum 20
River right looking downstre  EROSION  NONE / LITTLE [3]	RIPARIAN WIDT	Forest, SWAMP [3]   3     SHRUB OR OLD FIELD [2]   D RESIDENTIAL; PARK, NEW FIEL	ITY R CONSERVATION TILLAGE [1] URBAN OR INDUSTRIAL [0] D[1] UNINING CONSTRUCTION [0] Indicate predominant land use(s)
5] POOL / GLIDE AI  MAXIMUM DEPTH  Check ONE (ONLYI)    > 1m [6]   0.7<1m [4]   20.4<0.7m [2]   0.2<0.4m [1]   < 0.2m [0]  Comments	ND RIFFLE / RUN QUAL H CHANNEL WID Check ONE (Or 2 & av POOL WIDTH > RIFFLE V POOL WIDTH > RIFFLE V	TH CURRENT VELOCITY  Terage) Check ALL that apply  VIDTH [2] TORRENTIAL [-1] SLOW [1]  VIDTH [1] UVERY FAST [1] DINTERST	TIAL [-1] TENT [-2] 1] Primary Contact Secondary Contact (circle one and comment on back) Pool /
of riffle-obligate RIFFLE DEPTH BEST AREAS > 10cm BEST AREAS 5-10cm BEST AREAS < 5cm [metric=	e species: RUN DEPTH [2]	As must be large enough to support Check ONE (Or 2 & average).  RIFFLE / RUN SUBSTRATE RIF STABLE (e.g., Cobble, Boulder) [2] MOD. STABLE (e.g., Large Gravel) [1] UNSTABLE (e.g., Fine Gravel, Sand) [0]	FLE / RUN EMBEDDEDNESS  NONE [2] LOW [1] MODERATE [0] EXTENSIVE [-1] MAXIMUM 8
6] GRADIENT ( 3 DRAINAGE ARE	tenengapananan ana tana	10]	%GLIDE: 6 Gradient Maximum 10

METHOD  BOAT  WADE  Line OTHER	STAGE	omment RE: Reach consistency/ Is	reach typical of steam?, Recreation	V Observed - Inferred, Other	Sampling observations, Concerns, Acc	ess directions, etc.
0.5 Km	CLARITY  1stsample pass 2nd  20 cm	BJ AESTHETICS    NUISANCE ALGAE   INVASIVE MACROPHYTES   EXCESS TURBIDITY   DISCOLORATION   FOAM / SCUM   OIL SHEEN   TRASH / LITTER   NUISANCE ODOR   SLUDGE DEPOSITS   CSOs/SSOs/OUTFALLS  ATION AREA DEPTH POOL:   >100ft2   >3ft	DJ MAINTENANCE PUBLIC / PRIVATE / BOTH / NA ACTIVE / HISTORIC / BOTH / NA YOUNG-SUCCESSION-OLD SPRAY / SNAG / REMOVED MODIFIED / DIPPED OUT / NA LEVEED / ONE SIDED RELOCATED / CUTOFFS MOVING-BEDLOAD-STABLE ARMOURED / SLUMPS ISLANDS / SCOURED IMPOUNDED / DESICCATED FLOOD CONTROL / DRAINAGE	Circle some & COMMENT	EJISSUES  WWTP / CSO / NPDES / INDUSTRY  HARDENED / URBAN / DIRT&GRIME CONTAMINATED / LANDFILL  BMPs-CONSTRUCTION-SEDIMENT LOGGING / IRRIGATION / COOLING BANK / EROSION / SURFACE FALSE BANK / MANURE / LAGOON WASH H <sub>2</sub> 0 / TILE / H <sub>2</sub> 0 TABLE ACID / MINE / QUARRY / FLOW NATURAL / WETLAND / STAGNANT PARK / GOLF / LAWN / HOME ATMOSPHERE / DATA PAUCITY	F) MEASUREMENTS    X width   X depth   Max. depth   Max. depth   Max. depth   Max. depth   Mill   X depth   Mill   X depth   Mill   Mil

#### Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3 SITE NAME/LOCATION 1-01 SITE NUMBER RIVER BASIN\_ Praire Creck DRAINAGE AREA (mi²) LENGTH OF STREAM REACH (ft) ZOO LAT. ....LONG DATE S. 20 - 13 SCORER MCV ..... COMMENTS SMALL RIJEL Rd by TIL NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions NONE / NATURAL CHANNEL TRECOVERED TRECOVERING RECENT OR NO RECOVERY STREAM CHANNEL MODIFICATIONS: SUBSTRATE (Estimate percent of every type of substrate present, Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B HHEI PERCENT TYPE Metric PERCENT 88 BLOR SLABS [16 pts] BOULDER (\$256 mm) [16 pts] Sil 1 (3 pt) LEAF PACKWOODY DEBRIS [3 pts] Points BEDROCK (18 pt) FINE DETRITUS [3 pts] Substrate COBBLE (65-256 mm) [12 pts] Max = 40 CLAY of HARDPAN [0 pt] GRAVEL (2.64 mm) [9 pts] 00 00 MUCK [0 pts] OO SAND (<2.mm) [6 pts] ARTIFICIAL [3 pts] Total of Percentages of provens (B) Bidr Slabs, Boulder, Cobble, Bedrock A+B 3 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES: Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunds pools from foed culverts or storm water pipes). (Check ONLY one box): Pool Depth Max = 3030 centimeters [20 pts] > 5 cm - 10 cm [15 pts] < 5 cm [5 pts] > 22.5 = 30 cm [30 pts] S 10 = 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts] CORPORA MAXIMUM POOL DEPTH (centimeters): BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): Bankfull > 4.0 meters (> 13) [30 pts] > 3.0 m = 4.0 m (> 9' 7" - 13) [25 pts] □ > 1.0 m + 1.5 m (> 3' 3' - 4' 8' 图 < 1.0 m (≤ 3'3') [5 pts] - 1.5 m (> 3' 3" - 4' 8") [15 pts] Width > 1.5 m = 3.0 m; (> 4'.8" = 9'.7") [20 pts] Max=30 5 COMMENTS\_ AVERAGE BANKFULL WIDTH (meters) This information <u>must</u> also be completed AIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream A FLOODPLAIN QUALITY RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH (Per Bank) L R (Most Predominant per Bank) L R Mature Forest, Wetland Wide >10m Conservation Tillage Immeture Forest, Shrub or Old Moderate 5-10m Urban of Industrial ØØ Narrow <5m Open Pasture, Row Residential, Park, New Field a a None Fenced Pasture Mining or Construction COMMENTS

Most Channel, isolated pools, no flow (Intermittent)

3.0

>3

Severe (10 h/100 h)

Dry channel, no water (Ephemeral)

(Check ONLY one box):

Moderate to Severe

2.0

2.5

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

SINUOSITY (Number of bends per 61 m (200 ft) of channel)

1.0

1.5

Moderate (2 f/100 ft)

Subsurface flow with isolated pools (interstitial)

Flat to Moderate

DiFlat (0.5 ft/100 ft)

Stream Flowing

COMMENTS

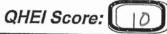
STREAM GRADIENT ESTIMATE

None

0.5

QHEI PERFORMED? - XYes D No QHEI Score 16	_(If Yes, Attach Completed Aniit Porth)
DOWNSTREAM DESIGNATED USE(S)	Distance from Evaluated Stream
DOWNSTREAM DESIGNATED USE(S) WH Name:	Distance from Evaluated Stream
WH Name:	Distance from Evaluated Stream
WH Name:	A STATE OF THE PROPERTY OF THE
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE	WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
os Quadrangle Name: Latty NR	CS Soil Map Page: NRCS Soil Map Stream Order
SS Quadrangle Name:	
inty: Paulding Township /	City.
MISCELLANEOUS	
	Quantity:
se Flow Conditions? (1714)	
otograph Information: See affacted Report	
evated Turbidity? (Y/N): N Canopy (% open): 10090	ope
4.000	mple no, or id. and attach results) Lab Number:
eld Measures: Temp (°C) Dissolved Oxygen (mg/l)	pH (S.U.)Conductivity (µmhos/cm)
the sampling reach representative of the stream (Y/N) / If not, plea	ase explain:
	<u> </u>
BIÒTIC EVALUATION	elections optional. NOTE: all youcher samples must be labeled with the s
BIOTIC EVALUATION  Performed? (Y/N): (If Yes, Record all observations. Voucher of ID number. Include appropriate field data significant contents of the conten	ollections optional. NOTE: all voucher samples must be labeled with the sheets from the Primary Headwater Habitat Assessment Manual)
BIÒTIC EVALUATION  Performed? (Y/N):	ollections optional. NOTE: all voucher samples must be labeled with the sheets from the Primary Headwater Habitat Assessment Manual)
Performed? (Y/N): (If Yes, Record all observations. Voucher of ID number. Include appropriate field data significantly included including the comments represented in the comments represe	collections optional. NOTE: all voucher samples must be labeled with the sinests from the Primary Headwater Habitat Assessment Manual) served? (Y/N) Voucher? (Y/N) Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)
Performed? (Y/N): (If Yes, Record all observations. Voucher of ID number. Include appropriate field data significantly included including the comments repair (Y/N) Voucher? (Y/N) Aquatic	ollections optional. NOTE: all voucher samples must be labeled with the sheets from the Primary Headwater Habitat Assessment Manual)
Performed? (Y/N): (If Yes, Record all observations. Voucher of ID number. Include appropriate field data significantly for including the propriate field data significantly field data significantly for including the propriate field data significantly field data significa	collections optional. NOTE: all voucher samples must be labeled with the sinests from the Primary Headwater Habitat Assessment Manual) served? (Y/N) Voucher? (Y/N) Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)
BIÒTIC EVALUATION  Performed? (Y/N):	ollections optional. NOTE: all voucher samples must be labeled with the sheets from the Primary Headwater Habitat Assessment Manual) served? (Y/N) Voucher? (Y/N) Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)
BIÒTIC EVALUATION  Performed? (Y/N):	ollections optional. NOTE: all voucher samples must be labeled with the sheets from the Primary Headwater Habitat Assessment Manual)  served? (Y/N) Voucher? (Y/N)
BIOTIC EVALUATION  Performed? (Y/N):	ollections optional. NOTE: all voucher samples must be labeled with the sheets from the Primary Headwater Habitat Assessment Manual)  served? (Y/N) Voucher? (Y/N)
Performed? (Y/N):	ollections optional. NOTE: all voucher samples must be labeled with the sheets from the Primary Headwater Habitat Assessment Manual) served? (Y/N) Voucher? (Y/N) Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)
Performed? (Y/N):	ollections optional. NOTE: all voucher samples must be labeled with the sheets from the Primary Headwater Habitat Assessment Manual)  served? (Y/N) Voucher? (Y/N) Voucher? (Y/N)  Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)  OF STREAM REACH (This must be completed): site evaluation and a narrative description of the stream's location
Performed? (Y/N):	ollections optional. NOTE: all voucher samples must be labeled with the sheets from the Primary Headwater Habitat Assessment Manual)  served? (Y/N) Voucher? (Y/N) Voucher? (Y/N)  Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)  OF STREAM REACH (This must be completed): site evaluation and a narrative description of the stream's location
Performed? (Y/N): N (If Yes, Record all observations. Voucher of ID number. Include appropriate field data significantly include appropriate field data significantly include appropriate field data significantly include important landmarks and other features of interest for	ollections optional. NOTE: all voucher samples must be labeled with the sheets from the Primary Headwater Habitat Assessment Manual)  served? (Y/N) Voucher? (Y/N) Voucher? (Y/N)  Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)  OF STREAM REACH (This must be completed): site evaluation and a narrative description of the stream's location
Performed? (Y/N): N (If Yes, Record all observations. Voucher of ID number. Include appropriate field data significantly include appropriate field data significantly include appropriate field data significantly include important landmarks and other features of interest for	ollections optional. NOTE: all voucher samples must be labeled with the sheets from the Primary Headwater Habitat Assessment Manual)  served? (Y/N) Voucher? (Y/N) Voucher? (Y/N)  Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)  OF STREAM REACH (This must be completed):  site evaluation and a narrative description of the stream's location
Performed? (Y/N): N (If Yes, Record all observations. Voucher of ID number. Include appropriate field data significantly include appropriate field data significantly include appropriate field data significantly include important landmarks and other features of interest for	ollections optional. NOTE: all voucher samples must be labeled with the sheets from the Primary Headwater Habitat Assessment Manual)  served? (Y/N) Voucher? (Y/N) Voucher? (Y/N)  Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)  OF STREAM REACH (This must be completed):  site evaluation and a narrative description of the stream's location
Performed? (Y/N): N (If Yes, Record all observations. Voucher of ID number. Include appropriate field data significantly include appropriate field data significantly include appropriate field data significantly include important landmarks and other features of interest for	ollections optional. NOTE: all voucher samples must be labeled with the sheets from the Primary Headwater Habitat Assessment Manual)  served? (Y/N) Voucher? (Y/N) Voucher? (Y/N)  Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)  OF STREAM REACH (This must be completed):  site evaluation and a narrative description of the stream's location
Performed? (Y/N): N (If Yes, Record all observations. Voucher of ID number. Include appropriate field data significantly include appropriate field data significantly include appropriate field data significantly include important landmarks and other features of interest for	ollections optional. NOTE: all voucher samples must be labeled with the sheets from the Primary Headwater Habitat Assessment Manual)  served? (Y/N) Voucher? (Y/N) Voucher? (Y/N)  Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)  OF STREAM REACH (This must be completed):  site evaluation and a narrative description of the stream's location
Performed? (Y/N): N (If Yes, Record all observations. Voucher of ID number. Include appropriate field data significantly include appropriate field data significantly include appropriate field data significantly include important landmarks and other features of interest for	ollections optional. NOTE: all voucher samples must be labeled with the sheets from the Primary Headwater Habitat Assessment Manual)  served? (Y/N) Voucher? (Y/N) Voucher? (Y/N)  Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)  OF STREAM REACH (This must be completed):  site evaluation and a narrative description of the stream's location
BIOTIC EVALUATION  Performed? (Y/N):	ollections optional. NOTE: all voucher samples must be labeled with the sheets from the Primary Headwater Habitat Assessment Manual)  served? (Y/N) Voucher? (Y/N) Voucher? (Y/N)  Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)  OF STREAM REACH (This must be completed):  site evaluation and a narrative description of the stream's location
Performed? (Y/N): N (If Yes, Record all observations. Voucher of ID number. Include appropriate field data since the in	ollections optional. NOTE: all voucher samples must be labeled with the sheets from the Primary Headwater Habitat Assessment Manual)  served? (Y/N) Voucher? (Y/N) Voucher? (Y/N)  Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)  OF STREAM REACH (This must be completed):  site evaluation and a narrative description of the stream's location

#### Chieffa



Stream & Location:	L-01	ŔМ:	. Date: 5   20106 13
Bi 0 i	Scorers Full Name & Affiliation	: MCV	- West Lood
River Code:	STORET#:Lat./Long.:	/8_	• Office verified location
BEST TYPES  BEST TYPES  BEDR /SLABS [10]  BOULDER [9]  COBBLE [8]  GRAVEL [7]  SAND [6]  BEDROCK [5]  NUMBER OF BEST	ORIGIN  ORIGIN  ORIGIN  I HARDPAN [4]  DETRITUS [3]  MULCK [2]  MUCK [4]  MUCK LANDS [0]  MUCK L	SILT SIDDEON	QUALITY  QUALITY  HEAVY [-2]  MODERATE [-1]  NORMAL [0]  FREE [1]  MODERATE [-2]  MODERATE [-1]  MODERATE [-1]  NORMAL [0]  NONE [1]
quality; 3-Highest quality i diameter log that is stable  OUNDERCUT BANK OVERHANGING VE SHALLOWS (IN SL ROOTMATS [1]  Comments	GETATION [1] O ROOTWADS [1] \ AQUATIC MACROPHY	s of highest er, large al pools. ERS [1]	AMOUNT Check-ONE (Or 2 & average) EXTENSIVE >75% [11] MODERATE 25-75% [7] SPARSE 5-25% [3] NEARLY ABSENT <5% [1]  Cover Maximum 20
SINUOSITY DEV  HIGH [4]	OLOGY Check ONE in each category (Or 2 & average)  ELOPMENT CHANNELIZATION STABILITY  XCELLENT [7] NONE [6] HIGH [3]  OOD [6] RECOVERED [4] MODERATE [2]  AIR [3] RECENT OR NO RECOVERY [1]	OCCUPATION AND A STATE OF THE S	Channel 4 Maximum 20
4] BANK EROSION A River right looking downstres  R EROSION  NONE / LITTLE [3]  MODERATE [2]  Comments	☐ WIDE>50m [4] ☐ FOREST, SWAMP [3] ☐ MODERATE 10-50m [3] ☐ SHRUB OR OLD FIELD [2]	ITY   R   R   R   R   R   R   R   R   R	CONSERVATION TILLAGE [1] JRBAN OR INDUSTRIAL [0] JINING / GONSTRUCTION [0] Predominant land use(s) Om riparian. Riparian Maximum
MAXIMUM DEPTH Check ONE (ONLYI) □ > 1m [6] □ 0.7<(1m [4]	CHANNEL WIDTH Check ONE (Or 2 & average)  POOL WIDTH = RIFFLE WIDTH [1] POOL WIDTH > RIFFLE WIDT	TIAL [-1] TENT [-2] 1	Recreation Potential Primary Contact Secondary Contact (circle one and comment on back)  Pool/ Current Maximum 12
RIFFLE DEPTH  BEST AREAS = 10cm [2] BEST AREAS = 5-10cm [4] BEST AREAS = 5cm [metric=0]	RUN DEPTH RIFFLE / RUN SUBSTRATE RIFFLE / RUN	FLE / RUN	NO RIFFLE [metric=0]  NEMBEDDEDNESS  DNE [2]  W [1]  DDERATE [0]  Riffle /  Run  Maximum  8
6] GRADIENT ( O DRAINAGE AREA ( O .S	ft/mi)	%GLIDE %RIFFLE	

WADE LINE	hat apply STAGE Ist -serrete pass- 2nd — HIGH —	mment RE: Reach consistency/ Is	reach typical of steam?, Recreation/	Observed - Inferred, Other/	Sampling observations, Concerns, Acce	ess directions, etc.
DISTANCE    0.5 Km	CLARITY sample past— 2nd  -20 ent  20 do ent  70 em CTB  SECCHI DEPTHE  1st em  CJ RECRE.	BJAESTHETICS    NUISANGE RI GAE'    NVASUE MAGROPHYTES     EXGESSTURBIDITY     DISGOLOKATION     FOAMYSCUM     OILSHEEN     TRASTILLITES     NUISANGE ODOR     SLUDGE DEPOSITS     CSOENSOGIOUTFALLS     ATION   AREA DEPTH     POOL:   >100ft2   >3ft	DJ MAINTENANCE PUBLIC / PRIVATE / BOTH / NA ACTIVE / HISTORIC / BOTH / NA YOUNG-SUCCESSION-OLD SPRAY / SNAG / REMOVED MODIFIED / DIPPED OUT / NA LEVEED / ONE SIDED RELOCATED / CUTOFFS MOVING-BEDLOAD-STABLE ARMOURED / SLUMPS ISLANDS / SCOURED IMPOUNDED / DESICCATED FLOOD CONTROL / DRAINAGE	Circle some & COMMENT	E] ISSUES  WWTP / CSO / NPDES / INDUSTRY HARDENED / URBAN / DIRT&GRIME CONTAMINATED / LANDFILL BMPs-CONSTRUCTION-SEDIMENT LOGGING / IRRIGATION / COOLING BANK / EROSION / SURFACE FALSE BANK / MANURE / LAGOON WASH H <sub>2</sub> 0 / TILE / H <sub>2</sub> 0 TABLE ACID / MINE / QUARRY / FLOW NATURAL / WETLAND / STAGNANT PARK / GOLF / LAWN / HOME ATMOSPHERE / DATA PAUCITY	floodprone x Width

See HHEI Sheet

#### Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3) SITE NAME/LOCATION 0 - 02 0-08 SITE NUMBER RIVER BASIN (LAwan ham CV DRAINAGE AREA (mi²) LENGTH OF STREAM REACH (#) 400 LAT. LONG: DATE 5-20-13 SCORER MCV COMMENTS Creek NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohlo's PHWH Streams" for Instructions O NONE/NATURAL CHANNEL TRECOVERED RECOVERING RECENT OR NO RECOVERY STREAM CHANNEL MODIFICATIONS: SUBSTRATE (Estimate percent of every type of substrate present, Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. HHEI TYPE PERCENT Metric BLDR SLABS [16 pts] **Points** BOULDER (>256 mm) [16 pts] LEAF PACK/WOODY DEBRIS [3 pts] BEDROCK [16 pt] Substrate FINE DETRITUS [3 pts] COBBLE (65-256 mm) [12 pts] Max = 40CLAY or HARDPAN [0 pt] GRAVEL (2-64 mm) [9 pts] N/N MUCK [0 pts] 50 00 SAND (<2 mm) [6 pts] ARTIFICIAL [3 pts] Total of Percentages of (B) A+B Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES: Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of Pool Depth evaluation. Avoid plunge pools from road culverts or storm water pipes). (Check ONLY one box): Max = 30> 30 centimeters [20 pts] > 5 cm = 10 cm [15 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts] < 5 cm [5 pts] 25 V NO WATER OR MOIST CHANNEL [0 pts] CARRENT COMMENTS MAXIMUM POOL DEPTH (centimeters): BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): Bankfull > 4.0 meters (> 13') [30 pts] Width > 3.0 m = 4.0 m (> 9' 7" - 13') [25 pts] Max=30 > 1.5 m = 3.0 m (> 4'.8" = 9'.7") [20 pts] 20 20 COMMENTS AVERAGE BANKFULL WIDTH (meters) This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream A RIPARIAN WIDTH FLOODPLAIN QUALITY (Per Bank) L R (Most Predominant per Bank) L R Wide >10m Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Moderate 5-10m Urban or Industrial Field DD Open Pasture, Row Narrow <5m 00 Residential, Park, New Field Crop None

1.5 2.5 STREAM GRADIENT ESTIMATE

☐ Moderate (2 1/100 ft)

Fenced Pasture

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

SINUOSITY (Number of bends per 61 m (200 ft) of channel)

1.0

Subsurface flow with isolated pools (Interstitial)

☐ Flat to Moderate

Dry channel, no water (Ephemeral)

(Check ONLY one box):

Moderate to Severe

2.0

Moist Channel, isolated pools, no flow (Intermittent)

3,0

Mining or Construction

Severe (10 h/100 h)

A 0.5

Flat (0.5 ft/100 ft)

COMMENTS

Stream Flowing

COMMENTS

None

QHEI PERFORMED? - XYes No QHEI Score 3	(If Yes, Attach Completed QHEI Form)
DOWNSTREAM DESIGNATED USE(S)	
WH Name:	Distance from Evaluated Stream
WH Name:	Distance from Evaluated Stream  Distance from Evaluated Stream
WH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENT	TIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
S Quadrangle Name:	NRCS Soil Map Page: NRCS Soil Map Stream Order
nty: Paulding Towns	hip / City:
MISCELLANEOUS	
e Flow Conditions? (Y/N): Date of last precipitation:	Quantity:
logiupit interittation	
rated Turbidity? (Y/N): N Canopy (% open): 3 (	<u>5 /6</u>
e samples collected for water chemistry? (Y/N): Note lab	sample no. or id. and attach results) Lab Number:
	pH (S.U.)Conductivity (umhos/cm)
d Measures: Temp (°C) Dissolved Oxygen (mg/l)	the six annulation
he sampling reach representative of the stream (Y/N) if not,	please explain:
ditional comments/description of pollution impacts:	
BIÒTIC EVALUATION	<del>eta eta eta eta eta eta eta eta eta eta </del>
BIOTIC EVALUATION	
BIOTIC EVALUATION  If Yes, Record all observations. Vouching number. Include appropriate field dash Observed? (Y/N) Voucher? (Y/N) Salamanders ogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aqui	er collections optional. NOTE: all youcher samples must be labeled with the site
BIOTIC EVALUATION  If Yes, Record all observations. Vouching number. Include appropriate field dash Observed? (Y/N) Voucher? (Y/N) Salamanders of the comments Regarding Biology.	er collections optional. NOTE: all voucher samples must be labeled with the site its sheets from the Primary Headwater Habitat Assessment Manual)  Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)
BIOTIC EVALUATION  If Yes, Record all observations. Vouching number. Include appropriate field dash Observed? (Y/N) Voucher? (Y/N) Salamanders of the Comments Regarding Biology.	er collections optional. NOTE: all voucher samples must be labeled with the site ta sheets from the Primary Headwater Habitat Assessment Manual)
BIOTIC EVALUATION  If Yes, Record all observations. Vouching number. Include appropriate field dash Observed? (Y/N) Voucher? (Y/N) Salamanders of the comments Regarding Biology.	er collections optional. NOTE: all voucher samples must be labeled with the site its sheets from the Primary Headwater Habitat Assessment Manual)  Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)
BIOTIC EVALUATION  If Yes, Record all observations. Vouch ID number. Include appropriate field da sh Observed? (Y/N) Voucher? (Y/N) Salamanders of or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aqua comments Regarding Biology:	er collections optional. NOTE: all voucher samples must be labeled with the site ta sheets from the Primary Headwater Habitat Assessment Manual)  Observed? (Y/N) Voucher? (Y/N) attic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)  N OF STREAM REACH (This must be completed):  for site evaluation and a narrative description of the stream's location
BIOTIC EVALUATION  If Yes, Record all observations. Vouch ID number. Include appropriate field da sh Observed? (Y/N) Voucher? (Y/N) Salamanders of or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aqua comments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTIO Include Important landmarks and other features of Interest of	er collections optional. NOTE: all voucher samples must be labeled with the site ta sheets from the Primary Headwater Habitat Assessment Manual)  Observed? (Y/N) Voucher? (Y/N) atic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)
BIOTIC EVALUATION  If Yes, Record all observations. Vouch ID number. Include appropriate field da sh Observed? (Y/N) Voucher? (Y/N) Salamanders of or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aqua comments Regarding Biology:	er collections optional. NOTE: all voucher samples must be labeled with the site ta sheets from the Primary Headwater Habitat Assessment Manual)  Observed? (Y/N) Voucher? (Y/N) attic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)  N OF STREAM REACH (This must be completed):  for site evaluation and a narrative description of the stream's location
BIOTIC EVALUATION  If Yes, Record all observations. Vouch ID number. Include appropriate field da sh Observed? (Y/N) Voucher? (Y/N) Salamanders of or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aqua comments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTIO Include Important landmarks and other features of Interest of	er collections optional. NOTE: all voucher samples must be labeled with the site ta sheets from the Primary Headwater Habitat Assessment Manual)  Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)  atic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)  N OF STREAM REACH (This must be completed):  for site evaluation and a narrative description of the stream's location  9: Note the site of the site of the stream's location  9: Note the site of the site of the site of the stream's location
BIOTIC EVALUATION  Informed? (Y/N): N (If Yes, Record all observations. Vouch ID number. Include appropriate field da sh Observed? (Y/N) Voucher? (Y/N) Salamanders ogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aque comments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTIO Include Important landmarks and other features of interest of the state of the	er collections optional. NOTE: all voucher samples must be labeled with the site ta sheets from the Primary Headwater Habitat Assessment Manual)  Observed? (Y/N) Voucher? (Y/N) voucher? (Y/N)  atic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)  N OF STREAM REACH (This must be completed):  for site evaluation and a narrative description of the stream's location
BIOTIC EVALUATION  If Yes, Record all observations. Vouch ID number. Include appropriate field da sh Observed? (Y/N) Voucher? (Y/N) Salamanders of or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aqua comments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTIO Include Important landmarks and other features of Interest of	er collections optional. NOTE: all voucher samples must be labeled with the site ta sheets from the Primary Headwater Habitat Assessment Manual)  Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N)  atic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)  N OF STREAM REACH (This must be completed):  for site evaluation and a narrative description of the stream's location  9: New Fig. 1.
BIOTIC EVALUATION  Informed? (Y/N): N (If Yes, Record all observations. Vouch ID number. Include appropriate field da sh Observed? (Y/N) Voucher? (Y/N) Salamanders ogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aque comments Regarding Biology:  DRAWING AND NARRATIVE DESCRIPTIO Include Important landmarks and other features of interest of the state of the	er collections optional. NOTE: all voucher samples must be labeled with the site ta sheets from the Primary Headwater Habitat Assessment Manual)  Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N)  atic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)  N OF STREAM REACH (This must be completed):  for site evaluation and a narrative description of the stream's location  9: Note the site of the site of the stream's location  9: Note the site of the site of the site of the stream's location

NA

X QHL	El Score:	5
	Date: S   Zc	106 \s
/8.		verified
		location 🗆
SILT	QUALITY    HEAVY [-2]   MODERATE [-1]   NORMAL [0]	Substrate Maximum 20
on of marginal s of highest r, large (I pools.  ERS [1]  BRIS [1]	Check ONE (Or 2 & ave	11 [7] % [1]
	(4)	
75	<b>Channe</b> Maximum 20	10
U M M [1] c	ONSERVATION TILLAGE RBAN OR INDUSTRIA INING / CONSTRUCTION Predominant land use(s)	L [0]
TIAL [-1] TENT [-2]	Recreation Potent Primary Contact Secondary Contact (circle one and comment on b	et act
1] iffles.	Pool / Current Maximum 12	3
a populati	on NO RIFFLE [	metric=0]
ELE / DUM	EMPEDDEDNIC	•

Stream & Location:	()-Og/	(unn;	ny have	Cr	<i>RM:</i>	Date: _3	<u> </u>
500 - 5			Scorers Ful	l Name & Affiliat	tion: MCV-	Westwood	)
River Code:	<b>-</b>	STORET #:	<i>La</i>	t./ Long.:			Office verified location
1] SUBSTRATE Check	ONLY Two sub	estrate TYPE BOXES			neck ONE (Or 2 &	average)	
DECT TVDEC	POOL RIFFLE	OTHER TYPI  HARDPAN [ DETRITUS ]  MUCK [2]  SILT [2]  ARTIFICIAL  (Score natur	3]	ORIGIN  LIMESTONE  TILLS [1]  WETLANDS  HARDPAN [0]  SANDSTONE  RIP/RAP [0]	[1] SILT [0] SILT [1]	QUALI    HEAVY   2   MODERA   NORMAL   FREE [1]   EXTENSI   MODERA   NORMAL   NONE [1]	Substrate [10]
quality; 3-Highest quality in diameter log that is stable UNDERGUT BANK OVERHANGING VELOWS (IN SLALLOWS (IN S	quality; 2-Mo n moderate or g , well developed S [1] EGETATION [1]	derate amounts, bu reater amounts (e.g. I rootwad in deep / f	t not of highest ., very large bo ast water, or de 70cm [2] DS [1]	quality or in small am ulders in deep or fast ep, well-defined, fund OXBOWS BACK AQUATIC MACRO	ounts of highest water, large ctional pools. [WATERS [1] ]	Check ONE (Or EXTENSIVE: MODERATE SPARSE 5.	r 2 & average) >75% [11] 25-75% [7] 25% [3]
☐ HIGH [4] ☐ E ☐ MODERATE [3] ☐ C ☑ LOW [2] ☑ [7]	HOLOGY Che VELOPMENT EXCELLENT [7] GOOD [5] FAIR [3]	CHANNE  NONE [6]  REGOVERE  REGOVERIN	LIZATION D [4]	STABILIT  HIGH [3]  MODERAT  LOW [1]			Channel 0
4] BANK EROSION ARIVER right looking downstre EROSION NONE / LITTLE [3] MODERATE [2] HEAVY / SEVERE [4]	RIPA	RIAN WIDTH > 50m [4] RATE 10-50m [3] OW 5-10m [2] NARROW < 5m [1]	F F F F F F F F F F F F F F F F F F F	ategory for EACH BAI LOOD PLAIN QU T, SWAMP [3] OR OLD FIELD [2] INTIAL, PARK, NEW I D PASTURE [1] ASTURE, ROWCRO	JALITY  GOOD TO STREET TO	CONSERVATION JRBAN OR IND WINING / CONS opredominant lar Om riparian.	USTRIAL [0] TRUCTION [0]
5] POOL / GLIDE AN MAXIMUM DEPTH Check ONE (ONLY!) □> 1m [6] □ 0.7<1m [4] □ 0.4<0.7m [2] □ 0.2<0.4m [1] □ < 0.2m [0]  Comments	CHA Check C POOL WID POOL WID	RUN QUALITY  NNEL WIDTH  NE (Or 2 & average  TH > RIFFLE WIDTH  TH = RIFFLE WIDTH  TH > RIFFLE WIDTH	o)   [2]	Check ALL that app ENTIAL [-1] SLOV FAST [1] INTE [1] INTE ERATE [1] EDDI cate for reach - pools	oly W [1] RSTITIAL [-1] RMITTENT [-2] IES [1]	Recreation Primary ( Secondary (circle one and con	Contact Contact
Indicate for fund of riffle-obligate RIFFLE DEPTH  BEST AREAS > 10cm [: BEST AREAS 5-10cm [: BEST AREAS < 5cm [:metric=t	species: RUN 21 □ MAXIMU 11 □ MAXIMU	Che DEPTH R M > 50cm [2] S M < 50cm [1] M	ck ONE ( <i>Or</i> 2 & <b>IFFLE / RUN</b> TABLE (e.g., C OD, STABLE (e	average).	RIFFLE / RUI	MNO R	RIFFLE [metric=0] DNESS
6] GRADIENT ( 3		ERY LOW - LOW [2 ODERATE [6-10]		%POOL:	%GLIDE	=	Gradient 3

DILLINE DIP	201	s reach typical of steam?, Recreation	/ Observed - Inferred, Other	/ Sampling observations, Concerns, Acc	ess directions, etc.
0.5 km	BI- 2nd NUISANCE ALGAE NIVASIVE MACROPHYTES EXCESS TURBIDITY DISCOLORATION BIS FOAM FSCUM	PUBLIC / PRIVATE / BOTH / NA ACTIVE / HISTORIC / BOTH / NA YOUNG-SUCCESSION-OLD SPRAY / SNAG / REMOVED MODIFIED / DIPPED OUT / NA LEVEED / ONE SIDED RELOCATED / GUTOFFS MOVING-BEDLOAD-STABLE ARMOURED / SLUMPS ISLANDS / SCOURED IMPOUNDED / DESICCATED FLOOD CONTROL / DRAINAGE	Circle some & COMMENT	EJ ISSUES  WWTP / CSO / NPDES / INDUSTRY HARDENED / URBAN / DIRT&GRIME CONTAMINATED / LANDFILL BMPs-CONSTRUCTION-SEDIMENT LOGGING / IRRIGATION / COOLING BANK / EROSION / SURFACE FALSE BANK / MANURE / LAGOON WASH H <sub>2</sub> 0 / TILE / H <sub>2</sub> 0 TABLE ACID / MINE / QUARRY / FLOW NATURAL / WETLAND / STAGNANT PARK / GOLF / LAWN / HOME ATMOSPHERE / DATA PAUCITY	FJ MEASUREMENTS  X width X depth max depth X bankfull width bankfull X depth W/D retio bankfull max, depth floodprone x² width entrench, ratio Legacy Tree:

#### Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3 SITE NAME/LOCATION Hac symen RIVER BASIN Haggamen 1-02 SITE NUMBER LENGTH OF STREAM REACH (ft) .. ZOO LONG: RIVER CODE DATE 5-20-13 SCORER POCH COMMENTS Check NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Onlo's PHWH Streams" for Instructions INONE/NATURAL CHANNEL IN RECOVERED PRECOVERING IN RECEIVERY STREAM CHANNEL MODIFICATIONS: SUBSTRATE (Estimate percent of every type of substrate present, Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B HHEI PERCENT PERCENT Metric BLDR SLABS [16 pts] BOULDER (\$256 mm) [16 pts] **Points** 100 LEAF PACKWOODY DEBRIS (3 pts) BEDROCK [16 pt] FINE DETRITUS [3 pts] Substrate COBBLE (65-255 mm) [12 pts] Max = 40 CLAY OF HARDPAN [0 pt] GRAVEL (2-64 mm) [8 pts] MUCK [0 bis] ØØ SAND (<2 mm) [6 pts] ARTIFICIAL [3 pts] Total of Percentages of Bidr Slabs, Boulder, Cobble, Bedrock DESCRIPTION OF THE PARTY OF THE (B) A+B 3 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES: Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunds pools from foad culverts or storm water pipes). (Check ONLY one box): Pool Depth Max = 30 > 5 cm - 10 cm [15 pts] > 22.5 = 30 cm [30 pts] < 5 cm [5 pts] 20 10 - 22.5 cm [25 pts] 20 NO WATER OR MOIST CHANNEL [0 pts] 20 COMMENTS MAXIMUM POOL DEPTH (centimeters): 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] Bankfull > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] Width ≤ 1.0 m (≤ 3' 3") [5 pts] Max=30 > 1.5 m = 3.0 m (> 4'.8" = 9'.7") [20 pts] COMMENTS ... AVERAGE BANKFULL WIDTH (meters) This information must also be completed NN QUALITY &NOTE River Left (L) and Right (R) as looking downstream FLOODPLAIN QUALITY RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH (Per Bank) (Most Predominant per Bank) Wide ≥10m Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Moderate 5-10m Urban or Industrial ØØ Narrow <5m Open Pasture, Row Residential, Park, New Field 四四 None Fenced Pasture Mining or Construction COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermittent) Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral)

(Check ONLY one box):

Moderate to Severe

30

>3

Severe (10 m/100 h)

2.0

2.5

Flat (0.5 ft/100 ft)

None

0.5

COMMENTS ...

STREAM GRADIENT ESTIMATE

Flat to Moderate

SINUOSITY (Number of bends per 61 m (200 ft) of channel)

1.0

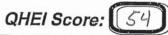
1,5

Moderate (2 f/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Als	o be Completed):
QHEI PERFORMED? - PYes O No QHEI Score S	(If Yes, Attach Completed QHEI Form)
WWH Name:	Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE	NTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name:	NRCS Soil Map Page: NRCS Soil Map Stream Order
county: Yaulding Ton	nship / City:
MISCELLANEOUS	
Base Flow Conditions? (Y/N): Date of last precipitation:	Quantily:
Photograph Information: See affected topur	
Elevated Turbidity (T/N).	<u>O</u>
Were samples collected for water chemistry? (Y/N): (Note	lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l)	pH (S.U.)Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If	not, please explain:
	<u>and the second </u>
Additional comments/description of pollution impacts:	ng ng nguyan ng nguy Nguyan nguyan nguyan ng nguyan nguyan nguyan nguyan nguyan nguyan nguyan nguyan nguyan ng nguyan nguyan nguyan
Additional continents/description of positions and	en e
the state of the s	
BIÒTIC EVALUATION	and the state of t
Performed? (Y/N): (If Yes, Record all observations. Vo	ucher collections optional. NOTE: all voucher samples must be labeled with the site I data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) Youcher? (Y/N) Salamand	ers Observed? (Y/N)Voucher? (Y/N)Voucher? (Y/N)Voucher? (Y/N)
Frogs or Tadpoles Observed? (Y/N) Voucher? (T/N) /	Aduatic Madionivortes also successful y y
Comments Regarding Biology	
DRAWING AND NARRATIVE DESCRIPT	TION OF STREAM REACH (This must be completed):
Include Important landmarks and other features of Inter	est for site evaluation and a narrative description of the stream's location
CH	DODIA
	opped field Fee
	wethord Combress
FLOW	res /
Trees	
Comment of the same	
$\mathcal{C}$	topped field

 $\geq$ 

#### ChieERA



Stream & Location:	T-02	Hage	symon	·Cr		ŔМ:	. Date:	S IZC	
Bluer Codes		OTODET #	_Scorers		e & Affiliation:		- Westu	200	
River Code:	ONLYTWO SU	STORET #:		Lat./Lo NAD 83 - deci	mal °)	/8		Опісе	verified location
BEST TYPES  BEST TYPES  BEDR /SLABS [10]  BOULDER [9]  GOBBLE [8]  GRAVEL [7]  SZ(SAND [6]  BEDROCK [5]	POOL RIFFLE	Very type present OTHER TY HARDPA DETRITU MUCK [2] MISILT [2] ARTIFICI	PES POOL S [3] AL [0] tural substrate	es; ignore sources)	Check ( ORIGIN  LIMESTONE [1] TILLS [1] WETLANDS [0] HARDPAN [0] SANDSTONE [0] RIP/RAP [0] LACUSTURINE [0] SHALE [-1] COAL FINES [-2]	SILT	QUA □ HEAVY □ MODER □ NORMA	[-2] (ATE [-1] (L-[0] 1] SIVE [-2] (ATE [-1] (L-[0]	Substrate  Maximum 20
2] INSTREAM COVE quality; 3-Highest quality is diameter log that is stable.   UNDERGUT BANKS   OVERHANGING VE   SHALLOWS (IN SL   ROOTMATS [1]   Comments	quality; 2-Mo n moderate or ( , well develope § [1] GETATION [1]	pderate amounts, greater amounts (of dispersion of the pooles of the poo	but not of hig e.g., very larg / fast water, > 70cm [2] VADS [1]	hest quality ge boulders i or deep, wel OXE AQU	or in small amounts	of highest; large pools. [RS [1] [	Check ONE ( EXTENSIVE MODERATE	E >75% [1 E 25-75% [ <25% [3]	11 [7] % [1]
☐ HIGH (4) ☐ E ☐ MODERATE (3) ☑ G ☑ LOW (2) ☐ F	OLOGY Che ELOPMENT XCELLENT [7] OOD [5] AIR [3] OOR [1]	CHANN NONE [6] RECOVER	ELIZATIO	N [	STABILITY  HIGH (3)  MODERATE [2]  LOW [1]		4	Channel Maximum 20	12
4] BANK EROSION A	ND RIPARI	AN ZONE Che	ck ONE in ea	ch category	for EACH BANK (O	r 2 per bank	& average)		
River right looking downstrea  L R EROSION  D NONE / LITTLE [3]  M MODERATE [2]  D HEAVY / SEVERE [1]  Comments	RIPA	RIAN WIDTH > 50m [4] RATE 10-50m [3] OW 5-10m [2] NARROW < 5m [	L R D FO D SH D D RE	FLOOD REST, SWA RUB OR OL SIDENTIAL NGED PAST	PLAIN QUALIT MP [3] D FIELD [2] PARK NEW FIELD		ONSERVATIONS ON SERVATION ON SERVATION ON SERVATION OF THE PROPERTY OF THE PRO	DUSTRIAL STRUCTIO	[0] N [0]
5] POOL / GLIDE AND MAXIMUM DEPTH Check ONE (ONLY!) [	CHA Check O □ POOL WID ☑ POOL WID	RUN QUALIT) NNEL WIDTH NE (Or 2 & avera TH > RIFFLE WID TH = RIFFLE WID TH > RIFFLE WID	ge) TH [2] □ Ti TH [1] □ V TH [0] □ F	Check DRRENTIAL ERY FAST [ AST [1] ODERATE I	NT VELOCITY ALL that apply [-1] SLOW [1] [] INTERSTIT DINTERMITI [] DEDDIES [1] each - pools and riff	ENT [-2]	Secondar (circle one and c	Contact ry Contact omment on ba  Pool / Current Maximum	ct
Indicate for function of riffle-obligate is RIFFLE DEPTH  BESTAREAS > 10cm [2] BESTAREAS 5 10cm [1] BESTAREAS 5 5cm [metric=0]	RUN   RUN     MAXIMU   MAXIMU	CI DEPTH M > 50cm [2] [] M < 50cm [1] []	neck ONE (O RIFFLE / F STABLE (e.c MOD, STAB)	r 2 & averag RUN SUB: I., Çobble, E LE (e.g., Lar	e). STRATE RIFF coulder /21	LE / RUN	ion NO EMBEDDI NE [2] W [1] DERATE [0] TENSIVE [-1]	Riffle / Run Maximum	
6] GRADIENT ( Z DRAINAGE AREA	口脈	RY LOW LOW DDERATE [6,10] GH - VERY HIGH			=	%GLIDE:	=	Gradient Maximum	7

METHOD  BOAT  WADE  L LINE  OTHER	STAGE  ST	omment RE: Reach consistency/ is	reach typical of steam?, Recreation	Observed - Inferred, Other/	Sampling observations, Concerns, Acce	
DISTANCE    0.5 km   0.45	EN 2nd cm	□ NUISANCE ODOR □ SLUDGE DEPOSITS □ CSOR/SSOR/OUTFALLS	DJ MAINTENANCE PUBLIC / PRIVATE / BOTH / NA ACTIVE / HISTORIC / BOTH / NA YOUNG-SUCCESSION-OLD SPRAY / SNAG / REMOVED MODIFIED / DIPPED OUT / NA LEVEED / ONE SIDED RELOCATED / CUTOFFS MOVING-BEDLOAD-STABLE ARMOURED / SLUMPS ISLANDS / SCOURED IMPOUNDED / DESICCATED FLOOD CONTROL / DRAINAGE	Circle some & COMMENT	EJ ISSUES  WWTP / CSO / NPDES / INDUSTRY HARDENED / URBAN / DIRT&GRIME CONTAMINATED / LANDFILL BMPS-CONSTRUCTION-SEDIMENT LOGGING / IRRIGATION / COOLING BANK / EROSION / SURFACE FALSE BANK / MANURE / LAGOON WASH H <sub>2</sub> 0 / TILE / H <sub>2</sub> 0 TABLE ACID / MINE / QUARRY / FLOW NATURAL / WETLAND / STAGNANT PARK / GOLF / LAWN / HOME ATMOSPHERE / DATA PAUCITY	FJ MEASUREMENTS  I widh  I depth  max depth  I bankful width  bankful i depth  Will raid  bankful max depth  floodprone i width  entench ratio

See affach / HHEI sheet

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Summary: Application of Northwest Ohio Wind Energy - Appendix M Wetland Delineation Report Continued (Part 54) electronically filed by Teresa Orahood on behalf of Sally Bloomfield