





ChieFPA Primary Headwater Habitat Evaluation Form

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

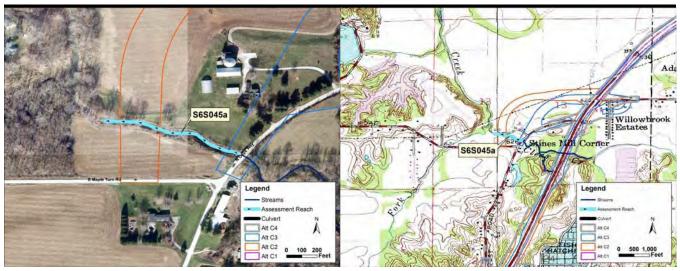
SITE NAME/LOCATION UNT West For	k Clear Creek			
SITE NUMBER	S6S044a RIVE	R BASIN Clear Creek - East/West	/ DRAINAGE AREA (mi)	0.01
LENGTH OF STEAM REACH (ft)	LAT 39.46078	B LONG86.378063 RIVER CO	DDE N/A RIVER MILE N	N/A
DATE 1/14/2016 SCORER ry kl	COMMEN	 NT		
NOTE: Complete All Items On This Fo	rm - Refer to ""Field E	valuation Manual for Ohio's PHW	H Streams" for Instructions	
STREAM CHANNEL NONE / NAT MODIFICATIONS:	URAL CHANNE	RECOVERED RECOVERIN	IG RECENT OR NO RECO	OVERY
 SUBSTRATE (Estimate percent of (Max of 32). Add total number of sig TYPE 	inificant subsrate types			HHEI Metric Points
BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts BEDROCK [16 pts] COBBLE (65-256 mm) [9 pt GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts]	0 0 0 0 0 0	SILT [3 pt] LEAF PACK/WOODY DEB FINE DETRITUS [3 pts] CLAY or HARDPAN [0 pts] MUCK [0 pts] ARTIFICIAL [3 pts]	0	Substrate Max = 40
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock	0.00% (A)	Substrate Percentage Check 100 %	(B)	(A+B)
SCORE OF TWO MOST PREDOMINATE	SUBSTRATE TYPE	0 TOTAL NUMBER OF S	JBSTRATE TYPES 1	
2. MAXIMUM POOL DEPTH (Measur of evaluation. Avoid plunge pools			valuation reach at the time	Pool Depth Max = 30
>>30 centimeters [20 pts] >22.5 - 30 cm [30 pts] >10 - 22.5 cm [25 pts]		⇒5 cm - 10 cm [15 pts]✓< cm [5 pts]No Water or Moist Chan	nel [0 pts]	5
COMMENTS:		MAXIMUM POOL DE	PTH (centimeters):	
	•	MAXIMUM POOL DE	ONLY one box):	Bankfull Width Max = 30
3. BANK FULL WIDTH (Measure > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts]	•	f 3-4 measurements) (Check (DNLY one box): B") [15 pts]	Width
3. BANK FULL WIDTH (Measure > 4.0 meters (>13') [30 pts]		f 3-4 measurements) (Check to 1.0 m - 1.5 m (>3'3" - 4')	DNLY one box): B") [15 pts]	Width Max = 30
3. BANK FULL WIDTH (Measure > 4.0 meters (>13') [30 pts]	This informati	of 3-4 measurements) (Check of 3-4 measurements) (Check of 3-2 measurements) (2 measurements) (3 measurements) (3 measurements) (4 measurements) (4 measurements) (4 measurements) (5 measurements) (5 measurements) (5 measurements) (5 measurements) (6 measurements) (6 measurements) (7 measuremen	DNLY one box): 3") [15 pts] L WIDTH (Meters):	Width Max = 30
3. BANK FULL WIDTH (Measure > 4.0 meters (>13') [30 pts]	This informati	of 3-4 measurements) (Check (1) >1.0 m - 1.5m (>3'3" - 4') <=1.0m (<=3'3") [5 pts] AVERAGE BANKFUL ion must also be completed NOTE: River left (L) and Right (1)	DNLY one box): 3") [15 pts] L WIDTH (Meters):	Width Max = 30
3. BANK FULL WIDTH (Measure > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts] > 1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS:	This information of the property of the proper	ion must also be completed NOTE: River left (L) and Right (A) Park to the completed (B) NOTE: River left (L) and Right (B)	DNLY one box): B") [15 pts] L WIDTH (Meters): 0	Width Max = 30
3. BANK FULL WIDTH (Measure > 4.0 meters (>13') [30 pts]	This information DPLAIN QUALITY FLOODPLAIN C L R (Most Pre Mature F Immature Resident Fenced I f evaluation) (Check O	Section Sect	DNLY one box): B") [15 pts] L WIDTH (Meters): Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction atted pools, no flow (Intermittent)	Width Max = 30
3. BANK FULL WIDTH (Measure > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts] > 1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: RIPARIAN ZONE AND FLOOD RIPARIAN WIDTH L R (Per Bank Wide > 10 m Moderate 5-10 m Narrow < 5 m None Comments: FLOW REGIME (At time of Subsurface flow with isolated processing to the comments: SINUOSITY (Number of ben None 0.5 STREAM GRADIENT ESTIM	This information DDPLAIN QUALITY FLOODPLAIN Q L R (Most Precent of the process	AVERAGE BANKFUL AVERAG	DNLY one box): B") [15 pts] L WIDTH (Meters): Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction atted pools, no flow (Intermittent) ter (Ephemeral) 3.0 3.0 >3.0	Width Max = 30

ADDITIONAL STREAM INFORMATION (This information must also be comp	plete
	attach completed QHEI form)
DOWNSTREAM DESIGNATED USE(S) WWH Name: West Fork Clear Creek	Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AR	REA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name Martinsville NRCS Soil Map Page	37 NRCS Soil Map Stream Order: 2
County: Morgan Township / City: Washington	
MISCELLANEOUS	
Base flow conditions? (Y/N) Yes Date of last precipitation:	Quantity
Photograph information:	
Elevated Turbidity? (Y/N) No Canopy (% open): 20	
Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id.	. and attach results) Lab number: N/A
Field Measures: Temp (C) Dissolved oxygen (mg/l): pH:	Conductivity (umhos/cm)
Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. N ID number. Include apropriate field data sheets from the Primar	
Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N)	No Voucher? (Y/N) No
Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinverteb	orates observed? (Y/N) No Voucher? (Y/N) No
Comments Regarding Biology:	

DRAWING AMD NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):

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

Stream Reach S6S045a



Stream Location on 2013 Aerial Photograph

Stream Location on Cope USGS Quadrangle

Clear Creek **Stream Name:** Quadrangle: Cope Flow Regime: Perennial County: Morgan Natural T12N **Channel Type:** Township: No R1E Legal Drain: Range: IDEM 303(d) Listed: No Section: 13 SW Predominant Substrate: sand Quarter:

Evaluation Score: QHEI = 46.25 **Latitude:** 39.476144 **Use Designation:** Probable Warm Water Habitat **Longitude:** -86.374665

OHWM width: 25.4 Basin: Clear Creek - East/West/Grassy

OHWM depth: 2.6 **14-digit HUC:** 05120201140140

USACE Jurisdiction: Yes **Drainage area:** 16.647

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	0	0.000	0.00
Aternative C2	210	0.122	0.39
Aternative C3	67	0.039	0.11
Aternative C4 (Preferred)	0	0.000	0.00





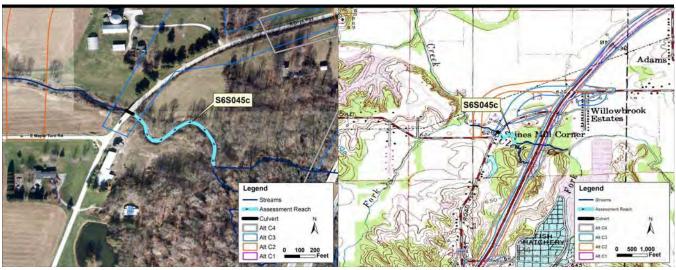
IDEM	Sample #		bioSample #	Stream Name		Location	
1640	S6S045a		N/A	Clear Creek			
1	Surveyor ry kl	Sample Date 1/15/2016	County Morgan	Macro Sample Type N/A	☐ Habitat ☐ Complete	QHEI Score:	46.25
1] SUB	STRATE C	heck ONLY Two	predominant subs	trate TYPE BOXES;	01 1 01	15 (0.0.1)	
	DECT TVD		and check every	71 1		NE (Or 2 and average)	•
PREDOMINA	BEST TYP Ant	ES PRESENT TOTAL %		ER TYPES PRESENT TOTAL %	ORIGIN	QUALITY	
☐ ☐ BC ☐ ☐ GF ✔ ✔ SA	DR/SLABS [10 DULDERS [9] DBBLE [8] RAVEL [7] IND [6] DROCK [5]	✓ ✓ 10 ✓ ✓ 90	ne izi judaa t		LIMESTONE [1 TILLS [1] WETLANDS [0 HARDPAN [0] SANDSTONE [RIP/RAP [0] LACSTRINE [0 SHALE [-1] COAL FINES [-	MODERATE [NORMAL [0] FREE [1] EXTENSIVE [MODERATE [NORMAL [0]	Substrate 15.0
		ED Indiantani					
quality; 2- quality in that is sta % Amount	-Moderate amo moderate or g ible, well deve UNDERCUT BA OVERHANGIN SHALLOWS (II ROOTMATS [1	ounts, but not of I reater amounts (loped root wad in ANKS [1] G VEGETATION I V SLOW WATER	nighest quality or in e.g., very large bou deep/fast water, o % Amount 20 2 P00	estiamte percent: 0-Abser small amounts of highest alders in deep or fast water, or deep, well-defined, function was a mount of the control o	quality; 3- Highest , large diameter lo noal pools.) (BOWS, BACKWA	Check One (Or Check One (Or EXTENSIVE MODERATI TERS [1] SPARSE IYTES [1] NEARLY AL EBRIS [1]	OUNT 2 and average) 5 >75% [11] 5 25-75% [7]
		PHOLOGY Ch	eck ONE in each c	ategory (Or 2 and average)	1		
SINUO:	SITY [4] RATE [3] [2] [1]	DEVELOI EXCELLE GOOD [5] FAIR [3] POOR [1]	PMENT INT [7]	CHANNELIZATION NONE [6] RECOVERED [4] RECOVERING [3] RECENT OR NO RECOV	ST 		annel imum 20 10.0
4] <i>BAN</i>	IK EROSION	I AND RIPARIA	AN ZONE Check	k ONE in each category for	EACH BANK (Or	2 per bank and average)	_
River rig	th looking downstruction EROSION ONE/LITTLE [3] ODERATE [2]	L R RIPA WIDE MODE MORA VERY NONE	ARIAN WIDTH >50m [4] :RATE 10-50m OW 5-10m [2]	L R FLOOD PLAIN FOREST, SWAMP SCRUB OR OLD FI FINCED PASTURE OPEN PASURE, RO	N QUALITY [3] ELD [2] C, NEW FIELD [1] E [1] Indi	L R CONSERVATION URBAN OR INDU MINING/CONSTR	JSTRIAL [0] RUCTION [0]
5] <i>POC</i>	DL/GLIDE AN	ID RIFFLE /RU	IN QUALITY				
Check Of ✓ >1 m [1m [4] 0.7m [2] 0.4m [1] [0]	Check ON POOL WI	NEL WIDTH IE (Or 2 and avera; DTH > RIFFLE WID DTH = RIFFLE WID DTH < RIFFLE WID	ge) Ch TH [2] TORRENTIA TH [1] VERY FAST TH [0] FAST [1] MODERATE	[1] INTE	TY (Circle one and W [1] Prima Secon SERMITTENT [-2] IES [1] Cu	on Potential comment on back) ry Contact dary Contact Pool/ rrent imum 12
		riffles; Best area	s must be large end	ough to support a population	n		
of riffle- RIFFLE BEST BEST	obligate specie E DEPTH AREAS>10cm AREAS 5-10cn AREAS <5cm [metric	RUN DE [2] MAXIM 1 [1 MAXIM	EPTH I UM >50cm [2] [UM<50cm [1] [Check One (Or 2 and ave RIFFLE/RUN SUBST ☐ STABLE (e.g., Cobble, B ☐ MOD. STABLE (e.g, Larg ✓ UNSTABLE (e.g., Fine Fr	rage) RATE RIF oulder) [2 le Gravel) [1]	MODERATE [U]	
		-:\	VEDV LOW 10	NV [2 4] 2/ 200: [20 0, 0:	IDE 5	
-	DIENT (0 ft/r NAGE AREA	,	UVERY LOW - LO	- 10]	30 % GL 45 % RIF	Rip	arian 2.0



Comment

A-CANOPY						
✓ >85% - Open	Looking upstrea	am (>10m, 3 readir	ngs, <10m reading in mid	dle); Round to the ne	earest whole percent	
55% -<85%		Left	Middle	Right	Total Average	
30%-<55 %	% open	%	%	%	%	
10%-<30%	-					
<10% - Closed						
B-AESTHETICS	_		C-RECE	REATION		
Nuisance algae	Oil sheen		Area	Depth		
☐ Invasive macrophytes ✓			Pool: ✓ > 100ft	² ✓ > 3ft		
Excess turbidity	Nuisance o					
Discoloration	Sludge dep					
Foam/Scum	CSOs/SSO	s/Outfalls				
D-MAINTENANCE			E-ISSU	<u>ES</u>		
☐ Public ☐ Private			WWTF	CSO 🗌	NPDES	
Active Historic			Indust	ry 🗌 Urban		
Succession: Young	Old		Harde	ned 🗌 Dirt Gr	ime	
Spray Islands Sc	oured		☐ Conta	minated 🗌 La	andfill	
Snag: Removed Mod	dified		BMPs:	Construction	✓ Sediment	
Leveed: One sided	Both banks		Loggiı		n 🗌 Cooling	
Relocated Cutoffs			Erosion:	✓ Bank 🗌 S	Surface	
Bedload: ✓ Moving	Stable		False	bank 🗌 Manu	re 🗌 Lagoon	
Armoured Slumped			Wash	H2O 🗌 Tile 🛚	H2O table	
☐ Impounded ☐ Desiccate	d		Mine:	Acid Quar	ry	
☐ Flood control ☐ Draina	ge		Flow: 🗸	Natural St	agnant	
			Wetlar	nd 🗌 Park 🗌	Issues: Golf	
			Lawn	Home		
			Atmos	pheric deposition	on	

Stream Reach S6S045c



Stream Location on 2013 Aerial Photograph

Stream Location on Cope USGS Quadrangle

Clear Creek **Stream Name:** Quadrangle: Cope Flow Regime: Perennial County: Morgan Natural T12N **Channel Type:** Township: No R1E Legal Drain: Range: IDEM 303(d) Listed: No Section: 13 Predominant Substrate: sand Quarter: SW QHEI = 58.25**Evaluation Score:** Latitude: 39.47547

Use Designation: Probable Warm Water Habitat Longitude: -86.372592

OHWM width: 28.7 Basin: Clear Creek - East/West/Grassy

OHWM depth: 2.6 **14-digit HUC:** 05120201140140

USACE Jurisdiction: Yes **Drainage area:** 16.647

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	0	0.000	0.00
Aternative C2	0	0.000	0.00
Aternative C3	45	0.030	0.13
Aternative C4 (Preferred)	0	0.000	0.00





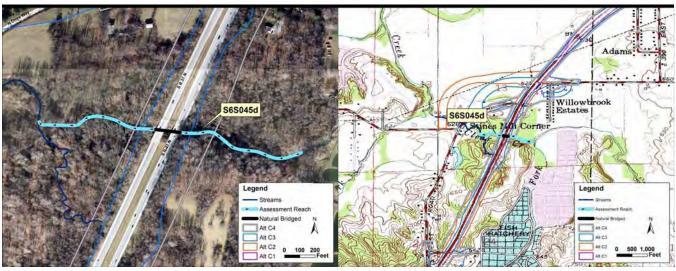
IDEM	Sample # S6S045c		bioSample #	Stream Name Clear Creek		Location	
1 inn	Surveyor	Sample Date		Macro Sample Type	☐ Habitat	OUEL O	
A. A.	ry kl	1/16/2016	Morgan	N/A	Complete	QHEI Score:	58.25
1] SUE	BSTRATE (Check ONLY Two	predominant su 6 and check eve	bstrate TYPE BOXES;	Check ON	IE (Or 2 and average)	
	BEST TYP			HER TYPES	ORIGIN	QUALITY	
PREDOMINA PR		PRESENT TOTAL 9		PRESENT TOTAL %	LIMESTONE [1	_	
□ □ Bl	LDR/SLABS [1		☐ ☐ HARDF	PAN [4] 🔲 🔲 🔀	TILLS [1]	MODERATE [-1]	•
	OULDERS [9] OBBLE [8]		DETRIT		WETLANDS [0] HARDPAN [0]		Substrate
	RAVEL [7] AND [6]	✓ <u>5</u> ✓ ✓ 95	SILT [2]	CIAL [0]	SANDSTONE [I RIP/RAP [0]		14.0
	EDRÔCK [5]		(Soor		LACSTRINE [0]]	
NUMBER	R OF BEST TY	PES:4 or move. ✓ 3 or les		e natural substrates;ignore e from point-sources)	SHALE [-1] COAL FINES [-	☐ NORMAL [0] 2] ☑ NONE [1]	Maximum 20
Comme	ents						
2] <i>INS</i>	TREAM CO	VER Indicate p	resence 0 to 3 a	nd estiamte percent: 0-Absent;	1- Very small ar	mounts or if more common	
				r in small amounts of highest qu boulders in deep or fast water, la			_
that is sta	able, well deve		deep/fast water	r, or deep, well-defined, functino		EXTENSIVE	>75% [11]
% Amount	t UNDERCUT B	ANKS [1]	% Amount P(% Amount DOOLS>70CM [2] OXBO	OWS. BACKWA	☐ MODERATE 2 TERS [1] ☑ SPARSE -<25	
	OVERHANGIN	IG VEGETATION IN SLOW WATER	[1] <u>2 1</u> R(OOTWADS [1] AQU	ATIC MACROPH S OR WOODY D	YTES [1] NEARLY ABS	SENT <5% [1]
	ROOTMATS [/[·] —— — D	OULDERS[I] _IUZ_ LOGS	ט זעטטטא אט נ	Co Maxim	ver
Commo	unto.						5.0
Comme 31 CH4		PHOLOGY Ch	eck ONE in eacl	n category (Or 2 and average)			
SINUO		DEVELO		CHANNELIZATION	ST	ABILITY	
HIGH	[4]	EXCELLE	ENT [7]	✓ NONE [6]	I	HIGH [3]	
✓ MODE LOW	ERATE [3] [2]	✓ GOOD [5 ☐ FAIR [3[J	☐ RECOVERED [4] ☐ RECOVERING [3]		MODERATE [2	um II
☐ NONE		☐ POOR [1]		☐ RECENT OR NO RECOVER	RY [1]		16.0
4] BAN		N AND RIPARI	AN ZONE Ch	eck ONE in each category for E	ACH BANK (Or	2 per bank and average)	
-	ght looking downst		ARIAN WIDT	H LR FLOOD PLAIN		L R	
L R	EROSION	¹ ✓ 🗆 MODE	>50m [4] ERATE 10-50m	FOREST, SWAMP [3] SCRUB OR OLD FIEL	D [2]	CONSERVATION TO URBAN OR INDUS	
	ONE/LITTLE [3] ODERATE [2]	J 🔲 🗹 NARF	ROW 5-10m [2]	RESIDENTIAL, PRK, I	NEW FIELD [1]	☐ ☐ MINING/CONSTRU	ICTION [0]
✓ ✓ HE	AVY/SEVERE	[1] VERY	NARROW [1] [0]	FENCED PASTURE [1	TODOD IOI IIION	cate predominant land use(: 100m riparian	
					·	Ripar Maxim	um 0.3
	ents 50%cao	py open ND RIFFLE /RU	IN OUALITY				10
-	IUM DEPTI		INEL WIDTH	CHDDE	NT VELOCI	Recreation	
Check O	NE (ONLY!	Check ON	NE (Or 2 and ave	erage) Chec	NT VELOCI		,
✓ >1 m ☐ 0.7 - <	[6] :1m [4]	POOL WI	DTH > RIFFLE W DTH = RIFFLE W	/IDTH [1] 🔲 VERY FAST [1]		W [1] ☐ Primary ☐ RSTITIAL [-1] ☐ Seconda	contact iry Contact
	(0.7m [2] (0.4m [1]	☐ POOL WI	DTH < RIFFLE W	/IDTH [0]		IF < 111	pol/
☐ <0.2m					ate for reach - p	Culi	_{num} 11.0
Comme							12
	e for functional -obligate speci		s must be large	enough to support a population	~~)	☐ NO RIFFLE [ME	TRIC-01
RIFFLE	E DEPTH	RUN DI	EPTH	Check One (Or 2 and average RIFFLE/RUN SUBSTRA	o ,	FLE/RUN EMBEDDE	
	AREAS>10cm	m [2] MAXIN	1UM >50cm [2] 1UM<50cm [1]	STABLE (e.g., Cobble, Bou MOD. STABLE (e.g., Large (Ilder) [2	✓ NONE [2] _ LOW [1] p _{if}	
	AREAS 5-10cl AREAS <5cm	_	IUIVICOUCIII [I]	✓ UNSTABLE (e.g., Fine Frve	el, Sand) [0]	MODEDATE [0]	fle/ Run
	[metri	C=0]				EXTENSIVE [-1] Maxim	iŭm 4.0
Comme		mil	□ VEDV LOW	10W[2 4] W 5001	30 0/ 5:	IDE. 5	
-	DIENT (0 ft/	•			30 % GL	Ripar	
DRAI	NAGE ARE	4 (0 ft/mi)		′ HIGH [10 - 6] % RUN: ☐	40 % RIF	FLE: 25 Maxim	2.0



Comment

A-CANOPY						
✓ >85% - Open	Looking upstrea	m (>10m, 3 readi	ngs, <10m reading in midd	dle); Round to the n	earest whole percent	
55% -<85%		Left	Middle	Right	Total Average	
30%-<55 %	% open	%	%	%	%	
10%-<30%	•					
<10% - Closed						
B-AESTHETICS			C-RECR	EATION		
■ Nuisance algae	Oil sheen		Area	Depth		
☐ Invasive macrophytes	✓ Trash/Litter		Pool: > 100ft			
Excess turbidity	Nuisance o	dor				
☐ Discoloration	Sludge dep	osits				
Foam/Scum	CSOs/SSOs	/Outfalls				
D-MAINTENANCE			E-ISSUE	ES		
Public Private			WWTP	 □ cso □ n	NPDES	
Active Historic			Industi	ry Urban		
Succession: Young	Old		☐ Harder	ned Dirt Gr	ime	
☐ Spray ☐ Islands ☐ Sometimes ☐ Somet	coured		☐ Contar	ninated 🗌 La	andfill	
Snag: Removed Mo	dified		BMPs:	Construction	✓ Sediment	
Leveed: One sided	Both banks		Loggin	ıg 🗌 Irrigatior	Cooling	
Relocated Cutoffs			Erosion:	✓ Bank 🗌 S	Surface	
Bedload: 🗸 Moving	Stable		False b	oank 🗌 Manu	re 🗌 Lagoon	
Armoured Slumped			Wash I	H2O Tile	H2O table	
☐ Impounded ☐ Desiccate	ed		Mine:	Acid Quar	ry	
Flood control Draina	age		Flow: 🗸		agnant	
			Wetlan	d Park	Issues: Golf	
			Lawn	Home		
			Atmos	pheric deposition	on	
2. 5 :						

Stream Reach S6S045d



Stream Location on 2013 Aerial Photograph

Stream Location on Cope USGS Quadrangle

Clear Creek **Stream Name:** Quadrangle: Cope Flow Regime: Perennial Morgan County: Natural T12N **Channel Type:** Township: No R1E Legal Drain: Range: IDEM 303(d) Listed: No Section: 13 Predominant Substrate: sand Quarter: SE

Evaluation Score: QHEI = 62 **Latitude:** 39.474484 **Use Designation:** Warm Water Habitat **Longitude:** -86.369309

OHWM width: 34.9 Basin: Clear Creek - East/West/Grassy

OHWM depth: 2.6 **14-digit HUC:** 05120201140140

USACE Jurisdiction: Yes **Drainage area:** 16.407

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	284	0.228	1.11
Aternative C2	281	0.225	1.10
Aternative C3	122	0.098	0.42
Aternative C4 (Preferred)	281	0.225	1.10





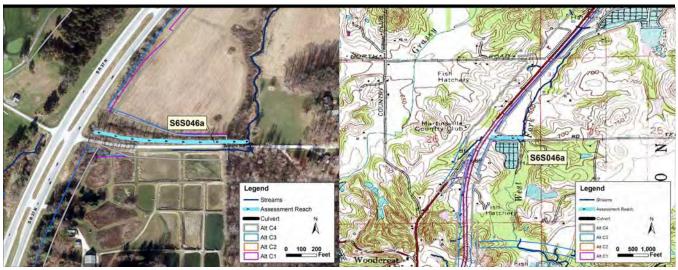
IDEM	Sample #		bioSample #	Stream Name Clear Creek		Location	1
	Surveyor	Sample Date	County	Macro Sample Type	Habitat	QHEI Score:	62
	ry kl	1/15/2016	Morgan	N/A	Complete	WITEI SCOIE.	UZ
1] SUE	BSTRATE (predominant su 6 and check eve	bstrate TYPE BOXES; ry type present	Check ON	IE (Or 2 and average)	
DDEDOMIN	BEST TYP			HER TYPES	ORIGIN	QUALITY	
☐ ☐ GI ✓ ✓ SA ☐ BE	LDR/SLABS [10 DULDERS [9] DBBLE [8] RAVEL [7] AND [6] EDROCK [5] R OF BEST TY	✓ 10 ✓ ✓ 90	P R HARDP DETRIT MUCK SILT [2] ARTIFIC	TUS [3]	LIMESTONE [1 TILLS [1] WETLANDS [0] HARDPAN [0] SANDSTONE [0] RIP/RAP [0] LACSTRINE [0] SHALE [-1] COAL FINES [-	MODERATE [-1] ✓ NORMAL [0] FREE [1] FREE [1] EXTENSIVE [-2] MODERATE [-1] NORMAL [0]	Substrate 14.0
Comme							
quality; 2 quality in that is sta	-Moderate am moderate or g able, well deve t UNDERCUT B OVERHANGIN SHALLOWS (I ROOTMATS [ounts, but not of logreater amounts (eloped root wad in ANKS [1] IG VEGETATION N SLOW WATER	highest quality o e.g., very large b deep/fast water % Amount 10 1 P([1] 2 1 R(nd estiamte percent: 0-Absent; r in small amounts of highest que poulders in deep or fast water, later, or deep, well-defined, functing Mamount DOOLS>70CM [2] OXB DOTWADS [1] AQU DULDERS [1] LOG	uality; 3- Highest arge diameter log pal pools.)	General Properties (1) Genera	UNT and average) >75% [11] 25-75% [7] [% [3] SENT <5% [1] Ver
		PHOLOGY Ch	eck ONE in each	n category (Or 2 and average)			
LOW NONE	[4] ERATE [3] [2] Ents	DEVELOI ☐ EXCELLE ☑ GOOD [5] ☐ FAIR [3] ☐ POOR [1]	ENT [7]]	CHANNELIZATION NONE [6] RECOVERED [4] RECOVERING [3] RECENT OR NO RECOVE	□ I ☑ I □ I	ABILITY HIGH [3] MODERATE [2 Chan LOW [1] Maxim	
4] <i>BAI</i>	NK EROSIOI	N AND RIPARIA	AN ZONE Ch	eck ONE in each category for E		2 per bank and average)	
L R NO	ght looking downst EROSION DNE/LITTLE [3] DDERATE [2] EAVY/SEVERE	Wide wide work with the work w	ARIAN WIDT >50m [4] ERATE 10-50m ROW 5-10m [2] NARROW [1] E [0]	H L R FLOOD PLAIN ▼ FOREST, SWAMP [3]] LD [2] NEW FIELD [1] [1] Indic	L R	TRIAL [0] 1 ICTION [0] s) ian
5] <i>PO</i> (OL/GLIDE A	ND RIFFLE /RU	JN QUALITY			Recreation	Potontial
Check O ✓ >1 m 0.7 - < 0.4 - < 0.2 - <	71m [4] :0.7m [2] :0.4m [1] i [0]	Check ON POOL WI	NEL WIDTH NE (Or 2 and ave DTH > RIFFLE W DTH = RIFFLE W DTH < RIFFLE W	erage) Chec I/IDTH [2] TORRENTIAL I/IDTH [1] VERY FAST [1] I/IDTH [0] FAST [1] MODERATE [1	INTE	TY (Circle one and co W [1] Primary RSTITIAL [-1] Seconda RMITTENT [-2] Po IES [1] Curr	mment on back) Contact ry Contact Ool/ ent
Comme		riffles: Rost area	s must ha larga	enough to support a population			
of riffle- RIFFLE BEST BEST	obligate speci E DEPTH AREAS>10cm AREAS 5-10ci AREAS <5cm [metri	RUN DI [2] MAXIN m [1 MAXIN	ŭ	Check One (Or 2 and avera RIFFLE/RUN SUBSTR STABLE (e.g., Cobble, Bot MOD. STABLE (e.g., Large UNSTABLE (e.g., Fine Free	age) ATE RIF ulder) [2 Gravel) [1]	NO RIFFLE [ME] FLE/RUN EMBEDDE NONE [2] LOW [1] Rif MODERATE [0] F EXTENSIVE [-1] Maxim	DNES
	DIENT (0 ft/	mi)	✓ VERY LOW -	LOW [2 - 4] % POOL :	¹⁵ % GL	.IDE: 5	
_	NAGE AREA	•	MODERATE		30 % RIF	Ripar	



Comment

>85% - Open	A-CANOPY						
30%-<55%		Looking upstre	am (>10m, 3 readi	ngs, <10m reading in mid	dle); Round to the n	earest whole percent	
Volume	55% -<85%		Left	Middle	Right	Total Average	
SPAESTHETICS	30%-<55 %	% open	%	%	•	%	
B-AESTHETICS Nuisance algae Oil sheen Area Depth Invasive macrophytes Trash/Litter Pool: > 100ft 2 > 3ft Excess turbidity Nuisance odor Discoloration Sludge deposits Foam/Scum CSOs/SSOs/Outfalls D-MAINTENANCE Public Private WWTP CSO NPDES Active Historic Industry Urban Succession: Young Old Hardened Dirt Grime Spray Islands Scoured Scoured BMPs: Construction Sediment Leveed: One sided Both banks Logging Irrigation Cooling Relocated Cutoffs Erosion: Bank Surface Bedload: Moving Stable False bank Manure Lagoon Armoured Sumped Mine: Acid Quarry Flood control Drainage Wetland Park Issues: Golf Lawn Home	✓ 10%-<30%	·					
Nuisance algae	<10% - Closed						
Excess turbidity Nuisance odor Discoloration Sludge deposits Foam/Scum CSOs/SSOs/Outfalls D-MAINTENANCE WWTP CSO NPDES Nactive Historic Industry Urban Ur	Nuisance algae		r	Area	Depth		
Discoloration		=	odor	P001 > 1001t	-		
D-MAINTENANCE E-ISSUES Public Private WWTP CSO NPDES Active Historic Industry Urban Succession: Young ✓ Old Hardened Dirt Grime Spray Islands Scoured Contaminated Landfill Snag: Removed Modified BMPs: Construction ✓ Sediment Leveed: One sided Both banks Logging Irrigation Cooling Relocated Cutoffs Erosion: ✓ Bank Surface Bedload: ✓ Moving Stable False bank Manure Lagoon Armoured Slumped Wash H2O Tile H2O table Impounded Desiccated Mine: Acid Quarry Flood control Drainage Flow: ✓ Natural Stagnant Wetland Park Issues: Golf Lawn Home		Sludge der	osits				
Public Private Active Historic Succession: Young Young Old Hardened Dirt Grime Contaminated Landfill Snag: Removed Modified Leveed: One sided Both banks Logging Irrigation Cooling Relocated Cutoffs Erosion: Bank Surface Bedload: Moving Stable False bank Manure Lagoon Armoured Slumped Wash H2O Tile H2O table Impounded Desiccated Mine: Acid Quarry Flood control Drainage Flow: Natural Stagnant Wetland Park Issues: Golf Lawn Home	Foam/Scum	_					
	Public Private Active Historic Succession: Young ✓ Spray Islands Sc Snag: Removed Moc Leveed: One sided Relocated Cutoffs Bedload: Moving Sumped Impounded Desiccate	oured dified Both banks Stable		WWTP Indust Harder Contar BMPs: Loggir Erosion: False Wash Mine: Flow: ✓	ry CSO Nry Urban ned Dirt Gr minated L Construction ng Irrigation W Bank S bank Manu H2O Tile Acid Quar Natural St nd Park	rime andfill Sediment Cooling Surface re Lagoon H2O table rry agnant Issues: Golf	

Stream Reach S6S046a



Stream Location on 2013 Aerial Photograph

Stream Location on Martinsville USGS Quadrangle

UNT 17 West Fork Clear Creek **Stream Name:** Quadrangle: Martinsville Flow Regime: Perennial County: Morgan Channelized Ditch T12N **Channel Type:** Township: No R1E Legal Drain: Range: IDEM 303(d) Listed: No Section: 26 Predominant Substrate: sand Quarter: SE HHEI = 58**Evaluation Score:** Latitude: 39.449602

Use Designation: Rheocrene Potential Longitude: -86.384035

OHWM width: 5.0 Basin: Clear Creek - East/West/Grassy

OHWM depth: 0.3 **14-digit HUC:** 05120201140140

USACE Jurisdiction: Yes **Drainage area:** 0.001

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	671	0.077	0.81
Aternative C2	672	0.077	0.82
Aternative C3	672	0.077	0.82
Aternative C4 (Preferred)	672	0.077	0.82







Primary Headwater Habitat Evaluation Form

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

SITE NAME/LOCATION U	JNT West Fork Clear Creek			
SIT	TE NUMBER S6S046a R	RIVER BASIN Clear Creek - East/West	/ DRAINAGE AREA (mi)	0.001
LENGTH OF STEAM REACH	H (ft) LAT 39.449	9602 LONG86.384035 RIVER CO	DDE_N/A RIVER MILE_N/A	<u> </u>
DATE 4/23/2016 SCC	ORER rh COMI	MENT		
NOTE: Complete All Items	s On This Form - Refer to ""Fiel	ld Evaluation Manual for Ohio's PHW	H Streams" for Instructions	
STREAM CHANNEL MODIFICATIONS:	NONE / NATURAL CHANNE	☐ RECOVERED	IG RECENT OR NO RECOV	ERY
(Max of 32). Add total	number of significant subsrate type	strate presentCheck ONLY two predom pes found (Max of 8). Final metric score	e is sum of boxes A and B.)	HHEI Vetric
<u>TYPE</u> □ □ BLDR SLABS [16 p	ptsl 0	TYPE SILT [3 pt]	PERCENT 0	Points
BOULDER (>256 r	mm) [16 pts0	LEAF PACK/WOODY DEB		ubstrate //ax = 40
COBBLE (65-256 r	mm) [9 pt0	CLAY or HARDPAN [0 pts]	0	
GRAVEL (2-64 mm ✓ ✓ SAND (<2 mm) [6		MUCK [0 pts] ARTIFICIAL [3 pts]	0	13
Total of Percentaç Bldr Slabs, Boulder, Cob		Substrate Percentage Check 100 %	(B)	(A+B)
	EDOMINATE SUBSTRATE TYP	E 12 TOTAL NUMBER OF SU	JBSTRATE TYPES 1	
	PTH (Measure the maximum population plants of plunge pools from road culverts of	pool depth within the 61 meter (200 ft) or storm water pipes)		ool Depth Max = 30
>>30 centimeters [20		>5 cm - 10 cm [15 pts]		
>22.5 - 30 cm [30 pts] >10 - 22.5 cm [25 pts]		<5 cm [5 pts] No Water or Moist Chan	nel [0 pts]	25
COMMENTS:		MAXIMUM POOL DE	PTH (centimeters): 0	
3. BANK FULL WIDT		e of 3-4 measurements) (Check C	DNLY one box):	Bankfull
	0 pts] 13') [25 pts]		DNLY one box): 3") [15 pts]	Bankfull Width Max = 30
3. BANK FULL WIDT > 4.0 meters (>13') [30 > 3.0 m - 4.0m (>9'7" -	0 pts] 13') [25 pts]	e of 3-4 measurements) (Check 0 >1.0 m - 1.5m (>3'3" - 4'8	DNLY one box): 3") [15 pts]	Width
3. BANK FULL WIDT > 4.0 meters (>13') [30 > 3.0 m - 4.0m (>9'7" - ✓ >1.5 m - 3.0 m(>9'7" -	0 pts] · 13') [25 pts] · 4'8") [20 pts]	e of 3-4 measurements) (Check 0 >1.0 m - 1.5m (>3'3" - 4'8 <=1.0m (<=3'3") [5 pts] AVERAGE BANKFUL	DNLY one box): 3") [15 pts]	Width Max = 30
3. BANK FULL WIDT > 4.0 meters (>13') [30 > 3.0 m - 4.0m (>9'7" - >1.5 m - 3.0 m(>9'7" - COMMENTS:	0 pts] - 13') [25 pts] - 4'8") [20 pts] This inform	e of 3-4 measurements) (Check 0 >1.0 m - 1.5m (>3'3" - 4'8 <=1.0m (<=3'3") [5 pts] AVERAGE BANKFUL mation must also be completed	DNLY one box): "" [15 pts] L WIDTH (Meters):	Width Max = 30
3. BANK FULL WIDT > 4.0 meters (>13') [30 > 3.0 m - 4.0m (>9'7" - >1.5 m - 3.0 m(>9'7" - COMMENTS:	0 pts] - 13') [25 pts] - 4'8") [20 pts] This informite AND FLOODPLAIN QUALITY	e of 3-4 measurements) (Check (>1.0 m - 1.5m (>3'3" - 4'8 (<=1.0m (<=3'3") [5 pts] AVERAGE BANKFUL mation must also be completed NOTE: River left (L) and Right (DNLY one box): "" [15 pts] L WIDTH (Meters):	Width Max = 30
3. BANK FULL WIDT > 4.0 meters (>13') [30 > 3.0 m - 4.0m (>9'7" - >1.5 m - 3.0 m(>9'7" - COMMENTS:	0 pts] - 13') [25 pts] - 4'8") [20 pts] This information and FLOODPLAIN QUALITY DTH FLOODPLAIN	e of 3-4 measurements) (Check (>1.0 m - 1.5m (>3'3" - 4'8 (<=1.0m (<=3'3") [5 pts] AVERAGE BANKFUL mation must also be completed NOTE: River left (L) and Right (DNLY one box): "" [15 pts] L WIDTH (Meters): R) as looking downstream	Width Max = 30
3. BANK FULL WIDT > 4.0 meters (>13') [30 > 3.0 m - 4.0m (>9'7" - >1.5 m - 3.0 m(>9'7" - COMMENTS: RIPARIAN ZON RIPARIAN WII	0 pts] - 13') [25 pts] - 4'8") [20 pts] This information in the second	e of 3-4 measurements) (Check (>1.0 m - 1.5m (>3'3" - 4'8 (<=1.0m (<=3'3") [5 pts] AVERAGE BANKFUL mation must also be completed NOTE: River left (L) and Right (IN QUALITY	DNLY one box): "" [15 pts] L WIDTH (Meters): R) as looking downstream	Width Max = 30
3. BANK FULL WIDT > 4.0 meters (>13') [30 > 3.0 m - 4.0m (>9'7" - > 1.5 m - 3.0 m(>9'7" - COMMENTS: RIPARIAN ZON RIPARIAN WII L R (Per Bank Wide >10 m Moderate 5-1 Narrow <5 m None	This inform E AND FLOODPLAIN QUALITY DTH L R (Most Matu 10 m Resid	AVERAGE BANKFUL Mation must also be completed NOTE: River left (L) and Right (IN QUALITY Predominant Per Bank Preforest, Wetland atture Forest, Wetland atture Forest, Shrub or Old Field dential, Park, New Field and Check (C) AVERAGE BANKFUL AVERAGE BA	DNLY one box): B") [15 pts] L WIDTH (Meters): Conservation Tillage Urban or Industrial Open Pasture, Row Crop	Width Max = 30
3. BANK FULL WIDT > 4.0 meters (>13') [30 > 3.0 m - 4.0m (>9'7" - > 1.5 m - 3.0 m(>9'7" - COMMENTS: RIPARIAN ZON RIPARIAN WII L R (Per Bank Wide >10 m Woderate 5-1 Narrow <5 m None Comments: FLOW REGIME ✓ Steam flowing	This inform This inform	AVERAGE BANKFUL AVERAGE BANKFUL Mation must also be completed NOTE: River left (L) and Right (IN QUALITY Predominant Per Bank Ire Forest, Wetland atture Forest, Shrub or Old Field dential, Park, New Field ck ONLY one box):	DNLY one box): B") [15 pts] L WIDTH (Meters): Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction Interpretation Unitermittent)	Width Max = 30
3. BANK FULL WIDT > 4.0 meters (>13') [30' > 3.0 m - 4.0m (>9'7" - >1.5 m - 3.0 m(>9'7" - COMMENTS: RIPARIAN ZON RIPARIAN WII L R (Per Bank Wide >10 m Moderate 5-1 Narrow <5 m None Comments: FLOW REGIME Steam flowing Subsurface flow of Comments:	This inform IE AND FLOODPLAIN QUALITY DTH L R (Most	AVERAGE BANKFUL	DNLY one box): B") [15 pts] L WIDTH (Meters): Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction Interpretation Unitermittent)	Width Max = 30
3. BANK FULL WIDT > 4.0 meters (>13') [30' > 3.0 m - 4.0m (>9'7" - >1.5 m - 3.0 m(>9'7" - COMMENTS: RIPARIAN ZON RIPARIAN WII L R (Per Bank Wide >10 m Moderate 5-1 Narrow <5 m None Comments: FLOW REGIME Steam flowing Subsurface flow of Comments:	This inform IE AND FLOODPLAIN QUALITY DTH L R (Most	AVERAGE BANKFUL AVERAGE BANKFUL Mation must also be completed NOTE: River left (L) and Right (IN QUALITY Predominant Per Bank Ire Forest, Wetland ature Forest, Shrub or Old Field dential, Park, New Field bed Pasture Ck ONLY one box): Moist channel, isola Dry channel, no war	DNLY one box): B") [15 pts] L WIDTH (Meters): Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction Interpretation Unitermittent)	Width Max = 30
3. BANK FULL WIDT > 4.0 meters (>13') [30' > 3.0 m - 4.0m (>9'7" - >1.5 m - 3.0 m(>9'7" - COMMENTS: RIPARIAN ZON RIPARIAN WII L R (Per Bank Wide >10 m Moderate 5-1 Narrow <5 m None Comments: FLOW REGIME Steam flowing Subsurface flow w Comments: SINUOSITY (No	This inform IE AND FLOODPLAIN QUALITY DTH L R (Most 10 m 10 Matu Imma Resid Fence E (At time of evaluation) (Check with isolated pools (interstitial) lumber of bends per 61 m (200 ft) 1.5 DIENT ESTIMATE	AVERAGE BANKFUL AVERAGE BANKFUL AVERAGE BANKFUL Mation must also be completed NOTE: River left (L) and Right (IN QUALITY Predominant Per Bank Lure Forest, Wetland ature Forest, Shrub or Old Field dential, Park, New Field ced Pasture Ck ONLY one box): Moist channel, isola Dry channel, no wa of channel. Check ONLY one box) 2.0	DNLY one box): B") [15 pts] L WIDTH (Meters): 0 R) as looking downstream R Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction atted pools, no flow (Intermittent) ter (Ephemeral) 3.0 >3.0 >3.0	Width Max = 30

ADDITIONAL STREAM INFORMATION (This information must also be comple	ete .
	tach completed QHEI form)
DOWNSTREAM DESIGNATED USE(S)	
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 ENTIRE WATERSHED AREA	. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name Martinsville NRCS Soil Map Page	NRCS Soil Map Stream Order:
County: Morgan Township / City: Washington	
MISCELLANEOUS	
Base flow conditions? (Y/N) Yes Date of last precipitation: 10/23	Quantity 0.01
Photograph information:	
Elevated Turbidity? (Y/N) Canopy (% open): 40	
Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. ar	nd attach results) Lab number: N/A
Field Measures: Temp (C) Dissolved oxygen (mg/l): pH:	Conductivity (umhos/cm)
Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note ID number. Include apropriate field data sheets from the Primary H	
Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N)	No Voucher? (Y/N) No
Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrat	tes observed? (Y/N) No Voucher? (Y/N) N
Comments Regarding Biology:	

DRAWING AMD NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):

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

Stream Reach S6S048a



Stream Location on 2013 Aerial Photograph

Stream Location on Cope USGS Quadrangle

UNT 18 West Fork Clear Creek Quadrangle: **Stream Name:** Cope Flow Regime: Perennial County: Morgan Natural T12N **Channel Type:** Township: No R1E Legal Drain: Range: IDEM 303(d) Listed: Section: 13 No Predominant Substrate: sand - hardpan Quarter: SW QHEI = 43.5

Evaluation Score: QHEI = 43.5 **Latitude:** 39.47284 **Use Designation:** Modified Warm Water Habitat **Longitude:** -86.370183

OHWM width: 4.6 Basin: Clear Creek - East/West/Grassy

OHWM depth: 0.5 **14-digit HUC:** 05120201140140

USACE Jurisdiction: Yes Drainage area: 0.036

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	58	0.006	0.18
Aternative C2	54	0.006	0.17
Aternative C3	0	0.000	0.00
Aternative C4 (Preferred)	54	0.006	0.17





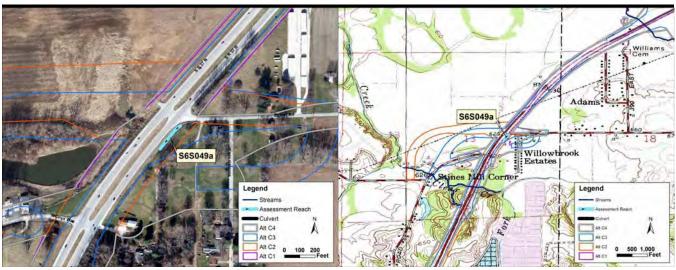
Sample S6S048a		bioSample #	Stream Name UNT West Fork Clea		Location	
Surveyo	r Sample Date	County	Macro Sample Type	☐ Habitat	01151.0	
ry kl	1/14/2016	Morgan	N/A	Complete	QHEI Scoi	re: 43.5
-	estimate 9	predominant substra % and check every ty	pe present	Check ON	IE (Or 2 and average)
PREDOMINANT PREDOM	PRESENT TOTAL 9 P R P R P R P R P R P R P R P R P R P R	PREDOMINANT PR HARDPAN [DETRITUS [MUCK [2] SILT [2] ARTIFICIAL ORE [2] (Score na	3]	ORIGIN LIMESTONE [1] TILLS [1] WETLANDS [0] HARDPAN [0] SANDSTONE [0] RIP/RAP [0] LACSTRINE [0] SHALE [-1] COAL FINES [-2]	MODERÀ NORMAL FREE [1] O] EXTENSI' MODERA MODERA NORMAL	2] TE [-1] [0] Substrate VE [-2] TE [-1]
	OVFR Indicate n	resence 0 to 3 and e	stiamte percent: 0-Absent;	1- Very small an	mounts or if more con	nmon of marginal
quality; 2-Moderate quality in moderate that is stable, well do **Amount** ——————————————————————————————————	amounts, but not of or greater amounts (eveloped root wad ir T BANKS [1] GING VEGETATION S (IN SLOW WATER	highest quality or in s (e.g., very large bould a deep/fast water, or o	mall amounts of highest qualers in deep or fast water, ladeep, well-defined, functino Amount S>70CM [2] OXBO WADS [1] AQUA	ality; 3- Highest rge diameter log al pools.) DWS, BACKWAT	Check One EXTEN MODEF FERS [1] SPARS YTES [1] NEARL EBRIS [1]	AMOUNT (Or 2 and average) SIVE >75% [11] RATE 25-75% [7] E -<25% [3]
31 CHANNEL M	ORPHOLOGY Ch	eck ONE in each cat	egory (Or 2 and average)			
SINUOSITY HIGH [4] MODERATE [3] LOW [2] NONE [1] Comments	DEVELO EXCELLI GOOD [5 FAIR [3] POOR [1	PMENT C ENT [7] ✓]	HANNELIZATION NONE [6] RECOVERED [4] RECOVERING [3] RECENT OR NO RECOVER	☐ H ✔ M ☐ L		Channel Maximum 20
4] BANK EROS	ON AND RIPARI	AN ZONE Check	ONE in each category for E	ACH BANK (Or	2 per bank and avera	age)
River right looking dow L R EROSIC NONE/LITTLE MODERATE [: HEAVY/SEVE	vnstrea L R RIPA ON V WIDE MODI [3] NARF 2] VERY	ARIAN WIDTH . >50m [4] ERATE 10-50m ROW 5-10m [2] ' NARROW [1]	L R FLOOD PLAIN (✓ ✓ FOREST, SWAMP [3] — SCRUB OR OLD FIEL — RESIDENTIAL, PRK, I — FENCED PASTURE [1 — OPEN PASURE, ROW	D [2] NEW FIELD [1]	L R CONSERVA URBAN OR MINING/CON cate predominant land	TION TILLAGE [1] INDUSTRIAL [0] ISTRUCTION [0]
5] POOL/GLIDE	AND RIFFLE /RI	JN QUALITY			Doo	mation Detential
MAXIMUM DEP Check ONE (ONLY!	Check Of POOL W	INEL WIDTH NE (Or 2 and average IDTH > RIFFLE WIDTH IDTH = RIFFLE WIDTH IDTH < RIFFLE WIDTH	e) Chec I [2] ☐ TORRENTIAL [I [1] ☐ VERY FAST [1] I [0] ☐ FAST [1] ✓ MODERATE [1]	INTE	TY (Circle one N [1] P RSTITIAL [-1] S RMITTENT [-2] ES [1]	reation Potential and comment on back) rimary Contact econdary Contact Pool/ Current Vlaximum 12
	nal riffles: Best area	s must be large enou	igh to support a population			
of riffle-obligate sp RIFFLE DEPTH ☐ BEST AREAS>10 ☐ BEST AREAS 5-1 ☑ BEST AREAS <50	RUN D Cm [2] MAXIN Ocm [1 MAXIN	EPTH RI MUM >50cm [2] MUM<50cm [1]	Check One (Or 2 and average of the support of the s	ATE RIF Ider) [2 Gravel) [1]	FLE/RUN EMBE NONE [2] LOW [1]	E [METRIC=0] DDEDNES Riffle/ Run Maximum 8
6] GRADIENT (0	ft/mi)	☐ VERY LOW - LOV	V [2 - 4] % POOL:	10 % GL	IDE: 10	
DRAINAGE AR	•	MODERATE [6 - 1	0]	50 % RIFI		Riparian Vaximum



Comment

A-CANOPY						
✓ >85% - Open	Looking upstrea	m (>10m, 3 readi	ngs, <10m reading in mic	ldle); Round to the n	earest whole percent	
55% -<85%		Left	Middle	Right	Total Average	
30%-<55 %	% open	%	%	%	%	
10%-<30%	-					
<10% - Closed						
B-AESTHETICS			C-RECI	REATION		
Nuisance algae	Oil sheen		Area	Depth		
☐ Invasive macrophytes	Trash/Litter		Pool: ✓ > 100ft	•		
Excess turbidity	Nuisance o	dor	1 001.	V > 311		
☐ Discoloration	Sludge dep	osits				
☐ Foam/Scum	CSOs/SSOs	/Outfalls				
D-MAINTENANCE			E-ISSU	EQ		
					UDDEC	
☐ Public ☐ Private ☐ Active ☐ Historic			☐ WWTF		NPDES	
	Old		Harde	· —	imo	
	oured		_		andfill	
_ · <u>-</u> _	dified		BMPs:	Construction		
Leveed: One sided	Both banks				Cooling	
Relocated Cutoffs	Don't burne		Erosion:		_ •	
Bedload: ✓ Moving	Stable		False		re Lagoon	
Armoured Slumped			Wash	H2O Tile	H2O table	
☐ Impounded ☐ Desiccate	d		Mine:	Acid Qua	rry	
☐ Flood control ☐ Draina	ge		Flow: 🗸	Natural 🗌 St	agnant	
			Wetla	nd 🗌 Park 🗌	Issues: Golf	
			Lawn	Home		
			Atmos	spheric deposition	on	

Stream Reach S6S049a



Stream Location on 2013 Aerial Photograph

Stream Location on Cope USGS Quadrangle

UNT 19 Clear Creek **Stream Name:** Quadrangle: Cope Flow Regime: Ephemeral County: Morgan Roadside Ditch T12N **Channel Type:** Township: No R1E Legal Drain: Range: IDEM 303(d) Listed: No Section: 13 Predominant Substrate: sand - hardpan Quarter: SE

Evaluation Score:HHEI = 13Latitude:39.478892Use Designation:Class I PHWHLongitude:-86.366011

OHWM width: 1.5 Basin: Clear Creek - East/West/Grassy

OHWM depth: 0.5 **14-digit HUC:** 05120201140140

USACE Jurisdiction: Yes **Drainage area:** 0.06

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	181	0.006	0.00
Aternative C2	181	0.006	0.00
Aternative C3	181	0.006	0.00
Aternative C4 (Preferred)	181	0.006	0.00







Primary Headwater Habitat Evaluation Form

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

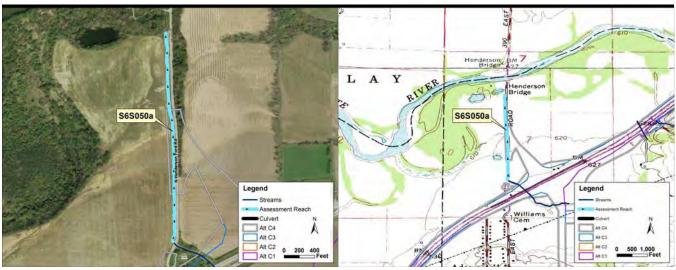
SITE NAME/LOCATION UNT Clear Creek		
SITE NUMBER S6S049a	RIVER BASIN _ Clear Creek - East/West/ _ DRAINAGE AREA (mi) _	0.06
LENGTH OF STEAM REACH (ft) LAT3	39.478892 LONG86.366011 RIVER CODE N/A RIVER MILE N/A	A
DATE 2/19/2016 SCORER rh	COMMENT	
NOTE: Complete All Items On This Form - Refer to	""Field Evaluation Manual for Ohio's PHWH Streams" for Instructions	
STREAM CHANNEL NONE / NATURAL CHANNEL MODIFICATIONS:	INE ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO RECOVERED	VERY
(Max of 32). Add total number of significant subsr		HHEI Metric
BLDR SLABS [16 pts]	SILT [3 pt] 0	Points
BOULDER (>256 mm) [16 pts 0 0 0 0	FINE DETRITUS [3 pts]	Substrate Max = 40
COBBLE (65-256 mm) [9 pt	CLAY or HARDPAN [0 pts] 60 MUCK [0 pts] 0	
SAND (<2 mm) [6 pts] 40	ARTIFICIAL [3 pts]	8
Total of Percentages of Bidr Slabs, Boulder, Cobble, Bedrock 0.00%	(A) Substrate Percentage 100 % (B)	(A+B)
SCORE OF TWO MOST PREDOMINATE SUBSTRATE	E TYPE 6 TOTAL NUMBER OF SUBSTRATE TYPES 2	
2. MAXIMUM POOL DEPTH (Measure the maximum of evaluation. Avoid plunge pools from road culv		Pool Depth Max = 30
>>30 centimeters [20 pts] >22.5 - 30 cm [30 pts]	>5 cm - 10 cm [15 pts] <5 cm [5 pts] No Water or Moist Channel [0 pts]	0
☐ >10 - 22.5 cm [25 pts]	✓ No Water or Moist Channel [0 pts]	U
COMMENTS:	MAXIMUM POOL DEPTH (centimeters): 0	
	werage of 3-4 measurements) (Check ONLY one box):	Bankfull
		Bankfull Width Max = 30
3. BANK FULL WIDTH (Measured as teh av > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts]	verage of 3-4 measurements) (Check ONLY one box): >1.0 m - 1.5m (>3'3" - 4'8") [15 pts]	Width
3. BANK FULL WIDTH (Measured as teh av > 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS:	verage of 3-4 measurements) (Check ONLY one box): >1.0 m - 1.5m (>3'3" - 4'8") [15 pts] <=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL WIDTH (Meters): ####	Width Max = 30
3. BANK FULL WIDTH (Measured as teh av > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts] > 1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS:	verage of 3-4 measurements) (Check ONLY one box): >1.0 m - 1.5m (>3'3" - 4'8") [15 pts] <=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL WIDTH (Meters): ####	Width Max = 30
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3. BANK FULL WIDTH (Measured as teh av > 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: This RIPARIAN ZONE AND FLOODPLAIN QUARE RIPARIAN WIDTH	verage of 3-4 measurements) (Check ONLY one box): >1.0 m - 1.5m (>3'3" - 4'8") [15 pts] <=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL WIDTH (Meters): #### s information must also be completed ALITY NOTE: River left (L) and Right (R) as looking downstream DPLAIN QUALITY	Width Max = 30
3. BANK FULL WIDTH (Measured as teh av > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts] > 1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: This RIPARIAN ZONE AND FLOODPLAIN QUAR RIPARIAN WIDTH L R (Per Bank R) Moderate 5-10 m Narrow <5 m None Comments:	verage of 3-4 measurements) (Check ONLY one box): >1.0 m - 1.5m (>3'3" - 4'8") [15 pts] <=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL WIDTH (Meters): #### s information must also be completed ALITY NOTE: River left (L) and Right (R) as looking downstream DPLAIN QUALITY (Most Predominant Per Bank L R Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Field Residential, Park, New Field Open Pasture, Row Crop	Width Max = 30
3. BANK FULL WIDTH (Measured as teh av > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts] > 1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: This RIPARIAN ZONE AND FLOODPLAIN QUAR RIPARIAN WIDTH L R (Per Bank R) Moderate 5-10 m Narrow <5 m None Comments:	verage of 3-4 measurements) (Check ONLY one box): >1.0 m - 1.5m (>3'3" - 4'8") [15 pts] <=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL WIDTH (Meters): #### s information must also be completed ALITY NOTE: River left (L) and Right (R) as looking downstream DPLAIN QUALITY (Most Predominant Per Bank L R Mature Forest, Wetland Immature Forest, Wetland Immature Forest, Shrub or Old Field Residential, Park, New Field Penced Pasture (Check ONLY one box): Moist channel, isolated pools, no flow (Intermittent)	Width Max = 30
3. BANK FULL WIDTH (Measured as teh average set of the	verage of 3-4 measurements) (Check ONLY one box): >1.0 m - 1.5m (>3'3" - 4'8") [15 pts] <=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL WIDTH (Meters): #### Sinformation must also be completed ALITY NOTE: River left (L) and Right (R) as looking downstream DPLAIN QUALITY (Most Predominant Per Bank L R R Mature Forest, Wetland Immature Forest, Shrub or Old Field Residential, Park, New Field Qpen Pasture, Row Crop Fenced Pasture Mining or Construction (Check ONLY one box): Moist channel, isolated pools, no flow (Intermittent) Itial) Dry channel, no water (Ephemeral)	Width Max = 30
3. BANK FULL WIDTH (Measured as teh average should be sh	verage of 3-4 measurements) (Check ONLY one box): >1.0 m - 1.5m (>3'3" - 4'8") [15 pts] <=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL WIDTH (Meters): #### Sinformation must also be completed ALITY NOTE: River left (L) and Right (R) as looking downstream DPLAIN QUALITY (Most Predominant Per Bank L R R Mature Forest, Wetland Immature Forest, Shrub or Old Field Residential, Park, New Field Qpen Pasture, Row Crop Fenced Pasture Mining or Construction (Check ONLY one box): Moist channel, isolated pools, no flow (Intermittent) Itial) Dry channel, no water (Ephemeral)	Width Max = 30

ADDITIONAL STREAM INFORMATION (This information must also be comple	oto
	ete uttach completed QHEI form)
DOWNSTREAM RESIGNATED USE(S)	,
DOWNSTREAM DESIGNATED USE(S) 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 ENTIRE WATERSHED ARE	A. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name Cope NRCS Soil Map Page	NRCS Soil Map Stream Order:
County: Morgan Township / City: Washington	
MISCELLANEOUS	
Base flow conditions? (Y/N) Yes Date of last precipitation: 2/14	Quantity 2.3
Photograph information:	
Elevated Turbidity? (Y/N) Canopy (% open): 100	
Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. a	and attach results) Lab number: N/A
Field Measures: Temp (C) Dissolved oxygen (mg/l): pH:	Conductivity (umhos/cm)
Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Not ID number. Include apropriate field data sheets from the Primary	
Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N)	No Voucher? (Y/N) No
Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebra	ates observed? (Y/N) No Voucher? (Y/N)
Comments Regarding Biology:	

DRAWING AMD NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):

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

Stream Reach S6S050a



Stream Location on 2013 Aerial Photograph

Stream Location on Cope USGS Quadrangle

UNT 1 White River Quadrangle: **Stream Name:** Cope Flow Regime: Perennial County: Morgan Roadside Ditch T12N **Channel Type:** Township: No R2E Legal Drain: Range: IDEM 303(d) Listed: No Section: 7

Predominant Substrate: sandQuarter:SW & NWEvaluation Score:QHEI = 38Latitude:39.493247Use Designation:Modified Warm Water HabitatLongitude:-86.355219

OHWM width: 7.4 Basin: White River - Henderson Bridge

OHWM depth: 0.8 **14-digit HUC:** 05120201140130

USACE Jurisdiction: Yes Drainage area: 0.794

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	1096	0.185	1.04
Aternative C2	1096	0.185	1.04
Aternative C3	1096	0.185	1.04
Aternative C4 (Preferred)	1096	0.185	1.04





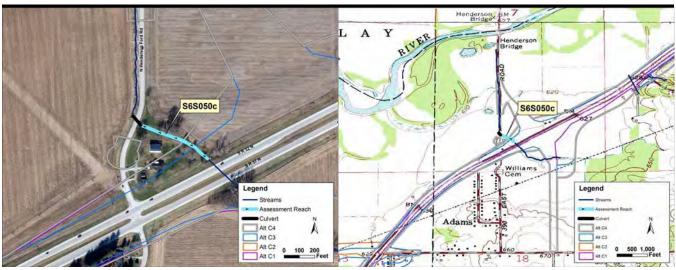
IDEM	Sample # S6S050a		bioSample #	Stream Name		Loca	tion	
1	Surveyor	Sample Date	County	Macro Sample Ty	/pe		HEI Score:	38
41 0115	ry kl	1/15/2016	Morgan	N/A	Comple	ete	121 000101	
1] SUE	BEST TYP	estimate %	6 and check eve	ubstrate TYPE BOXES; ery type present THER TYPES	Chec ORIG	•	2 and average) QUALITY	
BC CC GI		PRESENT TOTAL 9	PREDOMINANT PR HARDI DETRII MUCK SILT [2 ARTIFI	PRESENT TOTAL S PAN [4]	LIMESTO TILLS [1] WETLANI HARDPAI SANDSTG RIP/RAP LACSTRII	NE [1] OS [0] N [0] ONE [0] [0] NE [0] 1]	HEAVY [-2] MODERATE [-' NORMAL [0] FREE [1] EXTENSIVE [-2 MODERATE [-' NORMAL [0] NONE [1]	Substrate
Comme								
quality; 2 quality in that is sta	I-Moderate ammoderate or gable, well deve t UNDERCUT B OVERHANGIN SHALLOWS (I ROOTMATS [1	ounts, but not of preater amounts (cloped root wad in ANKS [1] IG VEGETATION N SLOW WATER	highest quality of e.g., very large of deep/fast wate Manual Amount P Manual P Manual P Manual P Manual R	and estiamte percent: 0-Abor in small amounts of high-boulders in deep or fast war, or deep, well-defined, fur high ward of the work of th	est quality; 3- Higater, large diame nctinoal pools.) ot OXBOWS. BACI	ghest ter log KWATERS [ROPHYTES	Check One (Or 2 EXTENSIVE MODERATE SPARSE -<2 NEARLY AB	OUNT 2 and average) >75% [11] 25-75% [7] 5% [3] SENT <5% [1] Over
31 CHA	ANNEL MOR	PHOLOGY Ch	eck ONE in eac	h category (Or 2 and avera	age)			
SINUO HIGH	SITY [4] ERATE [3] [2] [1]	DEVELOI EXCELLE GOOD [5 FAIR [3] POOR [1]	PMENT Ent [7]]	CHANNELIZATIO ✓ NONE [6] — RECOVERED [4] — RECOVERING [3] ✓ RECENT OR NO REC	N	STABIL HIGH [MODEI LOW [3] RATE [2	
4] BAN	VK EROSIOI	N AND RIPARIA	AN ZONE Ch	neck ONE in each category	for EACH BANK	(Or 2 per l	oank and average)	
L R V NO MO HE	ght looking downstr EROSION DNE/LITTLE [3] DDERATE [2] EAVY/SEVERE	WIDE MODE NARF	ARIAN WIDT >50m [4] ERATE 10-50m POW 5-10m [2] NARROW [1] E [0]	FOREST, SWAI SCRUB OR OL RESIDENTIAL, FENCED PAST	MP [3] D FIELD [2] PRK, NEW FIELD)[1]	CONSERVATION URBAN OR INDUS MINING/CONSTRI edominant land use	STRIAL [0] UCTION [0] (s) rian
5] <i>POC</i>	OL/GLIDE AI	ND RIFFLE /RU	JN QUALITY				Daniella	. Data attal
Check O >1 m 0.7 - <	71m [4] 60.7m [2] 60.4m [1] 11 [0]	Check ON ☐ POOL WI ☑ POOL WI	NEL WIDTH NE (Or 2 and av DTH > RIFFLE V DTH = RIFFLE V DTH < RIFFLE V	erage) VIDTH [2]	AST [1]	pply SLOW [1] INTERSTIT INTERMITT EDDIES [1]	(Circle one and c Primary AL [-1] Second ENT [-2] P Cur	Contact ary Contact Cool/
		riffles; Best area	s must be larae	enough to support a popul	lation			······
of riffle- RIFFLE □ BEST ☑ BEST	-obligate speci- E DEPTH AREAS>10cm AREAS 5-10cr AREAS (5cm) [metric	RUN DI [2] MAXIN m [1 MAXIN	· ·	Check One (Or 2 and RIFFLE/RUN SUB STABLE (e.g., Cobbl MOD. STABLE (e.g., Fin	average) STRATE e, Boulder) [2 _arge Gravel) [1]	✓ NO LOV MO	ก/ เข้า	ffle/
	DIENT (0 ft/i	mi)	☐ VERY LOW	- LOW [2 - 4] % POO	L: 15 %	GLIDE:	10	
_	NAGE AREA	,	MODERATE			RIFFLE:	Ripa 20 Maxir	



Comment

A-CANOPY							
✓ >85% - Open Loc	oking upstream (>10m, 3 r	eadings, <10m reading	in middle); Round to the	e nearest whole percent			
55% -<85%	Left	Middle	Right	Total Average			
30%-<55%	open %	%	%	%			
10%-<30%	· —						
<10% - Closed							
B-AESTHETICS		C-F	RECREATION				
Nuisance algae O	il sheen	Area	a Depth				
☐ Invasive macrophytes ✓ Tr	ash/Litter		100ft ²				
Excess turbidity N	uisance odor	1 001 >	100it > 3it				
☐ Discoloration ☐ SI	udge deposits						
☐ Foam/Scum ☐ C	SOs/SSOs/Outfalls						
D-MAINTENANCE		E_I	SSUES				
				NDDEC			
Public Private			WTP CSO L	NPDES			
Active Historic			ndustry Urbar				
Succession: Young Old		_	lardened Dirt	Grime Landfill			
		ВМІ					
•	u h banks			ion Cooling			
Relocated Cutoffs	III Daliks		sion: ✓ Bank ✓				
Bedload: Moving Stab	ale		False bank Manure Lagoon				
Armoured Slumped			□ Wash H2O □ Tile □ H2O table				
Impounded Desiccated		Min		uarry			
Flood control Drainage		Flov		Stagnant			
			Vetland Park	Issues: Golf			
			awn Home				
			tmospheric depos	ition			

Stream Reach S6S050c



Stream Location on 2013 Aerial Photograph

Stream Location on Cope USGS Quadrangle

UNT 1 White River Quadrangle: **Stream Name:** Cope Flow Regime: Perennial County: Morgan Channelized Ditch T12N **Channel Type:** Township: R2E No Legal Drain: Range: IDEM 303(d) Listed: No Section: 7 Predominant Substrate: sand Quarter: SW QHEI = 38.5**Evaluation Score:** Latitude: 39.489446

Use Designation: Modified Warm Water Habitat Longitude: -86.354111

OHWM width: 6.9 Basin: White River - Henderson Bridge

OHWM depth: 1.0 **14-digit HUC:** 05120201140130

USACE Jurisdiction: Yes Drainage area: 0.794

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)	
Aternative C1	169	0.027	0.00	
Aternative C2	170	0.027	0.00	
Aternative C3	101	0.016	0.00	
Aternative C4 (Preferred)	170	0.027	0.00	





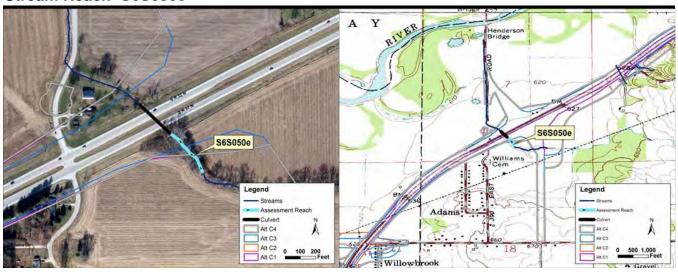
IDEM	Sample #		bioSample #		m Name White River		Location		
1 ben		Camula Data							
	ry kl	Sample Date 1/15/2016	Morgan	N/A	imple Type	HabitatComplete	QHEI Sco	re:	38.5
1] SUE	STRATE C	heck ONLY Two			DXES;	011-01	JE (O. O. a. d. a. a. a.	- \	
	DECT TVD		6 and check eve				NE (Or 2 and averag	,	
PREDOMINA	BEST TYPI ANT	PRESENT TOTAL %	6 PREDOMINANT	HER TYPES PRESEI	NT TOTAL %	ORIGIN	QUA		
☐ ☐ GI ☐ ☐ GI ✓ ✓ SA ☐ BE	LDR/SLABS [10 DULDERS [9] DBBLE [8] RAVEL [7] AND [6] EDROCK [5] R OF BEST TY	✓ ✓ 5 ✓ ✓ 95) E E E E E E E E E E	US [3]	values;ignore	LIMESTONE [1 TILLS [1] WETLANDS [0] HARDPAN [0] SANDSTONE [RIP/RAP [0] LACSTRINE [0 SHALE [-1] COAL FINES [-	MODER MODER NORMA FREE [1] FREE [1] MODER MODER NORMA	ÀTÉ [-1] .L [0]	Substrate 14.0 Maximum 20
Comme									
quality; 2 quality in that is sta	-Moderate amo moderate or g able, well devel t UNDERCUT BA OVERHANGIN	ounts, but not of life atter amounts (oped root wad in ANKS [1] G VEGETATION N SLOW WATER	highest quality or e.g., very large b deep/fast water % Amount PC [1] RC	in small amound oulders in deep oulders, well-do oulders, well-do oulders, well-do outwads [1]	ts of highest qua or fast water, la efined, functinoa % Amount	ality; 3- Highest rge diameter log al pools.) DWS, BACKWA ATIC MACROPH	9 Check Or EXTE MODE TERS [1] ✓ SPAR HYTES [1] □ NEAR	ommon of r AMOUN ne (Or 2 and NSIVE >75 ERATE 25- SE -<25% RLY ABSEN Covel Maximum 20	IT d average) (% [11] (75% [7] [3] IT <5% [1]
Comme	ents								
SINUO HIGH MODE LOW NONE Comme	SITY [4] ERATE [3] [2] [1] ents	PHOLOGY Ch DEVELOI EXCELLE GOOD [5] FAIR [3] POOR [1]	PMENT Ent [7]]	CHANNEL NONE [6] RECOVERE RECOVERI RECENT OF	IZATION ED [4] NG [3] R NO RECOVER	Y [1]	HIGH [3] MODERATE [2 LOW [1]	Channe Maximum 20	الممماا
-							2 per bank and ave	rage)	
L R NO MO HE	ents	WIDE MODE NARR		FORE SCRU RESIE	OD PLAIN (ST, SWAMP [3] IB OR OLD FIEL DENTIAL, PRK, I ED PASTURE [1 I PASURE, ROW	D [2] NEW FIELD [1]	L R CONSERVA URBAN OF MINING/CO cate predominant la t 100m riparian	R INDUSTR INSTRUCT	IAL [0] ION [0]
5] <i>POC</i>	OL/GLIDE AN	ID RIFFLE /RU	JN QUALITY				Di	ecreation Pot	ontial
Check O >1 m 0.7 - <	11m [4] :0.7m [2] :0.4m [1] i [0]	Check ON POOL WI	NEL WIDTH NE (Or 2 and ave DTH > RIFFLE W DTH = RIFFLE W DTH < RIFFLE W	IDTH [2] IDTH [1] IDTH [0] ✓	Chec TORRENTIAL [VERY FAST [1] FAST [1] MODERATE [1]	☐ INTE	TY (Circle or W [1]	Primary Con Secondary Con Current Maximum	tact Contact
		riffles; Best area	s must be large	enough to suppo	rt a population				
RIFFLE BEST BEST	obligate specie E DEPTH AREAS>10cm AREAS 5-10cm AREAS <5cm [metricents	RUN DI [2] ☐ MAXIN 1 [1 ☑ MAXIN	EPTH 1UM >50cm [2] 1UM<50cm [1]	RIFFLE/RU STABLE (e. MOD. STAB	Or 2 and average (IN SUBSTRA) g., Cobble, Bou BLE (e.g., Large (ATE RIF Ider) [2 Gravel) [1]	□ NO RIFF FLE/RUN EMB □ NONE [2] ☑ LOW [1] □ MODERATE [0] □ EXTENSIVE [-1]	ELE [METRI EDDEDI Riffle Rur Maximum 8	NES 2.0
	DIENT (0 ft/n	ni)	☐ VERY LOW -	LOW [2 - 4]	% POOL:	5 % GL	IDE: 10		
-	NAGE AREA	,	MODERATE			70 % RIF		Ripariar Maximum 10	ı∥ ∠.∪ ∥



Comment

A-CANOPY								
✓ >85% - Open	Looking upstrea	am (>10m, 3 read	lings, <10m reading ir	middle); Round to the	nearest whole percent			
55% -<85%		Left	Middle	Right	Total Average			
30%-<55%	% open	%	%	%	%			
10%-<30%	•							
<10% - Closed								
B-AESTHETICS			C-RE	CREATION				
Nuisance algae	Oil sheen							
Invasive macrophytes	✓ Trash/Litte	,	Area	Depth				
Excess turbidity	Nuisance o		Pool: > 10	00ft ²				
Discoloration	Sludge dep	osits						
Foam/Scum	CSOs/SSO							
D-MAINTENANCE			E-IS	<u>SUES</u>				
☐ Public ☐ Private			w	NTP 🗌 CSO 🗌	NPDES			
Active Historic			Inc	lustry 🗌 Urban				
Succession: Young	Old		Ha	rdened 🗌 Dirt G	Grime			
Spray Islands S	Scoured		☐ Co	ntaminated 🗌 I	Landfill			
Snag: Removed M	lodified		BMPs	: Construction	n 🗸 Sediment			
Leveed: One sided	Both banks		☐ Lo	gging 🗌 Irrigatio	on Cooling			
Relocated Cutoffs			Erosi	on: 🗌 Bank 🗌	Surface			
Bedload: Moving	Stable		Fa	☐ False bank ☐ Manure ☐ Lagoon				
Armoured Slumpe	d		☐ Wa	sh H2O 🗌 Tile	H2O table			
☐ Impounded ☐ Desicca	ted		Mine:	Acid Qua	arry			
Flood control Drain	nage				tagnant			
			_		Issues: Golf			
			✓ La	wn 🗸 Home				
			At	nospheric deposit	ion			

Stream Reach S6S050e



Stream Location on 2013 Aerial Photograph

Stream Location on Cope USGS Quadrangle

UNT 1 White River **Stream Name:** Cope Quadrangle: Flow Regime: Perennial Morgan County: Natural T12N **Channel Type:** Township: R2E No Legal Drain: Range: 7 IDEM 303(d) Listed: Section: No Predominant Substrate: sand - muck Quarter: SE

Evaluation Score:HHEI = 53Latitude:39.488587Use Designation:Class II PHWHLongitude:-86.353175

OHWM width: 8.0 Basin: White River - Henderson Bridge

OHWM depth: 0.7 **14-digit HUC:** 05120201140130

USACE Jurisdiction: Yes **Drainage area:** 0.782

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	181	0.033	0.47
Aternative C2	181	0.033	0.47
Aternative C3	120	0.022	0.34
Aternative C4 (Preferred)	181	0.033	0.47





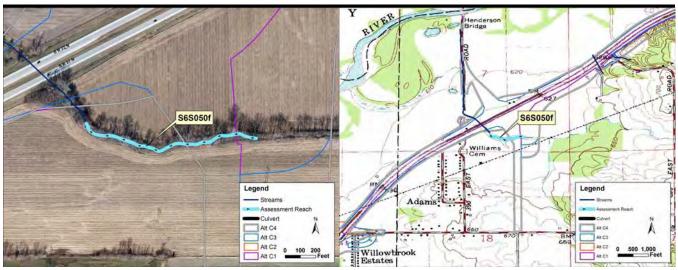


ChieFPA Primary Headwater Habitat Evaluation Form

SITE NAME/LOCATION UNT White River	_
SITE NUMBER S6S050e RIVER BASIN White River - Hend	derson DRAINAGE AREA (mi) 0.782
LENGTH OF STEAM REACH (ft) LAT 39.488587 LONG86.353175 RIV	ER CODE N/A RIVER MILE N/A
DATE 10/23/2015 SCORER rh COMMENT	
NOTE: Complete All Items On This Form - Refer to ""Field Evaluation Manual for Ohio's	PHWH Streams" for Instructions
STREAM CHANNEL	VERING RECENT OR NO RECOVERY
SUBSTRATE (Estimate percent of every type of substrate present Check ONLY two p (Max of 32). Add total number of significant subsrate types found (Max of 8). Final metri TYPE PERCENT TYPE	rc score is sum of boxes A and B.) PERCENT Percent Points
BLDR SLABS [16 pts]	ots] 0 Max = 40 0 50
SAND (<2 mm) [6 pts] 50 ARTIFICIAL [3 pts]	8
Bldr Slabs, Boulder, Cobble, Bedrock (A)	100 % (B) (A+B)
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPE 6 TOTAL NUMBER	OF SUBSTRATE TYPES 2
 MAXIMUM POOL DEPTH (Measure the maximum pool depth within the 61 meter (2 of evaluation. Avoid plunge pools from road culverts or storm water pipes) 	200 ftpvaluation reach at the time Pool Depth Max = 30
>>30 centimeters [20 pts] >5 cm - 10 cm [15 >22.5 - 30 cm [30 pts] <5 cm [5 pts]	05
COMMENTS: MAXIMUM POO	OL DEPTH (centimeters):
	DL DEPTH (centimeters): 0
3. BANK FULL WIDTH (Measured as teh average of 3-4 measurements) (C > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts] > 1.5 m - 3.0 m(>9'7" - 4'8") [20 pts]	Check ONLY one box): Bankfull V3" - 4'8") [15 pts] Width
3. BANK FULL WIDTH (Measured as teh average of 3-4 measurements) (C > 4.0 meters (>13') [30 pts]	Check ONLY one box): Bankfull V3" - 4'8") [15 pts] Width
3. BANK FULL WIDTH (Measured as teh average of 3-4 measurements) (C > 4.0 meters (>13') [30 pts]	Check ONLY one box): '3" - 4'8") [15 pts] Bankfull Width Max = 30 IKFULL WIDTH (Meters): 0
3. BANK FULL WIDTH (Measured as teh average of 3-4 measurements) (C > 4.0 meters (>13') [30 pts]	Check ONLY one box): '3" - 4'8") [15 pts] Bankfull Width Max = 30 IKFULL WIDTH (Meters): 0
3. BANK FULL WIDTH (Measured as teh average of 3-4 measurements) (C > 4.0 meters (>13') [30 pts]	Check ONLY one box): 13" - 4'8") [15 pts] 5 pts] Width Max = 30 WKFULL WIDTH (Meters): 0
3. BANK FULL WIDTH (Measured as teh average of 3-4 measurements) (C	Check ONLY one box): 13" - 4'8") [15 pts] 5 pts] Width Max = 30 WKFULL WIDTH (Meters): 0
3. BANK FULL WIDTH (Measured as teh average of 3-4 measurements) (C > 4.0 meters (>13') [30 pts]	Check ONLY one box): 3" - 4'8") [15 pts] Width Max = 30 IKFULL WIDTH (Meters): 0 Right (R) as looking downstream L R
3. BANK FULL WIDTH (Measured as teh average of 3-4 measurements) (C > 4.0 meters (>13') [30 pts]	Check ONLY one box): (3" - 4'8") [15 pts] (IKFULL WIDTH (Meters): (IRight (R) as looking downstream (IRight (R) as looking downstream)

ADDITIONAL STREAM INFORMATION (This information must also be comple	rte
	— tach completed QHEI form)
DOWNSTREAM DESIGNATED USE(S)	
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 ENTIRE WATERSHED AREA	A. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name Cope NRCS Soil Map Page	NRCS Soil Map Stream Order:
County: Morgan Township / City: Green	
MISCELLANEOUS	
Base flow conditions? (Y/N) Yes Date of last precipitation: 10/23	Quantity .01
Photograph information:	<u> </u>
Elevated Turbidity? (Y/N) Canopy (% open): 25	
Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. ar	nd attach results) Lab number: N/A
Field Measures: Temp (C) Dissolved oxygen (mg/l): pH:	Conductivity (umhos/cm)
Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note ID number. Include apropriate field data sheets from the Primary F	
Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N)	No Voucher? (Y/N) No
Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrate	tes observed? (Y/N) No Voucher? (Y/N) N
Comments Regarding Biology:	

Stream Reach S6S050f



Stream Location on 2013 Aerial Photograph

Stream Location on Cope USGS Quadrangle

UNT 1 White River **Stream Name:** Quadrangle: Cope Flow Regime: Perennial Morgan County: Natural T12N **Channel Type:** Township: R2E No Legal Drain: Range: 7 IDEM 303(d) Listed: Section: No Predominant Substrate: sand - gravel Quarter: SE

Evaluation Score:HHEI = 62Latitude:39.487856Use Designation:Class II PHWHLongitude:-86.350403

OHWM width: 5.5 Basin: White River - Henderson Bridge

OHWM depth: 0.4 **14-digit HUC:** 05120201140130

USACE Jurisdiction: Yes **Drainage area:** 0.656

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	277	0.035	0.42
Aternative C2	383	0.048	0.61
Aternative C3	383	0.048	0.61
Aternative C4 (Preferred)	383	0.048	0.61





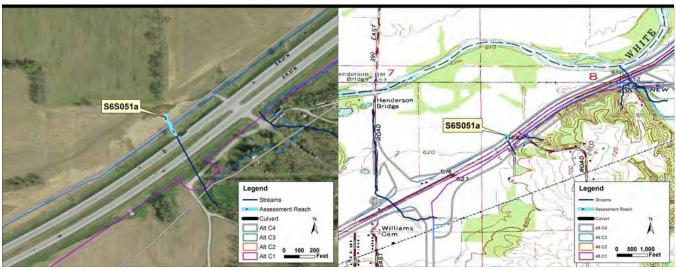


ChieFPA Primary Headwater Habitat Evaluation Form

_	UNT White River						
5	SITE NUMBER S69	S050f RIVE	R BASIN White	te River - Hende	erson DRAINA	AGE AREA (mi)	0.656
ENGTH OF STEAM REA	CH (ft)	LAT 39.487856	6 LONG86	.350403 RIVE	R CODE N/A	RIVER MILE_I	N/A
DATE 2/19/2016 SC	CORER rh	COMME	NT				
NOTE: Complete All Iter	ms On This Form -	Refer to ""Field E	valuation Man	ual for Ohio's I	PHWH Streams	" for Instructions	
STREAM CHANNEL [MODIFICATIONS:	NONE / NATURA	L CHANNE	RECOVERED	✓ RECOV	ERING 🗌 RI	ECENT OR NO REC	OVERY
I. SUBSTRATE (Estim (Max of 32). Add total							ННЕ
TYPE	PE	RCENT T	YPE			PERCENT	Metr Poin
BLDR SLABS [10	6 pts]	0	SILT [3			0	
■ BOULDER (>256■ BEDROCK [16 p		0		PACK/WOODY ETRITUS [3 pt		0 0	Substra Max =
☐ ☐ COBBLE (65-256 ☐ ☑ ☐ GRAVEL (2-64 n		<u>0</u> 50	CLAY (or HARDPAN [0	pts]	0 0	
SAND (<2 mm) [50	ARTIF	CIAL [3 pts]		0	17
Total of Percent Bldr Slabs, Boulder, C).00% (A)	Substra Check	ate Percentage	00 %	(B)	(A+B
SCORE OF TWO MOST P		STRATE TYPE	15 тот	AL NUMBER C	F SUBSTRATE	TYPES 2	
	DEPTH (Measure the				0 ft	ach at the time	Pool De
>>30 centimeters [2		Toad Culverts of St		») m - 10 cm [15 p	ıtel		iviax =
>22.5 - 30 cm [30 pt >10 - 22.5 cm [25 pt	ts]		<5 c	m [5 pts] Vater or Moist (•		25
COMMENTS:			M	AXIMUM POOL	. DEPTH (centir	meters): 15	
BANK FULL WI	DTH (Measured a	s teh average o	f 3-4 measure	ements) (Ch	eck ONLY one b	pox):	Bankf
				m - 1.5m (>3'3 0m (<=3'3") [5	" - 4'8") [15 pts] ots]		Widt Max =
> 4.0 meters (>13') [>3.0 m - 4.0m (>9'7'	" - 13) [25 pts] " - 4'8") [20 pts]						
> 4.0 meters (>13') [- 13) [25 pts] " - 4'8") [20 pts]						~~
> 4.0 meters (>13') [>3.0 m - 4.0m (>9'7'	- 13) [25 pts] " - 4'8") [20 pts]		A\	/ERAGE BANK	(FULL WIDTH (Meters): 1.8	20
> 4.0 meters (>13') >3.0 m - 4.0m (>9'7' >1.5 m - 3.0 m(>9'7'	- 13) [25 pts] " - 4'8") [20 pts]	This informati			(FULL WIDTH (Meters): 1.8	20
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> 4.0 meters (>13') >3.0 m - 4.0m (>9'7' >1.5 m - 3.0 m(>9'7' COMMENTS: RIPARIAN ZO	" - 4'8") [20 pts] DNE AND FLOODPL	AIN QUALITY	ion must also I NOTE: Rive	pe completed	(FULL WIDTH (I		20
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> 4.0 meters (>13') [" - 4'8") [20 pts] DNE AND FLOODPL VIDTH m 5-10 m m	L R (Most Pre Immatur Residen Fenced	ion must also I NOTE: Rive QUALITY edominant Per E Forest, Wetland e Forest, Shrub tial, Park, New I	oe completed er left (L) and R Bank or Old Field	ight (R) as lookin L R Consel Urban V Open F	ng downstream	20
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> 4.0 meters (>13')	DNE AND FLOODPL WIDTH m 5-10 m m Fence row between	L R (Most Pre Immatur Residen Fenced	ion must also I NOTE: Rive QUALITY edominant Per E Forest, Wetland e Forest, Shrub tial, Park, New I Pasture	oe completed er left (L) and R Bank or Old Field Field	ight (R) as looking L R Consel Urban V V Open F Mining	ng downstream rvation Tillage or Industrial Pasture, Row Crop or Construction	20
> 4.0 meters (>13') >3.0 m - 4.0m (>9'7') >1.5 m - 3.0 m(>9'7') COMMENTS: RIPARIAN ZO RIPARIAN V L R (Per Bank Wide >10 r Moderate 5 None Comments: F FLOW REGIN Steam flowing Subsurface flow	DNE AND FLOODPL WIDTH m 5-10 m m Fence row between	FLOODPLAIN C L R (Most Pre Mature F Immatur Residen Fenced field	ion must also I NOTE: Rive QUALITY edominant Per E Forest, Wetland e Forest, Shrub tial, Park, New I Pasture	pe completed er left (L) and R Bank or Old Field Field Moist channel,	ight (R) as looking L R Consel Urban V V Open F Mining	ng downstream rvation Tillage or Industrial Pasture, Row Crop or Construction no flow (Intermittent)	20
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OHEI PERFORMED	ADDITIONAL STREAM INFORMATION (This information must also be comple	te
WWH Name: Distance from Evaluated Stream		
WWH Name: Distance from Evaluated Stream	DOWNSTREAM DESIGNATED USE(S)	
CWH Name: EWH Name: Distance from Evaluated Stream MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION USGS Quadrangle Name Cope NRCS Soil Map Page NRCS Soil Map Stream Order: County: Morgan Township / City: Green MISCELLANEOUS Base flow conditions? (Y/N) Yes Date of last precipitation: 2/14 Quantity 2.3 Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach results) Lab number: N/A Field Measures: Temp (C) Dissolved oxygen (mg/l): Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain: Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number: Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrates observed? (Y/N) No Voucher? (Y/N	WWH Name	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION USGS Quadrangle Name		Distance from Evaluated Stream
USGS Quadrangle Name Cope	EWH Name:	Distance from Evaluated Stream
County: Morgan Township / City: Green MISCELLANEOUS Base flow conditions? (Y/N) Yes Date of last precipitation: 2/14 Quantity 2.3 Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 40 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach results) Lab number: N/A Field Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conductivity (umhos/cm) Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain: Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N)	MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA	. CLEARLY MARK THE SITE LOCATION
MISCELLANEOUS Base flow conditions? (Y/N) Yes Date of last precipitation: 2/14 Quantity 2.3 Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 40 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach results) Lab number: N/A Field Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conductivity (umhos/cm) Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain: Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N) No	USGS Quadrangle Name Cope NRCS Soil Map Page	NRCS Soil Map Stream Order:
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Elevated Turbidity? (Y/N) Canopy (% open):40		Quantity 2.3
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BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N) No	Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:	
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N) No Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrates observed? (Y/N) No Voucher?	Additional comments/description of pollution impacts:	
ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N)	BIOTIC EVALUATION	
Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrates observed? (Y/N) No Voucher? (Y/N) No		
	Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N)	No Voucher? (Y/N) No
Comments Regarding Biology:	Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrat	es observed? (Y/N) No Voucher? (Y/N) N
	Comments Regarding Biology:	

Stream Reach S6S051a



Stream Location on 2013 Aerial Photograph

Stream Location on Cope USGS Quadrangle

UNT 2 White River Quadrangle: Cope **Stream Name:** Flow Regime: Ephemeral County: Morgan Channelized Ditch T12N **Channel Type:** Township: R2E No Legal Drain: Range: IDEM 303(d) Listed: No Section: 8 Predominant Substrate: sand - artificial Quarter: NW HHEI = 21 **Evaluation Score:** Latitude: 39.49496

Use Designation: Modified Class I PHWH Longitude: -86.343497

OHWM width: 3.9 **Basin:** White River - Henderson Bridge

OHWM depth: 0.2 **14-digit HUC:** 05120201140130

USACE Jurisdiction: Yes **Drainage area:** 0.055

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	83	0.007	0.00
Aternative C2	80	0.007	0.00
Aternative C3	63	0.006	0.00
Aternative C4 (Preferred)	80	0.007	0.00





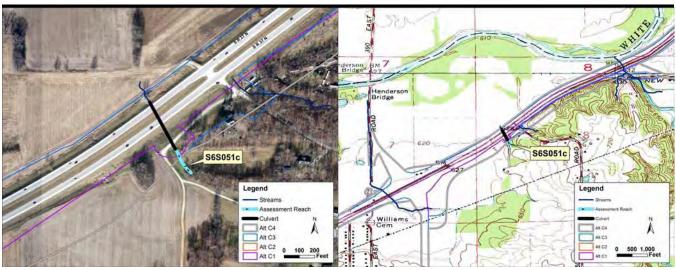


Primary Headwater Habitat Evaluation Form

SITE NAME/LOCATION	UNT White River				
•	SITE NUMBER S6S051a	RIVER BASIN White I	River - Henderson DRAI	NAGE AREA (mi)	0.055
LENGTH OF STEAM REA	ACH (ft) LAT	39.49496 LONG86.34	3497 RIVER CODE N/A	RIVER MILE	N/A
DATE 1/15/2016 S	CORER ry kl	COMMENT			
NOTE: Complete All Ite	ems On This Form - Refer to "	"Field Evaluation Manual	l for Ohio's PHWH Stream	ns" for Instructions	
STREAM CHANNEL MODIFICATIONS:	☐ NONE / NATURAL CHANN	E RECOVERED	☐ RECOVERING ✓	RECENT OR NO REC	OVERY
 SUBSTRATE (Estin (Max of 32). Add tot TYPE 	mate percent of every type of tal number of significant subsra PERCENT	substrate presentCheck (te types found (Max of 8).	ONLY two predominant sub Final metric score is sum	ostrate TYPE boxes of boxes A and B.) PERCENT	HHEI Metric Points
BLDR SLABS [1 BOULDER (>25 BEDROCK [16 FOR COBBLE (65-25 GRAVEL (2-64 FOR CASE)]	16 pts] 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	FINE DE	ČK/WOODY DEBRIS [3 pt FRITUS [3 pts] HARDPAN [0 pts] pts]	0	Substrate Max = 40
Total of Percer Bldr Slabs, Boulder, C		Substrate Check	Percentage 100 %	(B)	(A+B)
SCORE OF TWO MOST F	PREDOMINATE SUBSTRATE	TYPE 9 TOTAL	. NUMBER OF SUBSTRA	TE TYPES 2	
	DEPTH (Measure the maximu oid plunge pools from road culve		61 meter (200 ft)valuation	reach at the time	Pool Depth Max = 30
>>30 centimeters [>22.5 - 30 cm [30 p >10 - 22.5 cm [25 p	ots]	✓ <5 cm	- 10 cm [15 pts] [5 pts] ter or Moist Channel [0 pts	1	5
COMMENTS:		MAX	IMUM POOL DEPTH (cen	timeters):	
	7" - 13') [25 pts]	erage of 3-4 measurem	`	e box):	Bankfull Width Max = 30
3. BANK FULL WI > 4.0 meters (>13') > 3.0 m - 4.0m (>9'7	[30 pts] 7" - 13') [25 pts]	erage of 3-4 measurem >1.0 m <=1.0m	nents) (Check ONLY on - 1.5m (>3'3" - 4'8") [15 pt	e box):	Width
3. BANK FULL WI > 4.0 meters (>13') >3.0 m - 4.0m (>9'7) >1.5 m - 3.0 m(>9'7)	[30 pts] 7" - 13') [25 pts] 7" - 4'8") [20 pts]	erage of 3-4 measurem >1.0 m <=1.0m AVE	nents) (Check ONLY on - 1.5m (>3'3" - 4'8") [15 pt n (<=3'3") [5 pts]	e box):	Width Max = 30
3. BANK FULL WI > 4.0 meters (>13') > 3.0 m - 4.0m (>9'7 >1.5 m - 3.0 m(>9'7 COMMENTS:	[30 pts] 7" - 13') [25 pts] 7" - 4'8") [20 pts]	erage of 3-4 measurem >1.0 m <=1.0m AVE	nents) (Check ONLY on - 1.5m (>3'3" - 4'8") [15 pt n (<=3'3") [5 pts]	e box): s] H (Meters):	Width Max = 30
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3. BANK FULL WI > 4.0 meters (>13') >3.0 m - 4.0m (>9'7 >1.5 m - 3.0 m(>9'7 COMMENTS: RIPARIAN ZO RIPARIAN V L R (Per Bank Wide >10 Moderate Narrow <5 None	[30 pts] 7" - 13') [25 pts] This i ONE AND FLOODPLAIN QUAI WIDTH L R (I	AVE Information must also be LITY NOTE: River I PLAIN QUALITY Most Predominant Per Bar Mature Forest, Wetland Immature Forest, Shrub or Residential, Park, New Fie Fenced Pasture	nents) (Check ONLY on - 1.5m (>3'3" - 4'8") [15 pt on (<=3'3") [5 pts] RAGE BANKFULL WIDTH completed eft (L) and Right (R) as located as L R Old Field V V Urbald	e box): s] H (Meters):	Width Max = 30
3. BANK FULL WI > 4.0 meters (>13') >3.0 m - 4.0m (>9'7 >1.5 m - 3.0 m(>9'7 COMMENTS: RIPARIAN ZO RIPARIAN V L R (Per Bank Wide >10 Moderate Narrow <5 None	[30 pts] 7" - 13') [25 pts] This i ONE AND FLOODPLAIN QUAI WIDTH L R (I m 5-10 m 5 m stream channel is discontinuou	AVE Information must also be LITY NOTE: River I PLAIN QUALITY Most Predominant Per Bar Mature Forest, Wetland Immature Forest, Shrub or Residential, Park, New Fie Fenced Pasture Is; flows into ag field	nents) (Check ONLY on - 1.5m (>3'3" - 4'8") [15 pt on (<=3'3") [5 pts] RAGE BANKFULL WIDTH completed eft (L) and Right (R) as located as L R Old Field V V Urbald	e box): I (Meters): O oking downstream servation Tillage in or Industrial in Pasture, Row Crop	Width Max = 30
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3. BANK FULL WI > 4.0 meters (>13') >3.0 m - 4.0m (>9'7 >1.5 m - 3.0 m(>9'7 COMMENTS: RIPARIAN ZO STATUTO STATUTO STATUTO STATUTO None 0.5	This i ONE AND FLOODPLAIN QUAI WIDTH E S This i Stream channel is discontinuou ME (At time of evaluation) (i	AVE Information must also be LITY NOTE: River I PLAIN QUALITY Most Predominant Per Bar Mature Forest, Wetland Immature Forest, Shrub or Residential, Park, New Fie Fenced Pasture Is; flows into ag field Check ONLY one box):	nents) (Check ONLY on - 1.5m (>3'3" - 4'8") [15 pt on (<=3'3") [5 pts] RAGE BANKFULL WIDTH completed eft (L) and Right (R) as located as located as located as located as located poolery channel, isolated poolery channel, no water (Epheroneces)	e box): If (Meters): O Oking downstream Servation Tillage In or Industrial In Pasture, Row Crop Ing or Construction Servation (Intermittent)	Width Max = 30

CWH Name: Distance from	m Evaluated Stream m Evaluated Stream m Evaluated Stream MEvaluated Stream ARK THE SITE LOCATION S Soil Map Stream Order: 0
WWH Name: White River Distance from CWH Name: Distance from Distance fro	n Evaluated Stream n Evaluated Stream ARK THE SITE LOCATION S Soil Map Stream Order: 0
WWH Name: White River Distance from CWH Name: Distance from Distance fro	n Evaluated Stream n Evaluated Stream ARK THE SITE LOCATION S Soil Map Stream Order: 0
CWH Name: Distance from MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MADE DISTANCE DIST	n Evaluated Stream n Evaluated Stream ARK THE SITE LOCATION S Soil Map Stream Order: 0
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY M. USGS Quadrangle Name Cope NRCS Soil Map Page 30 NRC County: Morgan Township / City: Green MISCELLANEOUS Base flow conditions? (Y/N) Yes Date of last precipitation: Quar Photograph information: Elevated Turbidity? (Y/N) No Canopy (% open): 95 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach result	S Soil Map Stream Order: 0
USGS Quadrangle Name Cope NRCS Soil Map Page 30 NRCC County: Morgan Township / City: Green MISCELLANEOUS Base flow conditions? (Y/N) Yes Date of last precipitation: Quar Photograph information: Elevated Turbidity? (Y/N) No Canopy (% open): 95 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach result	S Soil Map Stream Order:0
County: Morgan Township / City: Green MISCELLANEOUS Base flow conditions? (Y/N) Yes Date of last precipitation: Quar Photograph information: Elevated Turbidity? (Y/N) No Canopy (% open): 95 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach result	·
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Photograph information: Elevated Turbidity? (Y/N) No Canopy (% open): 95 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach result	ntity
Elevated Turbidity? (Y/N) No Canopy (% open): 95 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach result	
Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach result	
Field Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conductive	ts) Lab number: N/A
	vity (umhos/cm)
Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:	· · · · · · · · · · · · · · · · · · ·
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher sal ID number. Include apropriate field data sheets from the Primary Headwater Habita	
Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher?	her? (Y/N) No
Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrates observed?	(Y/N) No Voucher? (Y/N) N
Comments Regarding Biology:	

Stream Reach S6S051c



Stream Location on 2013 Aerial Photograph

Stream Location on Cope USGS Quadrangle

UNT 2 White River **Stream Name:** Quadrangle: Cope Flow Regime: Ephemeral County: Morgan Channelized Ditch T12N **Channel Type:** Township: R2E No Legal Drain: Range: IDEM 303(d) Listed: No Section: 8 Predominant Substrate: hardpan Quarter: SW HHEI = 6**Evaluation Score:** Latitude: 39.49394

Use Designation: Class I PHWH Longitude: -86.342916

OHWM width: 10.0 Basin: White River - Henderson Bridge

OHWM depth: 0.5 **14-digit HUC:** 05120201140130

USACE Jurisdiction: Yes **Drainage area:** 0.001

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	46	0.011	0.00
Aternative C2	64	0.015	0.00
Aternative C3	64	0.015	0.00
Aternative C4 (Preferred)	64	0.015	0.00





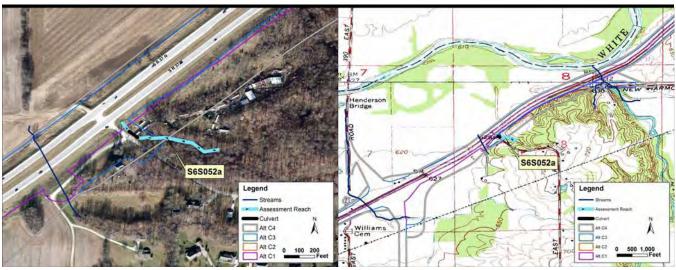


ChieEPA Primary Headwater Habitat Evaluation Form

				abitat Eva HHEl Score (s		etrics 1, 2, 3)	6
SITE NAME/LOCATION	UNT White River						
	SITE NUMBER S	66S051c RI	VER BASI	White River - Hen	derson DF	RAINAGE AREA (mi)	0.001
ENGTH OF STEAM REA	ACH (ft)	LAT 39.493	394 LONG	686.342916 RIV	ER CODE_N	N/A RIVER MILE	N/A
DATE 10/23/2015 S	CORER rh	COMM	IENT				
NOTE: Complete All Ite	ems On This Form	- Refer to ""Field	d Evaluatio	n Manual for Ohio's	S PHWH Stre	eams" for Instructions	
STREAM CHANNEL MODIFICATIONS:	▼ NONE / NATUF	RAL CHANNE [RECOV	ERED RECC	VERING [RECENT OR NO REC	OVERY
. SUBSTRATE (Estin (Max of 32). Add to	nate percent of evtal number of signif	very type of subst ficant subsrate type	trate prese es found (N	ntCheck ONLY two placed from the first two placed from the first f	predominant s c score is su	substrate TYPE boxes m of boxes A and B.)	HHE Metr
TYPE	_	PERCENT	TYPE			PERCENT	Poin
BLDR SLABS [1		<u> </u>		SILT [3 pt] LEAF PACK/WOOD	Y DEBRIS [3		Substra
BEDROCK [16] COBBLE (65-25	pts]	0		FINE DETRITUS [3] CLAY or HARDPAN	ots]	0 100	Max =
☐ ☐ GRAVEL (2-64 i	mm) [9 pts]	0		MUCK [0 pts]	[o pis]	0	4
SAND (<2 mm)	[6 pts]	0		ARTIFICIÁL [3 pts]		0	
Total of Percer Bldr Slabs, Boulder, C		0.00%	A)	Substrate Percentage Check	100 %	(B)	(A+B
CORE OF TWO MOST	PREDOMINATE SU	UBSTRATE TYPE	. 0	TOTAL NUMBER	OF SUBST	RATE TYPES 1	
2. MAXIMUM POOL I				ithin the 61 meter (2 er pipes)	200 ft≱ valuati	on reach at the time	Pool Do
>>30 centimeters [[20 pts]			>5 cm - 10 cm [15	pts]		
>22.5 - 30 cm [30 p >10 - 22.5 cm [25 p			~	<5 cm [5 pts] No Water or Moist	Channel [0]	otsl	0
				MAXIMUM POO			
COMMENTS:							
	DTH (Massurad	as tob average	of 2.4 m	occurements) ((hack ONLY	one box):	Bankf
		as teh average		easurements) (C >1.0 m - 1.5m (>3			Widt
BANK FULL WI > 4.0 meters (>13') >3.0 m - 4.0m (>9'7	[30 pts] 7" - 13') [25 pts]	as teh average	e of 3-4 m	easurements) (0 >1.0 m - 1.5m (>3 <=1.0m (<=3'3") ['3" - 4'8") [15		Widt
BANK FULL WI > 4.0 meters (>13')	[30 pts] 7" - 13') [25 pts]	as teh average		>1.0 m - 1.5m (>3	'3" - 4'8") [15 5 pts]	pts]	Bankf Widtl Max =
BANK FULL WI > 4.0 meters (>13') >3.0 m - 4.0m (>9'7) >1.5 m - 3.0 m(>9'7)	[30 pts] 7" - 13') [25 pts]		▽	>1.0 m - 1.5m (>3 <=1.0m (<=3'3") [!	'3" - 4'8") [15 5 pts] IKFULL WID	pts]	Widt
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BANK FULL WI > 4.0 meters (>13') >3.0 m - 4.0m (>9'7 >1.5 m - 3.0 m(>9'7 COMMENTS: RIPARIAN ZO RIPARIAN Z	[30 pts] "" - 13') [25 pts] "" - 4'8") [20 pts] ONE AND FLOOD! WIDTH m 5-10 m	This inform PLAIN QUALITY FLOODPLAIN L R (Most F	nation mus NOT N QUALITY Predominar e Forest, W ture Forest ential, Park	>1.0 m - 1.5m (>3 <=1.0m (<=3'3") [4 AVERAGE BAN talso be completed E: River left (L) and	'3" - 4'8") [15 5 pts] IKFULL WID Right (R) as L R U V	In the content of the	Widt
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BANK FULL WI > 4.0 meters (>13') >3.0 m - 4.0m (>9'7 >1.5 m - 3.0 m(>9'7 COMMENTS: RIPARIAN ZO RIPARIAN Z	[30 pts] "" - 13') [25 pts] "" - 4'8") [20 pts] ONE AND FLOOD! WIDTH m 5-10 m 5 m	This inform PLAIN QUALITY FLOODPLAIN L R (Most Fill Mature Immate Imma	nation mus NOT N QUALITY Predominar re Forest, W ture Forest ential, Park ed Pasture	>1.0 m - 1.5m (>3 <=1.0m (<=3'3") [4 AVERAGE BAN t also be completed E: River left (L) and t Per Bank /etland Shrub or Old Field , New Field	'3" - 4'8") [15 5 pts] IKFULL WID Right (R) as L R U V	In the content of the	Widt
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BANK FULL WI > 4.0 meters (>13') >3.0 m - 4.0m (>9'7 >1.5 m - 3.0 m(>9'7 COMMENTS: RIPARIAN ZO RIPARIAN Z	[30 pts] " - 13') [25 pts] " - 4'8") [20 pts] ONE AND FLOODI WIDTH m 5-10 m 5 m	This inform PLAIN QUALITY FLOODPLAIN L R (Most Fill the second of the	nation mus NOT N QUALITY Predominar re Forest, W ture Forest ential, Park ed Pasture	>1.0 m - 1.5m (>3 <=1.0m (<=3'3") [4 AVERAGE BAN t also be completed E: River left (L) and at Per Bank /etland Shrub or Old Field , New Field	'3" - 4'8") [15 5 pts] IKFULL WID Right (R) as L R U V O M	looking downstream onservation Tillage rban or Industrial pen Pasture, Row Crop ining or Construction ools, no flow (Intermittent)	Widt
BANK FULL WI > 4.0 meters (>13') >3.0 m - 4.0m (>9'7) >1.5 m - 3.0 m(>9'7) COMMENTS: RIPARIAN ZO RIPARIAN	[30 pts] " - 13') [25 pts] " - 4'8") [20 pts] ONE AND FLOODI WIDTH m 5-10 m 5 m ME (At time of ellow with isolated poor	This inform PLAIN QUALITY FLOODPLAIN L R (Most F A A A A A A A A A A A A A A A A A A	nation mus NOT N QUALITY Predominar e Forest, W ture Forest ential, Park ed Pasture	>1.0 m - 1.5m (>3 <=1.0m (<=3'3") [4 AVERAGE BAN talso be completed E: River left (L) and the Per Bank /etland Shrub or Old Field , New Field box): Moist channe	IST - 4'8") [155 pts] IKFULL WID Right (R) as L R C U M El, isolated pono water (Ep	looking downstream onservation Tillage rban or Industrial pen Pasture, Row Crop ining or Construction ools, no flow (Intermittent)	Widt
BANK FULL WI > 4.0 meters (>13') >3.0 m - 4.0m (>9'7 >1.5 m - 3.0 m(>9'7 COMMENTS: RIPARIAN ZO RIPARIAN Z	[30 pts] " - 13') [25 pts] " - 4'8") [20 pts] ONE AND FLOODI WIDTH m 5-10 m 5 m ME (At time of ellow with isolated poor	This inform PLAIN QUALITY FLOODPLAIN L R (Most F Residence Fence	nation mus NOT N QUALITY Predominar e Forest, W ture Forest ential, Park ed Pasture	>1.0 m - 1.5m (>3 <=1.0m (<=3'3") [4 AVERAGE BAN talso be completed E: River left (L) and the Per Bank /etland Shrub or Old Field New Field box): Moist channe Ty channel, Check ONLY one b	IST - 4'8") [155 pts] IKFULL WID Right (R) as L R C U M El, isolated pono water (Ep	looking downstream onservation Tillage rban or Industrial pen Pasture, Row Cropining or Construction ools, no flow (Intermittent) ohemeral)	Widt
BANK FULL WI > 4.0 meters (>13') >3.0 m - 4.0m (>9'7 >1.5 m - 3.0 m(>9'7 COMMENTS: RIPARIAN ZO RIPARIAN Z	[30 pts] " - 13') [25 pts] " - 4'8") [20 pts] ONE AND FLOODI WIDTH m 5-10 m 5 m ME (At time of ellow with isolated poor	This inform PLAIN QUALITY FLOODPLAIN L R (Most F Mature Immate	nation mus NOT N QUALITY Predominar e Forest, W ture Forest ential, Park ed Pasture	>1.0 m - 1.5m (>3 <=1.0m (<=3'3") [4 AVERAGE BAN talso be completed E: River left (L) and ont Per Bank vetland Shrub or Old Field New Field box): Moist channel Check ONLY one b	IST - 4'8") [155 pts] IKFULL WID Right (R) as L R C U M El, isolated pono water (Ep	looking downstream onservation Tillage rban or Industrial pen Pasture, Row Crop ining or Construction ools, no flow (Intermittent) ohemeral)	Widt

ADDITIONAL STREAM INFORMATION (This information must also be comple	te					
	ach completed QHEI form)					
DOWNSTREAM DESIGNATED USE(S)						
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 ENTIRE WATERSHED AREA	. CLEARLY MARK THE SITE LOCATION					
USGS Quadrangle Name Cope NRCS Soil Map Page	NRCS Soil Map Stream Order:					
County: Morgan Township / City: Green						
MISCELLANEOUS						
Base flow conditions? (Y/N) Yes Date of last precipitation: 10/23	Quantity .01					
Photograph information:						
Elevated Turbidity? (Y/N) Canopy (% open): 100						
Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. ar	nd attach results) Lab number: N/A					
Field Measures: Temp (C) Dissolved oxygen (mg/l): pH:	Conductivity (umhos/cm)					
Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:						
Additional comments/description of pollution impacts:						
BIOTIC EVALUATION						
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note ID number. Include apropriate field data sheets from the Primary H						
Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N)	No Voucher? (Y/N) No					
Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrate	es observed? (Y/N) No Voucher? (Y/N) N					
Comments Regarding Biology:						

Stream Reach S6S052a



Stream Location on 2013 Aerial Photograph

Stream Location on Cope USGS Quadrangle

UNT 3 White River **Stream Name:** Quadrangle: Cope Flow Regime: Ephemeral Morgan County: Natural T12N **Channel Type:** Township: R2E No Legal Drain: Range: IDEM 303(d) Listed: No Section: 8 Predominant Substrate: gravel - sand Quarter: NW

Evaluation Score: HHEI = 32 **Latitude:** 39.495001 **Use Designation:** Class II PHWH **Longitude:** -86.341394

OHWM width: 4.3 Basin: White River - Henderson Bridge

OHWM depth: 0.5 **14-digit HUC:** 05120201140130

USACE Jurisdiction: Yes **Drainage area:** 0.06

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	32	0.003	0.00
Aternative C2	220	0.022	0.09
Aternative C3	171	0.017	0.05
Aternative C4 (Preferred)	220	0.022	0.09







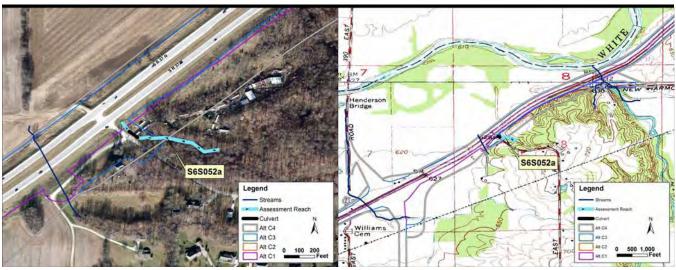
Primary Headwater Habitat Evaluation Form

32	

SITE NAME/LOCATION UNT White Riv	er			
SITE NUMBER	S6S052a RIVER	BASIN White River - Henderson D	RAINAGE AREA (mi)	0.06
LENGTH OF STEAM REACH (ft)	LAT 39.495001	LONG86.341394 RIVER CODE	N/A RIVER MILE N/	Α
DATE 10/23/2015 SCORER rh	COMMENT	·		
NOTE: Complete All Items On This Fo	rm - Refer to ""Field Eva	aluation Manual for Ohio's PHWH Str	eams" for Instructions	
STREAM CHANNEL NONE / NAT MODIFICATIONS:	URAL CHANNE	RECOVERED RECOVERING	RECENT OR NO RECO	VERY
		presentCheck ONLY two predominant bund (Max of 8). Final metric score is st PE SILT [3 pt] LEAF PACK/WOODY DEBRIS [3 pts]	PERCENT 0 3 pts 0 5	HHEI Metric Points Substrate Max = 40
COBBLE (65-256 mm) [9 pt GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts]	0 50 	CLAY or HARDPAN [0 pts] MUCK [0 pts] ARTIFICIAL [3 pts]	0 0 0	17
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock	0.00% (A)	Substrate Percentage Check 100 %	(B)	(A+B)
SCORE OF TWO MOST PREDOMINATE	SUBSTRATE TYPE	15 TOTAL NUMBER OF SUBST	RATE TYPES 2	
2. MAXIMUM POOL DEPTH (Measur of evaluation. Avoid plunge pools		epth within the 61 meter (200 ft) valuatem water pipes)	ion reach at the time	Pool Depth Max = 30
>>30 centimeters [20 pts] >22.5 - 30 cm [30 pts] >10 - 22.5 cm [25 pts]		>5 cm - 10 cm [15 pts] <5 cm [5 pts] No Water or Moist Channel [0	pts]	0
COMMENTS:		MAXIMUM POOL DEPTH (centimeters): 0	
	ed as teh average of	MAXIMUM POOL DEPTH (3-4 measurements) (Check ONLY ✓ >1.0 m - 1.5m (>3'3" - 4'8") [18 <=1.0m (<=3'3") [5 pts]	one box):	Bankfull Width Max = 30
3. BANK FULL WIDTH (Measur > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts]	ed as teh average of	3-4 measurements) (Check ONLY >1.0 m - 1.5m (>3'3" - 4'8") [15	one box): 5 pts]	Width
3. BANK FULL WIDTH (Measur > 4.0 meters (>13') [30 pts]		3-4 measurements) (Check ONLY >1.0 m - 1.5m (>3'3" - 4'8") [19	one box): 5 pts]	Width Max = 30
3. BANK FULL WIDTH (Measur > 4.0 meters (>13') [30 pts]	This informatio	3-4 measurements) (Check ONLY ✓ >1.0 m - 1.5m (>3'3" - 4'8") [18 <=1.0m (<=3'3") [5 pts]	one box): 5 pts] OTH (Meters): 1.3	Width Max = 30
3. BANK FULL WIDTH (Measur > 4.0 meters (>13') [30 pts]	This informatio	3-4 measurements) (Check ONLY >1.0 m - 1.5m (>3'3" - 4'8") [15] <=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL WII n must also be completed NOTE: River left (L) and Right (R) as	one box): 5 pts] OTH (Meters): 1.3	Width Max = 30
3. BANK FULL WIDTH (Measur > 4.0 meters (>13') [30 pts]	This information DPLAIN QUALITY FLOODPLAIN QU L R (Most Prede	3-4 measurements) (Check ONLY >1.0 m - 1.5m (>3'3" - 4'8") [19] <=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL WII n must also be completed NOTE: River left (L) and Right (R) as IALITY ominant Per Bank rest, Wetland Forest, Shrub or Old Field al, Park, New Field	one box): 5 pts] OTH (Meters): 1.3	Width Max = 30
3. BANK FULL WIDTH (Measur > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts] > 1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: RIPARIAN ZONE AND FLOOM RIPARIAN WIDTH L R (Per Bank W Wide >10 m Moderate 5-10 m Narrow <5 m None Comments:	This information DPLAIN QUALITY FLOODPLAIN QU L R (Most Prede) Mature Fo Immature Residentia Fenced Pa	3-4 measurements) (Check ONLY >1.0 m - 1.5m (>3'3" - 4'8") [19] <=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL WIII n must also be completed NOTE: River left (L) and Right (R) as IALITY ominant Per Bank rest, Wetland Forest, Shrub or Old Field al, Park, New Field asture LY one box):	one box): 5 pts] DTH (Meters): 1.3 looking downstream conservation Tillage Irban or Industrial Open Pasture, Row Crop Ining or Construction ools, no flow (Intermittent)	Width Max = 30
3. BANK FULL WIDTH (Measur > 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: RIPARIAN ZONE AND FLOCE RIPARIAN WIDTH L R (Per Bank W Wide >10 m	This information DPLAIN QUALITY FLOODPLAIN QUALITY FLOODPLAIN QU L R (Most Prediction of the content of the	3-4 measurements) (Check ONLY >1.0 m - 1.5m (>3'3" - 4'8") [19] <=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL WII n must also be completed NOTE: River left (L) and Right (R) as IALITY ominant Per Bank rest, Wetland Forest, Shrub or Old Field al, Park, New Field asture LY one box): Moist channel, isolated p	one box): 5 pts] DTH (Meters): 1.3 looking downstream conservation Tillage Irban or Industrial Open Pasture, Row Crop Inining or Construction ools, no flow (Intermittent) phemeral) 3.0 >3.0 >3.0	Width Max = 30

ADDITIONAL STREAM INFORMATION (This information must also be comple	ete					
	— tach completed QHEI form)					
DOWNSTREAM DESIGNATED USE(S)						
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 ENTIRE WATERSHED AREA	. CLEARLY MARK THE SITE LOCATION					
USGS Quadrangle Name Cope NRCS Soil Map Page	NRCS Soil Map Stream Order:					
County: Morgan Township / City: Green						
MISCELLANEOUS						
Base flow conditions? (Y/N) Yes Date of last precipitation: 10/23	Quantity 0.01					
Photograph information:	<u> </u>					
Elevated Turbidity? (Y/N) Canopy (% open): 50						
Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. ar	nd attach results) Lab number: N/A					
Field Measures: Temp (C) Dissolved oxygen (mg/l): pH:	Conductivity (umhos/cm)					
Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:						
Additional comments/description of pollution impacts:						
BIOTIC EVALUATION						
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note ID number. Include apropriate field data sheets from the Primary H						
Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N)	No Voucher? (Y/N) No					
Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrate	tes observed? (Y/N) No Voucher? (Y/N) N					
Comments Regarding Biology:						

Stream Reach S6S052b



Stream Location on 2013 Aerial Photograph

Stream Location on Cope USGS Quadrangle

UNT 3 White River **Stream Name:** Quadrangle: Cope Flow Regime: Ephemeral Morgan County: Natural T12N **Channel Type:** Township: R2E No Legal Drain: Range: IDEM 303(d) Listed: No Section: 8 Predominant Substrate: gravel - sand Quarter: NW

Evaluation Score:HHEI = 32Latitude:39.495001Use Designation:Class II PHWHLongitude:-86.341394

OHWM width: 4.3 Basin: White River - Henderson Bridge

OHWM depth: 0.5 **14-digit HUC:** 05120201140130

USACE Jurisdiction: Yes **Drainage area:** 0.06

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	32	0.003	0.00
Aternative C2	220	0.022	0.09
Aternative C3	171	0.017	0.05
Aternative C4 (Preferred)	220	0.022	0.09

OWQ Biological Studies QHEI (Qualitative Habitat Evaluation Index)

IDEM	Sample # S6S053b		bioSample #	Stream Name Stotts Creek		Location	
	Surveyor	Sample Date		Macro Sample Typ	e		
	ry kl	1/15/2016	Morgan	N/A	Complete	QHEI Score:	57.25
1] SUE	BSTRATE (ubstrate TYPE BOXES; ery type present	Chock ON	IE (Or 2 and average)	
	BEST TYP			HER TYPES	ORIGIN	NE (Or 2 and average) QUALITY	
PREDOMINA P R		PRESENT TOTAL %	6 PREDOMINANT	PRESENT TOTAL %	LIMESTONE [1	<u></u>	
□ □ BL	DR/SLABS [1		L HARDI	PAN [4] 🔲 🗒 _	✓ TILLS [1]	MODERATE [-1	-
	DULDERS [9] DBBLE [8]		DETRI		WETLANDS [0]]	Substrate
	RAVEL [7] AND [6]	✓ ✓ <u>100</u>	SILT [2		SANDSTONE [RIP/RAP [0]		14.0
	DROCK [5]				LACSTRINE [0]	
NUMBER	R OF BEST TY	PES: 4 or mo	DIE [Z]	re natural substrates;ignore ge from point-sources)	SHALE [-1] COAL FINES [-	□ NORMAL [0] 2] ☑ NONE [1]	Maximum 20
Comme	ents		JO 101				
2] <i>INS</i>	TREAM CO	/ER Indicate p	resence 0 to 3 a	and estiamte percent: 0-Abse	ent; 1- Very small ar	mounts or if more common	
				or in small amounts of highes boulders in deep or fast wate			_
	•	eloped root wad in		r, or deep, well-defined, func	tinoal pools.)	EXTENSIVE	>75% [11]
% Amount	UNDERCUT B	ANKS [1]	% Amount 2_ P	% Amount OO0LS>70CM [2] C	XBOWS, BACKWA	☐ MODERATE 2 TERS [1] ☑ SPARSE -<25	
	OVERHANGIN		[1] R	OOTWADS [1] A		IYTES [1] 🗌 NEARLY ABS	SENT <5% [1]
	ROOTMATS [ли — — Б	OULDERS[I]	OGS OK WOOD! D	Maxim	ver
Comme	ents						3.0
		RPHOLOGY Ch	eck ONE in eac	h category (Or 2 and average	e)		<u> </u>
SINUO	SITY	DEVELO		CHANNELIZATION		ABILITY	
☐ HIGH ✓ MODE	[4] ERATE [3]	✓ EXCELLE ✓ GOOD [5		✓ NONE [6] RECOVERED [4]		HIGH [3] MODERATE [2	nel -
LOW [[2]	☐ FAIR [3[`	-	RECOVERING [3]		LOW [1] Maxim	num 46 0
		☐ POOR [1]		☐ RECENT OR NO RECO	VERY[I]		20 16.0
		N AND RIPARIA	AN ZONE Ch	neck ONE in each category for	or EACH BANK (Or	2 per bank and average)	
River riç	ght looking downst		ARIAN WIDT			L R	FII I AOE [4]
L R	EROSION	MODE	>50m [4] ERATE 10-50m	FOREST, SWAMF	FIELD [2]	CONSERVATION OF URBAN OR INDUS	TRIAL [0]
✓ ✓ MO	ONE/LITTLE [3] ODERATE [2]	VERV	ROW 5-10m [2] NARROW [1]	RESIDENTIAL, PI	RK, NEW FIELD [1] RF [1]	MINING/CONSTRL cate predominant land use(
∐	AVY/SEVERE	[1] NONE	[0]	OPEN PASURE, F	DOMODOD TOT "I'M	t 100m riparian Ripar	ian
Commo	mta canony	20vor is 10 20% o	upon			Maxim	
		cover is 10-30% o ND RIFFLE /RU	•				
	UM DEPTI	H CHAN	MET MIDTH	CUR	RENT VELOÇI	TY Recreation (Circle one and co	
Check Ol ✓ >1 m	NE (ONLY! [6]		NE (Or 2 and av DTH > RIFFLE V		Check All that apply AL [-1] SLO	W [1] Primary	
	1m [4] 0.7m [2]		DTH = RIFFLE V DTH < RIFFLE V			DMITTENT [2]	ary Contact
<u> </u>	0.4m [1]	V 1 002 W		✓ MODERAT	E [1] 🔽 EDD	IES [1] Curr	ool/ ent
☐ <0.2m				Ir	ndicate for reach - p	ools and riffles Maxim	9.0
		riffles; Best area	s must be large	enough to support a populat	ion		
	obligate speci			Check One (Or 2 and av	0 /	ON RIFFLE [ME	
	E DEPTH AREAS>10cm	RUN DI	EPTH 1UM >50cm [2]	RIFFLE/RUN SUBS		FLE/RUN EMBEDDE ☑ NONE [2]	DNES
BEST	AREAS 5-10ci		10M > 30cm [2] 1UM < 50cm [1]	MOD. STABLE (e.g, Lai	rge Gravel) [1]	LOW [1] Dif	fle/
□ BESI	AREAS <5cm [metri	c=0]		✓ UNSTABLE (e.g., Fine	ri vei, sailu) [U] [[MODĚŘATE [0] KI EXTENSIVE [-1] Maxim	
Comme	ents						8
6] GRAL	DIENT (0 ft/	mi)	✓ VERY LOW		% GL		ian
DRAI	NAGE AREA	4 (0 ft/mi)		[6 - 10] Y HIGH [10 - 6] % RUN:	: % RIF	Ripar FLE: Maxim	10 4.0

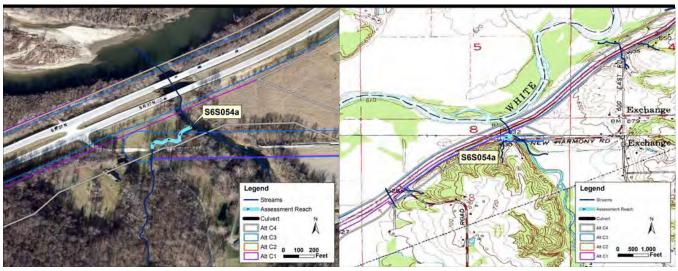
OWQ Biological Studies QHEI (Qualitative Habitat Evaluation Index)



Comment

Stream Drawing:

Stream Reach S6S054a



Stream Location on 2013 Aerial Photograph

Stream Location on Cope USGS Quadrangle

UNT 1 Stotts Creek **Stream Name:** Quadrangle: Cope Flow Regime: Intermittent Morgan County: Natural T12N **Channel Type:** Township: R2E No Legal Drain: Range: IDEM 303(d) Listed: No Section: 8 Predominant Substrate: sand Quarter: ΝE

Evaluation Score: HHEI = 43 **Latitude:** 39.499739 **Use Designation:** Rheocrene Potential **Longitude:** -86.332667

OHWM width: 2.7 Basin: Stotts Creek - Exchange

OHWM depth: 0.2 **14-digit HUC:** 05120201140120

USACE Jurisdiction: Yes **Drainage area:** 0.055

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1 222		0.014	0.00
Aternative C2 281		0.017	0.00
Aternative C3	222	0.014	0.00
Aternative C4 (Preferred)	281	0.017	0.00





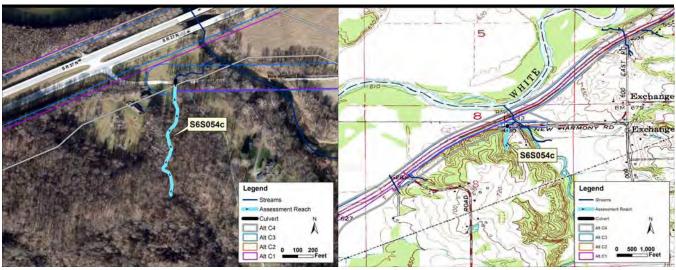


ChieFPA Primary Headwater Habitat Evaluation Form

SITE NAME/LOCATION UNT Stotts	s Creek				
SITE NUME	BER S6S054a RIV	/ER BASIN Stotts Creek	- Exchange DRAII	NAGE AREA (mi)	0.055
LENGTH OF STEAM REACH (ft)	LAT 39.4997	39 LONG86.332667	RIVER CODE N/A	RIVER MILE	N/A
DATE 1/15/2016 SCORER ry	y kl COMMI	ENT			
NOTE: Complete All Items On This	s Form - Refer to ""Field	Evaluation Manual for O	hio's PHWH Stream	s" for Instructions	
STREAM CHANNEL NONE / MODIFICATIONS:	NATURAL CHANNE [RECOVERED R	ECOVERING	RECENT OR NO REC	OVERY
SUBSTRATE (Estimate percer (Max of 32). Add total number of TYPE					HHEI Metric Points
BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts] BEDROCK [16 pts] COBBLE (65-256 mm) [9 pts] GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts]	0	SILT [3 pt] LEAF PACK/WG FINE DETRITUS CLAY or HARDI MUCK [0 pts] ARTIFICIAL [3 pts]	PAN [0 pts]	0 0 0 0 0	Substrate Max = 40
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bed	0.00% (A	Substrate Percenta Check		(B)	(A+B)
SCORE OF TWO MOST PREDOMINA	ATE SUBSTRATE TYPE	12 TOTAL NUM	BER OF SUBSTRAT	E TYPES 1	
2. MAXIMUM POOL DEPTH (Me of evaluation. Avoid plunge po			ter (200 ft)valuation	reach at the time	Pool Depth Max = 30
>>30 centimeters [20 pts] >22.5 - 30 cm [30 pts] >10 - 22.5 cm [25 pts]		✓ >5 cm - 10 cn <5 cm [5 pts] No Water or I			15
			DOOL DEDTIL /same	timeters): 0	
COMMENTS:		MAXIMUM	POOL DEPTH (cen	illileters).	
3. BANK FULL WIDTH (Mea > 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pt] >1.5 m - 3.0 m(>9'7" - 4'8") [20	ots]	of 3-4 measurements)	(Check ONLY one	box):	Bankfull Width Max = 30
3. BANK FULL WIDTH (Mea > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pt]	ots]	of 3-4 measurements >1.0 m - 1.5m <=1.0m (<=3'	(Check ONLY one	box):	Width
3. BANK FULL WIDTH (Mea > 4.0 meters (>13') [30 pts]	ots] pts]	of 3-4 measurements >1.0 m - 1.5m <=1.0m (<=3'	(Check ONLY one n (>3'3" - 4'8") [15 pts 3") [5 pts]	box):	Width Max = 30
3. BANK FULL WIDTH (Mea > 4.0 meters (>13') [30 pts]	ots] pts] This inform:	of 3-4 measurements) >1.0 m - 1.5m <=1.0m (<=3') AVERAGE ation must also be comp	(Check ONLY one n (>3'3" - 4'8") [15 pts 3") [5 pts]	box): (Meters): 0	Width Max = 30
3. BANK FULL WIDTH (Mea > 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pt] >1.5 m - 3.0 m(>9'7" - 4'8") [20 COMMENTS:	ots] pts] This inform:	of 3-4 measurements) >1.0 m - 1.5m <=1.0m (<=3') AVERAGE ation must also be comp NOTE: River left (L)	(Check ONLY one n (>3'3" - 4'8") [15 pts 3") [5 pts] BANKFULL WIDTH	box): (Meters): 0	Width Max = 30
3. BANK FULL WIDTH (Mea > 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pt] >1.5 m - 3.0 m(>9'7" - 4'8") [20 COMMENTS: RIPARIAN ZONE AND F	This information of the complete of the comple	of 3-4 measurements) >1.0 m - 1.5m <=1.0m (<=3') AVERAGE ation must also be comp NOTE: River left (L)	(Check ONLY one of (>3'3" - 4'8") [15 pts 3") [5 pts] BANKFULL WIDTH leted and Right (R) as lood L R Urba V V Oper	box): (Meters): 0	Width Max = 30
3. BANK FULL WIDTH (Mea > 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 COMMENTS: RIPARIAN ZONE AND F RIPARIAN WIDTH L R (Per Bank Wide >10 m Moderate 5-10 m Narrow <5 m None Comments:	This information This information The Informat	of 3-4 measurements) >1.0 m - 1.5m <=1.0m (<=3') AVERAGE ation must also be comp NOTE: River left (L) QUALITY Predominant Per Bank e Forest, Wetland ure Forest, Shrub or Old Fiential, Park, New Field d Pasture ONLY one box): Moist ch	(Check ONLY one of (>3'3" - 4'8") [15 pts 3") [5 pts] BANKFULL WIDTH Leted and Right (R) as loo L R Urba V P Oper Minin	(Meters): 0 king downstream ervation Tillage n or Industrial Pasture, Row Crop g or Construction , no flow (Intermittent)	Width Max = 30
3. BANK FULL WIDTH (Mea > 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 COMMENTS: RIPARIAN ZONE AND F RIPARIAN WIDTH L R (Per Bank Wide >10 m Moderate 5-10 m Moderate 5-10 m None Comments: FLOW REGIME (At tire Steam flowing Subsurface flow with isolated Comments: SINUOSITY (Number of None 0.5 STREAM GRADIENT ES	This information (Check ted pools (interstitial) bends per 61 m (200 ft) of 1.5 STIMATE	of 3-4 measurements) >1.0 m - 1.5m <=1.0m (<=3') AVERAGE ation must also be comp NOTE: River left (L) QUALITY Predominant Per Bank e Forest, Wetland ure Forest, Shrub or Old Fiential, Park, New Field d Pasture ONLY one box): Moist ch Dry char of channel. Check ONLY or 2.0 2.5	(Check ONLY one n (>3'3" - 4'8") [15 pts 3") [5 pts] BANKFULL WIDTH leted and Right (R) as lood L R Cons Urba V Oper Minin annel, isolated pools nel, no water (Epher	(Meters): 0 king downstream ervation Tillage n or Industrial Pasture, Row Crop g or Construction , no flow (Intermittent)	Width Max = 30

OHEI PERFORMED	ADDITIONAL STREAM INFORMATION (This information must also be comple	te
WWH Name: Stotts Creek		_
WWH Name: Stotts Creek		,
CWH Name: Distance from Evaluated Stream	WWH Name: Stotts Creek	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION USGS Quadrangle Name		
USGS Quadrangle Name Cope	EWH Name:	Distance from Evaluated Stream
MISCELLANEOUS Base flow conditions? (Y/N) Yes Date of last precipitation: Quantity Photograph information: Elevated Turbidity? (Y/N) No Canopy (% open): 10 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach results) Lab number: N/A Field Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conductivity (umhos/cm) Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain: Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N) No Voucher? (Y/N) No	MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA	A. CLEARLY MARK THE SITE LOCATION
MISCELLANEOUS Base flow conditions? (Y/N) Yes Date of last precipitation: Quantity Photograph information: Elevated Turbidity? (Y/N) No Canopy (% open): 10 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach results) Lab number: N/A Field Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conductivity (umhos/cm) Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain: Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N) No Voucher? (Y/N) No No Noucher? (Y/N) No	USGS Quadrangle Name Cope NRCS Soil Map Page	30 NRCS Soil Map Stream Order: 2
Base flow conditions? (Y/N) Yes Date of last precipitation: Quantity Photograph information: Elevated Turbidity? (Y/N) No Canopy (% open): 10 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach results) Lab number: N/A Field Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conductivity (umhos/cm) Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain: Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N) No Voucher? (Y/N) No No Voucher? (Y/N) No No No Noucher? (Y/N)	County: Morgan Township / City: Green	
Base flow conditions? (Y/N) Yes Date of last precipitation: Quantity Photograph information: Elevated Turbidity? (Y/N) No Canopy (% open): 10 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach results) Lab number: N/A Field Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conductivity (umhos/cm) Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain: Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N) No Voucher? (Y/N) No No Voucher? (Y/N) No No No Noucher? (Y/N)	MISCELLANEOUS	
Photograph information: Elevated Turbidity? (Y/N) No Canopy (% open): 10 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach results) Lab number: N/A Field Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conductivity (umhos/cm) Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain: Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N) No		Quantity
Elevated Turbidity? (Y/N) No Canopy (% open): 10 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach results) Lab number: N/A Field Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conductivity (umhos/cm) Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain: Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N) No Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrates observed? (Y/N) No Voucher? (Y/N) No No Voucher? (Y/N) No		
Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach results) Lab number: N/A Field Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conductivity (umhos/cm) Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain: Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N) No Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrates observed? (Y/N) No Voucher? (Y/N) No No No Voucher? (Y/N) No No No Voucher? (Y/N) No No No Voucher? (Y/N) No No No No Voucher? (Y/N) No		
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BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N) No		
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N) No V	Additional comments/description of pollution impacts:	
D number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N)	BIOTIC EVALUATION	
Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrates observed? (Y/N) No Voucher? (Y/N) No No Voucher? (Y/N)		
	Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N)	No Voucher? (Y/N) No
Comments Regarding Biology:	Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrat	tes observed? (Y/N) No Voucher? (Y/N) No
	Comments Regarding Biology:	

Stream Reach S6S054c



Stream Location on 2013 Aerial Photograph

Stream Location on Cope USGS Quadrangle

UNT 1 Stotts Creek **Stream Name:** Quadrangle: Cope Flow Regime: Intermittent County: Morgan Natural T12N **Channel Type:** Township: R2E No Legal Drain: Range: IDEM 303(d) Listed: No Section: 8 Predominant Substrate: sand Quarter: ΝE HHEI = 43**Evaluation Score:** Latitude: 39.49948

Use Designation: Rheocrene Potential Longitude: -86.33306

OHWM width: 3.3 Basin: Stotts Creek - Exchange

OHWM depth: 0.2 **14-digit HUC:** 05120201140120

USACE Jurisdiction: Yes Drainage area: 0.05

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	61	0.005	0.00
Aternative C2	14	0.001	0.00
Aternative C3	61	0.005	0.00
Aternative C4 (Preferred)	14	0.001	0.00





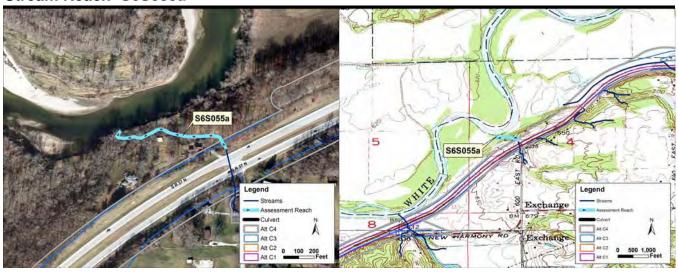


ChieFPA Primary Headwater Habitat Evaluation Form

SITE NAME/LOCATION U	JNT Stotts Creek					
SI	TE NUMBER S6S054	RIVER BA	ASIN Stotts Creek - Exc	hange DRAINA	GE AREA (mi)	0.05
LENGTH OF STEAM REAC	H (ft) LAT	39.49948 LC	NG86.33306 RIV	ER CODE N/A	RIVER MILE	N/A
DATE 1/15/2016 SC0	ORER ry kl	COMMENT				
NOTE: Complete All Item	s On This Form - Refe	r to ""Field Evalu	ation Manual for Ohio's	PHWH Streams"	for Instructions	
STREAM CHANNEL MODIFICATIONS:] NONE / NATURAL CH	IANNE REC	COVERED RECO	VERING RE	CENT OR NO REC	OVERY
		ubsrate types found	esentCheck ONLY two pd (Max of 8). Final metri			HHEI Metric
BLDR SLABS [16 BOULDER (>256) BEDROCK [16 pts COBBLE (65-256 GRAVEL (2-64 mr) SAND (<2 mm) [6	mm) [16 pts		SILT [3 pt] LEAF PACK/WOOD' FINE DETRITUS [3 pt] CLAY or HARDPAN MUCK [0 pts] ARTIFICIAL [3 pts]	ots]	0 0 0 0 0	Substrate Max = 40
Total of Percenta Bldr Slabs, Boulder, Col			T	100 %	(B)	(A+B)
SCORE OF TWO MOST PR	EDOMINATE SUBSTR	ATE TYPE 12	TOTAL NUMBER	OF SUBSTRATE	TYPES 1	
of evaluation. Avoid	plunge pools from road			,	ch at the time	Pool Dept Max = 30
>>30 centimeters [20 >22.5 - 30 cm [30 pts] >10 - 22.5 cm [25 pts]] _		✓ >5 cm - 10 cm [15 <5 cm [5 pts] No Water or Moist			15
COMMENTS:			MAXIMUM POO	L DEPTH (centim	eters): 0	
3. BANK FULL WID > 4.0 meters (>13') [3 > 3.0 m - 4.0m (>9'7" - >1.5 m - 3.0 m(>9'7" -	60 pts] - 13') [25 pts]	n average of 3-4	measurements (C >1.0 m - 1.5m (>3' <=1.0m (<=3'3") [5	3" - 4'8") [15 pts]	ox):	Bankfull Width Max = 30
COMMENTS:			AVERAGE BAN	KFULL WIDTH (M	leters): 0	15
	1	his information n	nust also be completed			-
RIPARIAN ZON	NE AND FLOODPLAIN	QUALITY 1	NOTE: River left (L) and	Right (R) as looking	g downstream	
<u>RIPARIAN WI</u>	<u>DTH</u> <u>FL</u>	OODPLAIN QUAL	<u>ITY</u>			
L R (Per Bank Wide >10 m Moderate 5- Narrow <5 m None Comments:	10 m		t, Wetland est, Shrub or Old Field Park, New Field	Urban o	ration Tillage r Industrial asture, Row Crop or Construction	
FLOW REGIME Steam flowing Subsurface flow Comments:	E (At time of evaluation with isolated pools (inter	, ,	Moist channe	l, isolated pools, no no water (Ephemei	o flow (Intermittent) ral)	
None 0.5	Jumber of bends per 61 1.0 1.5 DIENT ESTIMATE	m (200 ft) of chann	nel. Check ONLY one bo	✓ 3	3.0 >3.0	
Flat (0.5 ft/100 ft)	Flat to Moderate	✓ Moderate (2	2 ft/100 ft)	ate to Severe	Severe (10 ft /10	0 ft)

ADDITIONAL STREAM INFORMATION (This information must also be completed)	ete.
	tach completed QHEI form)
	,
DOWNSTREAM DESIGNATED USE(S) WWH Name: Stotts Creek	Distance from Evaluated Stream
CWH Name:	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA	A. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name Cope NRCS Soil Map Page	30 NRCS Soil Map Stream Order: 2
County: Morgan Township / City: Green	
MISCELLANEOUS	
Base flow conditions? (Y/N) Yes Date of last precipitation:	Quantity
Photograph information:	<u> </u>
Elevated Turbidity? (Y/N) No Canopy (% open): 5	
	nd attach results) Lab number: N/A
Field Measures: Temp (C) Dissolved oxygen (mg/l): pH:	Conductivity (umhos/cm)
Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note ID number. Include apropriate field data sheets from the Primary H	
Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N)	No Voucher? (Y/N) No
Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebra	tes observed? (Y/N) No Voucher? (Y/N) N
Comments Regarding Biology:	

Stream Reach S6S055a



Stream Location on 2013 Aerial Photograph

Stream Location on Mooresville East USGS Quadra

Stream Name: UNT 8 White River Quadrangle: Mooresville East

Flow Regime: Ephemeral Morgan County: Natural R12N **Channel Type:** Township: R2E No Legal Drain: Range: IDEM 303(d) Listed: Section: 4 No Predominant Substrate: sand - gravel Quarter: SE

Evaluation Score:HHEI = 42Latitude:39.508126Use Designation:Class II PHWHLongitude:-86.322669

 OHWM width:
 24.0
 Basin:
 White River - North Trib

 OHWM depth:
 0.9
 14-digit HUC:
 05120201140060

USACE Jurisdiction: Yes **Drainage area:** 0.298

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	51	0.028	0.07
Aternative C2	51	0.028	0.07
Aternative C3	33	0.018	0.06
Aternative C4 (Preferred)	51	0.028	0.07





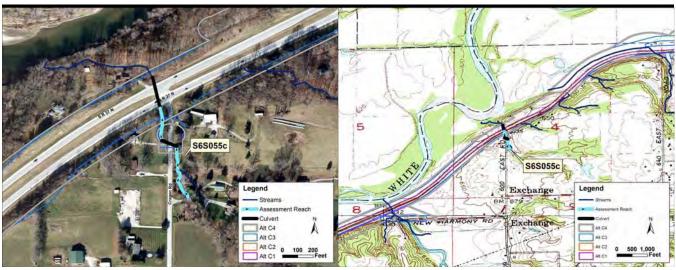


Primary Headwater Habitat Evaluation Form

SITE NAME/LOCATION UNT White River	
SITE NUMBER S6S055a RIVER BASIN White River - North Trib DRAINAGE AREA (mi)	0.298
_ENGTH OF STEAM REACH (ft) LAT 39.508126 LONG86.322669 RIVER CODE N/A RIVER MILE	N/A
DATE 10/20/2015 SCORER rjc COMMENT	
NOTE: Complete All Items On This Form - Refer to ""Field Evaluation Manual for Ohio's PHWH Streams" for Instructions	
STREAM CHANNEL NONE / NATURAL CHANNE RECOVERED RECOVERING RECENT OR NO RE MODIFICATIONS:	COVERY
1. SUBSTRATE (Estimate percent of every type of substrate presentCheck ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant subsrate types found (Max of 8). Final metric score is sum of boxes A and B.) TYPE BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts] BEDROCK [16 pts] COBBLE (65-256 mm) [9 pt] GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts] Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPE SUBSTRATE Presentage 100 % (B) TOTAL NUMBER OF SUBSTRATE TYPES	HHE Metri Point Substrat Max = 4 17 (A+B)
2. MAXIMUM POOL DEPTH (Measure the maximum pool depth within the 61 meter (200 ft) valuation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes)	Pool Dep Max = 3
>>30 centimeters [20 pts] >22.5 - 30 cm [30 pts] >10 - 22.5 cm [25 pts] >>5 cm - 10 cm [15 pts] <5 cm [5 pts] No Water or Moist Channel [0 pts]	0
COMMENTS: MAXIMUM POOL DEPTH (centimeters): 0	
BANK FULL WIDTH (Measured as teh average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts] > 1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] (Check ONLY one box): > 1.0 m - 1.5m (>3'3" - 4'8") [15 pts] <=1.0m (<=3'3") [5 pts]	Bankfu Width Max = 3
COMMENTS: AVERAGE BANKFULL WIDTH (Meters): ####	25

ADDITIONAL STREAM INFORMATION (This information must also be comple	ete
	tach completed QHEI form)
DOWNSTREAM DESIGNATED USE(S)	
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 ENTIRE WATERSHED AREA	. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name Mooresville East NRCS Soil Map Page	NRCS Soil Map Stream Order:
County: Morgan Township / City: Green	
MISCELLANEOUS	
Base flow conditions? (Y/N) Yes Date of last precipitation: 10/3	Quantity .13
Photograph information:	<u> </u>
Elevated Turbidity? (Y/N) Canopy (% open): 15	
Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. ar	nd attach results) Lab number: N/A
Field Measures: Temp (C) Dissolved oxygen (mg/l): pH:	Conductivity (umhos/cm)
Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note ID number. Include apropriate field data sheets from the Primary H	
Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N)	No Voucher? (Y/N) No
Frogs or tadpoles observed? (Y/N)No Voucher? (Y/N)No Aquatic Macroinvertebrate	tes observed? (Y/N) No Voucher? (Y/N) N
Comments Regarding Biology:	

Stream Reach S6S055c



Stream Location on 2013 Aerial Photograph

Stream Location on Mooresville East USGS Quadra

Stream Name: UNT 4 White River Quadrangle: Mooresville East

Flow Regime: Perennial County: Morgan Natural T12N **Channel Type:** Township: R2E No Legal Drain: Range: IDEM 303(d) Listed: Section: 4 No Predominant Substrate: sand - gravel Quarter: SW

Evaluation Score:HHEI = 67Latitude:39.506771Use Designation:Class II PHWHLongitude:-86.322202

 OHWM width:
 0.8
 Basin:
 White River - North Trib

 OHWM depth:
 0.3
 14-digit HUC:
 05120201140060

USACE Jurisdiction: Yes **Drainage area:** 0.212

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	222	0.004	0.25
Aternative C2	233	0.004	0.23
Aternative C3	207	0.004	0.23
Aternative C4 (Preferred)	233	0.004	0.23



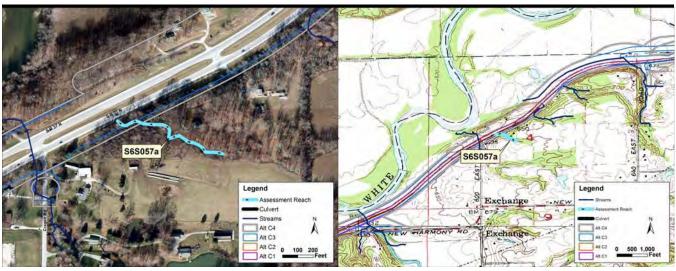




SITE NUMBER S6S055c RIV	ER BASIN White River - North Trib DRAINAGE AREA (mi)	0.212
LENGTH OF STEAM REACH (ft) LAT 39.50677	71 LONG86.322202 RIVER CODE N/A RIVER MILE N	I/A
DATE 2/18/2016 SCORER rh COMME		
NOTE: Complete All Items On This Form - Refer to ""Field	Evaluation Manual for Ohio's PHWH Streams" for Instructions	
STREAM CHANNEL NONE / NATURAL CHANNE MODIFICATIONS:	RECOVERED RECOVERING RECENT OR NO RECO	OVERY
	rate presentCheck ONLY two predominant substrate TYPE boxes	HHE
(Max of 32). Add total number of significant subsrate types	s found (Max of 8). Final metric score is sum of boxes A and B.)	Metri
	TYPE PERCENT	Point
BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts 0	SILT [3 pt] 0	Substrat
BEDROCK [16 pts] COBBLE (65-256 mm) [9 pt 0	☐ FINE DETRITUS [3 pts] ☐ 0 ☐ CLAY or HARDPAN [0 pts] 0	Max = 40
☐ GRAVEL (2-64 mm) [9 pts] 60	MUCK [0 pts]	47
✓	ARTIFICIAL [3 pts]	17
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0.00% (A)	Substrate Percentage Check 100 % (B)	(A+B)
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPE	15 TOTAL NUMBER OF SUBSTRATE TYPES 2	
2. MAXIMUM POOL DEPTH (Measure the maximum pool of evaluation. Avoid plunge pools from road culverts or s	I depth within the 61 meter (200 ft) valuation reach at the time storm water pipes)	Pool Dep Max = 3
>>30 centimeters [20 pts] >22.5 - 30 cm [30 pts]	>5 cm - 10 cm [15 pts] <5 cm [5 pts]	
✓ >10 - 22.5 cm [25 pts]	No Water or Moist Channel [0 pts]	25
COMMENTS:	MAXIMUM POOL DEPTH (centimeters): 10	
3. BANK FULL WIDTH (Measured as teh average	of 3-4 measurements) (Check ONLY one box):	Bankfu
	4.0 4.5 (0.00) 440) 545 (3	Width
> 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts]	>1.0 m - 1.5m (>3'3" - 4'8") [15 pts] <=1.0m (<=3'3") [5 pts]	
> 4.0 meters (>13') [30 pts]		
> 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts]		Width Max = 3
> 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts]	<=1.0m (<=3'3") [5 pts]	Max = 3
> 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: This informa	<=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL WIDTH (Meters): 3.4 ation must also be completed	Max = 3
> 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: This informa RIPARIAN ZONE AND FLOODPLAIN QUALITY	AVERAGE BANKFULL WIDTH (Meters): 3.4 ation must also be completed NOTE: River left (L) and Right (R) as looking downstream	Max = 3
> 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: This informa RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH FLOODPLAIN	AVERAGE BANKFULL WIDTH (Meters): 3.4 ation must also be completed NOTE: River left (L) and Right (R) as looking downstream QUALITY	Max = 3
> 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: This informa RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH L R (Per Bank L R (Most Per Bank)	AVERAGE BANKFULL WIDTH (Meters): 3.4 ation must also be completed NOTE: River left (L) and Right (R) as looking downstream QUALITY redominant Per Bank L R	Max = 3
> 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: This informa RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH L R (Per Bank L R (Most Plant of Manney Plant of Manne	AVERAGE BANKFULL WIDTH (Meters): 3.4 ation must also be completed NOTE: River left (L) and Right (R) as looking downstream QUALITY	Max = 3
> 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: This informa RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH L R (Per Bank L R (Most Property of Moderate 5-10 m	AVERAGE BANKFULL WIDTH (Meters): 3.4 ation must also be completed NOTE: River left (L) and Right (R) as looking downstream QUALITY redominant Per Bank Forest, Wetland ure Forest, Shrub or Old Field untial, Park, New Field AVERAGE BANKFULL WIDTH (Meters): 3.4 Conservation Tillage Urban or Industrial Open Pasture, Row Crop	Max = 3
> 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: This informa RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH L R (Per Bank L R (Most Property of Moderate 5-10 m	AVERAGE BANKFULL WIDTH (Meters): 3.4 ation must also be completed NOTE: River left (L) and Right (R) as looking downstream QUALITY redominant Per Bank Forest, Wetland ure Forest, Shrub or Old Field Conservation Tillage Urban or Industrial	Max = 3
> 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: This informa RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH L R (Per Bank L R (Most Pterminant of Moderate 5-10 m	AVERAGE BANKFULL WIDTH (Meters): AVERAGE BANKFULL WIDTH (Meters): ation must also be completed NOTE: River left (L) and Right (R) as looking downstream QUALITY redominant Per Bank Forest, Wetland are Forest, Wetland are Forest, Shrub or Old Field antial, Park, New Field d Pasture AVERAGE BANKFULL WIDTH (Meters): 3.4 Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction	Max = 3
> 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: This informa RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH L R (Per Bank L R (Most Plant) Wide >10 m Moderate 5-10 m Moderate 5-10 m None Reside Fenced	AVERAGE BANKFULL WIDTH (Meters): AVERAGE BANKFULL WIDTH (Meters): Ation must also be completed NOTE: River left (L) and Right (R) as looking downstream QUALITY redominant Per Bank Forest, Wetland ure Forest, Shrub or Old Field intial, Park, New Field d Pasture ONLY one box):	Max = 3
→ 4.0 meters (>13') [30 pts] → 3.0 m - 4.0m (>9'7" - 13') [25 pts] → 1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS:	AVERAGE BANKFULL WIDTH (Meters): AVERAGE BANKFULL WIDTH (Meters): ation must also be completed NOTE: River left (L) and Right (R) as looking downstream QUALITY redominant Per Bank Forest, Wetland are Forest, Wetland are Forest, Shrub or Old Field antial, Park, New Field d Pasture AVERAGE BANKFULL WIDTH (Meters): 3.4 Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction	Max = 3
> 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: This informa RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH L R (Per Bank L R (Most Plant of Mature of Exercise of Exercis	AVERAGE BANKFULL WIDTH (Meters): AVERAGE BANKFULL WIDTH (Meters): Ation must also be completed NOTE: River left (L) and Right (R) as looking downstream QUALITY Tredominant Per Bank Forest, Wetland Urban or Industrial Urban or Industrial Open Pasture, Row Crop Mining or Construction ONLY one box): Moist channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)	Max = 3
> 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: This informa RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH L R (Per Bank L R (Most Property of Mature) Moderate 5-10 m Moderate 5-10 m Moderate 5-10 m None Comments: FLOW REGIME (At time of evaluation) (Check of Mature) Steam flowing Subsurface flow with isolated pools (interstitial) Comments: SINUOSITY (Number of bends per 61 m (200 ft) of None 1.0	AVERAGE BANKFULL WIDTH (Meters): AVERAGE BANKFULL WIDTH (Meters): Ation must also be completed NOTE: River left (L) and Right (R) as looking downstream QUALITY Tredominant Per Bank Forest, Wetland Urban or Industrial Open Pasture, Row Crop Mining or Construction ONLY one box): Moist channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral) f channel. Check ONLY one box) 2.0 3.4	Max = 3
> 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: This informa RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH L R (Per Bank L R (Most Property of Mature of Moderate 5-10 m	AVERAGE BANKFULL WIDTH (Meters): AVERAGE BANKFULL WIDTH (Meters): Ation must also be completed NOTE: River left (L) and Right (R) as looking downstream QUALITY redominant Per Bank Forest, Wetland Urban or Industrial Open Pasture, Row Crop Mining or Construction ONLY one box): Moist channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)	Max = 3

ADDITIONAL STREAM INFORMATION (This information must also be comple	ete
	tach completed QHEI form)
DOWNSTREAM DESIGNATED USE(S)	
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 ENTIRE WATERSHED AREA	A. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name Mooresville East NRCS Soil Map Page	NRCS Soil Map Stream Order:
County: Morgan Township / City: Green	
MISCELLANEOUS	
Base flow conditions? (Y/N) Yes Date of last precipitation: 2/14	Quantity 2.3
Photograph information:	<u> </u>
Elevated Turbidity? (Y/N) Canopy (% open): 100	
Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. an	nd attach results) Lab number: N/A
Field Measures: Temp (C) Dissolved oxygen (mg/l): pH:	Conductivity (umhos/cm)
Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note ID number. Include apropriate field data sheets from the Primary H	
Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N)	No Voucher? (Y/N) No
Frogs or tadpoles observed? (Y/N)No Voucher? (Y/N)No Aquatic Macroinvertebrat	tes observed? (Y/N) No Voucher? (Y/N) N
Comments Regarding Biology:	

Stream Reach S6S057a



Stream Location on 2013 Aerial Photograph

Stream Location on Mooresville East USGS Quadra

SW

UNT 6 White River Mooresville East **Stream Name:** Quadrangle:

Flow Regime: Ephemeral Morgan County: Natural T12N **Channel Type:** Township: R2E No Legal Drain: Range: IDEM 303(d) Listed: No Section: 4 Predominant Substrate: bedrock - sand

HHEI = 29**Evaluation Score:** Latitude: 39.508188 Class I PHWH -86.320802 Longitude: **Use Designation:**

OHWM width: 3.3 Basin: White River - North Trib **14-digit HUC:** 05120201140060 0.9 OHWM depth:

Quarter:

USACE Jurisdiction: Yes Drainage area: 0.058

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	145	0.011	0.40
Aternative C2	145	0.011	0.40
Aternative C3	71	0.005	0.26
Aternative C4 (Preferred)	145	0.011	0.40



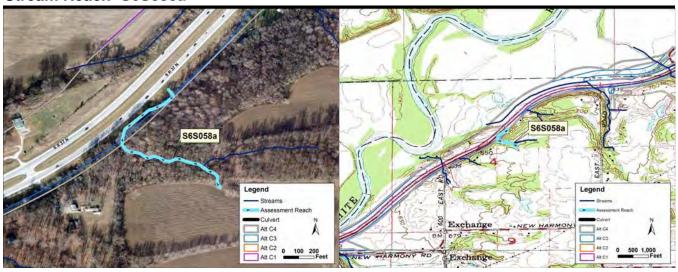




SITE NAME/LOCATION UNT White Rive	er	
SITE NUMBER	S6S057a RIVER BASIN White River - North Trib DRAINAGE AREA (mi)	0.058
LENGTH OF STEAM REACH (ft)	LAT 39.508188 LONG86.320802 RIVER CODE N/A RIVER MIL	E N/A
DATE 2/18/2016 SCORER rh	COMMENT	
NOTE: Complete All Items On This For	m - Refer to ""Field Evaluation Manual for Ohio's PHWH Streams" for Instruction	<u> </u>
STREAM CHANNEL NONE / NATURE MODIFICATIONS:	URAL CHANNE	ECOVERY
	every type of substrate presentCheck ONLY two predominant substrate TYPE boxes nificant subsrate types found (Max of 8). Final metric score is sum of boxes A and B.) PERCENT TYPE PERCENT	HHEI Metric Points
BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts] BEDROCK [16 pts] COBBLE (65-256 mm) [9 pt] GRAVEL (2-64 mm) [9 pts]	0 SILT [3 pt] 0 0 LEAF PACK/WOODY DEBRIS [3 pts 0 60 FINE DETRITUS [3 pts] 0 0 CLAY or HARDPAN [0 pts] 0 MUCK [0 pts] 0	Substrate Max = 40
☐ SAND (<2 mm) [6 pts]		24
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock	60.00% (A) Substrate Percentage Check 100 % (B)	(A+B)
SCORE OF TWO MOST PREDOMINATE	SUBSTRATE TYPE 22 TOTAL NUMBER OF SUBSTRATE TYPES 2	
	e the maximum pool depth within the 61 meter (200 ft) valuation reach at the time rom road culverts or storm water pipes)	Pool Dept Max = 30
>>30 centimeters [20 pts] >22.5 - 30 cm [30 pts] >10 - 22.5 cm [25 pts]		0
COMMENTS:	MAXIMUM POOL DEPTH (centimeters): 0	
3. BANK FULL WIDTH (Measure > 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts]	ed as teh average of 3-4 measurements) (Check ONLY one box): >1.0 m - 1.5m (>3'3" - 4'8") [15 pts] <=1.0m (<=3'3") [5 pts]	Bankfull Width Max = 30
COMMENTS:	AVERAGE BANKFULL WIDTH (Meters): 0.9	5
	This information must also be completed	
RIPARIAN ZONE AND FLOO	DPLAIN QUALITY NOTE: River left (L) and Right (R) as looking downstream	
<u>RIPARIAN WIDTH</u>	FLOODPLAIN QUALITY	
L R (Per Bank Wide >10 m Moderate 5-10 m Narrow <5 m None Comments:	L R (Most Predominant Per Bank L R Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Field V Pasture, Row Cro Fenced Pasture L R Conservation Tillage Urban or Industrial Open Pasture, Row Cro Mining or Construction	0
FLOW REGIME (At time of Steam flowing Subsurface flow with isolated p Comments:	evaluation) (Check ONLY one box): ☐ Moist channel, isolated pools, no flow (Intermitted pools (Interstitial)) ☐ Dry channel, no water (Ephemeral)	nt)
None 0.5	ds per 61 m (200 ft) of channel. Check ONLY one box) ✓ 1.0	_
STREAM GRADIENT ESTIMA Flat (0.5 ft/100 ft) Flat to M		/100 ft)

ADDITIONAL STREAM INFORMATION (This information must also be comple	te
	ach completed QHEI form)
DOWNSTREAM DESIGNATED USE(S)	
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 ENTIRE WATERSHED AREA	. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name Mooresville East NRCS Soil Map Page	NRCS Soil Map Stream Order:
County: Morgan Township / City: Green	
MISCELLANEOUS	
Base flow conditions? (Y/N) Yes Date of last precipitation:	Quantity
Photograph information:	<u> </u>
Elevated Turbidity? (Y/N) No Canopy (% open): 90	
Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. ar	nd attach results) Lab number: N/A
Field Measures: Temp (C) Dissolved oxygen (mg/l): pH:	Conductivity (umhos/cm)
Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note ID number. Include apropriate field data sheets from the Primary H	
Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N)	No Voucher? (Y/N) No
Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrate	es observed? (Y/N) No Voucher? (Y/N) N
Comments Regarding Biology:	

Stream Reach S6S058a



Stream Location on 2013 Aerial Photograph

Stream Location on Mooresville East USGS Quadra

Stream Name: UNT 7 White River Quadrangle: Mooresville East

Flow Regime: Ephemeral Morgan County: Natural T12N **Channel Type:** Township: R2E No Legal Drain: Range: IDEM 303(d) Listed: No Section: 4 Predominant Substrate: bedrock - boulder Quarter: NE

Evaluation Score:HHEI = 54Latitude:39.510435Use Designation:Class II PHWHLongitude:-86.317201

 OHWM width:
 4.6
 Basin:
 White River - North Trib

 OHWM depth:
 0.6
 14-digit HUC:
 05120201140060

USACE Jurisdiction: Yes **Drainage area:** 0.051

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	476	0.050	0.62
Aternative C2	476	0.050	0.62
Aternative C3	330	0.034	0.36
Aternative C4 (Preferred)	476	0.050	0.62





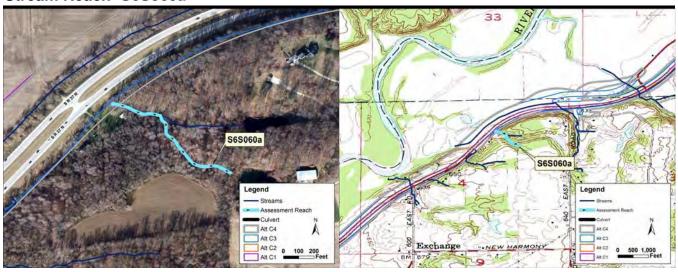




SITE NAME/LOCATION UNT White Riv	er			
SITE NUMBER	S6S058a RIVER BA	ASIN White River - North Trib DRA	INAGE AREA (mi)	0.051
LENGTH OF STEAM REACH (ft)	LAT 39.510435 LC	DNG86.317201 RIVER CODE N/A	RIVER MILE N	1/A
DATE 10/20/2015 SCORER rjc	COMMENT			
NOTE: Complete All Items On This For	m - Refer to ""Field Evalu	ation Manual for Ohio's PHWH Strea	ns" for Instructions	
STREAM CHANNEL NONE / NAT MODIFICATIONS:	URAL CHANNE 🗌 REC	COVERED RECOVERING	RECENT OR NO RECO	OVERY
		esentCheck ONLY two predominant sud (Max of 8). Final metric score is sum		HHEI Metric Points
BLDR SLABS [16 pts] ✓ BOULDER (>256 mm) [16 pts ✓ BEDROCK [16 pts]	0 40 60	SILT [3 pt] LEAF PACK/WOODY DEBRIS [3 p FINE DETRITUS [3 pts]	0 0 0	Substrate Max = 40
COBBLE (65-256 mm) [9 pt GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts]	0 0	CLAY or HARDPAN [0 pts] MUCK [0 pts] ARTIFICIAL [3 pts]	0 0 0	34
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock	###### (A)	Substrate Percentage Check 100 %	(B)	(A+B)
SCORE OF TWO MOST PREDOMINATE	SUBSTRATE TYPE 32	TOTAL NUMBER OF SUBSTRA	TE TYPES 2	
2. MAXIMUM POOL DEPTH (Measur of evaluation. Avoid plunge pools			reach at the time	Pool Dept Max = 30
>>30 centimeters [20 pts] >22.5 - 30 cm [30 pts] >10 - 22.5 cm [25 pts]		>5 cm - 10 cm [15 pts] <5 cm [5 pts] ✓ No Water or Moist Channel [0 pts	[s]	0
COMMENTS:		MAXIMUM POOL DEPTH (cei	ntimeters):	
3. BANK FULL WIDTH (Measure > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts] ✓ >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts]	ed as teh average of 3-4	measurements		Bankfull Width Max = 30
COMMENTS:		AVERAGE BANKFULL WIDTI	H (Meters): ####	20
	This information r	n <u>ust a</u> lso be completed		
RIPARIAN ZONE AND FLOO	DPLAIN QUALITY	NOTE: River left (L) and Right (R) as loc	oking downstream	
<u>RIPARIAN WIDTH</u>	FLOODPLAIN QUAL	<u>ITY</u>		
L R (Per Bank Wide >10 m Moderate 5-10 m Narrow <5 m None Comments:		rt, Wetland Con rest, Shrub or Old Field Urba Park, New Field Ope	servation Tillage an or Industrial n Pasture, Row Crop ng or Construction	
FLOW REGIME (At time of Steam flowing Subsurface flow with isolated promise Comments:	evaluation) (Check ONLY	one box): Moist channel, isolated pool Dry channel, no water (Ephe		
SINUOSITY (Number of bendance None 0.5 STREAM GRADIENT ESTIM.	1.0 1.5	nel. Check ONLY one box) 2.0 2.5	3.0 >3.0	

DOWNSTREAM DESIGNATED USE(S)	ch completed QHEI form)
WWH Name:	Distance from Evaluated Stream
	Distance from Evaluated Stream
EWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA.	CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name Mooresville East NRCS Soil Map Page	NRCS Soil Map Stream Order:
County: Morgan Township / City: Green	
MISCELLANEOUS	
Base flow conditions? (Y/N) Yes Date of last precipitation: 10/03	Quantity .13
Photograph information:	
Elevated Turbidity? (Y/N) Canopy (% open): 15	
Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and	attach results) Lab number: N/A
Field Measures: Temp (C) Dissolved oxygen (mg/l): pH:	Conductivity (umhos/cm)
Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: a ID number. Include appropriate field data sheets from the Primary Hea	
Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) N	Voucher? (Y/N) No
Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrates	s observed? (Y/N) No Voucher? (Y/N) N
Comments Regarding Biology:	

Stream Reach S6S060a



Stream Location on 2013 Aerial Photograph

Stream Location on Mooresville East USGS Quadra

Stream Name: UNT 9 White River Quadrangle: Mooresville East

Flow Regime: Ephemeral County: Morgan Natural T12N **Channel Type:** Township: R2E No Legal Drain: Range: IDEM 303(d) Listed: No Section: 4 Predominant Substrate: cobble - sand Quarter: NE

Evaluation Score: HHEI = 35 **Latitude:** 39.51253 **Use Designation:** Class II PHWH **Longitude:** -86.314889

 OHWM width:
 5.5
 Basin:
 White River - North Trib

 OHWM depth:
 0.3
 14-digit HUC:
 05120201140060

USACE Jurisdiction: Yes **Drainage area:** 0.05

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	34	0.004	0.10
Aternative C2	34	0.004	0.10
Aternative C3	0	0.000	0.04
Aternative C4 (Preferred)	34	0.004	0.10



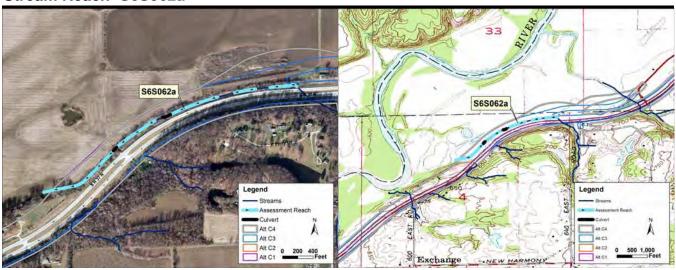




SITE NUMBER S6S060a RIVER BASIN White River - North Trib DRAI	NAGE AREA (mi) 0.05
LENGTH OF STEAM REACH (ft) LAT 39.51253 LONG86.314889 RIVER CODE N/A	RIVER MILE N/A
DATE 10/20/2015 SCORER rjc COMMENT	
NOTE: Complete All Items On This Form - Refer to ""Field Evaluation Manual for Ohio's PHWH Stream	ns" for Instructions
STREAM CHANNEL ✓ NONE / NATURAL CHANNE ☐ RECOVERED ☐ RECOVERING ☐ MODIFICATIONS:	RECENT OR NO RECOVERY
SUBSTRATE (Estimate percent of every type of substrate presentCheck ONLY two predominant sub (Max of 32). Add total number of significant subsrate types found (Max of 8). Final metric score is sum TYPE. TYPE TYPE	of boxes A and B.) Metric
TYPE PERCENT TYPE □ □ BLDR SLABS [16 pts] □ □ □ □ □ SILT [3 pt]	Percent Points
BOULDER (>256 mm) [16 pts	S Substrate Max = 40
✓ COBBLE (65-256 mm) [9 pt 40 □ CLAY or HARDPAN [0 pts] □ GRAVEL (2-64 mm) [9 pts] 0 □ MUCK [0 pts]	0 0
SAND (<2 mm) [6 pts] 60 ARTIFICIAL [3 pts]	<u> </u>
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 40.00% (A) Substrate Percentage Check 100 %	(B) (A+B)
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPE 18 TOTAL NUMBER OF SUBSTRA	TE TYPES 2
 MAXIMUM POOL DEPTH (Measure the maximum pool depth within the 61 meter (200 ft) valuation of evaluation. Avoid plunge pools from road culverts or storm water pipes) 	reach at the time Pool Dept Max = 30
>>30 centimeters [20 pts]	
>10 - 22.5 cm [25 pts]	0
COMMENTS: MAXIMUM POOL DEPTH (cer	timeters): 0
3. BANK FULL WIDTH (Measured as teh average of 3-4 measurements) (Check ONLY on	
 → 4.0 meters (>13') [30 pts] → 3.0 m - 4.0m (>9'7" - 13') [25 pts] → 1.0 m - 1.5m (>3'3" - 4'8") [15 pt ←=1.0m (<=3'3") [5 pts] 	Width Max = 30
>1.5 m - 3.0 m(>9'7" - 4'8") [20 pts]	Iviax = 30
>1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: AVERAGE BANKFULL WIDTH	
COMMENTS: AVERAGE BANKFULL WIDTH This information must also be completed	1 (Meters): 4.5
COMMENTS: AVERAGE BANKFULL WIDTH This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE: River left (L) and Right (R) as loc	1 (Meters): 4.5
COMMENTS: This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE: River left (L) and Right (R) as loc RIPARIAN WIDTH FLOODPLAIN QUALITY	1 (Meters): 4.5
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY L R (Per Bank L R (Most Predominant Per Bank L R (Most Predominant Per Bank W Wide >10 m Moderate 5-10 m Narrow <5 m AVERAGE BANKFULL WIDTH FLOODPLAIN QUALITY L R (Most Predominant Per Bank W Mature Forest, Wetland Moderate 5-10 m Residential, Park, New Field Ope	1 (Meters): 4.5
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY L R (Per Bank L R (Most Predominant Per Bank V Wide >10 m Moderate 5-10 m Narrow <5 m None AVERAGE BANKFULL WIDTH L R (Most Predominant Per Bank RIPARIAN WIDTH Residential, Park, New Field Residential, Park, New Field Minimust also be completed AVERAGE BANKFULL WIDTH L R (Per Bank L R (Most Predominant Per Bank L R (Mo	king downstream servation Tillage n or Industrial n Pasture, Row Crop
COMMENTS: This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE: River left (L) and Right (R) as loc RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank L R (Most Predominant Per Bank Wide >10 m Moderate 5-10 m Narrow <5 m Narrow <5 m None Comments:	king downstream servation Tillage n or Industrial n Pasture, Row Crop ng or Construction s, no flow (Intermittent)
COMMENTS: This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE: River left (L) and Right (R) as loc RIPARIAN WIDTH L R (Per Bank L R (Most Predominant Per Bank Wide >10 m Moderate 5-10 m Moderate 5-10 m Narrow <5 m Narrow <5 m None Comments: FLOW REGIME (At time of evaluation) (Check ONLY one box): Steam flowing Subsurface flow with isolated pools (interstitial) AVERAGE BANKFULL WIDTH AVERAGE BANK	king downstream servation Tillage n or Industrial n Pasture, Row Crop ng or Construction s, no flow (Intermittent)
COMMENTS: This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE: River left (L) and Right (R) as loc RIPARIAN WIDTH L R (Per Bank L R (Most Predominant Per Bank W Wide >10 m Moderate 5-10 m Moderate 5-10 m Narrow <5 m None Comments: FLOW REGIME (At time of evaluation) (Check ONLY one box): Steam flowing Subsurface flow with isolated pools (interstitial) Comments: AVERAGE BANKFULL WIDTH NOTE: River left (L) and Right (R) as loc RIPARIAN WIDTH FLOODPLAIN QUALITY Mature Forest, Wetland W Production Considerate Service of the service	king downstream servation Tillage n or Industrial n Pasture, Row Crop ng or Construction s, no flow (Intermittent)

CWH Name: Distance EWH Name: Distance MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEAR USGS Quadrangle Name Mooresville East NRCS Soil Map Page County: Morgan Township / City: Green MISCELLANEOUS Base flow conditions? (Y/N) Yes Date of last precipitation: Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 10 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach	e from Evaluated Stream e from Evaluated Stream e from Evaluated Stream
WWH Name: CWH Name: Distance Distance Distance Distance Distance Distance Distance Distance MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEAR USGS Quadrangle Name Mooresville East NRCS Soil Map Page County: Morgan Township / City: Green MISCELLANEOUS Base flow conditions? (Y/N) Yes Date of last precipitation: 10/03 Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 10 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach	e from Evaluated Stream e from Evaluated Stream LY MARK THE SITE LOCATION NRCS Soil Map Stream Order:
WWH Name: CWH Name: Distance Distance Distance Distance Distance Distance Distance Distance MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEAR USGS Quadrangle Name Mooresville East NRCS Soil Map Page County: Morgan Township / City: Green MISCELLANEOUS Base flow conditions? (Y/N) Yes Date of last precipitation: 10/03 Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 10 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach	e from Evaluated Stream e from Evaluated Stream LY MARK THE SITE LOCATION NRCS Soil Map Stream Order:
□ CWH Name: Distance ■ EWH Name: Distance MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEAR USGS Quadrangle Name Mooresville East NRCS Soil Map Page County: Morgan Township / City: Green MISCELLANEOUS Base flow conditions? (Y/N) Yes Date of last precipitation: 10/03 Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 10 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach	LY MARK THE SITE LOCATION NRCS Soil Map Stream Order:
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEAR USGS Quadrangle Name	LY MARK THE SITE LOCATION NRCS Soil Map Stream Order:
USGS Quadrangle Name Mooresville East NRCS Soil Map Page County: Morgan Township / City: Green MISCELLANEOUS Base flow conditions? (Y/N) Yes Date of last precipitation: 10/03 Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 10 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach	NRCS Soil Map Stream Order:
County: Morgan Township / City: Green MISCELLANEOUS Base flow conditions? (Y/N) Yes Date of last precipitation: 10/03 Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 10 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach	·
MISCELLANEOUS Base flow conditions? (Y/N) Yes Date of last precipitation: 10/03 Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 10 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach	Quantity13
Base flow conditions? (Y/N) Yes Date of last precipitation: 10/03 Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 10 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach	Quantity13
Base flow conditions? (Y/N) Yes Date of last precipitation: 10/03 Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 10 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach	Quantity13
Elevated Turbidity? (Y/N) Canopy (% open): 10 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach	
Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach	
Field Measures: Temp (C) Dissolved oxygen (mg/l): pH: Con	results) Lab number: N/A
	ductivity (umhos/cm)
Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all vouch ID number. Include apropriate field data sheets from the Primary Headwater	
Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No	Voucher? (Y/N) No
Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrates observed?	ved? (Y/N) No Voucher? (Y/N) N
Comments Regarding Biology:	

Stream Reach S6S062a



Stream Location on 2013 Aerial Photograph

Stream Location on Mooresville East USGS Quadra

Stream Name: UNT 11 White River Quadrangle: Mooresville East

Flow Regime: Ephemeral Morgan County: Roadside Ditch T12N **Channel Type:** Township: R2E No Legal Drain: Range: IDEM 303(d) Listed: No Section: 4

Predominant Substrate: cobble - sand Quarter: NE

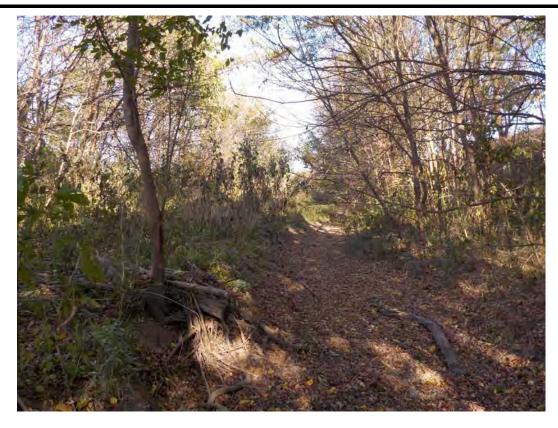
Evaluation Score:HHEI = 40Latitude:39.514369Use Designation:Class II PHWHLongitude:-86.313211

 OHWM width:
 7.0
 Basin:
 White River - North Trib

 OHWM depth:
 0.6
 14-digit HUC:
 05120201140060

USACE Jurisdiction: Yes **Drainage area:** 0.001

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	2396	0.385	4.33
Aternative C2	2396	0.385	4.33
Aternative C3	2394	0.385	4.23
Aternative C4 (Preferred)	2396	0.385	4.33



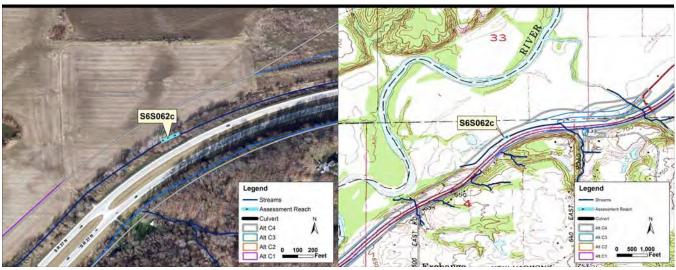




SITE NAME/LOCATION	UNT White River				
	SITE NUMBER S6S06	S2a RIVER BAS	SIN White River - North Trib	DRAINAGE AREA (mi)	0.001
LENGTH OF STEAM RE	EACH (ft) LA	AT 39.514369 LON	NG86.313211 RIVER CODI	E N/A RIVER MILE	N/A
DATE 10/19/2015	SCORER rh	COMMENT			
NOTE: Complete All I	tems On This Form - Re	fer to ""Field Evaluat	ion Manual for Ohio's PHWH S	Streams" for Instructions	
STREAM CHANNEL MODIFICATIONS:	NONE / NATURAL C	CHANNE RECC	OVERED RECOVERING	RECENT OR NO REC	COVERY
	otal number of significant	subsrate types found EENT TYPE	sentCheck ONLY two predomina (Max of 8). Final metric score is SILT [3 pt]		HHEI Metric Points
BOULDER (>2 BEDROCK [16 COBBLE (65-2 GRAVEL (2-64	256 mm) [16 pts 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		LEAF PACK/WOODY DEBRIS FINE DETRITUS [3 pts] CLAY or HARDPAN [0 pts] MUCK [0 pts]		Substrate Max = 40
☐ SAND (<2 mm) [6 pts]	<u> </u>	ARTIFICIAL [3 pts]		20
Total of Perce Bldr Slabs, Boulder,		00% (A)	Substrate Percentage Check 100 %	(B)	(A+B)
SCORE OF TWO MOST	PREDOMINATE SUBST	TRATE TYPE 18	TOTAL NUMBER OF SUB	STRATE TYPES 2	
	. DEPTH (Measure the moderate of the provided plunge pools from road)		within the 61 meter (200 ftevaluater pipes)	uation reach at the time	Pool Depth Max = 30
>>30 centimeters >22.5 - 30 cm [30 >10 - 22.5 cm [25	pts]		>5 cm - 10 cm [15 pts] <5 cm [5 pts] No Water or Moist Channel	[0 pts]	0
COMMENTS:			MAXIMUM POOL DEPTH	H (centimeters):	
	') [30 pts] '7" - 13') [25 pts]	eh average of 3-4 i		LY one box):	Bankfull Width Max = 30
3. BANK FULL V > 4.0 meters (>13 > 3.0 m - 4.0m (>9	') [30 pts] '7" - 13') [25 pts]	eh average of 3-4 I	measurements) (Check ON >1.0 m - 1.5m (>3'3" - 4'8")	LY one box): [15 pts]	Width
3. BANK FULL V > 4.0 meters (>13 > 3.0 m - 4.0m (>9 ✓ >1.5 m - 3.0 m(>9	') [30 pts] '7" - 13') [25 pts]		measurements) (Check ON >1.0 m - 1.5m (>3'3" - 4'8") <=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL V	LY one box): [15 pts]	Width Max = 30
3. BANK FULL V > 4.0 meters (>13 > 3.0 m - 4.0m (>9 > 1.5 m - 3.0 m(>9 COMMENTS:	') [30 pts] '7" - 13') [25 pts]	This information mu	MAXIMUM POOL DEPTH measurements) (Check ON >1.0 m - 1.5m (>3'3" - 4'8") <=1.0m (<=3'3") [5 pts]	LY one box): [15 pts] WIDTH (Meters): 0	Width Max = 30
3. BANK FULL V > 4.0 meters (>13 > 3.0 m - 4.0m (>9 > 1.5 m - 3.0 m(>9 COMMENTS:	') [30 pts] '7" - 13') [25 pts] '7" - 4'8") [20 pts] ZONE AND FLOODPLAII	This information mu	MAXIMUM POOL DEPTH measurements) (Check ON >1.0 m - 1.5m (>3'3" - 4'8") <=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL V ust also be completed OTE: River left (L) and Right (R)	LY one box): [15 pts] WIDTH (Meters): 0	Width Max = 30
3. BANK FULL W > 4.0 meters (>13 >3.0 m - 4.0m (>9 >1.5 m - 3.0 m(>9 COMMENTS: RIPARIAN RIPARIAN L R (Per Bar Wide >1	') [30 pts] '7" - 13') [25 pts] '7" - 4'8") [20 pts] ZONE AND FLOODPLAII N WIDTH ok om e 5-10 m ≤5 m	This information municipal N QUALITY NO FLOODPLAIN QUALIT L R (Most Predomin L Mature Forest,	MAXIMUM POOL DEPTH measurements) (Check ON >1.0 m - 1.5m (>3'3" - 4'8") <=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL V LIST also be completed OTE: River left (L) and Right (R) Y LANGE BANKFULL V LIST also be completed OTE: River left (L) and Right (R) Y LANGE BANKFULL V LIST also be completed OTE: River left (L) and Right (R) Y LANGE BANKFULL V LIST also be completed OTE: River left (L) and Right (R) Y LANGE BANKFULL V LANGE BANKF	LY one box): [15 pts] WIDTH (Meters): 0	Width Max = 30
3. BANK FULL W > 4.0 meters (>13 > 3.0 m - 4.0m (>9 > 1.5 m - 3.0 m(>9 COMMENTS: RIPARIAN RIPARIAN L R (Per Bar Wide >1 Moderat Narrow A None Comments FLOW REG Steam flowin	(30 pts) (7" - 13') [25 pts] (7" - 4'8") [20 pts] (20 pts) (20 pt	This information municipal N QUALITY NO FLOODPLAIN QUALIT L R (Most Predomin Mature Forest, Immature Fore Residential, Pa Fenced Pasture force) Check ONLY o	MAXIMUM POOL DEPTH measurements) (Check ON >1.0 m - 1.5m (>3'3" - 4'8") <=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL V LIST also be completed DTE: River left (L) and Right (R) TY LANGE BANKFULL V LIST also be completed DTE: River left (L) and Right (R) TY LANGE BANKFULL V LIST also be completed DTE: River left (L) and Right (R) TY LANGE BANKFULL V LAN	LY one box): [15 pts] WIDTH (Meters): as looking downstream Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction	Width Max = 30
3. BANK FULL W > 4.0 meters (>13 > 3.0 m - 4.0m (>9 > 1.5 m - 3.0 m(>9 COMMENTS: RIPARIAN RIPARIAN L R (Per Bar Wide >1 Moderat Narrow None Comments FLOW REG Steam flowin Subsurface f Comments SINUOSITY None 0.5	(30 pts) (7" - 13') [25 pts] (7" - 13') [25 pts] (7" - 4'8") [20 pts] (8" - 4'8")	This information municipal N QUALITY NO FLOODPLAIN QUALITY L R (Most Predomin Mature Forest, Immature Forest Residential, Paragraphy Fenced Pasture (Check ONLY of the Information) (Check ONLY of the Information) State of the Information municipal Notes (Most Predominal Note	MAXIMUM POOL DEPTH measurements) (Check ON >1.0 m - 1.5m (>3'3" - 4'8") <=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL V Let also be completed DTE: River left (L) and Right (R) Y Dant Per Bank Wetland st, Shrub or Old Field Let R Wetland st, New Field e Moist channel, isolated Dry channel, no water el. Check ONLY one box) 2.0 2.5	LY one box): [15 pts] WIDTH (Meters): O as looking downstream Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction d pools, no flow (Intermittent) (Ephemeral) 3.0 >3.0 >3.0	Width Max = 30

CWH Name: EWH Name: Distance MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY USGS Quadrangle Name Mooresville East NRCS Soil Map Page NI County: Morgan Township / City: Green MISCELLANEOUS Base flow conditions? (Y/N) Yes Date of last precipitation: 10/12 Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 40 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach re	rom Evaluated Stream rom Evaluated Stream rom Evaluated Stream
□ WWH Name: Distance □ CWH Name: Distance ■ EWH Name: Distance ■ MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY USGS Quadrangle Name Mooresville East NRCS Soil Map Page NI County: Morgan Township / City: Green MISCELLANEOUS Base flow conditions? (Y/N) Yes Date of last precipitation: 10/12 Q Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 40 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach refield Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conduction of the conductio	rom Evaluated Stream rom Evaluated Stream MARK THE SITE LOCATION RCS Soil Map Stream Order:
□ WWH Name: Distance □ CWH Name: Distance ■ EWH Name: Distance ■ MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY USGS Quadrangle Name Mooresville East NRCS Soil Map Page NI County: Morgan Township / City: Green MISCELLANEOUS Base flow conditions? (Y/N) Yes Date of last precipitation: 10/12 Q Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 40 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach refield Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conduction of the conductio	rom Evaluated Stream rom Evaluated Stream MARK THE SITE LOCATION RCS Soil Map Stream Order:
□ CWH Name: Distance ■ EWH Name: Distance MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY USGS Quadrangle Name Mooresville East NRCS Soil Map Page NI County: Morgan Township / City: Green MISCELLANEOUS Base flow conditions? (Y/N) Yes Date of last precipitation: 10/12 Q Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 40 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach refield Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conductions	MARK THE SITE LOCATION RCS Soil Map Stream Order:
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY USGS Quadrangle Name	MARK THE SITE LOCATION RCS Soil Map Stream Order:
USGS Quadrangle Name Mooresville East NRCS Soil Map Page NRCS Soil Map	RCS Soil Map Stream Order:
County: Morgan Township / City: Green MISCELLANEOUS Base flow conditions? (Y/N) Yes Date of last precipitation: 10/12 Q Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 40 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach refield Measures: Temp (C) Dissolved oxygen (mg/l): pH: Condu	<u> </u>
MISCELLANEOUS Base flow conditions? (Y/N) Yes Date of last precipitation: 10/12 Q Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 40 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach refield Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conduction Conductions (Y/N) PH: Conduction Conduction (Mg/l): PH: PH: PH: PH: PH: PH: PH: PH: PH: PH	uantity 0.02
Base flow conditions? (Y/N) Yes Date of last precipitation: 10/12 Question Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 40 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach referred Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conduction Conduction Ph. Cond	uantity
Base flow conditions? (Y/N) Yes Date of last precipitation: 10/12 Question Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 40 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach referred Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conduction Conduction Ph. Cond	uantity
Elevated Turbidity? (Y/N) Canopy (% open):40	
Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach referred Measures: Temp (C) Dissolved oxygen (mg/l): pH: Condu	
Field Measures: Temp (C) Dissolved oxygen (mg/l): pH: Condu	
	sults) Lab number: N/A
Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:	ctivity (umhos/cm)
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher ID number. Include apropriate field data sheets from the Primary Headwater Ha	
Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Vo	oucher? (Y/N) No
Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrates observed	
Comments Regarding Biology:	d? (Y/N) No Voucher? (Y/N) N

Stream Reach S6S062c



Stream Location on 2013 Aerial Photograph

Stream Location on Mooresville East USGS Quadra

Stream Name: UNT 11 White River Quadrangle: Mooresville East

Flow Regime:EphemeralCounty:MorganChannel Type:Roadside DitchTownship:T12NLegal Drain:NoRange:R2E

IDEM 303(d) Listed:NoSection:4Predominant Substrate:gravel - sandQuarter:NE

Evaluation Score:HHEI = 37Latitude:39.513858Use Designation:Class II PHWHLongitude:-86.314453

 OHWM width:
 5.3
 Basin:
 White River - North Trib

 OHWM depth:
 0.7
 14-digit HUC:
 05120201140060

USACE Jurisdiction: Yes **Drainage area:** 0.001

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	92	0.011	0.15
Aternative C2	92	0.011	0.15
Aternative C3	92	0.011	0.15
Aternative C4 (Preferred)	92	0.011	0.15



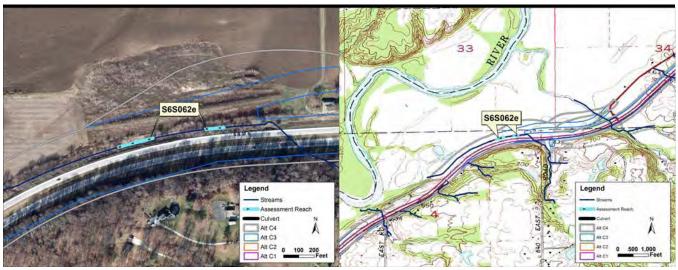




SITE NAME/LOCATION UNT White Riv	er			
SITE NUMBER	S6S062c RIVER BA	ASIN White River - North Trib DRA	INAGE AREA (mi)	0.001
LENGTH OF STEAM REACH (ft)	LAT 39.513858 LC	DNG86.314453 RIVER CODE N/A		N/A
DATE 10/19/2015 SCORER rh	COMMENT			
NOTE: Complete All Items On This Fo	rm - Refer to ""Field Evalu	ation Manual for Ohio's PHWH Strea	ms" for Instructions	
STREAM CHANNEL NONE / NAT MODIFICATIONS:	URAL CHANNE	COVERED PRECOVERING	RECENT OR NO REC	OVERY
		esentCheck ONLY two predominant sud (Max of 8). Final metric score is sum		HHEI Metric Points
BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts] BEDROCK [16 pts] COBBLE (65-256 mm) [9 pt] GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts]	0 0 0 0 0 50 50	SILT [3 pt] LEAF PACK/WOODY DEBRIS [3 p FINE DETRITUS [3 pts] CLAY or HARDPAN [0 pts] MUCK [0 pts] ARTIFICIAL [3 pts]	0	Substrate Max = 40
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock	0.00% (A)	Substrate Percentage Check 100 %	(B)	(A+B)
SCORE OF TWO MOST PREDOMINATE	SUBSTRATE TYPE 15	TOTAL NUMBER OF SUBSTRA	TE TYPES 2	
2. MAXIMUM POOL DEPTH (Measur of evaluation. Avoid plunge pools			reach at the time	Pool Dept Max = 30
>>30 centimeters [20 pts] >22.5 - 30 cm [30 pts] >10 - 22.5 cm [25 pts]		 >5 cm - 10 cm [15 pts] <5 cm [5 pts] ✓ No Water or Moist Channel [0 pts 	5]	0
COMMENTS:		MAXIMUM POOL DEPTH (cer	ntimeters): 0	
3. BANK FULL WIDTH (Measure > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts] > 1.5 m - 3.0 m(>9'7" - 4'8") [20 pts]	ed as teh average of 3-4	measurements		Bankfull Width Max = 30
COMMENTS:		AVERAGE BANKFULL WIDT	H (Meters):	20
	This information n	nust also be completed		
RIPARIAN ZONE AND FLOO	DPLAIN QUALITY	NOTE: River left (L) and Right (R) as local	oking downstream	
<u>RIPARIAN WIDTH</u>	FLOODPLAIN QUAL	<u>ITY</u>		
L R (Per Bank Wide >10 m Moderate 5-10 m Narrow <5 m None Comments:		t, Wetland Con rest, Shrub or Old Field Urba Park, New Field Ope	servation Tillage an or Industrial in Pasture, Row Crop ng or Construction	
FLOW REGIME (At time of Steam flowing Subsurface flow with isolated programments:	f evaluation) (Check ONLY pools (interstitial)	one box): Moist channel, isolated pool pry channel, no water (Ephe		
SINUOSITY (Number of bendance None 0.5	✓ 1.0 1.5	nel. Check ONLY one box) 2.0 2.5	3.0 >3.0	
STREAM GRADIENT ESTIM. Flat (0.5 ft/100 ft) Flat to M		2 ft/100 ft) Moderate to Severe	Severe (10 ft /10	O ft)

ADDITIONAL STREAM INFORMATION (This information must also be completed)	ete
QHEI PERFORMED ☐ Yes ☑ No QHEI Score:0 (If yes, at	tach completed QHEI form)
DOWNSTREAM DESIGNATED USE(S)	
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 ENTIRE WATERSHED AREA	A. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name Mooresville East NRCS Soil Map Page	NRCS Soil Map Stream Order:
County: Morgan Township / City: Green	
MISCELLANEOUS	
Base flow conditions? (Y/N) Date of last precipitation: 10/12	Quantity .02
Photograph information:	
Elevated Turbidity? (Y/N) Canopy (% open): 40	
Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. ar	nd attach results) Lab number: N/A
Field Measures: Temp (C) Dissolved oxygen (mg/l): pH:	Conductivity (umhos/cm)
Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note ID number. Include apropriate field data sheets from the Primary F	
Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N)	No Voucher? (Y/N) No
Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebra	tes observed? (Y/N) No Voucher? (Y/N) No
Comments Regarding Biology:	

Stream Reach S6S062e



Stream Location on 2013 Aerial Photograph

Stream Location on Mooresville East USGS Quadra

Stream Name: UNT 11 White River Quadrangle: Mooresville East

Flow Regime:EphemeralCounty:MorganChannel Type:Roadside DitchTownship:T12NLegal Drain:NoRange:R2E

IDEM 303(d) Listed:NoSection:4Predominant Substrate:sand - hardpanQuarter:NE

Evaluation Score:HHEI = 23Latitude:39.514982Use Designation:Class I PHWHLongitude:-86.310623

 OHWM width:
 4.4
 Basin:
 White River - North Trib

 OHWM depth:
 0.8
 14-digit HUC:
 05120201140060

USACE Jurisdiction: Yes **Drainage area:** 0.001

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	272	0.027	0.42
Aternative C2	272	0.027	0.42
Aternative C3	272	0.027	0.42
Aternative C4 (Preferred)	272	0.027	0.42



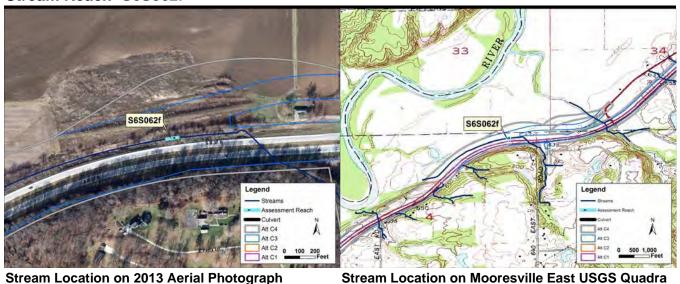




SITE NAME/LOCATION UNT White River				
SITE NUMBER S	6S062e RIVER BA	ASIN White River - North Trib DR	AINAGE AREA (mi)	0.001
LENGTH OF STEAM REACH (ft)	LAT 39.514982 LC	ONG86.310623 RIVER CODE N	/A RIVER MILE N	I/A
DATE 10/19/2015 SCORER rh	COMMENT			
NOTE: Complete All Items On This Form	- Refer to ""Field Evalu	ation Manual for Ohio's PHWH Stre	ams" for Instructions	
STREAM CHANNEL NONE / NATUR MODIFICATIONS:	AL CHANNE REC	COVERED PRECOVERING	RECENT OR NO RECO	OVERY
		d (Max of 8). Final metric score is sur		HHEI Metric Points
BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts BEDROCK [16 pts] COBBLE (65-256 mm) [9 pt GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts]	0 0 0 0 0 0	SILT [3 pt] LEAF PACK/WOODY DEBRIS [3 FINE DETRITUS [3 pts] CLAY or HARDPAN [0 pts] MUCK [0 pts] ARTIFICIAL [3 pts]	pts 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Substrate Max = 40
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock	0.00% (A)	Substrate Percentage Check 100 %	(B)	(A+B)
SCORE OF TWO MOST PREDOMINATE SU	IBSTRATE TYPE 6	TOTAL NUMBER OF SUBSTR	ATE TYPES 2	
2. MAXIMUM POOL DEPTH (Measure to of evaluation. Avoid plunge pools from		water pipes)	on reach at the time	Pool Depth Max = 30
>>30 centimeters [20 pts] >22.5 - 30 cm [30 pts] >10 - 22.5 cm [25 pts]		 >5 cm - 10 cm [15 pts] <5 cm [5 pts] ✓ No Water or Moist Channel [0 pts] 	its]	0
			_	
COMMENTS:		MAXIMUM POOL DEPTH (c	entimeters): 0	
3. BANK FULL WIDTH (Measured > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts] > 1.5 m - 3.0 m(>9'7" - 4'8") [20 pts]	as teh average of 3-4		one box):	Bankfull Width Max = 30
3. BANK FULL WIDTH (Measured > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts]	as teh average of 3-4	1 measurements) (Check ONLY of which is 1.5 m - 1.5 m (>3'3" - 4'8") [15	one box):	Width
3. BANK FULL WIDTH (Measured > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts] > 1.5 m - 3.0 m(>9'7" - 4'8") [20 pts]		measurements	one box):	Width Max = 30
3. BANK FULL WIDTH (Measured > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts] > 1.5 m - 3.0 m(>9'7" - 4'8") [20 pts]	This information r	measurements	one box): pts] TH (Meters): 0	Width Max = 30
3. BANK FULL WIDTH (Measured > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS:	This information r	# measurements) (Check ONLY of Street 1.0 m - 1.5m (>3'3" - 4'8") [15 <=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL WIDTON must also be completed NOTE: River left (L) and Right (R) as I	one box): pts] TH (Meters): 0	Width Max = 30
3. BANK FULL WIDTH (Measured > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts] > 1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: RIPARIAN ZONE AND FLOODE	This information r PLAIN QUALITY FLOODPLAIN QUAL L R (Most Predom Mature Fores Mature Fores Immature Fores	A measurements) (Check ONLY of the strict of	one box): pts] TH (Meters): 0	Width Max = 30
3. BANK FULL WIDTH (Measured > 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: RIPARIAN ZONE AND FLOODE RIPARIAN WIDTH L R (Per Bank Wide >10 m Moderate 5-10 m Narrow <5 m None Comments:	This information replain QUALITY FLOODPLAIN QUAL L R (Most Predom Mature Fores Immature Fores Immature Fores Residential, Fenced Paste	A measurements) (Check ONLY of the street of	one box): pts] TH (Meters): ooking downstream onservation Tillage ban or Industrial ben Pasture, Row Crop ning or Construction ools, no flow (Intermittent)	Width Max = 30
3. BANK FULL WIDTH (Measured > 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: RIPARIAN ZONE AND FLOODE RIPARIAN WIDTH L R (Per Bank Wide >10 m Moderate 5-10 m Narrow <5 m None Comments: FLOW REGIME (At time of exceptions) Steam flowing Subsurface flow with isolated poor	This information repLAIN QUALITY FLOODPLAIN QUAL L R (Most Predom Mature Fores Immature Fore Residential, Fenced Pastro valuation) (Check ONLY valuation)	A measurements) (Check ONLY of the street of	one box): pts] TH (Meters): ooking downstream onservation Tillage ban or Industrial ben Pasture, Row Crop ning or Construction ols, no flow (Intermittent) hemeral) 3.0 >3.0 >3.0	Width Max = 30

OWNSTREAM DESIGNATED USE(S) DOWNSTREAM DESIGNATED USE(S) WWH Name: Distance from Evaluated Stream	ADDITIONAL STREAM INFORMATION (This information must also be comple	te
WWH Name: Distance from Evaluated Stream		
CWH Name: EWH Name: Distance from Evaluated Stream MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION USGS Quadrangle Name Mooresville East NRCS Soil Map Page NRCS Soil Map Stream Order: County: Morgan Township / City: Green MISCELLANEOUS Base flow conditions? (Y/N) Yes Date of last precipitation: 10/12 Quantity 0.02 Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 90 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach results) Lab number: N/A Field Measures: Temp (C) Dissolved oxygen (mg/l): BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrates observed? (Y/N) No Voucher? (Y/N)	DOWNSTREAM DESIGNATED USE(S)	
CWH Name: EWH Name: Distance from Evaluated Stream Distance from Evaluated Stream MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION USGS Quadrangle Name Mooresville East NRCS Soil Map Page NRCS Soil Map Stream Order: County: Morgan Township / City: Green MISCELLANEOUS Base flow conditions? (Y/N) Yes Date of last precipitation: 10/12 Quantity Quantity Quantity Quantity N/A Perlotration: Elevated Turbidity? (Y/N) Canopy (% open): Quantity Quantit	WWH Name	Distance from Evaluated Stream
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Base flow conditions? (Y/N) Yes Date of last precipitation: 10/12 Quantity 0.02 Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 90 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach results) Lab number: N/A Field Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conductivity (umhos/cm) Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain: Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrates observed? (Y/N) No Voucher? (Y/N) No Vo	MISCELLANEOUS	
Elevated Turbidity? (Y/N)		Quantity 0.02
Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach results) Lab number: N/A Field Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conductivity (umhos/cm) Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain: Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher?	Photograph information:	
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Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrates observed? (Y/N) No Voucher? (Y/N) 1		
	Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N)	No Voucher? (Y/N) No
Comments Regarding Biology	Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrat	es observed? (Y/N) No Voucher? (Y/N) N
Commonito Rogarding Diology.	Comments Regarding Biology:	

Stream Reach S6S062f



Stream Location on 2013 Aerial Photograph

UNT 11 White River Mooresville East **Stream Name:** Quadrangle:

Flow Regime: Ephemeral Morgan County: Roadside Ditch T12N **Channel Type:** Township: R2E No Legal Drain: Range: IDEM 303(d) Listed: No Section: 4

Predominant Substrate: cobble - sand Quarter: NE

HHEI = 40**Evaluation Score:** Latitude: 39.514956 Class II PHWH Longitude: -86.310886 **Use Designation:**

OHWM width: 7.0 Basin: White River - North Trib **14-digit HUC:** 05120201140060 0.6 OHWM depth:

USACE Jurisdiction: Yes Drainage area: 0.001

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	58	0.009	0.10
Aternative C2	58	0.009	0.10
Aternative C3	58	0.009	0.11
Aternative C4 (Preferred)	58	0.009	0.10



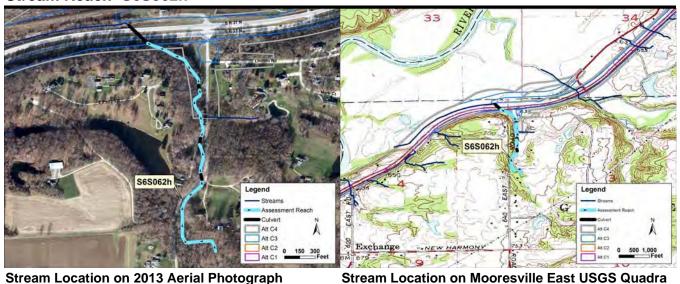




SITE NAME/LOCATION UNT White River	
SITE NUMBER S6S062f RIVER BASIN White River - North Trib DRAINAGE AREA (mi)	0.001
LENGTH OF STEAM REACH (ft) LAT 39.514956 LONG86.310886 RIVER CODE N/A RIVER MILE	N/A
DATE 10/19/2015 SCORER rh COMMENT	
NOTE: Complete All Items On This Form - Refer to ""Field Evaluation Manual for Ohio's PHWH Streams" for Instructions	
STREAM CHANNEL	COVERY
 SUBSTRATE (Estimate percent of every type of substrate presentCheck ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant subsrate types found (Max of 8). Final metric score is sum of boxes A and B.) TYPE PERCENT TYPE 	HHEI Metric Points
□ BLDR SLABS [16 pts] 0 □ LEAF PACK/WOODY DEBRIS [3 pts] 0 □ BEDROCK [16 pts] 0 □ FINE DETRITUS [3 pts] 0 ✓ COBBLE (65-256 mm) [9 pt 80 □ CLAY or HARDPAN [0 pts] 0 □ GRAVEL (2-64 mm) [9 pts] 0 MUCK [0 pts] 0 ✓ SAND (<2 mm) [6 pts]	Substrate Max = 40
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 80.00% (A) Substrate Percentage Check (B)	(A+B)
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPE 18 TOTAL NUMBER OF SUBSTRATE TYPES 2	
2. MAXIMUM POOL DEPTH (Measure the maximum pool depth within the 61 meter (200 ft) valuation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes)	Pool Depth Max = 30
> >30 centimeters [20 pts] >5 cm - 10 cm [15 pts] >22.5 - 30 cm [30 pts] <5 cm [5 pts]	0
COMMENTS: MAXIMUM POOL DEPTH (centimeters): 0	
COMIMENTS MAXIMOM FOOL DEFTH (centimeters).	
3. BANK FULL WIDTH (Measured as teh average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts]	Bankfull Width Max = 30
3. BANK FULL WIDTH (Measured as teh average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts]	Width
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OHEI PERFORMED	ADDITIONAL STREAM INFORMATION (This information must also be comple	te
WWH Name: Distance from Evaluated Stream		
CWH Name: Distance from Evaluated Stream	DOWNSTREAM DESIGNATED USE(S)	
CWH Name: EWH Name: Distance from Evaluated Stream MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION USGS Quadrangle Name Mooresville East NRCS Soil Map Page NRCS Soil Map Stream Order: County: Morgan Township / City: Green MISCELLANEOUS Base flow conditions? (Y/N) Yes Date of last precipitation: 10/12 Quantity 0.02 Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 60 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach results) Lab number: N/A Field Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conductivity (umhos/cm) Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain: Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrates observed? (Y/N) No Voucher? (Y/N) No Frogs or tadpoles observed? (Y/N) No Aquatic Macroinvertebrates observed? (Y/N) No Voucher? (Y/N) No Noucher? (Y/N) Noucher? (Y/N) No Noucher? (Y/N) Noucher? (Y/N) No Noucher? (Y/N) Noucher? (Y/N) No Noucher? (Y/N) No Noucher? (Y/N) No Noucher? (Y/N) Noucher? (Y/N) Nou	WWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION USGS Quadrangle Name Mooresville East NRCS Soil Map Page NRCS Soil Map Stream Order: County: Morgan Township / City: Green MISCELLANEOUS Base flow conditions? (Y/N) Yes Date of last precipitation: 10/12 Quantity 0.02 Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 60 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach results) Lab number: N/A Field Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conductivity (umhos/cm) Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain: Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number: Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N) No No Voucher? (Y/N) No No Noucher? (Y/N) Noucher? (Distance from Evaluated Stream
USGS Quadrangle Name Mooresville East NRCS Soil Map Page NRCS Soil Map Stream Order: County: Morgan Township / City: Green MISCELLANEOUS Base flow conditions? (Y/N) Yes Date of last precipitation: 10/12 Quantity 0.02 Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 60 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach results) Lab number: N/A Field Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conductivity (umhos/cm) Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain: Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N) No Voucher? (Y/N) No No Voucher? (Y/N) No Voucher? (Y/N	EWH Name:	Distance from Evaluated Stream
MISCELLANEOUS Base flow conditions? (Y/N) Yes Date of last precipitation: 10/12 Quantity 0.02 Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 60 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach results) Lab number: N/A Field Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conductivity (umhos/cm) Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain: Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N)	MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA	. CLEARLY MARK THE SITE LOCATION
MISCELLANEOUS Base flow conditions? (Y/N) Yes Date of last precipitation: 10/12 Quantity 0.02 Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 60 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach results) Lab number: N/A Field Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conductivity (umhos/cm) Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain: Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N) No Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrates observed? (Y/N) No Voucher? (Y/N) No	USGS Quadrangle Name Mooresville East NRCS Soil Map Page	NRCS Soil Map Stream Order:
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Base flow conditions? (Y/N) Yes Date of last precipitation: 10/12 Quantity 0.02 Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 60 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach results) Lab number: N/A Field Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conductivity (umhos/cm) Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain: Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrates observed? (Y/N) No Voucher? (Y/N) No	MISCELL ANEOUS	
Elevated Turbidity? (Y/N) Canopy (% open): 60		Quantity 0.02
Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach results) Lab number: N/A Field Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conductivity (umhos/cm) Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain: Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N) No Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrates observed? (Y/N) No Voucher? (Y/N) No Voucher? (Y/N) No No Voucher? (Y/N) No Voucher	Photograph information:	
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Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain: Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N) No Frogs or tadpoles observed? (Y/N) No Aquatic Macroinvertebrates observed? (Y/N) No Voucher? (Y/N) No	Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. an	d attach results) Lab number: N/A
Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N) No	Field Measures: Temp (C) Dissolved oxygen (mg/l): pH:	Conductivity (umhos/cm)
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Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N) No Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrates observed? (Y/N) No Voucher?	Additional comments/description of pollution impacts:	
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Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrates observed? (Y/N) No Voucher? (Y/N) No Voucher? (Y/N) No Voucher? (Y/N)		
	Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N)	No Voucher? (Y/N) No
Comments Regarding Biology:	Frogs or tadpoles observed? (Y/N)No Voucher? (Y/N)No Aquatic Macroinvertebrat	es observed? (Y/N) No Voucher? (Y/N) N
	Comments Regarding Biology:	

Stream Reach S6S062h



Stream Location on 2013 Aerial Photograph

UNT 11 White River Mooresville East **Stream Name:** Quadrangle:

Flow Regime: Intermittent County: Morgan Natural T12N **Channel Type:** Township: R2E No Legal Drain: Range: IDEM 303(d) Listed: Section: 4 No Predominant Substrate: cobble - gravel Quarter: SW

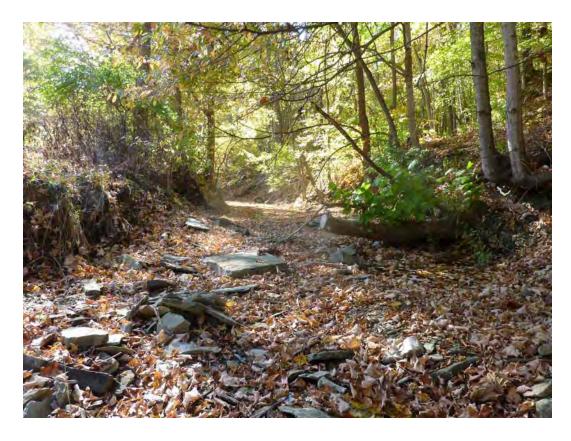
HHEI = 78**Evaluation Score:** Latitude: 39.513355 Class III PHWH Longitude: -86.307627 **Use Designation:**

OHWM width: 16.0 Basin: White River - North Trib **14-digit HUC:** 05120201140060 1.3 OHWM depth:

USACE Jurisdiction: Yes Drainage area: 0.0469

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	701	0.257	0.68
Aternative C2	699	0.257	0.67
Aternative C3	25	0.009	0.05
Aternative C4 (Preferred)	699	0.257	0.67



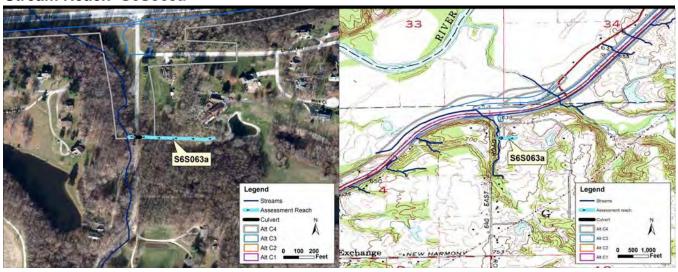




SITE NAME/LOCATION UNT White River		
SITE NUMBER S	SS062h RIVER BASIN White River - North Trib DRAINA	GE AREA (mi) 0.0469
LENGTH OF STEAM REACH (ft)	LAT 39.513355 LONG86.307627 RIVER CODE N/A	RIVER MILE N/A
DATE 10/20/2015 SCORER rjc	COMMENT	
NOTE: Complete All Items On This Form	- Refer to ""Field Evaluation Manual for Ohio's PHWH Streams'	' for Instructions
STREAM CHANNEL NONE / NATUR MODIFICATIONS:	AL CHANNE ☐ RECOVERED ☑ RECOVERING ☐ RE	ECENT OR NO RECOVERY
(Max of 32). Add total number of signifi	ery type of substrate presentCheck ONLY two predominant substrate types found (Max of 8). Final metric score is sum of IECENT TYPE	
□ □ BLDR SLABS [16 pts] □ □ BOULDER (>256 mm) [16 pts □ □ BEDROCK [16 pts] □ □ COBBLE (65-256 mm) [9 pt □ ☑ GRAVEL (2-64 mm) [9 pts]	0 SILT [3 pt] 0 LEAF PACK/WOODY DEBRIS [3 pts 0 FINE DETRITUS [3 pts] 40 CLAY or HARDPAN [0 pts] MUCK [0 pts]	0 Substrate 0 Max = 40
SAND (<2 mm) [6 pts] Total of Percentages of	ARTIFICIAL [3 pts] Substrate Percentage Check 100 %	23
Bldr Slabs, Boulder, Cobble, Bedrock	(A) CITECK	(B) (A+B)
SCORE OF TWO MOST PREDOMINATE SU	BSTRATE TYPE 21 TOTAL NUMBER OF SUBSTRATE	TYPES 2
2. MAXIMUM POOL DEPTH (Measure to of evaluation. Avoid plunge pools from	he maximum pool depth within the 61 meter (200 ft) valuation ren n road culverts or storm water pipes)	Pool Dept Max = 30
>>30 centimeters [20 pts] >22.5 - 30 cm [30 pts] ✓ >10 - 22.5 cm [25 pts]	>5 cm - 10 cm [15 pts] <5 cm [5 pts] No Water or Moist Channel [0 pts]	25
COMMENTS:	MAXIMUM POOL DEPTH (centing	neters): 0
3. BANK FULL WIDTH (Measured ✓ > 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts]	as teh average of 3-4 measurements) (Check ONLY one b >1.0 m - 1.5m (>3'3" - 4'8") [15 pts] <=1.0m (<=3'3") [5 pts]	ox): Bankfull Width Max = 30
COMMENTS:	AVERAGE BANKFULL WIDTH (I	Meters): 0 30
	This information must also be completed	<u> </u>
RIPARIAN ZONE AND FLOODS	·	ng downstream
<u>RIPARIAN WIDTH</u>	FLOODPLAIN QUALITY	
L R (Per Bank Wide >10 m Moderate 5-10 m Narrow <5 m None Comments:	Immature Forest, Shrub or Old Field Urban of Residential, Park, New Field Open F	vation Tillage or Industrial Pasture, Row Crop or Construction
FLOW REGIME (At time of even Steam flowing Subsurface flow with isolated poor Comments:	aluation) (Check ONLY one box): Moist channel, isolated pools, r Dry channel, no water (Epheme	
SINUOSITY (Number of bends None 0.5 STREAM GRADIENT ESTIMAT	Der 61 m (200 ft) of channel. Check ONLY one box) 1.0	3.0 >3.0

ADDITIONAL STREAM INFORMATION (This information must also be compl	lete
	attach completed QHEI form)
DOWNSTREAM DESIGNATED USE(S)	
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 ENTIRE WATERSHED ARE	:A. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name Mooresville East NRCS Soil Map Page	NRCS Soil Map Stream Order:
County: Morgan Township / City: Green	
MISCELLANEOUS	
Base flow conditions? (Y/N) Yes Date of last precipitation: .13	Quantity 10/03
Photograph information:	<u> </u>
Elevated Turbidity? (Y/N) Canopy (% open): 30	
Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. a	and attach results) Lab number: N/A
Field Measures: Temp (C) Dissolved oxygen (mg/l): pH:	Conductivity (umhos/cm)
Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. No ID number. Include apropriate field data sheets from the Primary	
Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N)	No Voucher? (Y/N) No
Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebra	ates observed? (Y/N) No Voucher? (Y/N) No
Comments Regarding Biology:	

Stream Reach S6S063a



Stream Location on 2013 Aerial Photograph

Stream Location on Mooresville East USGS Quadra

Stream Name: UNT 12 White River Quadrangle: Mooresville East

Flow Regime: Ephemeral County: Morgan Natural T12N **Channel Type:** Township: R2E No Legal Drain: Range: IDEM 303(d) Listed: No Section: 3 Predominant Substrate: silt - fine detritus Quarter: NW

Evaluation Score:HHEI = 13Latitude:39.512559Use Designation:Class I PHWHLongitude:-86.307406

 OHWM width:
 15.0
 Basin:
 White River - North Trib

 OHWM depth:
 0.3
 14-digit HUC:
 05120201140060

USACE Jurisdiction: Yes **Drainage area:** 0.071

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	94	0.032	0.00
Aternative C2	95	0.033	0.00
Aternative C3	0	0.000	0.00
Aternative C4 (Preferred)	95	0.033	0.00



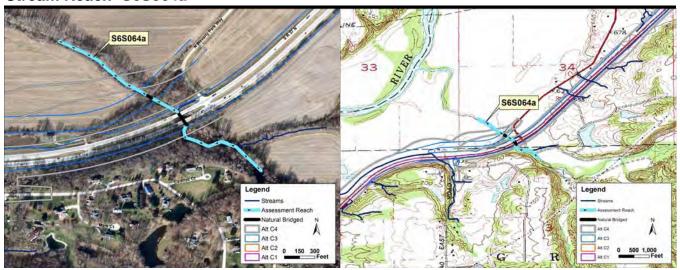




SITE NAME/LOCATION	UNT White River						
	SITE NUMBER S	SS063a RIVE	R BASI	N White River - North Trib	DRAINAGE /	AREA (mi)	0.071
LENGTH OF STEAM RE	ACH (ft)	LAT 39.512559	LONG	G86.307406 RIVER CC	DDE N/A	RIVER MILE_	N/A
DATE 10/20/2015	SCORER rjc	COMMEN	NT				
NOTE: Complete All It	ems On This Form	- Refer to ""Field E	valuatio	on Manual for Ohio's PHWI	H Streams" for	Instructions	
STREAM CHANNEL MODIFICATIONS:	NONE / NATUR	AL CHANNE	RECO	VERED ✓ RECOVERIN	IG RECEN	IT OR NO REC	COVERY
	otal number of signifi	cant subsrate types		entCheck ONLY two predom Max of 8). Final metric score	e is sum of boxes		HHEI Metric Points
BLDR SLABS BOULDER (>2 BEDROCK [16 COBBLE (65-2 GRAVEL (2-64 SAND (<2 mm	[16 pts] 56 mm) [16 pts pts] 56 mm) [9 pt mm) [9 pts]			SILT [3 pt] LEAF PACK/WOODY DEBI FINE DETRITUS [3 pts] CLAY or HARDPAN [0 pts] MUCK [0 pts] ARTIFICIAL [3 pts]		60 0 40 0 0	Substrate Max = 40
Total of Perce Bldr Slabs, Boulder,		0.00% (A)		Substrate Percentage Check 100 %		(B)	(A+B)
SCORE OF TWO MOST	PREDOMINATE SU	BSTRATE TYPE	6	TOTAL NUMBER OF SU	JBSTRATE TYP	ES 2	
	DEPTH (Measure t oid plunge pools from			rithin the 61 meter (200 fte) er pipes)	aluation reach a	at the time	Pool Depth Max = 30
>>30 centimeters >22.5 - 30 cm [30 >10 - 22.5 cm [25	pts]		✓	>5 cm - 10 cm [15 pts] <5 cm [5 pts] No Water or Moist Chanr	nel [0 pts]		0
COMMENTS:				MAXIMUM POOL DEF	PTH (centimeter	s): 0	
3. BANK FULL W > 4.0 meters (>13' >3.0 m - 4.0m (>9 >1.5 m - 3.0 m(>9) [30 pts] '7" - 13') [25 pts]	as teh average o	f 3-4 m ✓	check C chec			Bankfull Width Max = 30
COMMENTS:				AVERAGE BANKFUL	L WIDTH (Meter	rs): 4.5	5
		This informat	ion mus	st also be completed			
RIPARIAN Z	ONE AND FLOOD			TE: River left (L) and Right (R) as looking do	wnstream	
RIPARIAN	WIDTH	FLOODPLAIN C	QUALITY	<u> </u>			
L R (Per Ban Wide >10 Moderate Narrow < None Comments:	0 m e 5-10 m :5 m		Forest, V e Forest tial, Parl		Conservatio Urban or Inc	lustrial re, Row Crop	
FLOW REG	IME (At time of ev	raluation) (Check C	NLY on	e box):			
Steam flowin Subsurface fl Comments:	ow with isolated poo	ls (interstitial)		Moist channel, isola ✓ Dry channel, no wat		w (Intermittent)	
SINUOSITY	(Number of bends	per 61 m (200 ft) of 0	channel.	Check ONLY one box)			
None ✓ 0.5 STREAM G	RADIENT ESTIMAT	1.0 1.5 E		2.0 2.5	3.0 >3.0		
✓ Flat (0.5 ft/100 ft)	Flat to Mod		ate (2 ft/	(100 ft) Moderate to	Severe S	Severe (10 ft /10	00 ft)

ADDITIONAL STREAM INFORMATION (This information must also be comple	te
	ach completed QHEI form)
DOWNSTREAM DESIGNATED USE(S)	
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 ENTIRE WATERSHED AREA	. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name Mooresville East NRCS Soil Map Page	NRCS Soil Map Stream Order:
County: Morgan Township / City: Green	
MISCELLANEOUS	
Base flow conditions? (Y/N) Yes Date of last precipitation: 8/29	Quantity .27
Photograph information:	<u> </u>
Elevated Turbidity? (Y/N) Canopy (% open): 30	
Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. ar	nd attach results) Lab number: N/A
Field Measures: Temp (C) Dissolved oxygen (mg/l): pH:	Conductivity (umhos/cm)
Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note ID number. Include apropriate field data sheets from the Primary H	
Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N)	No Voucher? (Y/N) No
Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrate	es observed? (Y/N) No Voucher? (Y/N) N
Comments Regarding Biology:	

Stream Reach S6S064a



Stream Location on 2013 Aerial Photograph

Stream Location on Mooresville East USGS Quadra

Stream Name: Crooked Creek Quadrangle: Mooresville East

Flow Regime: Perennial County: Morgan Natural T13N **Channel Type:** Township: R2E No Legal Drain: Range: IDEM 303(d) Listed: Yes Section: 34 Predominant Substrate: gravel - sand Quarter: SW

Evaluation Score: QHEI = 53 **Latitude:** 39.516305 **Use Designation:** Probable Warm Water Habitat **Longitude:** -86.302292

OHWM width: 36.5 Basin: Crooked Creek - Banta Creek

OHWM depth: 1.6 **14-digit HUC:** 05120201140050

USACE Jurisdiction: Yes **Drainage area:** 15.528

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	389	0.326	1.04
Aternative C2	389	0.326	1.04
Aternative C3	210	0.176	0.70
Aternative C4 (Preferred)	389	0.326	1.04





OWQ Biological Studies QHEI (Qualitative Habitat Evaluation Index)

IDEM	Sample #		bioSample #	Stream Name Crooked Creek		Location	
1	Surveyor	Sample Date	,	Macro Sample Type	- Habitat	OUEL Soore	БЭ
	rh	8/31/2015	Morgan	N/A	Complete	QHEI Score:	53
1] SUB	STRATE		predominant su 6 and check eve	bstrate TYPE BOXES;	Check ON	IE (Or 2 and average)	
	BEST TYP	ES	ОТ	HER TYPES	ORIGIN	QUALITY	
PREDOMINA PREDOM	DR/SLABS [10 DR/SLABS [9] DBBLE [8] PAVEL [7] ND [6] DROCK [5] OF BEST TY	PRESENT TOTAL % P R	PREDOMINANT PR HARDF DETRIT MUCK SILT [2 ARTIFIC	PRESENT TOTAL % P R P R TUS [3] [2]	LIMESTONE [1 TILLS [1] WETLANDS [0] HARDPAN [0] SANDSTONE [RIP/RAP [0] LACSTRINE [0 SHALE [-1] COAL FINES [-	HEAVY [-2] MODERATE [-1] NORMAL [0] FREE [1] EXTENSIVE [-2] MODERATE [-1] NORMAL [0]	Substrate 12.0
Comme							
quality; 2- quality in that is sta % Amount 0 1 0 0 2	moderate or oble, well developed UNDERCUT BOVERHANGIN SHALLOWS (IROOTMATS [1	ounts, but not of greater amounts (ploped root wad in ANKS [1] IG VEGETATION N SLOW WATER	highest quality o e.g., very large to deep/fast water	nd estiamte percent: 0-Abser r in small amounts of highest coulders in deep or fast water r, or deep, well-defined, functi	quality; 3- Highest , large diameter lo noal pools.)	G AMO G Check One (Or 2 EXTENSIVE : MODERATE 2 TERS [1] SPARSE -<25 WHOTEL SPARSE - SPAR	UNT and average) 275% [11] 25-75% [7] % [3] ENT <5% [1] Ver
		PHOLOGY Ch	eck ONE in eacl	n category (Or 2 and average))		
LOW [X NONE	[4] RATE [3] 2] [1] nts	DEVELOI EXCELLE GOOD [5] FAIR [3] POOR [1]	ENT [7]]	CHANNELIZATION NONE [6] RECOVERED [4] RECOVERING [3] RECENT OR NO RECOVERED (A) RECENT OR NO RECOVERED (A)	☑ ☑ ′ERY [1]	ABILITY HIGH [3] MODERATE [2 Chan LOW [1] Maxim	
-	ht looking downst		ARIAN WIDT				
L R	EROSION NE/LITTLE [3] DERATE [2] AVY/SEVERE	WIDE MODE	>50m [4] ERATE 10-50m ROW 5-10m [2] NARROW [1]	FOREST, SWAMP SCRUB OR OLD FI RESIDENTIAL, PR FENCED PASTURI	[3] IELD [2] K, NEW FIELD [1] E [1] India	L R CONSERVATION T URBAN OR INDUS MINING/CONSTRU cate predominant land use(st 100m riparian Ripar Maxim	TRIAL [0] CTION [0]
5] <i>POO</i>	L/GLIDE A	ND RIFFLE /RU	JN QUALITY			Recreation	Dotontial
Check ON >1 m [6	1m [4] 0.7m [2] 0.4m [1] [0]	Check ON POOL WI	NEL WIDTH NE (Or 2 and ave DTH > RIFFLE W DTH = RIFFLE W DTH < RIFFLE W	erage) Ch /IDTH [2] TORRENTIA /IDTH [1] VERY FAST /IDTH [0] FAST [1] MODERATE	[1] INTE	TY (Circle one and co W [1] Primary (RSTITIAL [-1] Seconda RMITTENT [-2] Po Curre	Contact ry Contact ool/
		riffles; Best area	s must be large	enough to support a population	 on		·····
of riffle-o	obligate speci E DEPTH AREAS>10cm AREAS 5-10ci AREAS <5cm [metri	RUN DI [2] MAXIN m [1 MAXIN	· ·	Check One (Or 2 and ave RIFFLE/RUN SUBST STABLE (e.g., Cobble, B MOD. STABLE (e.g., Fine Fi	erage) RATE RIF soulder) [2 ge Gravel) [1]	NO RIFFLE [ME] FLE/RUN EMBEDDE NONE [2] LOW [1] Rif MODERATE [0] R EXTENSIVE [-1] Maxim	DNES
	DIENT (15.6	S ft/mi)	☐ VERY LOW -	LOW [2 - 4] % POOL:	³⁰ % GL	IDE: 20	
_	-	· · · · · · · · · · · · · · · · · · ·	✓ MODERATE		40 % RIF	Ripar	ian um 10

OWQ Biological Studies QHEI (Qualitative Habitat Evaluation Index)

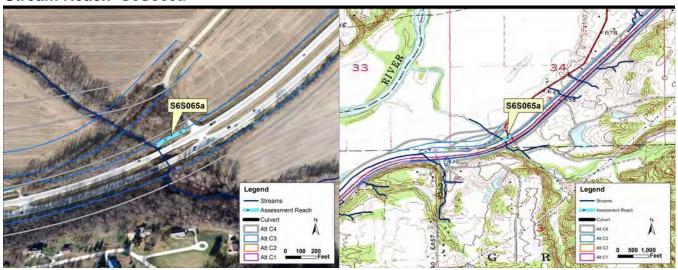


Comment

A-CANOPY							
✓ >85% - Open	Looking upstrea	m (>10m, 3 readi	ngs, <10m read	ing in middle);	Round to the n	earest whole percent	
55% -<85%		Left	Middle	1	Right	Total Average	
30%-<55 %	% open	%	(%	%	%	
10%-<30%				_			
<10% - Closed							
B-AESTHETICS			<u>C</u>	-RECRE	ATION		
Nuisance algae	Oil sheen		Ar	ea	Depth		
☐ Invasive macrophytes	Trash/Litter				_ > 3ft		
Excess turbidity	Nuisance o	dor			•		
☐ Discoloration ☐	Sludge dep	osits					
Foam/Scum	CSOs/SSOs	/Outfalls					
D-MAINTENANCE			E	-ISSUES			
Public Private				WWTP	cso 🗆 ı	NPDES	
Active Historic				Industry	Urban		
Succession: Young	Old			Hardened	Dirt G	rime	
☐ Spray ☐ Islands ☐ Sco	oured			Contamin	ated 🗌 L	andfill	
Snag: Removed Mod	lified		ВІ	MPs: 🗌 C	onstruction	Sediment	
Leveed: One sided	Both banks			Logging	Irrigation	n 🗌 Cooling	
☐ Relocated ☐ Cutoffs			Er	osion:	Bank 🗌 🤄	Surface	
Bedload: Moving	Stable			False ban	k 🗌 Manu	ıre 🗌 Lagoon	
Armoured Slumped				Wash H20	Tile [H2O table	
☐ Impounded ☐ Desiccated	d		M	ine: 🗌 Ac	id 🗌 Quai	rry	
☐ Flood control ☐ Drainag	ge		FI	ow: 🗌 Na	tural 🗌 St	agnant	
				Wetland	Park	Issues: Golf	
				Lawn	Home		
				Atmosphe	eric deposition	on	

Stream Drawing:

Stream Reach S6S065a



Stream Location on 2013 Aerial Photograph

Stream Location on Mooresville East USGS Quadra

Stream Name: UNT 1 Crooked Creek Quadrangle: Mooresville East

Flow Regime: Ephemeral Morgan County: Roadside Ditch T13N **Channel Type:** Township: R2E No Legal Drain: Range: IDEM 303(d) Listed: No Section: 34

Predominant Substrate: artificial - muck Quarter: SW

Evaluation Score:HHEI = 10Latitude:39.516476Use Designation:Class I PHWHLongitude:-86.302009

OHWM width: 1.1 Basin: Crooked Creek - Banta Creek

OHWM depth: 0.2 **14-digit HUC:** 05120201140050

USACE Jurisdiction: Yes **Drainage area:** 0.001

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	165	0.004	0.19
Aternative C2	165	0.004	0.19
Aternative C3	165	0.004	0.13
Aternative C4 (Preferred)	165	0.004	0.19



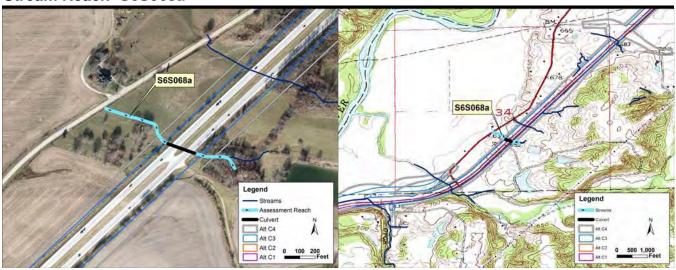




SITE NAME/LOCATION UNT	Crooked Creek				
SITE	NUMBER S6S065a RI	VER BASIN Crooked Cre	eek - Banta Cr DRAIN	IAGE AREA (mi)	0.001
LENGTH OF STEAM REACH (ft)) LAT 39.516	476 LONG86.302009	RIVER CODE N/A	RIVER MILE	N/A
DATE 9/21/2015 SCORE	R rh COMM	MENT			
NOTE: Complete All Items On	n This Form - Refer to ""Field	d Evaluation Manual for (Ohio's PHWH Streams	s" for Instructions	
STREAM CHANNEL NO MODIFICATIONS:	NE / NATURAL CHANNE	RECOVERED I	RECOVERING 🗸 F	RECENT OR NO REC	OVERY
	ercent of every type of subsomber of significant subsrate typ PERCENT				HHEI Metric Points
BLDR SLABS [16 pts] BOULDER (>256 mm) BEDROCK [16 pts] COBBLE (65-256 mm) GRAVEL (2-64 mm) [9 SAND (<2 mm) [6 pts]	[16 pts	SILT [3 pt] LEAF PACK/W FINE DETRITU CLAY or HARD MUCK [0 pts] ARTIFICIAL [3	DPAN [0 pts]	0 0 0 0 80	Substrate Max = 40
Total of Percentages Bldr Slabs, Boulder, Cobble,	of 0.00% (A	Substrate Percen Check		(B)	(A+B)
SCORE OF TWO MOST PREDO	OMINATE SUBSTRATE TYPE	E 3 TOTAL NUM	MBER OF SUBSTRAT	E TYPES 2	
	H (Measure the maximum poorige pools from road culverts or		eter (200 ft) valuation r	each at the time	Pool Depth Max = 30
>>30 centimeters [20 pts] >22.5 - 30 cm [30 pts] >10 - 22.5 cm [25 pts]		>5 cm - 10 c <5 cm [5 pts No Water or			0
COMMENTS:		MAXIMUN	/I POOL DEPTH (centi	imeters): 0	
	[25 pts]	e of 3-4 measurements	(Check ONLY one m (>3'3" - 4'8") [15 pts]	box):	Bankfull Width Max = 30
3. BANK FULL WIDTH (> 4.0 meters (>13') [30 pts > 3.0 m - 4.0m (>9'7" - 13')	s]) [25 pts]	e of 3-4 measurements >1.0 m - 1.5 ✓ <=1.0m (<=:	(Check ONLY one m (>3'3" - 4'8") [15 pts]	box):	Width
3. BANK FULL WIDTH (> 4.0 meters (>13') [30 pts > 3.0 m - 4.0m (>9'7" - 13') > 1.5 m - 3.0 m(>9'7" - 4'8"	s] [25 pts] ') [20 pts]	e of 3-4 measurements >1.0 m - 1.5 ✓ <=1.0m (<=<<	(Check ONLY one m (>3'3" - 4'8") [15 pts] 3'3") [5 pts]	box):	Width Max = 30
3. BANK FULL WIDTH (> 4.0 meters (>13') [30 pts > 3.0 m - 4.0m (>9'7" - 13') > 1.5 m - 3.0 m(>9'7" - 4'8" COMMENTS:	s] [25 pts] ') [20 pts]	e of 3-4 measurements >1.0 m - 1.5 <=1.0m (<=≤ AVERAGE mation must also be comp	(Check ONLY one m (>3'3" - 4'8") [15 pts] 3'3") [5 pts]	box): (Meters): 0.3	Width Max = 30
3. BANK FULL WIDTH (> 4.0 meters (>13') [30 pts > 3.0 m - 4.0m (>9'7" - 13') > 1.5 m - 3.0 m(>9'7" - 4'8" COMMENTS:	S]) [25 pts] ') [20 pts] This inform ND FLOODPLAIN QUALITY	>1.0 m - 1.5 = 1.0 m - 1.5 = 1.0 m (<= AVERAGE nation must also be composite in the composite of the composite in the composite of the	s) (Check ONLY one m (>3'3" - 4'8") [15 pts] 3'3") [5 pts] E BANKFULL WIDTH	box): (Meters): 0.3	Width Max = 30
3. BANK FULL WIDTH (> 4.0 meters (>13') [30 pts > 3.0 m - 4.0m (>9'7" - 13') > 1.5 m - 3.0 m(>9'7" - 4'8" COMMENTS:	This inform ND FLOODPLAIN QUALITY E FLOODPLAIN L R (Most Mature Mature	>1.0 m - 1.5 = 1.0 m - 1.5 = 1.0 m (<= AVERAGE nation must also be composite in the composite of the composite in the composite of the	s) (Check ONLY one m (>3'3" - 4'8") [15 pts] E BANKFULL WIDTH pleted and Right (R) as look L R Urban Open	box): (Meters): 0.3	Width Max = 30
3. BANK FULL WIDTH (> 4.0 meters (>13') [30 pts >3.0 m - 4.0m (>9'7" - 13') >1.5 m - 3.0 m(>9'7" - 4'8" COMMENTS: RIPARIAN ZONE AI RIPARIAN WIDTH L R (Per Bank Wide >10 m Moderate 5-10 m Narrow <5 m None Comments: FLOW REGIME (Steam flowing	This inform ND FLOODPLAIN QUALITY E FLOODPLAIN L R (Most Mature Mature	AVERAGE NOTE: River left (L. N. QUALITY Predominant Per Bank re Forest, Wetland sture Forest, Shrub or Old Flential, Park, New Field red Pasture K ONLY one box): Moist c	s) (Check ONLY one m (>3'3" - 4'8") [15 pts] E BANKFULL WIDTH pleted and Right (R) as look L R Urban Open	box): (Meters): 0.3 ing downstream ervation Tillage or Industrial Pasture, Row Crop g or Construction no flow (Intermittent)	Width Max = 30
3. BANK FULL WIDTH (> 4.0 meters (>13') [30 pts >3.0 m - 4.0m (>9'7" - 13') >1.5 m - 3.0 m(>9'7" - 4'8" COMMENTS: RIPARIAN ZONE AI RIPARIAN WIDTH L R (Per Bank Wide >10 m Moderate 5-10 m Moderate 5-10 m None Comments: FLOW REGIME (Steam flowing Subsurface flow with Comments:	This inform ND FLOODPLAIN QUALITY FLOODPLAIN Mature Mature Mature of evaluation (Check isolated pools (interstitial) Output 1.0	AVERAGE NOTE: River left (L. N. QUALITY Predominant Per Bank re Forest, Wetland rure Forest, Shrub or Old Flential, Park, New Field red Pasture K ONLY one box): Moist control of channel. Check ONLY of Channel. Check ONLY of Canada and Can	channel, isolated pools, annel, no water (Ephen	box): (Meters): 0.3 ing downstream ervation Tillage or Industrial Pasture, Row Crop g or Construction no flow (Intermittent)	Width Max = 30

ADDITIONAL STREAM INFORMATION (This information must also be completely	lete
	attach completed QHEI form)
DOWNSTREAM DESIGNATED USE(S)	
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 ENTIRE WATERSHED ARE	EA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name Mooresville East NRCS Soil Map Page	NRCS Soil Map Stream Order:
County: Morgan Township / City: Washington	
MISCELLANEOUS	
Base flow conditions? (Y/N) Yes Date of last precipitation: 9/19	Quantity .58
Photograph information:	<u> </u>
Elevated Turbidity? (Y/N) Canopy (% open): 20	
	and attach results) Lab number: N/A
Field Measures: Temp (C) Dissolved oxygen (mg/l): pH:	Conductivity (umhos/cm)
Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Not ID number. Include apropriate field data sheets from the Primary	
Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N)	No Voucher? (Y/N) No
Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebra	rates observed? (Y/N) No Voucher? (Y/N) No
Comments Regarding Biology:	

Stream Reach S6S068a



Stream Location on 2013 Aerial Photograph

Stream Location on Mooresville East USGS Quadra

Stream Name: UNT 4 Crooked Creek Quadrangle: Mooresville East

Flow Regime: Ephemeral County: Morgan Natural T13N **Channel Type:** Township: R2E No Legal Drain: Range: IDEM 303(d) Listed: Section: 34 No Predominant Substrate: sand - gravel Quarter: SE

Evaluation Score:HHEI = 37Latitude:39.520173Use Designation:Class II PHWHLongitude:-86.296555

OHWM width: 1.1 Basin: Crooked Creek - Banta Creek

OHWM depth: 0.3 **14-digit HUC:** 05120201140050

USACE Jurisdiction: Yes **Drainage area:** 0.039

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	175	0.004	0.31
Aternative C2	175	0.004	0.31
Aternative C3	55	0.001	0.09
Aternative C4 (Preferred)	175	0.004	0.31





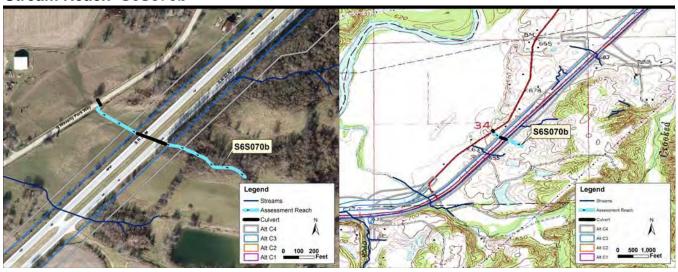


27	
31	

SITE NAME/LOCATION UNT Crooked	Creek				
SITE NUMBER	R S6S068a RIV	ER BASIN Crooked Creek	Banta Cr DRAINA	GE AREA (mi)	0.039
LENGTH OF STEAM REACH (ft)	LAT 39.52017	73 LONG86.296555 R	VER CODE N/A	RIVER MILE I	N/A
DATE 2/18/2016 SCORER rh	СОММЕ	ENT			
NOTE: Complete All Items On This Fo	orm - Refer to ""Field	Evaluation Manual for Ohio	's PHWH Streams"	for Instructions	
STREAM CHANNEL NONE / NA MODIFICATIONS:	TURAL CHANNE	RECOVERED REC	OVERING RE	CENT OR NO REC	OVERY
SUBSTRATE (Estimate percent of (Max of 32). Add total number of si TYPE	gnificant subsrate types				HHEI Metric Points
BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts] BEDROCK [16 pts] COBBLE (65-256 mm) [9 pt] GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts]	0 0 0 0 0 40 60	SILT [3 pt] LEAF PACK/WOO FINE DETRITUS [3 CLAY or HARDPA MUCK [0 pts] ARTIFICIAL [3 pts]	B pts] N [0 pts]	0 0 0 0 0	Substrate Max = 40
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock	(A)	Substrate Percentage Check	100 %	(B)	(A+B)
SCORE OF TWO MOST PREDOMINATION	E SUBSTRATE TYPE	15 TOTAL NUMBE	R OF SUBSTRATE	TYPES 2	
2. MAXIMUM POOL DEPTH (Measure of evaluation. Avoid plunge pools			(200 ft) valuation rea	ach at the time	Pool Depth Max = 30
>>30 centimeters [20 pts] >22.5 - 30 cm [30 pts] >10 - 22.5 cm [25 pts]		>5 cm - 10 cm [7 <5 cm [5 pts] No Water or Moi	5 pts] st Channel [0 pts]		15
COMMENTS:		MAYIMIIM DO	OOL DEPTH (centim	neters): 8	
·			OL DEI III (Centiiii		
3. BANK FULL WIDTH (Measure > 4.0 meters (>13') [30 pts]	_	of 3-4 measurements)	(Check ONLY one bo		Bankfull Width Max = 30
3. BANK FULL WIDTH (Measur > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts]	_	of 3-4 measurements) >1.0 m - 1.5m (> <-1.0m (<-3'3")	(Check ONLY one bo	ox):	Width
3. BANK FULL WIDTH (Measure > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts] > 1.5 m - 3.0 m(>9'7" - 4'8") [20 pts	1	of 3-4 measurements) >1.0 m - 1.5m (> <-1.0m (<-3'3")	(Check ONLY one bo 3'3" - 4'8") [15 pts] [5 pts]	ox):	Width Max = 30
3. BANK FULL WIDTH (Measure > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts] > 1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] This informa	of 3-4 measurements) >1.0 m - 1.5m (> <=1.0m (<=3'3") AVERAGE BA	(Check ONLY one bo 3'3" - 4'8") [15 pts] [5 pts] NKFULL WIDTH (N	ex):	Width Max = 30
3. BANK FULL WIDTH (Measure > 4.0 meters (>13') [30 pts]] This informa	of 3-4 measurements) >1.0 m - 1.5m (> <=1.0m (<=3'3") AVERAGE BA Attion must also be complete NOTE: River left (L) an	(Check ONLY one bo 3'3" - 4'8") [15 pts] [5 pts] NKFULL WIDTH (N	ex):	Width Max = 30
3. BANK FULL WIDTH (Measure > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts] > 1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS:	This informa ODPLAIN QUALITY FLOODPLAIN L R (Most Property Mature Mature Mature Resider	of 3-4 measurements) >1.0 m - 1.5m (> <=1.0m (<=3'3") AVERAGE BA Attion must also be complete NOTE: River left (L) an	(Check ONLY one both 3'3" - 4'8") [15 pts] [5 pts] ANKFULL WIDTH (Noted and Right (R) as looking the conservation of the con	ex):	Width Max = 30
3. BANK FULL WIDTH (Measure > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts] > 1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: RIPARIAN ZONE AND FLO RIPARIAN WIDTH L R (Per Bank Wide > 10 m Moderate 5-10 m Narrow < 5 m None Comments:	This information ODPLAIN QUALITY FLOODPLAIN L R (Most President of evaluation) (Check of evaluation)	of 3-4 measurements) >1.0 m - 1.5m (> <=1.0m (<=3'3") AVERAGE BA Intion must also be completed NOTE: River left (L) an QUALITY redominant Per Bank Forest, Wetland are Forest, Wetland are Forest, Shrub or Old Field Intial, Park, New Field I Pasture ONLY one box): Moist change Moist change Moist change Moist change Moist change Moist change AVERAGE BA A	(Check ONLY one both 3'3" - 4'8") [15 pts] [5 pts] ANKFULL WIDTH (Noted and Right (R) as looking the conservation of the con	g downstream vation Tillage or Industrial asture, Row Crop or Construction	Width Max = 30
3. BANK FULL WIDTH (Measure > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts] > 1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: RIPARIAN ZONE AND FLO RIPARIAN WIDTH L R (Per Bank Wide > 10 m Moderate 5-10 m Narrow < 5 m None Comments: FLOW REGIME (At time of Steam flowing Subsurface flow with isolated)	This informa ODPLAIN QUALITY FLOODPLAIN L R (Most Present Pr	of 3-4 measurements) >1.0 m - 1.5m (> <=1.0m (<=3'3") AVERAGE BA Intion must also be completed to NOTE: River left (L) and a second to make the second to make the second to make the second to the	(Check ONLY one both 3'3" - 4'8") [15 pts] [5 pts] ANKFULL WIDTH (Noted and Property of the conservation	g downstream vation Tillage or Industrial asture, Row Crop or Construction	Width Max = 30

ADDITIONAL STREAM INFORMATION (This information must also be comple	te
	ach completed QHEI form)
DOWNSTREAM DESIGNATED USE(S)	
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 ENTIRE WATERSHED AREA	. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name Mooresville East NRCS Soil Map Page	NRCS Soil Map Stream Order:
County: Morgan Township / City: Washington	
MISCELLANEOUS	
Base flow conditions? (Y/N) Yes Date of last precipitation: 2/14	Quantity 2.3
Photograph information:	<u></u>
Elevated Turbidity? (Y/N) Canopy (% open): 50	
Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. ar	nd attach results) Lab number: N/A
Field Measures: Temp (C) Dissolved oxygen (mg/l): pH:	Conductivity (umhos/cm)
Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note ID number. Include apropriate field data sheets from the Primary H	
Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N)	No Voucher? (Y/N) No
Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrate	res observed? (Y/N) No Voucher? (Y/N) No
Comments Regarding Biology:	_

Stream Reach S6S070b



Stream Location on 2013 Aerial Photograph

Stream Location on Mooresville East USGS Quadra

Stream Name: UNT 13 White River Quadrangle: Mooresville East

Flow Regime: Ephemeral Morgan County: Natural T13N **Channel Type:** Township: R2E No Legal Drain: Range: IDEM 303(d) Listed: Section: 34 No Predominant Substrate: sand - gravel Quarter: SE

Evaluation Score: HHEI = 27 **Latitude:** 39.521525 **Use Designation:** Class I PHWH **Longitude:** -86.295118

OHWM width: 2.0 Basin: White River - Sinking Creek

OHWM depth: 0.1 **14-digit HUC:** 05120201140040

USACE Jurisdiction: Yes Drainage area: 0.001

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	156	0.007	0.38
Aternative C2	156	0.007	0.38
Aternative C3	40	0.002	0.11
Aternative C4 (Preferred)	156	0.007	0.38



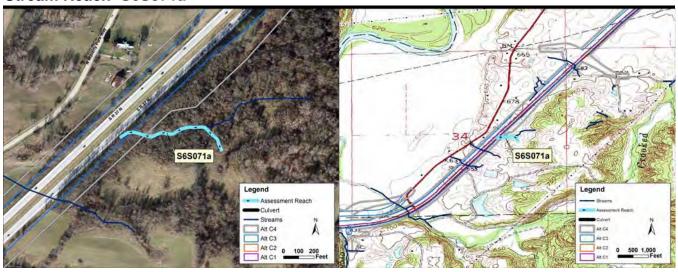




SITE NAME/LOCATION	N UNT White Rive	er					
	SITE NUMBER	S6S070b R	IVER BASIN	N White River - S	Sinking Cre D	RAINAGE AREA (mi)	0.001
LENGTH OF STEAM R	EACH (ft)			686.295118			
DATE 2/18/2016	SCORER rh	COMI	MENT		-		
NOTE: Complete All	Items On This For	m - Refer to ""Fiel	ld Evaluation	n Manual for Oh	io's PHWH St	reams" for Instructions	s
STREAM CHANNEL MODIFICATIONS:	▼ NONE / NATU		RECOV		COVERING	RECENT OR NO R	
						t substrate TYPE boxes sum of boxes A and B.)	, HHE
TYPE	3	PERCENT	TYPE	, ,		PERCENT	Metri
BLDR SLABS	S [16 pts]	0		SILT [3 pt]		<u> </u>	Point
BOULDER (>	256 mm) [16 pts	0		LEAF PACK/WO		[3 pts	Substrat Max = 4
COBBLE (65	-256 mm) [9 pt	0		CLAY or HARDP.	AN [0 pts]	0	IVIAX = 4
GRAVEL (2-6 SAND (<2 mr	64 mm) [9 pts] m) [6 pts]	<u>30</u> 70		MUCK [0 pts] ARTIFICIAL [3 pt	s]		17
Total of Per	centages of	0.00%	(A)	Substrate Percentag Check		(B)	(A+B)
Bldr Slabs, Boulder SCORE OF TWO MOS			E 15	TOTAL NUMB	ER OF SUBS	TRATE TYPES 2	
	L DEPTH (Measure				r (200 ft≱ valua	ation reach at the time	Pool De
	1 0 1	rom road curverts d	or storm wate	>5 cm - 10 cm	[15 pto]		Max =
>>30 centimeter >22.5 - 30 cm [30	0 pts]		✓	<5 cm [5 pts]	. , .		
>10 - 22.5 cm [2	5 pts]			No Water or M	oist Channel [0) pts]	5
				BA A VIBALIBA P	OOL DEDTIL		
COMMENTS:				WAXIMUWIF	OOL DEPTH	(centimeters): 2	
	WIDTH (Measure	nd as teh averan	e of 3-4 m			,	Bankfı
3. BANK FULL > 4.0 meters (>1		ed as teh averag		easurements) >1.0 m - 1.5m	(Check ONL) (>3'3" - 4'8") [1	one box):	Width
3. BANK FULL > 4.0 meters (>1 > 3.0 m - 4.0m (>	3') [30 pts] 9'7" - 13') [25 pts]	ed as teh averag	e of 3-4 m	easurements)	(Check ONL) (>3'3" - 4'8") [1	one box):	Bankfu Width Max = 3
3. BANK FULL V > 4.0 meters (>1 > 3.0 m - 4.0m (> > 1.5 m - 3.0 m(>	3') [30 pts]	ed as teh averag		easurements) >1.0 m - 1.5m <=1.0m (<=3'3	(Check ONL) (>3'3" - 4'8") [1 ") [5 pts]	one box): 5 pts]	Widtl Max =
3. BANK FULL > 4.0 meters (>1 > 3.0 m - 4.0m (>	3') [30 pts] 9'7" - 13') [25 pts]	ed as teh averag		easurements) >1.0 m - 1.5m <=1.0m (<=3'3	(Check ONL) (>3'3" - 4'8") [1 ") [5 pts]	one box):	Widtl
3. BANK FULL V > 4.0 meters (>1 > 3.0 m - 4.0m (> > 1.5 m - 3.0 m(>	3') [30 pts] 9'7" - 13') [25 pts]		✓	easurements) >1.0 m - 1.5m <=1.0m (<=3'3 AVERAGE E	(Check ONL) (>3'3" - 4'8") [1 ") [5 pts] BANKFULL WI	one box): 5 pts]	Widtl Max =
3. BANK FULL V > 4.0 meters (>1 > 3.0 m - 4.0m (> 1.5 m - 3.0 m(> COMMENTS:	3') [30 pts] 9'7" - 13') [25 pts]	This inform	mation mus	easurements) >1.0 m - 1.5m <=1.0m (<=3'3 AVERAGE E	(Check ONL) (>3'3" - 4'8") [1 ") [5 pts] BANKFULL Wi	one box): 5 pts]	Widtl Max =
3. BANK FULL V > 4.0 meters (>1 > 3.0 m - 4.0m (> > 1.5 m - 3.0 m(> COMMENTS:	3') [30 pts] 9'7" - 13') [25 pts] 9'7" - 4'8") [20 pts]	This inform	mation mus	easurements) >1.0 m - 1.5m <=1.0m (<=3'3 AVERAGE E talso be comple E: River left (L) a	(Check ONL) (>3'3" - 4'8") [1 ") [5 pts] BANKFULL Wi	/ one box): 5 pts] DTH (Meters): 0.6	Widtl Max =
3. BANK FULL V > 4.0 meters (>1 > 3.0 m - 4.0m (> > 1.5 m - 3.0 m(> COMMENTS: RIPARIAN RIPARIA	3') [30 pts] 9'7" - 13') [25 pts] 9'7" - 4'8") [20 pts] ZONE AND FLOO	This infori DPLAIN QUALITY FLOODPLAI	mation mus	easurements) >1.0 m - 1.5m <=1.0m (<=3'3 AVERAGE E talso be comple E: River left (L) a	(Check ONL) (>3'3" - 4'8") [1 ") [5 pts] BANKFULL Wi	/ one box): 5 pts] DTH (Meters): 0.6	Widtl Max =
33. BANK FULL V > 4.0 meters (>1) > 3.0 m - 4.0m (> > 1.5 m - 3.0 m(> COMMENTS: RIPARIAN RIPARIA L R (Per Ba	3') [30 pts] 9'7" - 13') [25 pts] 9'7" - 4'8") [20 pts] ZONE AND FLOO N WIDTH ank 10 m	This inform DPLAIN QUALITY FLOODPLAI L R (Most	mation mus NOT IN QUALITY Predominar	easurements) >1.0 m - 1.5m <=1.0m (<=3'3 AVERAGE E t also be complete: River left (L) a nt Per Bank /etland	(Check ONL) (>3'3" - 4'8") [1 ") [5 pts] BANKFULL WI eted nd Right (R) as	y one box): 5 pts] DTH (Meters): 0.6 Is looking downstream Conservation Tillage	Widtl Max =
33. BANK FULL V > 4.0 meters (>1) > 3.0 m - 4.0m (> > 1.5 m - 3.0 m(> COMMENTS: RIPARIAN RIPARIAN L R (Per Ba	3') [30 pts] 9'7" - 13') [25 pts] 9'7" - 4'8") [20 pts] 2 ZONE AND FLOO N WIDTH ank 10 m tte 5-10 m	This inform DPLAIN QUALITY FLOODPLAI L R (Most	mation mus NOT IN QUALITY Predominar Ire Forest, Wature Forest	easurements) >1.0 m - 1.5m <=1.0m (<=3'3 AVERAGE E t also be complete: River left (L) and the Per Bank /etland Shrub or Old Fie	(Check ONL) (>3'3" - 4'8") [1 ") [5 pts] BANKFULL WI eted nd Right (R) as	y one box): 5 pts] DTH (Meters): 0.6 Is looking downstream Conservation Tillage Urban or Industrial	Widtl Max =
BANK FULL V > 4.0 meters (>1 > 3.0 m - 4.0m (> > 1.5 m - 3.0 m(> COMMENTS: RIPARIAN RIPARIA L R (Per Ba W Wide > Modera Narrow None	3') [30 pts] 9'7" - 13') [25 pts] 9'7" - 4'8") [20 pts] ZONE AND FLOO N WIDTH ank 10 m tte 5-10 m <5 m	This inform DPLAIN QUALITY FLOODPLAI L R (Most Matu Matu Resid	mation mus NOT IN QUALITY Predominar	easurements) >1.0 m - 1.5m <=1.0m (<=3'3 AVERAGE E t also be complete: River left (L) and the Per Bank /etland Shrub or Old Fie	(Check ONL) (>3'3" - 4'8") [1 ") [5 pts] BANKFULL WI Sted Ind Right (R) as	y one box): 5 pts] DTH (Meters): 0.6 Is looking downstream Conservation Tillage	Widti Max =
BANK FULL V > 4.0 meters (>1 > 3.0 m - 4.0m (> > 1.5 m - 3.0 m(> COMMENTS: RIPARIAN RIPARIAN L R (Per Ba W Wide > Modera Narrow	3') [30 pts] 9'7" - 13') [25 pts] 9'7" - 4'8") [20 pts] ZONE AND FLOO N WIDTH ank 10 m tte 5-10 m <5 m	This inform DPLAIN QUALITY FLOODPLAI L R (Most Matu Matu Resid	mation mus NOT IN QUALITY Predominar Ire Forest, Wature Forest dential, Park	easurements) >1.0 m - 1.5m <=1.0m (<=3'3 AVERAGE E t also be complete: River left (L) and the Per Bank /etland Shrub or Old Fie	(Check ONL) (>3'3" - 4'8") [1 ") [5 pts] BANKFULL WI Sted Ind Right (R) as	y one box): 5 pts] DTH (Meters): 0.6 Is looking downstream Conservation Tillage Urban or Industrial Open Pasture, Row Cro	Widt Max =
33. BANK FULL V > 4.0 meters (>1) > 3.0 m - 4.0m (> > 1.5 m - 3.0 m(> COMMENTS: RIPARIAN RIPARIA L R (Per Ba W Wide > Modera Narrow None	3') [30 pts] 9'7" - 13') [25 pts] 9'7" - 4'8") [20 pts] ZONE AND FLOO N WIDTH ank 10 m ate 5-10 m <5 m	This inform DPLAIN QUALITY FLOODPLAI L R (Most Matu Matu Resid	mation mus NOT IN QUALITY Predominar Ire Forest, Wature Forest dential, Park ced Pasture	easurements) >1.0 m - 1.5m <=1.0m (<=3'3 AVERAGE E talso be comple E: River left (L) a at Per Bank /etland Shrub or Old Fie, New Field	(Check ONL) (>3'3" - 4'8") [1 ") [5 pts] BANKFULL WI Sted Ind Right (R) as	y one box): 5 pts] DTH (Meters): 0.6 Is looking downstream Conservation Tillage Urban or Industrial Open Pasture, Row Cro	Widt Max =
A.0 meters (>1 > 4.0 meters (>1 > 3.0 m - 4.0m (> > 1.5 m - 3.0 m(> COMMENTS: RIPARIAN RIPARIAN RIPARIAN L R (Per Bate Moderate Moderate Narrow None Comment FLOW RECENTED Steam flowing Subsurface	3') [30 pts] 9'7" - 13') [25 pts] 9'7" - 4'8") [20 pts] 2 ZONE AND FLOO N WIDTH ank 10 m ste 5-10 m <5 m s: GIME (At time of ing flow with isolated p	This inform DPLAIN QUALITY FLOODPLAI L R (Most Matu Matu Resid Fence Fence	mation mus NOT IN QUALITY Predominar Ire Forest, Wature Forest dential, Park ced Pasture	easurements) >1.0 m - 1.5m <=1.0m (<=3'3) AVERAGE E talso be completed and Per Bank /etland Shrub or Old Field, New Field be box): Moist cha	(Check ONL) (>3'3" - 4'8") [1 ") [5 pts] BANKFULL WI eted nd Right (R) as	y one box): 5 pts] DTH (Meters): 0.6 In large of the second of the sec	Width Max =
3. BANK FULL V > 4.0 meters (>1 > 3.0 m - 4.0m (> > 1.5 m - 3.0 m(> COMMENTS: RIPARIAN RIPARIA L R (Per Ba W Wide > Modera Narrow None Comment FLOW RE Steam flowi Subsurface Comment	3') [30 pts] 9'7" - 13') [25 pts] 9'7" - 4'8") [20 pts] ZONE AND FLOO N WIDTH ank 10 m tte 5-10 m <5 m s: GIME (At time of ing flow with isolated p s:	This inform DPLAIN QUALITY FLOODPLAI L R (Most Matu Matu Matu Fence evaluation) (Checoools (interstitial)	mation mus NOT IN QUALITY Predominar Forest, Wature Forest dential, Park and Pasture Ck ONLY one	easurements) >1.0 m - 1.5m <=1.0m (<=3'3 AVERAGE E t also be complete E: River left (L) and Per Bank /etland Shrub or Old Fiele, New Field b box): Moist cha	(Check ONL) (>3'3" - 4'8") [1 ") [5 pts] BANKFULL WI Sted nd Right (R) as L R Id	y one box): 5 pts] DTH (Meters): 0.6 In large of the second of the sec	Width Max =
3. BANK FULL V > 4.0 meters (>1 > 3.0 m - 4.0m (> > 1.5 m - 3.0 m(> COMMENTS: RIPARIAN RIPARIA L R (Per Ba W Wide > Modera Narrow None Comment FLOW RE Steam flowi Subsurface Comment	3') [30 pts] 9'7" - 13') [25 pts] 9'7" - 4'8") [20 pts] 2 ZONE AND FLOO N WIDTH ank 10 m ste 5-10 m <5 m s: GIME (At time of ing flow with isolated p	This inform DPLAIN QUALITY FLOODPLAI L R (Most Matu Matu Messie Fence Fevaluation) (Check cools (interstitial)	mation mus NOT IN QUALITY Predominar Forest, Wature Forest dential, Park and Pasture Ck ONLY one	easurements) >1.0 m - 1.5m <=1.0m (<=3'3 AVERAGE E t also be completed E: River left (L) and Per Bank /etland Shrub or Old Field b box): Moist chan Ty chang Check ONLY on 2.0	(Check ONL) (>3'3" - 4'8") [1 ") [5 pts] BANKFULL WI Sted nd Right (R) as L R Id	y one box): 5 pts] DTH (Meters): 0.6 In large of the second of the sec	Width Max =
A.O meters (>1) > 4.0 meters (>1) > 3.0 m - 4.0m (> > 1.5 m - 3.0 m(> COMMENTS: RIPARIAN RIPARIAN L R (Per Ba W Wide > Modera Narrow None Comment FLOW REC Steam flowid Subsurface Comment SINUOSIT None 0.5	3') [30 pts] 9'7" - 13') [25 pts] 9'7" - 4'8") [20 pts] ZONE AND FLOO N WIDTH ank 10 m tte 5-10 m <5 m s: GIME (At time of ing flow with isolated p s:	This inform DPLAIN QUALITY FLOODPLAI L R (Most Matu Matu Fence evaluation) (Check cools (interstitial) ds per 61 m (200 ft) 1.0 1.5	mation mus NOT IN QUALITY Predominar Forest, Wature Forest dential, Park and Pasture Ck ONLY one	easurements) >1.0 m - 1.5m <=1.0m (<=3'3) AVERAGE E Lalso be completed and Per Bank /etland Shrub or Old Field, New Field box): Moist changed and Dry changed and Check ONLY on Chec	(Check ONL) (>3'3" - 4'8") [1 ") [5 pts] BANKFULL WI Sted nd Right (R) as L R Id	one box): 5 pts] DTH (Meters): 0.6 s looking downstream Conservation Tillage Urban or Industrial Open Pasture, Row Cro Mining or Construction cools, no flow (Intermitted) cools, no flow (Intermitted)	Width Max =

ADDITIONAL STREAM INFORMATION (This information must also be comple QHEI PERFORMED Yes No QHEI Score: 0 (If yes, att	
QHEIFERFORMED 1es V 100 QHEI 3cole. U (II yes, au	tach completed QHEI form)
DOWNSTREAM DESIGNATED USE(S)	
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 ENTIRE WATERSHED AREA	A. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name Mooresville East NRCS Soil Map Page	NRCS Soil Map Stream Order:
County: Morgan Township / City: Harrison	
MISCELLANEOUS	
Base flow conditions? (Y/N) Yes Date of last precipitation: 2/14	Quantity 2.3
Photograph information:	<u> </u>
Elevated Turbidity? (Y/N) Canopy (% open): 25	
	nd attach results) Lab number: N/A
Field Measures: Temp (C) Dissolved oxygen (mg/l): pH:	Conductivity (umhos/cm)
Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note ID number. Include apropriate field data sheets from the Primary H	
Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N)	No Voucher? (Y/N) No
Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrate	tes observed? (Y/N) No Voucher? (Y/N) No
Comments Regarding Biology:	

Stream Reach S6S071a



Stream Location on 2013 Aerial Photograph

Stream Location on Mooresville East USGS Quadra

Stream Name: UNT 14 White River Quadrangle: Mooresville East

Flow Regime: Ephemeral Morgan County: Natural T13N **Channel Type:** Township: R2E No Legal Drain: Range: IDEM 303(d) Listed: Section: 34 No Predominant Substrate: sand - woody detritus Quarter: SE

Evaluation Score: HHEI = 41 **Latitude:** 39.522757 **Use Designation:** Class II PHWH **Longitude:** -86.293898

OHWM width: 2.3 Basin: White River - Sinking Creek

OHWM depth: 0.3 **14-digit HUC:** 05120201140040

USACE Jurisdiction: Yes **Drainage area:** 0.001

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	135	0.007	0.32
Aternative C2	135	0.007	0.32
Aternative C3	63	0.003	0.07
Aternative C4 (Preferred)	135	0.007	0.32



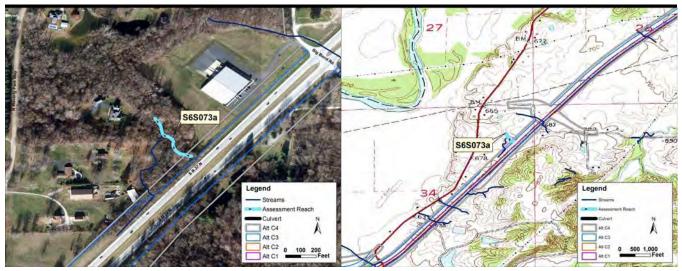




	UNT White River				
	SITE NUMBER S6S07	1a RIVER B	ASIN White River - Sinking Cre	e DRAINAGE AREA (mi)	0.001
LENGTH OF STEAM RE	ACH (ft) LA	T 39.522757 L	ONG86.293898 RIVER CC	DDE N/A RIVER MILE	N/A
DATE 2/18/2016	SCORER rh	COMMENT			
NOTE: Complete All Ite	ems On This Form - Ref	er to ""Field Eval	uation Manual for Ohio's PHW	H Streams" for Instructions	
STREAM CHANNEL MODIFICATIONS:	NONE / NATURAL C	HANNE RE	COVERED RECOVERIN	IG RECENT OR NO REC	COVERY
		subsrate types four	resentCheck ONLY two predomnd (Max of 8). Final metric score		HHEI Metric Points
BLDR SLABS [BOULDER (>2: BEDROCK [16 COBBLE (65-2 GRAVEL (2-64 SAND (<2 mm)	56 mm) [16 pts		SILT [3 pt] LEAF PACK/WOODY DEB FINE DETRITUS [3 pts] CLAY or HARDPAN [0 pts] MUCK [0 pts] ARTIFICIAL [3 pts]	0	Substrate Max = 40
Total of Perce Bldr Slabs, Boulder,			Substrate Percentage Check 100 %	(в)	(A+B)
SCORE OF TWO MOST	PREDOMINATE SUBST	RATE TYPE S	TOTAL NUMBER OF SU	JBSTRATE TYPES 2	
	DEPTH (Measure the m oid plunge pools from roa		th within the 61 meter (200 fte) water pipes)	valuation reach at the time	Pool Depth Max = 30
>>30 centimeters >22.5 - 30 cm [30 >10 - 22.5 cm [25	pts]		>5 cm - 10 cm [15 pts] <5 cm [5 pts] No Water or Moist Chann	nel [0 pts]	25
COMMENTS:			MAXIMUM POOL DEF	PTH (centimeters): 15	
				Tir (centimeters).	
) [30 pts] 7" - 13') [25 pts]	eh average of 3-	4 measurements) (Check C >1.0 m - 1.5m (>3'3" - 4'8 <=1.0m (<=3'3") [5 pts]	ONLY one box):	Bankfull Width Max = 30
3. BANK FULL W > 4.0 meters (>13') > 3.0 m - 4.0m (>9')) [30 pts] 7" - 13') [25 pts]	eh average of 3-	4 measurements) (Check C	DNLY one box): B") [15 pts]	Width
3. BANK FULL W > 4.0 meters (>13') > 3.0 m - 4.0m (>9') > 1.5 m - 3.0 m(>9')) [30 pts] 7" - 13') [25 pts]		4 measurements) (Check 0	DNLY one box): B") [15 pts]	Width Max = 30
3. BANK FULL W > 4.0 meters (>13' > 3.0 m - 4.0m (>9' >1.5 m - 3.0 m(>9' COMMENTS:) [30 pts] 7" - 13') [25 pts]	This information	4 measurements) (Check C >1.0 m - 1.5m (>3'3" - 4'8 <=1.0m (<=3'3") [5 pts]	DNLY one box): B") [15 pts] L WIDTH (Meters): 0.9	Width Max = 30
3. BANK FULL W > 4.0 meters (>13' > 3.0 m - 4.0m (>9' >1.5 m - 3.0 m(>9' COMMENTS:) [30 pts] 7" - 13') [25 pts] 7" - 4'8") [20 pts] CONE AND FLOODPLAIN	This information	4 measurements) (Check (>1.0 m - 1.5m (>3'3" - 4'8 <=1.0m (<=3'3") [5 pts] AVERAGE BANKFUL must also be completed NOTE: River left (L) and Right (DNLY one box): B") [15 pts] L WIDTH (Meters): 0.9	Width Max = 30
3. BANK FULL W > 4.0 meters (>13' > 3.0 m - 4.0m (>9' > 1.5 m - 3.0 m(>9' COMMENTS:	() [30 pts] 7" - 13') [25 pts] 7" - 4'8") [20 pts] CONE AND FLOODPLAIN WIDTH k D m 2 5-10 m 5 m	This information N QUALITY LOODPLAIN QUA R (Most Predor Mature Fore Immature Fore	4 measurements) (Check C >1.0 m - 1.5m (>3'3" - 4'8 (<=1.0m (<=3'3") [5 pts] AVERAGE BANKFUL Must also be completed NOTE: River left (L) and Right (LITY ninant Per Bank st, Wetland perst, Shrub or Old Field Park, New Field	DNLY one box): B") [15 pts] L WIDTH (Meters): 0.9	Width Max = 30
3. BANK FULL W > 4.0 meters (>13" > 3.0 m - 4.0m (>9" > 3.0 m - 3.0 m(>9" > 1.5 m - 3.0 m(>9" COMMENTS: RIPARIAN Z RIPARIAN L R (Per Bani W Wide > 10 Moderate Narrow < None Comments: FLOW REGI Steam flowing	(1) [30 pts] 7" - 13') [25 pts] 7" - 4'8") [20 pts] (2) CONE AND FLOODPLAIN (2) WIDTH (3) M (4) 5-10 m (5) m (5) m (6) 5 m (6) M (7) M (8) M (This information I QUALITY LOODPLAIN QUA R (Most Predor Mature Fore Immature For Residential, Fenced Pas	4 measurements) (Check C >1.0 m - 1.5m (>3'3" - 4'8 <=1.0m (<=3'3") [5 pts] AVERAGE BANKFUL Must also be completed NOTE: River left (L) and Right (LITY ninant Per Bank st, Wetland brest, Shrub or Old Field Park, New Field ture (one box):	DNLY one box): B") [15 pts] L WIDTH (Meters): 0.9 R) as looking downstream R Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction	Width Max = 30
3. BANK FULL W > 4.0 meters (>13" >3.0 m - 4.0m (>9" >3.0 m - 3.0 m(>9" COMMENTS: RIPARIAN Z RIPARIAN Z RIPARIAN L R (Per Bani W Wide >10 Moderate Narrow < None Comments: FLOW REGI Steam flowing Subsurface flowments: SINUOSITY None 0.5	(1) [30 pts] 7" - 13') [25 pts] 7" - 4'8") [20 pts] (2) CONE AND FLOODPLAIN (3) WIDTH (4) L (5) m (5) 5 m (4) IME (At time of evaluating one with isolated pools (in	This information N QUALITY LOODPLAIN QUA R (Most Predor Mature Fore Immature Fore Residential, Fenced Pas	4 measurements) (Check (DNLY one box): B") [15 pts] L WIDTH (Meters): 0.9 R) as looking downstream R Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction	Width Max = 30

ADDITIONAL STREAM INFORMATION (This information must also be comple QHEI PERFORMED Yes No QHEI Score: 0 (If yes, att	
QHEIFERFORMED 1es V 100 QHEI 3cole. U (II yes, au	tach completed QHEI form)
DOWNSTREAM DESIGNATED USE(S)	
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 ENTIRE WATERSHED AREA	A. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name Mooresville East NRCS Soil Map Page	NRCS Soil Map Stream Order:
County: Morgan Township / City: Harrison	
MISCELLANEOUS	
Base flow conditions? (Y/N) Yes Date of last precipitation: 2/14	Quantity 2.3
Photograph information:	<u> </u>
Elevated Turbidity? (Y/N) Canopy (% open): 25	
	nd attach results) Lab number: N/A
Field Measures: Temp (C) Dissolved oxygen (mg/l): pH:	Conductivity (umhos/cm)
Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note ID number. Include apropriate field data sheets from the Primary H	
Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N)	No Voucher? (Y/N) No
Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrate	tes observed? (Y/N) No Voucher? (Y/N) No
Comments Regarding Biology:	

Stream Reach S6S073a



Stream Location on 2013 Aerial Photograph

Stream Location on Mooresville East USGS Quadra

Stream Name: UNT 16 White River Quadrangle: Mooresville East

Flow Regime: Ephemeral Morgan County: Natural T13N **Channel Type:** Township: R2E No Legal Drain: Range: IDEM 303(d) Listed: No Section: 34 Predominant Substrate: muck - sand Quarter: NE

Evaluation Score: HHEI = 43 **Latitude:** 39.52748 **Use Designation:** Rheocrene Potential **Longitude:** -86.289906

OHWM width: 3.3 Basin: White River - Sinking Creek

OHWM depth: 0.3 **14-digit HUC:** 05120201140040

USACE Jurisdiction: Yes **Drainage area:** 0.041

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	34	0.003	0.10
Aternative C2	34	0.003	0.10
Aternative C3	0	0.000	0.02
Aternative C4 (Preferred)	34	0.003	0.10

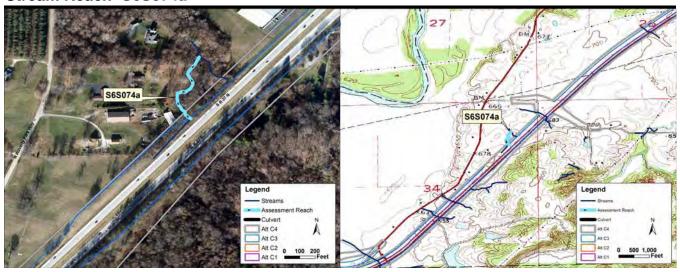




SITE NAME/LOCATION	UNT White River				
	SITE NUMBER S6S073a	RIVER BASIN	White River - Sinking Cre	DRAINAGE AREA (mi)	0.041
LENGTH OF STEAM RE	EACH (ft) LAT	39.52748 LONG.	86.289906 RIVER CODE	N/A RIVER MILE I	N/A
DATE 8/31/2015	SCORER rh	COMMENT			
NOTE: Complete All It	tems On This Form - Refe	r to ""Field Evaluatior	n Manual for Ohio's PHWH S	treams" for Instructions	
STREAM CHANNEL MODIFICATIONS:	NONE / NATURAL CH	IANNE RECOVE	ERED RECOVERING	RECENT OR NO REC	OVERY
		ubsrate types found (M	ntCheck ONLY two predominal ax of 8). Final metric score is		HHEI Metric Points
BLDR SLABS BOULDER (>2 BEDROCK [16 COBBLE (65-2 GRAVEL (2-64 SAND (<2 mm)	256 mm) [16 pts 0 6 pts] 0 256 mm) [9 pt 0 4 mm) [9 pts] 0		SILT [3 pt] LEAF PACK/WOODY DEBRIS FINE DETRITUS [3 pts] CLAY or HARDPAN [0 pts] MUCK [0 pts] ARTIFICIAL [3 pts]	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Substrate Max = 40
Total of Perce Bldr Slabs, Boulder,		⁄ ₆ (A)	Substrate Percentage Check 10 %	(B)	(A+B)
SCORE OF TWO MOST	PREDOMINATE SUBSTR	ATE TYPE 6	TOTAL NUMBER OF SUBS	STRATE TYPES 2	
	DEPTH (Measure the max or oid plunge pools from road		thin the 61 meter (200 ft) valu r pipes)	ation reach at the time	Pool Depth Max = 30
>>30 centimeters >22.5 - 30 cm [30 >10 - 22.5 cm [25	pts]	V	>5 cm - 10 cm [15 pts] <5 cm [5 pts] No Water or Moist Channel	[0 pts]	30
COMMENTS:			MAXIMUM POOL DEPTH	(centimeters): 10	
	s') [30 pts] 9'7" - 13') [25 pts]	n average of 3-4 me	MAXIMUM POOL DEPTH easurements) (Check ONL >1.0 m - 1.5m (>3'3" - 4'8") [<=1.0m (<=3'3") [5 pts]	Y one box):	Bankfull Width Max = 30
3. BANK FULL W > 4.0 meters (>13' > 3.0 m - 4.0m (>9'	s') [30 pts] 9'7" - 13') [25 pts]	n average of 3-4 me	easurements) (Check ONL >1.0 m - 1.5m (>3'3" - 4'8") [Y one box): 15 pts]	Width
3. BANK FULL W > 4.0 meters (>13' > 3.0 m - 4.0m (>9' > 1.5 m - 3.0 m(>9')	i') [30 pts] '7" - 13') [25 pts] '7" - 4'8") [20 pts]	n average of 3-4 me	easurements) (Check ONL >1.0 m - 1.5m (>3'3" - 4'8") [<=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL W	Y one box): 15 pts]	Width Max = 30
3. BANK FULL W > 4.0 meters (>13' > 3.0 m - 4.0m (>9' >1.5 m - 3.0 m(>9') COMMENTS:	i') [30 pts] '7" - 13') [25 pts] '7" - 4'8") [20 pts]	his information must	easurements) (Check ONL >1.0 m - 1.5m (>3'3" - 4'8") [<=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL W	Y one box): 15 pts] //IDTH (Meters): 0.9	Width Max = 30
3. BANK FULL W > 4.0 meters (>13' > 3.0 m - 4.0m (>9' >1.5 m - 3.0 m(>9') COMMENTS:	t') [30 pts] '7" - 13') [25 pts] '7" - 4'8") [20 pts] T ZONE AND FLOODPLAIN	his information must	easurements) (Check ONL >1.0 m - 1.5m (>3'3" - 4'8") [<=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL W also be completed	Y one box): 15 pts] //IDTH (Meters): 0.9	Width Max = 30
3. BANK FULL W > 4.0 meters (>13' >3.0 m - 4.0m (>9' >1.5 m - 3.0 m(>9' COMMENTS:	T	This information must QUALITY NOTI OODPLAIN QUALITY R (Most Predominant Mature Forest, Wo	easurements) (Check ONL >1.0 m - 1.5m (>3'3" - 4'8") [<=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL W Lalso be completed E: River left (L) and Right (R) and the set land shrub or Old Field	Y one box): 15 pts] //IDTH (Meters): 0.9	Width Max = 30
3. BANK FULL W > 4.0 meters (>13' > 3.0 m - 4.0m (>9' > 1.5 m - 3.0 m(>9' COMMENTS: RIPARIAN Z RIPARIAN L R (Per Ban W Wide >10' Moderate Narrow < None Comments: FLOW REG Steam flowin	TZONE AND FLOODPLAIN (A) WIDTH FLOOM (C) TO ME	This information must QUALITY NOTI OODPLAIN QUALITY R (Most Predominant Mature Forest, Wolliam In Park, Residential, Park, Fenced Pasture an) (Check ONLY one	easurements) (Check ONL >1.0 m - 1.5m (>3'3" - 4'8") [<=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL W Lalso be completed E: River left (L) and Right (R) and R	AY one box): 15 pts] //IDTH (Meters): 0.9 as looking downstream Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction pools, no flow (Intermittent)	Width Max = 30
3. BANK FULL W > 4.0 meters (>13' > 3.0 m - 4.0m (>9' > 1.5 m - 3.0 m(>9' COMMENTS: RIPARIAN Z RIPARIAN Z RIPARIAN V Wide > 10 Moderate Narrow < None Comments: FLOW REG Steam flowin Subsurface fl Comments: SINUOSITY None 0.5	TZONE AND FLOODPLAIN (A) WIDTH FLOOM (C) TO ME	This information must QUALITY NOTI OODPLAIN QUALITY R (Most Predominant Mature Forest, Welling Horseller, W	easurements) (Check ONL >1.0 m - 1.5m (>3'3" - 4'8") [<=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL W Lalso be completed E: River left (L) and Right (R) a	AY one box): 15 pts] //IDTH (Meters): 0.9 as looking downstream Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction pools, no flow (Intermittent) Ephemeral) 3.0 3.0 >3.0	Width Max = 30

ADDITIONAL STREAM INFORMATION (This information must also be completely	ete
	ttach completed QHEI form)
DOWNSTREAM DESIGNATED USE(S)	
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 ENTIRE WATERSHED ARE	A. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name Mooresville East NRCS Soil Map Page	NRCS Soil Map Stream Order:
County: Morgan Township / City: Harrison	
MISCELLANEOUS	
Base flow conditions? (Y/N) Yes Date of last precipitation: 8/19	Quantity .61
Photograph information:	
Elevated Turbidity? (Y/N) Canopy (% open): 30	
Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. a	and attach results) Lab number: N/A
Field Measures: Temp (C) Dissolved oxygen (mg/l): pH:	Conductivity (umhos/cm)
Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Not ID number. Include apropriate field data sheets from the Primary	
Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N)	No Voucher? (Y/N) No
Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebra	ates observed? (Y/N) No Voucher? (Y/N) No
Comments Regarding Biology:	

Stream Reach S6S074a



Stream Location on 2013 Aerial Photograph

Stream Location on Mooresville East USGS Quadra

Stream Name: UNT 17 White River Quadrangle: Mooresville East

Flow Regime: Ephemeral Morgan County: Natural T13N **Channel Type:** Township: R2E No Legal Drain: Range: IDEM 303(d) Listed: No Section: 34 Predominant Substrate: hardpan - artificial Quarter: NE

Evaluation Score:HHEI = 10Latitude:39.526805Use Designation:Class I PHWHLongitude:-86.290594

OHWM width: 2.9 **Basin:** White River - Sinking Creek

OHWM depth: 0.1 **14-digit HUC:** 05120201140040

USACE Jurisdiction: Yes **Drainage area:** 0.036

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	55	0.004	0.12
Aternative C2	55	0.004	0.12
Aternative C3	7	0.000	0.01
Aternative C4 (Preferred)	55	0.004	0.12



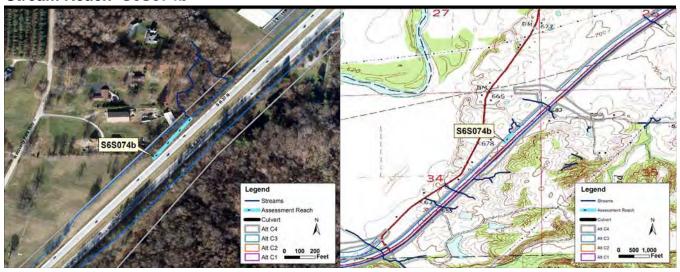




SITE MAINL/LOCATION	UNT White River					
	SITE NUMBER S6S	074a RIVEF	R BASIN White River -	Sinking Cre DRAIN	AGE AREA (mi)	0.036
LENGTH OF STEAM REA	ACH (ft)	LAT 39.526805	LONG86.290594	RIVER CODE N/A	RIVER MILE I	N/A
DATE 8/5/2016	SCORER ry	COMMEN	т			
NOTE: Complete All It	ems On This Form - F	Refer to ""Field Ev	valuation Manual for Ol	nio's PHWH Streams	s" for Instructions	
STREAM CHANNEL MODIFICATIONS:	NONE / NATURA	CHANNE	RECOVERED 🗸 RE	ECOVERING R	RECENT OR NO REC	OVERY
	otal number of significa	nt subsrate types f	e presentCheck ONLY to ound (Max of 8). Final r			HHEI Metric Points
BLDR SLABS [BOULDER (>2: BEDROCK [16 COBBLE (65-2 GRAVEL (2-64 SAND (<2 mm)	56 mm) [16 pts pts] 56 mm) [9 pt mm) [9 pts]	0 0 0 0 0 0	FINE DETRITUS	PAN [0 pts]	0 0 0 80 0 20	Substrate Max = 40
Total of Perce Bldr Slabs, Boulder,		00% (A)	Substrate Percenta Check	ge 100 %	(B)	(A+B)
SCORE OF TWO MOST	PREDOMINATE SUB	STRATE TYPE	3 TOTAL NUME	BER OF SUBSTRAT	E TYPES 2	
	DEPTH (Measure the oid plunge pools from the		epth within the 61 metern water pipes)	er (200 ft)valuation re	each at the time	Pool Depth Max = 30
>>30 centimeters >22.5 - 30 cm [30 >10 - 22.5 cm [25]	pts]		>5 cm - 10 cm <5 cm [5 pts] ✓ No Water or M	n [15 pts] Moist Channel [0 pts]		0
COMMENTS:			MAXIMUM	POOL DEPTH (centi	meters): 0	
) [30 pts] 7" - 13') [25 pts]	s teh average of	3-4 measurements)	(Check ONLY one (>3'3" - 4'8") [15 pts]	box):	Bankfull Width Max = 30
3. BANK FULL W > 4.0 meters (>13') > 3.0 m - 4.0m (>9')) [30 pts] 7" - 13') [25 pts]	s teh average of	3-4 measurements) >1.0 m - 1.5m <=1.0m (<=3'3	(Check ONLY one (>3'3" - 4'8") [15 pts]	box):	Width
3. BANK FULL W > 4.0 meters (>13') > 3.0 m - 4.0m (>9') >1.5 m - 3.0 m(>9')) [30 pts] 7" - 13') [25 pts]		3-4 measurements) >1.0 m - 1.5m <=1.0m (<=3% AVERAGE	(Check ONLY one (>3'3" - 4'8") [15 pts] 3") [5 pts]	box):	Width Max = 30
3. BANK FULL W > 4.0 meters (>13" > 3.0 m - 4.0m (>9" > 1.5 m - 3.0 m(>9" COMMENTS:) [30 pts] 7" - 13') [25 pts]	This information	3-4 measurements) >1.0 m - 1.5m <=1.0m (<=3'3	(Check ONLY one (>3'3" - 4'8") [15 pts] 3") [5 pts] BANKFULL WIDTH	box): (Meters): 0.8	Width Max = 30
3. BANK FULL W > 4.0 meters (>13" > 3.0 m - 4.0m (>9" > 1.5 m - 3.0 m(>9" COMMENTS:) [30 pts] 7" - 13') [25 pts] 7" - 4'8") [20 pts] CONE AND FLOODPL	This information	3-4 measurements) >1.0 m - 1.5m <=1.0m (<=3% AVERAGE on must also be comple NOTE: River left (L)	(Check ONLY one (>3'3" - 4'8") [15 pts] 3") [5 pts] BANKFULL WIDTH	box): (Meters): 0.8	Width Max = 30
3. BANK FULL W > 4.0 meters (>13' > 3.0 m - 4.0m (>9' > 1.5 m - 3.0 m(>9' COMMENTS:) [30 pts] 7" - 13') [25 pts] 7" - 4'8") [20 pts] CONE AND FLOODPL WIDTH k 0 m 2 5-10 m 5 m	This information AIN QUALITY FLOODPLAIN QUALITY L R (Most Predict of Mature Follow) Mature Follow	3-4 measurements) >1.0 m - 1.5m <=1.0m (<=3') AVERAGE On must also be compl NOTE: River left (L) and the complement of the complement	(Check ONLY one (>3'3" - 4'8") [15 pts] ") [5 pts] BANKFULL WIDTH eted and Right (R) as look L R Urban Open	box): (Meters): 0.8	Width Max = 30
3. BANK FULL W > 4.0 meters (>13" >3.0 m - 4.0m (>9" >3.0 m - 3.0 m(>9" COMMENTS: RIPARIAN Z RIPARIAN L R (Per Bani Wide >10 Moderate Narrow < None Comments: FLOW REG) [30 pts] 7" - 13') [25 pts] 7" - 4'8") [20 pts] CONE AND FLOODPL WIDTH k 0 m 2 5-10 m 5 m IME (At time of eval g ow with isolated pools	This information AIN QUALITY FLOODPLAIN QUALITY L R (Most Prediction Mature Formature Residenting Fenced Paration) (Check Office)	3-4 measurements) >1.0 m - 1.5m <=1.0m (<=3') AVERAGE On must also be compl NOTE: River left (L) and the complement of the complement	(Check ONLY one (>3'3" - 4'8") [15 pts] 3") [5 pts] BANKFULL WIDTH eted and Right (R) as look L R	box): (Meters): 0.8 ing downstream ervation Tillage or Industrial Pasture, Row Crop g or Construction no flow (Intermittent)	Width Max = 30
3. BANK FULL W > 4.0 meters (>13" >3.0 m - 4.0m (>9" >3.0 m - 3.0 m(>9" COMMENTS: RIPARIAN Z RIPARIAN Z RIPARIAN L R (Per Bani Wide >10 Moderate Narrow < None Comments: FLOW REGI Steam flowing Subsurface flowments: SINUOSITY None 0.5) [30 pts] 7" - 13') [25 pts] 7" - 4'8") [20 pts] CONE AND FLOODPL WIDTH k 0 m e 5-10 m 5 m IME (At time of eval g ow with isolated pools (Number of bends pe	This information AIN QUALITY FLOODPLAIN QUALITY L R (Most Predict of Mature Formature Residenting Fenced Proceduration) (Check Official of Mature Formature) L R (Most Predict of Mature Formature Residenting Fenced Proceduration) (Check Official of Mature Formature Proceduration) (Check Official of Mature Formature Proceduration) (Check Official of Mature Formature Format	3-4 measurements) >1.0 m - 1.5m <=1.0m (<=3') AVERAGE On must also be compl NOTE: River left (L) and the complement of the complement	(Check ONLY one (>3'3" - 4'8") [15 pts] 3") [5 pts] BANKFULL WIDTH eted and Right (R) as look L R Conse eld Urban Open Mining annel, isolated pools, nel, no water (Epheric	box): (Meters): 0.8 ing downstream ervation Tillage or Industrial Pasture, Row Crop g or Construction no flow (Intermittent)	Width Max = 30

ADDITIONAL STREAM INFORMATION (This information must also be compl	lete
	attach completed QHEI form)
DOWNSTREAM DESIGNATED USE(S)	
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 ENTIRE WATERSHED ARE	EA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name Mooresville East NRCS Soil Map Page	NRCS Soil Map Stream Order:
County: Morgan Township / City:	
MISCELLANEOUS	
Base flow conditions? (Y/N) Date of last precipitation:	Quantity
Photograph information:	
Elevated Turbidity? (Y/N) Canopy (% open): 20	
Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. a	and attach results) Lab number: N/A
Field Measures: Temp (C) Dissolved oxygen (mg/l): pH:	Conductivity (umhos/cm)
Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. No ID number. Include apropriate field data sheets from the Primary	
Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N)	No Voucher? (Y/N) No
Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebr	ates observed? (Y/N) No Voucher? (Y/N) No
Comments Regarding Biology:	

Stream Reach S6S074b



Stream Location on 2013 Aerial Photograph

Stream Location on Mooresville East USGS Quadra

Stream Name: UNT 17 White River Quadrangle: Mooresville East

Flow Regime: Ephemeral Morgan County: Roadside Ditch T13N **Channel Type:** Township: No R2E Legal Drain: Range: IDEM 303(d) Listed: No Section: 34

Predominant Substrate: sand - hardpan Quarter: NE

Evaluation Score: HHEI = 13 **Latitude:** 39.526403 **Use Designation:** Modified Class I PHWH **Longitude:** -86.290853

OHWM width: 2.9 Basin: White River - Sinking Creek

OHWM depth: 0.2 **14-digit HUC:** 05120201140040

USACE Jurisdiction: Yes **Drainage area:** 0.036

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	318	0.022	0.41
Aternative C2	318	0.022	0.41
Aternative C3	318	0.022	0.34
Aternative C4 (Preferred)	318	0.022	0.41



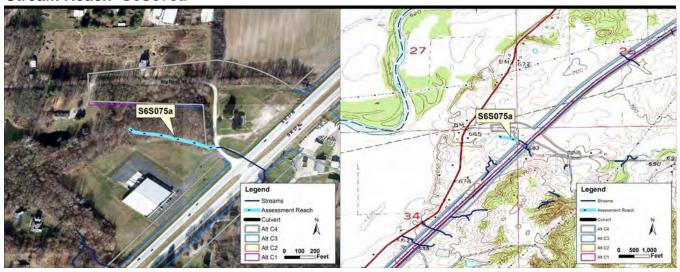




SITE NAME/LOCATION UNT White Riv		
SITE NUMBER	S6S074b RIVER BASIN White River - Sin	ıking Cre DRAINAGE AREA (mi) 0.036
LENGTH OF STEAM REACH (ft)	LAT 39.526403 LONG86.290853 RI	VER CODE N/A RIVER MILE N/A
DATE 9/3/2015 SCORER rh	COMMENT	
NOTE: Complete All Items On This Fo	n - Refer to ""Field Evaluation Manual for Ohio	's PHWH Streams" for Instructions
STREAM CHANNEL NONE / NAT MODIFICATIONS:	RAL CHANNE RECOVERED RECO	OVERING RECENT OR NO RECOVERY
	very type of substrate presentCheck ONLY two ificant subsrate types found (Max of 8). Final met PERCENT TYPE	
BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts] BEDROCK [16 pts] COBBLE (65-256 mm) [9 pt] GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts]	0	0 Substrate 0 pts] 0 Substrate 0 5 pts] 0 Max = 40
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock	0.00% (A) Substrate Percentage Check	10 % (B) (A+B)
SCORE OF TWO MOST PREDOMINATE	UBSTRATE TYPE 6 TOTAL NUMBER	R OF SUBSTRATE TYPES 2
	the maximum pool depth within the 61 meter ((200 fte) valuation reach at the time Pool Deprimar = 30
>>30 centimeters [20 pts] >22.5 - 30 cm [30 pts] >10 - 22.5 cm [25 pts]	>5 cm - 10 cm [1 <5 cm [5 pts] ✓ No Water or Mois	
COMMENTS:	MAXIMUM PO	OL DEPTH (centimeters):
3. BANK FULL WIDTH (Measure > 4.0 meters (>13') [30 pts]	d as teh average of 3-4 measurements) (>1.0 m - 1.5m (>: <=1.0m (<=3'3")	3'3" - 4'8") [15 pts] Width
COMMENTS:	AVERAGE BA	NKFULL WIDTH (Meters): 1
	This information must also be complete	ed
RIPARIAN ZONE AND FLOO	PLAIN QUALITY NOTE: River left (L) and	d Right (R) as looking downstream
<u>RIPARIAN WIDTH</u>	FLOODPLAIN QUALITY	
L R (Per Bank Wide >10 m Moderate 5-10 m Narrow <5 m None Comments:	L R (Most Predominant Per Bank Mature Forest, Wetland Immature Forest, Shrub or Old Field Residential, Park, New Field Fenced Pasture	L R Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction
FLOW REGIME (At time of Steam flowing Subsurface flow with isolated programments:		nel, isolated pools, no flow (Intermittent) I, no water (Ephemeral)
SINUOSITY (Number of bendance	s per 61 m (200 ft) of channel. Check ONLY one b 1.0	(Dox) 3.0 >3.0
Flat (0.5 ft/100 ft) Flat to M	1 L	

ADDITIONAL STREAM INFORMATION (This information must also be completely	ete
	attach completed QHEI form)
DOWNSTREAM DESIGNATED USE(S)	
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 ENTIRE WATERSHED ARE	:A. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name Mooresville East NRCS Soil Map Page	NRCS Soil Map Stream Order:
County: Morgan Township / City: Harrison	
MISCELLANEOUS	
Base flow conditions? (Y/N) Yes Date of last precipitation: 8/15	Quantity .22
Photograph information:	
Elevated Turbidity? (Y/N) Canopy (% open): 100	
Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. a	and attach results) Lab number: N/A
Field Measures: Temp (C) Dissolved oxygen (mg/l): pH:	Conductivity (umhos/cm)
Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Not ID number. Include apropriate field data sheets from the Primary	
Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N)	No Voucher? (Y/N) No
Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebra	ates observed? (Y/N) No Voucher? (Y/N) No
Comments Regarding Biology:	

Stream Reach S6S075a



Stream Location on 2013 Aerial Photograph

Stream Location on Mooresville East USGS Quadra

Stream Name: UNT 18 White River Quadrangle: Mooresville East

Flow Regime: Intermittent County: Morgan Natural T13N **Channel Type:** Township: R2E No Legal Drain: Range: IDEM 303(d) Listed: No Section: 35 Predominant Substrate: cobble - sand Quarter: NE

Evaluation Score:HHEI = 61Latitude:39.529627Use Designation:Class II PHWHLongitude:-86.288099

OHWM width: 3.8 Basin: White River - Sinking Creek

OHWM depth: 0.5 **14-digit HUC:** 05120201140040

USACE Jurisdiction: Yes **Drainage area:** 0.029

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	39	0.003	0.05
Aternative C2	39	0.003	0.05
Aternative C3	39	0.003	0.05
Aternative C4 (Preferred)	39	0.003	0.05



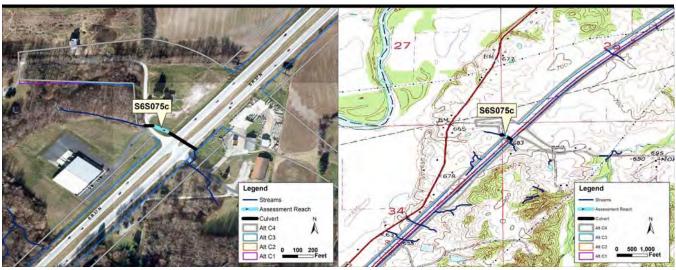




SITE NAME/LOCATION	UNT White River				
	SITE NUMBER S6S075	a RIVER BA	SIN White River - Sinking Cre	DRAINAGE AREA (mi)	0.029
LENGTH OF STEAM REA	ACH (ft) LAT	39.529627 LO	NG86.288099 RIVER CODE	E N/A RIVER MILE N	N/A
DATE 1/26/2016 S	CORER rh	COMMENT			
NOTE: Complete All Ite	ems On This Form - Refe	er to ""Field Evalua	tion Manual for Ohio's PHWH S	Streams" for Instructions	
STREAM CHANNEL MODIFICATIONS:	☐ NONE / NATURAL C	HANNE REC	OVERED RECOVERING	RECENT OR NO REC	OVERY
		ubsrate types found	sentCheck ONLY two predomina (Max of 8). Final metric score is		HHEI Metric Points
BLDR SLABS [BOULDER (>26 BEDROCK [16 COBBLE (65-26 GRAVEL (2-64 SAND (<2 mm)	56 mm) [16 pts 0 pts] 0 56 mm) [9 pt 40 mm) [9 pts] 0		SILT [3 pt] LEAF PACK/WOODY DEBRIS FINE DETRITUS [3 pts] CLAY or HARDPAN [0 pts] MUCK [0 pts] ARTIFICIAL [3 pts]	0 0 0 0 20 0	Substrate Max = 40
Total of Percer Bldr Slabs, Boulder, 0		9% (A)	Substrate Percentage Check 100 %	(B)	(A+B)
SCORE OF TWO MOST	PREDOMINATE SUBSTR	RATE TYPE 18	TOTAL NUMBER OF SUB	STRATE TYPES 3	
	DEPTH (Measure the ma		within the 61 meter (200 ft) value vater pipes)	uation reach at the time	Pool Depth Max = 30
>>30 centimeters >22.5 - 30 cm [30 p >10 - 22.5 cm [25 p	ots]		>5 cm - 10 cm [15 pts] <5 cm [5 pts] No Water or Moist Channel	[0 pts]	25
COMMENTS:			MAXIMUM POOL DEPTH	H (centimeters):	
	[30 pts] 7" - 13') [25 pts]	h average of 3-4	MAXIMUM POOL DEPTH measurements) (Check ONI ✓ >1.0 m - 1.5m (>3'3" - 4'8") <=1.0m (<=3'3") [5 pts]	LY one box):	Bankfull Width Max = 30
3. BANK FULL WI > 4.0 meters (>13') >3.0 m - 4.0m (>9'7	[30 pts] 7" - 13') [25 pts]	h average of 3-4	measurements) (Check ONI >1.0 m - 1.5m (>3'3" - 4'8")	LY one box): [15 pts]	Width
3. BANK FULL W > 4.0 meters (>13') > 3.0 m - 4.0m (>9'7 > 1.5 m - 3.0 m(>9'7	[30 pts] 7" - 13') [25 pts] 7" - 4'8") [20 pts]		measurements) (Check ONI ✓ >1.0 m - 1.5m (>3'3" - 4'8") <=1.0m (<=3'3") [5 pts]	LY one box): [15 pts]	Width Max = 30
3. BANK FULL W > 4.0 meters (>13') > 3.0 m - 4.0m (>9'7 > 1.5 m - 3.0 m(>9'7	[30 pts] 7" - 13') [25 pts] 7" - 4'8") [20 pts]	This information m	measurements) (Check ONI ✓ >1.0 m - 1.5m (>3'3" - 4'8") <=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL V	LY one box): [15 pts] WIDTH (Meters):	Width Max = 30
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3. BANK FULL WI > 4.0 meters (>13') >3.0 m - 4.0m (>9'7) >1.5 m - 3.0 m(>9'7) COMMENTS: RIPARIAN ZO RIPARIAN ZO RIPARIAN L R (Per Bank W Wide >10 Moderate Narrow <5 None Comments: FLOW REGII Steam flowing	[30 pts] 7" - 13') [25 pts] 7" - 4'8") [20 pts] ONE AND FLOODPLAIN WIDTH 5 m 5-10 m 5 m	This information m QUALITY N OODPLAIN QUALITY R (Most Predomin Mature Forest Immature Forest Residential, Paragraphy Fenced Pasture On) (Check ONLY of	measurements) (Check ONI >1.0 m - 1.5m (>3'3" - 4'8") <=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL V ust also be completed OTE: River left (L) and Right (R) TY nant Per Bank Wetland est, Shrub or Old Field ark, New Field re one box):	LY one box): [15 pts] WIDTH (Meters): O as looking downstream Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction	Width Max = 30
3. BANK FULL WI > 4.0 meters (>13') >3.0 m - 4.0m (>9'7) >1.5 m - 3.0 m(>9'7) COMMENTS: RIPARIAN ZO RIPARIAN ZO RIPARIAN L R (Per Bank W Wide >10 Moderate Narrow <5 None Comments: FLOW REGII Steam flowing Subsurface flo Comments: SINUOSITY None 0.5	[30 pts] 7" - 13') [25 pts] 7" - 4'8") [20 pts] ONE AND FLOODPLAIN WIDTH 5-10 m 5-m ME (At time of evaluation of the content	This information m QUALITY N OODPLAIN QUALI R (Most Predomin Mature Forest Immature Fore Residential, Pa Fenced Pastur on) (Check ONLY of	measurements) (Check ONI >1.0 m - 1.5m (>3'3" - 4'8")	LY one box): [15 pts] WIDTH (Meters): O as looking downstream Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction d pools, no flow (Intermittent) (Ephemeral) 3.0 >3.0 >3.0	Width Max = 30

ADDITIONAL STREAM INFORMATION (This information must also be complete QHEI PERFORMED	
WWH Name: CWH Name: EWH Name: Distance from Evaluate Distance fro	n)
WWH Name:	
□ CWH Name: □ Distance from Evaluate WAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SI USGS Quadrangle Name Mooresville East NRCS Soil Map Page NRCS Soil Map County: Morgan Township / City: Harrison MISCELLANEOUS Base flow conditions? (Y/N) Yes Date of last precipitation: 1/26 Quantity 0 Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 40 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach results) Lab nur Field Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conductivity (umhos is the sampling reach representative of the stream? (Y/N) Yes If not, please explain: Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be sampled.	d Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SI USGS Quadrangle Name Mooresville East NRCS Soil Map Page NRCS Soil Map County: Morgan Township / City: Harrison MISCELLANEOUS Base flow conditions? (Y/N) Yes Date of last precipitation: 1/26 Quantity 0 Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 40 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach results) Lab nur Field Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conductivity (umhos Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain: Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be	d Stream
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MISCELLANEOUS Base flow conditions? (Y/N) Yes Date of last precipitation: 1/26 Quantity 0 Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 40 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach results) Lab nur Field Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conductivity (umhos ls the sampling reach representative of the stream? (Y/N) Yes If not, please explain: Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be a sample of the samp	Stream Order:
Base flow conditions? (Y/N) Yes Date of last precipitation: 1/26 Quantity 0 Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 40 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach results) Lab nur Field Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conductivity (umhos Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain: Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be sampled.	
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Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach results) Lab nur Field Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conductivity (umhos Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain: Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be a sample no. or id. and attach results) Lab nur results in the sample no. or id. and attach results) Lab nur results in the sample no. or id. and attach results) Lab nur results in the sample no. or id. and attach results) Lab nur results in the sample no. or id. and attach results) Lab nur results in the sample no. or id. and attach results) Lab nur results in the sample no. or id. and attach results) Lab nur results in the sample no. or id. and attach results) Lab nur results in the sample no. or id. and attach results) Lab nur results in the sample no. or id. and attach results) Lab nur results in the sample no. or id. and attach results) Lab nur results in the sample no. or id. and attach results) Lab nur results in the sample no. or id. and attach results) Lab nur results in the sample no. or id. and attach results) Lab nur results in the sample no. or id. and attach results) Lab nur results in the sample no. or id. and attach results) Lab nur results in the sample no. or id. and attach results) Lab nur results in the sample no. or id. and attach results) Lab nur results in the sample no. or id. and attach results in the sample no. or id. and attach results in the sample no. or id. and attach results in the sample no. or id. and attach results in the sample no. or id. and attach results in the sample no. or id. and attach results in the sample no. or id. and attach results in the sample no. or id. and attach results in the sample no. or id. and attach results in the sample no. or id. and attach results in the sample no. or id. and attach results in the	
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Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be a supplementation of pollution impacts:	
BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be	
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be	
Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N)	No
Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrates observed? (Y/N) N	o Voucher? (Y/N) N
Comments Regarding Biology:	

Stream Reach S6S075c



Stream Location on 2013 Aerial Photograph

Stream Location on Mooresville East USGS Quadra

Stream Name: UNT 18 White River Quadrangle: Mooresville East

Flow Regime:IntermittentCounty:MorganChannel Type:Channelized DitchTownship:T13N

Legal Drain:NoRange:R2EIDEM 303(d) Listed:NoSection:35Predominant Substrate:muck - hardpanQuarter:NW

Evaluation Score: HHEI = 32 **Latitude:** 39.529573 **Use Designation:** Class II PHWH **Longitude:** -86.287757

OHWM width: 2.3 Basin: White River - Sinking Creek

OHWM depth: 0.3 **14-digit HUC:** 05120201140040

USACE Jurisdiction: Yes **Drainage area:** 0.019

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	84	0.004	0.00
Aternative C2	84	0.004	0.00
Aternative C3	84	0.004	0.00
Aternative C4 (Preferred)	84	0.004	0.00





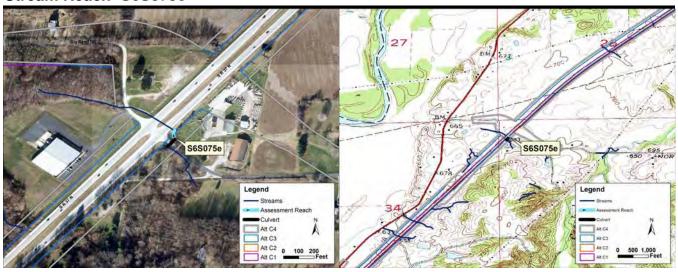


22	
32	

SITE NAME/LOCATION UNT White Rive	r			
SITE NUMBER	S6S075c RIVER BA	SIN White River - Sinking Cre	DRAINAGE AREA (mi)	0.019
LENGTH OF STEAM REACH (ft)	LAT 39.529573 LO	NG86.287757 RIVER CODE	N/A RIVER MILE	N/A
DATE 1/26/2016 SCORER rh	COMMENT			
NOTE: Complete All Items On This Form	n - Refer to ""Field Evalua	tion Manual for Ohio's PHWH S	treams" for Instructions	
STREAM CHANNEL NONE / NATUMODIFICATIONS:	RAL CHANNE REC	OVERED RECOVERING	▼ RECENT OR NO REC	OVERY
1. SUBSTRATE (Estimate percent of e (Max of 32). Add total number of sign TYPE BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts] BEDROCK [16 pts] COBBLE (65-256 mm) [9 pt] GRAVEL (2-64 mm) [9 pts]			sum of boxes A and B.) PERCENT 0	HHEI Metric Points Substrate Max = 40
SAND (<2 mm) [6 pts]		ARTIFICIAL [3 pts]	0	2
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock	0.00% (A)	Substrate Percentage Check 100 %	(B)	(A+B)
SCORE OF TWO MOST PREDOMINATE S	SUBSTRATE TYPE 0	TOTAL NUMBER OF SUBS	STRATE TYPES 2	
2. MAXIMUM POOL DEPTH (Measure of evaluation. Avoid plunge pools fr			ation reach at the time	Pool Depth Max = 30
>>30 centimeters [20 pts] >22.5 - 30 cm [30 pts] >10 - 22.5 cm [25 pts]		>5 cm - 10 cm [15 pts] <5 cm [5 pts] No Water or Moist Channel	[0 pts]	25
COMMENTS.				
COMMENTS:		MAXIMUM POOL DEPTH	(centimeters): 10	
3. BANK FULL WIDTH (Measured > 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts]		_	Y one box):	Bankfull Width Max = 30
3. BANK FULL WIDTH (Measured > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts]		measurements) (Check ONL >1.0 m - 1.5m (>3'3" - 4'8")	Y one box): 15 pts]	Width
3. BANK FULL WIDTH (Measured > 4.0 meters (>13') [30 pts]		measurements) (Check ONL >1.0 m - 1.5m (>3'3" - 4'8") ✓ <=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL V	Y one box): 15 pts]	Width Max = 30
3. BANK FULL WIDTH (Measured > 4.0 meters (>13') [30 pts]	This information m	measurements) (Check ONL >1.0 m - 1.5m (>3'3" - 4'8") ✓ <=1.0m (<=3'3") [5 pts]	Y one box): 15 pts] //DTH (Meters): 0.7	Width Max = 30
3. BANK FULL WIDTH (Measured > 4.0 meters (>13') [30 pts]	This information m	measurements) (Check ONL >1.0 m - 1.5m (>3'3" - 4'8") <=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL V sust also be completed IOTE: River left (L) and Right (R)	Y one box): 15 pts] //DTH (Meters): 0.7	Width Max = 30
3. BANK FULL WIDTH (Measured > 4.0 meters (>13') [30 pts]	This information moderation moderation of the process of the proce	measurements) (Check ONL >1.0 m - 1.5m (>3'3" - 4'8") <=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL V Lust also be completed IOTE: River left (L) and Right (R) and Righ	Y one box): 15 pts] //DTH (Meters): 0.7	Width Max = 30
3. BANK FULL WIDTH (Measured > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts] > 1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: RIPARIAN ZONE AND FLOOD RIPARIAN WIDTH L R (Per Bank Wide >10 m Moderate 5-10 m Narrow <5 m None Comments:	This information model in the property of the	measurements) (Check ONL >1.0 m - 1.5m (>3'3" - 4'8") <=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL V Lust also be completed IOTE: River left (L) and Right (R) (TY) nant Per Bank Wetland est, Shrub or Old Field ark, New Field re Done box):	AY one box): 15 pts] //IDTH (Meters): 0.7 as looking downstream Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction pools, no flow (Intermittent)	Width Max = 30
3. BANK FULL WIDTH (Measured > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts] > 1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: RIPARIAN ZONE AND FLOOD RIPARIAN WIDTH L R (Per Bank Wide >10 m Moderate 5-10 m Narrow <5 m None Comments: FLOW REGIME (At time of the Steam flowing Subsurface flow with isolated points)	This information model of the process of the proces	measurements) (Check ONL >1.0 m - 1.5m (>3'3" - 4'8") <=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL V Lust also be completed IOTE: River left (L) and Right (R) and Rig	AY one box): 15 pts] //IDTH (Meters): 0.7 as looking downstream Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction pools, no flow (Intermittent) Ephemeral)	Width Max = 30

QHEI PERFORMED Yes ✓ No QHEI Score: 0 (If yes, attach completed QHEI form) DOWNSTREAM DESIGNATED USE(S) WWH Name: Distance from Evaluated Stream CWH Name: Distance from Evaluated Stream BEWH Name: Distance from Evaluated Stream MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION USGS Quadrangle Name Mooresville East NRCS Soil Map Page NRCS Soil Map Stream Order: County: Morgan Township / City: Harrison MISCELLANEOUS Base flow conditions? (Y/N) Yes Date of last precipitation: 10/26 Quantity 0.01 Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 100 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach results) Lab number: N/A Field Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conductivity (umhos/cm) Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:

Stream Reach S6S075e



Stream Location on 2013 Aerial Photograph

Stream Location on Mooresville East USGS Quadra

Stream Name: UNT 18 White River Quadrangle: Mooresville East

Flow Regime:IntermittentCounty:MorganChannel Type:Roadside DitchTownship:T13NLegal Drain:NoRange:R2E

IDEM 303(d) Listed:NoSection:35Predominant Substrate:sand - hardpanQuarter:NW

Evaluation Score:HHEI = 18Latitude:39.529135Use Designation:Class I PHWHLongitude:-86.287141

OHWM width: 1.6 Basin: White River - Sinking Creek

OHWM depth: 0.3 **14-digit HUC:** 05120201140040

USACE Jurisdiction: Yes Drainage area: 0.001

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	61	0.002	0.00
Aternative C2	61	0.002	0.00
Aternative C3	27	0.001	0.00
Aternative C4 (Preferred)	61	0.002	0.00



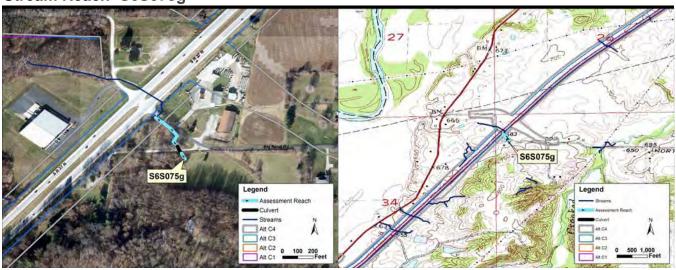




SITE NAME/LOCATION	UNT White River				
	SITE NUMBER S6S075e	RIVER BASIN White	River - Sinking Cre DRAII	NAGE AREA (mi)	0.001
LENGTH OF STEAM RE	EACH (ft) LAT 3	9.529135 LONG86.2	87141 RIVER CODE N/A	RIVER MILE I	N/A
DATE 4/26/2016	SCORER rh	COMMENT			
NOTE: Complete All It	tems On This Form - Refer to	"Field Evaluation Manua	l for Ohio's PHWH Stream	s" for Instructions	
STREAM CHANNEL MODIFICATIONS:	NONE / NATURAL CHANN	IE RECOVERED	☐ RECOVERING ✓	RECENT OR NO REC	OVERY
	imate percent of every type of otal number of significant subsra PERCENT				HHEI Metric
BLDR SLABS	[16 pts] 0	SILT [3 p		0	Points
		FINE DE	CK/WOODY DEBRIS [3 pts TRITUS [3 pts]	0	Substrate Max = 40
COBBLE (65-2 GRAVEL (2-64 SAND (<2 mm)	4 mm) [9 pts]0		HARDPAN [0 pts] pts] IAL [3 pts]		8
Total of Perce Bldr Slabs, Boulder,		(A) Substrate Check	Percentage 100 %	(B)	(A+B)
SCORE OF TWO MOST	PREDOMINATE SUBSTRATE	түре 6 тота	L NUMBER OF SUBSTRAT	TE TYPES 2	
	DEPTH (Measure the maximu oid plunge pools from road culv		61 meter (200 ft) valuation	reach at the time	Pool Depth Max = 30
>>30 centimeters >22.5 - 30 cm [30 >10 - 22.5 cm [25	pts]	⊻ <5 cm	- 10 cm [15 pts] [5 pts] ater or Moist Channel [0 pts]		5
COMMENTS:		MAX	KIMUM POOL DEPTH (cen	timeters): 3	
	'7" - 13') [25 pts]	erage of 3-4 measurer	,	box):	Bankfull Width Max = 30
3. BANK FULL W > 4.0 meters (>13' > 3.0 m - 4.0m (>9'	') [30 pts] '7" - 13') [25 pts]	erage of 3-4 measurer >1.0 n	nents) (Check ONLY one n - 1.5m (>3'3" - 4'8") [15 pts	e box):	Width
3. BANK FULL W > 4.0 meters (>13' > 3.0 m - 4.0m (>9' > 1.5 m - 3.0 m(>9'	') [30 pts] '7" - 13') [25 pts] '7" - 4'8") [20 pts]	erage of 3-4 measurer >1.0 n <=1.01 AVE	nents) (Check ONLY one n - 1.5m (>3'3" - 4'8") [15 pts n (<=3'3") [5 pts]	e box):	Width Max = 30
3. BANK FULL W > 4.0 meters (>13' > 3.0 m - 4.0m (>9' > 1.5 m - 3.0 m(>9') COMMENTS:	') [30 pts] '7" - 13') [25 pts] '7" - 4'8") [20 pts]	erage of 3-4 measurer >1.0 n <=1.01 AVE	nents) (Check ONLY one n - 1.5m (>3'3" - 4'8") [15 pts n (<=3'3") [5 pts]	e box): (Meters): 0.5	Width Max = 30
3. BANK FULL W > 4.0 meters (>13' > 3.0 m - 4.0m (>9' > 1.5 m - 3.0 m(>9') COMMENTS:	') [30 pts] '7" - 13') [25 pts] '7" - 4'8") [20 pts] This	erage of 3-4 measurer >1.0 n <=1.01 AVE	nents) (Check ONLY one n - 1.5m (>3'3" - 4'8") [15 pts n (<=3'3") [5 pts] RAGE BANKFULL WIDTH	e box): (Meters): 0.5	Width Max = 30
3. BANK FULL W > 4.0 meters (>13' >3.0 m - 4.0m (>9' >1.5 m - 3.0 m(>9' COMMENTS:	This: You have been depicted by the content of t	erage of 3-4 measurer >1.0 n <=1.0i AVE information must also be LITY NOTE: River	nents) (Check ONLY one n - 1.5m (>3'3" - 4'8") [15 pts n (<=3'3") [5 pts] ERAGE BANKFULL WIDTH Completed left (L) and Right (R) as loo nk	e box): (Meters): 0.5	Width Max = 30
3. BANK FULL W > 4.0 meters (>13' > 3.0 m - 4.0m (>9' > 1.5 m - 3.0 m(>9' COMMENTS: RIPARIAN Z RIPARIAN Z RIPARIAN V Wide > 10 Moderate V V Narrow < None Comments: FLOW REG Steam flowing	This ZONE AND FLOODPLAIN QUA WIDTH bk 0 m e 5-10 m 55 m EMME (At time of evaluation) glow with isolated pools (interstiti	erage of 3-4 measurer >1.0 n <=1.0i AVE Information must also be LITY NOTE: River PLAIN QUALITY Most Predominant Per Ba Mature Forest, Wetland Immature Forest, Shrub o Residential, Park, New Fie Fenced Pasture Check ONLY one box):	nents) (Check ONLY one n - 1.5m (>3'3" - 4'8") [15 pts n (<=3'3") [5 pts] ERAGE BANKFULL WIDTH Completed left (L) and Right (R) as loo nk	e box): (Meters): 0.5 king downstream ervation Tillage n or Industrial n Pasture, Row Crop g or Construction , no flow (Intermittent)	Width Max = 30
3. BANK FULL W > 4.0 meters (>13' > 3.0 m - 4.0m (>9' > 1.5 m - 3.0 m(>9' COMMENTS: RIPARIAN Z RIPARIAN Z RIPARIAN L R (Per Ban Wide > 10 Moderate V Narrow < None Comments: FLOW REG Steam flowing Subsurface fl Comments: SINUOSITY None 0.5	This ZONE AND FLOODPLAIN QUA WIDTH bk 0 m e 5-10 m 55 m EMME (At time of evaluation) glow with isolated pools (interstiti	erage of 3-4 measurer >1.0 n <=1.01 AVE information must also be LITY NOTE: River PLAIN QUALITY (Most Predominant Per Ba Mature Forest, Wetland Immature Forest, Shrub o Residential, Park, New Fie Fenced Pasture (Check ONLY one box):	nents) (Check ONLY one in - 1.5m (>3'3" - 4'8") [15 pts in (<=3'3") [5 pts] ERAGE BANKFULL WIDTH Completed left (L) and Right (R) as look in it is a completed left (L) and Right (R) as look in it is a completed left (L) and Right (R) as look in it is a completed left (L) and Right (R) as look in it is a completed left (L) and Right (R) as look in it is a completed left (R) as look in it is a complete left (R) as	e box): (Meters): 0.5 king downstream ervation Tillage n or Industrial n Pasture, Row Crop g or Construction , no flow (Intermittent)	Width Max = 30

CWH Name: EWH Name: Distance MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARL USGS Quadrangle Name Mooresville East NRCS Soil Map Page N County: Morgan Township / City: Harrison MISCELLANEOUS Base flow conditions? (Y/N) Yes Date of last precipitation: 1/26 O Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 100 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach refield Measures: Temp (C) Dissolved oxygen (mg/l): pH: Cond	from Evaluated Stream from Evaluated Stream from Evaluated Stream
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□ WWH Name: Distance □ CWH Name: Distance ■ EWH Name: Distance ■ MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARL USGS Quadrangle Name Mooresville East NRCS Soil Map Page N County: Morgan Township / City: Harrison MISCELLANEOUS Base flow conditions? (Y/N) Yes Date of last precipitation: 1/26 Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 100 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach refield Measures: Temp (C) Dissolved oxygen (mg/l): pH: Cond	from Evaluated Stream from Evaluated Stream Y MARK THE SITE LOCATION RCS Soil Map Stream Order:
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USGS Quadrangle Name Mooresville East NRCS Soil Map Page Note County: Morgan Township / City: Harrison MISCELLANEOUS Base flow conditions? (Y/N) Yes Date of last precipitation: 1/26 Control of the condition of the conditio	IRCS Soil Map Stream Order:
County: Morgan Township / City: Harrison MISCELLANEOUS Base flow conditions? (Y/N) Yes Date of last precipitation: 1/26 C Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 100 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach refield Measures: Temp (C) Dissolved oxygen (mg/l): pH: Cond	·
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Base flow conditions? (Y/N) Yes Date of last precipitation: 1/26 Conditions Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 100 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach refield Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conditions	Quantity
Base flow conditions? (Y/N) Yes Date of last precipitation: 1/26 Conditions Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 100 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach refield Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conditions	Quantity
Elevated Turbidity? (Y/N) Canopy (% open): 100	
Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach refield Measures: Temp (C) Dissolved oxygen (mg/l): pH: Cond	
Field Measures: Temp (C) Dissolved oxygen (mg/l): pH: Cond	
	esults) Lab number: N/A
	uctivity (umhos/cm)
Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher ID number. Include apropriate field data sheets from the Primary Headwater H	
Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y	oucher? (Y/N) No
Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrates observ	ed? (Y/N) No Voucher? (Y/N) N
Comments Regarding Biology:	

Stream Reach S6S075g



Stream Location on 2013 Aerial Photograph

Stream Location on Mooresville East USGS Quadra

Stream Name: UNT 18 White River Quadrangle: Mooresville East

Flow Regime: Ephemeral County: Morgan Natural T13N **Channel Type:** Township: R2E No Legal Drain: Range: IDEM 303(d) Listed: No Section: 35 Predominant Substrate: hardpan Quarter: NW

Evaluation Score:HHEI = 6Latitude:39.528893Use Designation:Class I PHWHLongitude:-86.287185

OHWM width: 2.0 Basin: White River - Sinking Creek

OHWM depth: 0.5 **14-digit HUC:** 05120201140040

USACE Jurisdiction: Yes Drainage area: 0.001

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	45	0.002	0.11
Aternative C2	45	0.002	0.11
Aternative C3	0	0.000	0.00
Aternative C4 (Preferred)	45	0.002	0.11



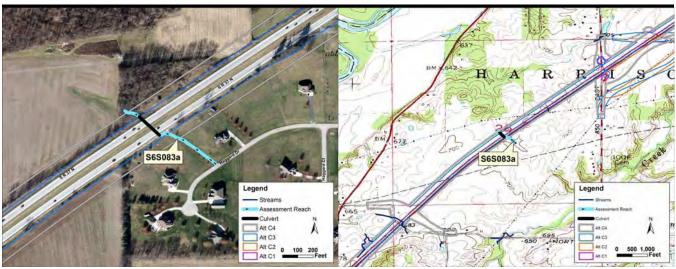




SITE NAME/LOCATION	UNT White River				
S	SITE NUMBER S6S075g	RIVER BASIN	White River - Sinking Cre	DRAINAGE AREA (mi)	0.001
LENGTH OF STEAM REAC	CH (ft) LAT 39	9.528893 LONG.	-86.287185 RIVER CODE	E N/A RIVER MILE	N/A
DATE 10/21/2015 SC	ORER rh C	COMMENT			
NOTE: Complete All Iten	ns On This Form - Refer to "	"Field Evaluation	Manual for Ohio's PHWH S	Streams" for Instructions	
STREAM CHANNEL MODIFICATIONS:	NONE / NATURAL CHANN	IE RECOVE	RED RECOVERING	RECENT OR NO REC	COVERY
		ite types found (Ma:		PERCENT 0	HHEI Metric Points
BEDROCK [16 pt COBBLE (65-256 GRAVEL (2-64 m SAND (<2 mm) [6	ts] 0 6 mm) [9 pt 0 nm) [9 pts] 0	V V CL	NE DETRITUS [3 pts] LAY or HARDPAN [0 pts] UCK [0 pts] RTIFICIAL [3 pts]	0 100 0 0	Max = 40
Total of Percenta Bldr Slabs, Boulder, Co		(A)	Substrate Percentage 100 %	(B)	(A+B)
SCORE OF TWO MOST PR	REDOMINATE SUBSTRATE	TYPE 0	TOTAL NUMBER OF SUB	STRATE TYPES 1	
	EPTH (Measure the maximu d plunge pools from road culve 0 pts]	erts or storm water		uation reach at the time	Pool Dept Max = 30
>22.5 - 30 cm [30 pts >10 - 22.5 cm [25 pts	s]		<5 cm [5 pts] No Water or Moist Channel	[0 pts]	0
COMMENTS:			MAXIMUM POOL DEPTH	H (centimeters): 0	
3. BANK FULL WID > 4.0 meters (>13') [3 >3.0 m - 4.0m (>9'7" >1.5 m - 3.0 m(>9'7"	- 13') [25 pts]		>1.0 m - 1.5m (>3'3" - 4'8") <=1.0m (<=3'3") [5 pts]		Bankfull Width Max = 30
COMMENTS:			AVERAGE BANKFULL V	NIDTH (Meters):	5
	This i	nformation must a	lso be completed		
RIPARIAN ZO	NE AND FLOODPLAIN QUAI	LITY NOTE	: River left (L) and Right (R)	as looking downstream	
<u>RIPARIAN W</u>	<u>IDTH</u> <u>FLOOD</u>	PLAIN QUALITY			
L R (Per Bank Wide >10 m Moderate 5 Narrow <5 r None Comments:	n -10 m m	Most Predominant I Mature Forest, Wet Immature Forest, S Residential, Park, N Fenced Pasture	land	Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction	
FLOW REGIM Steam flowing Subsurface flow Comments:	E (At time of evaluation) (V) with isolated pools (interstitian			d pools, no flow (Intermittent) (Ephemeral))
✓ None ✓ 0.5	Number of bends per 61 m (20 1.0 1.5 NDIENT ESTIMATE	00 ft) of channel. C	check ONLY one box) 2.0 2.5	3.0 >3.0	
Flat (0.5 ft/100 ft)	Flat to Moderate	Moderate (2 ft/10	0 ft) Moderate to Se	vere Severe (10 ft /1	00 ft)

OHEI PERFORMED	ADDITIONAL STREAM INFORMATION (This information must also be comple	te
WWH Name: Distance from Evaluated Stream		
CWH Name: Distance from Evaluated Stream	DOWNSTREAM DESIGNATED USE(S)	
CWH Name: EWH Name: Distance from Evaluated Stream MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION USGS Quadrangle Name Mooresville East NRCS Soil Map Page NRCS Soil Map Stream Order: County: Morgan Township / City: Harrison MISCELLANEOUS Base flow conditions? (Y/N) Date of last precipitation: 10/12 Quantity Quantity Quantity Quantity No (Note lab sample no. or id. and attach results) Lab number: N/A Field Measures: Temp (C) Dissolved oxygen (mg/l): Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain: BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrates observed? (Y/N) No Voucher? (Y/N) No Voucher	WWH Name:	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION USGS Quadrangle Name Mooresville East NRCS Soil Map Page NRCS Soil Map Stream Order: County: Morgan Township / City: Harrison MISCELLANEOUS Base flow conditions? (Y/N) Date of last precipitation: 10/12 Quantity 0.02 Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 20 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach results) Lab number: N/A Field Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conductivity (umhos/cm) Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain: Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N) No Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrates observed? (Y/N) No Voucher? (Y/N) No Noucher? (Y/N)		Distance from Evaluated Stream
USGS Quadrangle Name Mooresville East NRCS Soil Map Page NRCS Soil Map Stream Order: Township / City: Harrison MISCELLANEOUS Base flow conditions? (Y/N) Date of last precipitation: 10/12 Quantity 0.02 Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 20 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach results) Lab number: N/A Field Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conductivity (umhos/cm) Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain: Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N) No Voucher? (Y/N) No No Voucher? (Y/N) No Voucher? (EWH Name:	Distance from Evaluated Stream
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MISCELLANEOUS Base flow conditions? (Y/N) Date of last precipitation: 10/12 Quantity 0.02 Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 20 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach results) Lab number: N/A Field Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conductivity (umhos/cm) Is the sampling reach representative of the stream? (Y/N) If not, please explain: Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No	USGS Quadrangle Name Mooresville East NRCS Soil Map Page	NRCS Soil Map Stream Order:
Base flow conditions? (Y/N) Date of last precipitation: 10/12 Quantity 0.02	County: Morgan Township / City: Harrison	
Photograph information: Elevated Turbidity? (Y/N)	MISCELLANEOUS	
Elevated Turbidity? (Y/N) Canopy (% open): 20	Base flow conditions? (Y/N) Date of last precipitation: 10/12	Quantity 0.02
Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach results) Lab number: N/A Field Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conductivity (umhos/cm) Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain: Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N) No Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrates observed? (Y/N) No Voucher? (Y/N) No Voucher? (Y/N) No No Voucher? (Y/N) No Voucher	Photograph information:	
Field Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conductivity (umhos/cm) Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain: Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N) No Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrates observed? (Y/N) No Voucher? (Y/N) No No Voucher? (Y/N) No No Voucher? (Y/N) No	Elevated Turbidity? (Y/N) Canopy (% open): 20	
Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain: Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N) No Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrates observed? (Y/N) No Voucher?	Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. an	nd attach results) Lab number: N/A
Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N) No	Field Measures: Temp (C) Dissolved oxygen (mg/l): pH:	Conductivity (umhos/cm)
BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N) No	Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:	
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N) No Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrates observed? (Y/N) No Voucher?	Additional comments/description of pollution impacts:	
ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N) No Voucher? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrates observed? (Y/N) No Voucher? (Y/N) No Vouch	BIOTIC EVALUATION	
Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrates observed? (Y/N) No Voucher? (Y/N) No No Voucher? (
	Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N)	No Voucher? (Y/N) No
Comments Regarding Biology:	Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrat	es observed? (Y/N) No Voucher? (Y/N) N
	Comments Regarding Biology:	

Stream Reach S6S083a



Stream Location on 2013 Aerial Photograph

Stream Location on Mooresville East USGS Quadra

Stream Name: UNT 20 White River Quadrangle: Mooresville East

Flow Regime: Perennial County: Morgan

Channel Type:Channelized DitchTownship:T13NLegal Drain:NoRange:R2EIDEM 303(d) Listed:NoSection:26

Predominant Substrate: muck - siltQuarter:SEEvaluation Score:HHEI = 35Latitude:39.537016

Use Designation: Rheocrene Potential Longitude: -86.278226

OHWM width: 2.8 Basin: White River - Sinking Creek

OHWM depth: 0.5 **14-digit HUC:** 05120201140040

USACE Jurisdiction: Yes Drainage area: 0.036

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	181	0.011	0.26
Aternative C2	181	0.011	0.26
Aternative C3	43	0.003	0.00
Aternative C4 (Preferred)	181	0.011	0.26



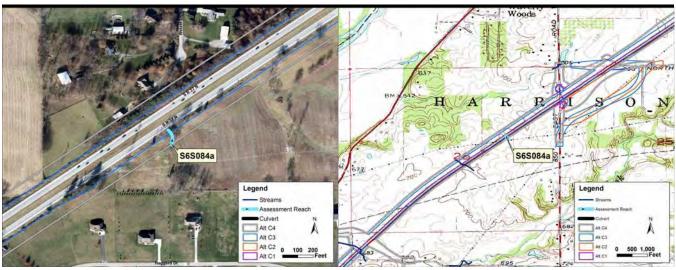




SITE NAME/LOCATION UNT White Rive	er			
SITE NUMBER	S6S083a RIVER BASIN \	White River - Sinking Cre DRA	INAGE AREA (mi)	0.036
LENGTH OF STEAM REACH (ft)		-86.278226 RIVER CODE N/		N/A
DATE 10/21/2015 SCORER rh	COMMENT			
NOTE: Complete All Items On This For	m - Refer to ""Field Evaluation N	Manual for Ohio's PHWH Strea	ms" for Instructions	
STREAM CHANNEL NONE / NAT MODIFICATIONS:	_		RECENT OR NO RECO	OVERY
SUBSTRATE (Estimate percent of (Max of 32). Add total number of sig	nificant subsrate types found (Max		of boxes A and B.)	HHEI Metric
TYPE BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts] BEDROCK [16 pts] COBBLE (65-256 mm) [9 pt] GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts]	0 V SIL 0 LE/ 0 FIN 0 CL/ 0 MU	.T [3 pt] AF PACK/WOODY DEBRIS [3 p IE DETRITUS [3 pts] AY or HARDPAN [0 pts] ICK [0 pts] TIFICIAL [3 pts]	PERCENT 30 0 0 70 0	Substrate Max = 40
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock	Su	ubstrate Percentage neck 100 %	(B)	(A+B)
SCORE OF TWO MOST PREDOMINATE	SUBSTRATE TYPE 3	TOTAL NUMBER OF SUBSTRA	ATE TYPES 2	
2. MAXIMUM POOL DEPTH (Measur of evaluation. Avoid plunge pools f			n reach at the time	Pool Dep Max = 30
>>30 centimeters [20 pts] >22.5 - 30 cm [30 pts] >10 - 22.5 cm [25 pts]		-5 cm - 10 cm [15 pts] -5 cm [5 pts] No Water or Moist Channel [0 pt	s]	25
COMMENTS:		MAXIMUM POOL DEPTH (ce	ntimeters): 0	
3. BANK FULL WIDTH (Measure > 4.0 meters (>13') [30 pts]		surements) (Check ONLY or >1.0 m - 1.5m (>3'3" - 4'8") [15 p <=1.0m (<=3'3") [5 pts]		Bankful Width Max = 30
COMMENTS:		AVERAGE BANKFULL WIDT	H (Meters):	5
	This information must al	so be completed		
RIPARIAN ZONE AND FLOO	DPLAIN QUALITY NOTE:	River left (L) and Right (R) as lo	oking downstream	
<u>RIPARIAN WIDTH</u>	FLOODPLAIN QUALITY			
L R (Per Bank Wide >10 m Moderate 5-10 m Narrow <5 m None Comments:	L R (Most Predominant P Mature Forest, Wetla Immature Forest, Sh Residential, Park, No Fenced Pasture	and Cor irub or Old Field Urb ew Field Ope	nservation Tillage ian or Industrial en Pasture, Row Crop ing or Construction	
FLOW REGIME (At time of Steam flowing Subsurface flow with isolated programments:	evaluation) (Check ONLY one bo Dols (interstitial)	ox): Moist channel, isolated poo Dry channel, no water (Eph		
✓ None 0.5	s per 61 m (200 ft) of channel. Ch 1.0 1.5	neck ONLY one box) 2.0 2.5	3.0 >3.0	
STREAM GRADIENT ESTIMA	TF			

ADDITIONAL STREAM INFORMATION (This information must also be comple	rte
	ach completed QHEI form)
DOWNSTREAM DESIGNATED USE(S)	
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 ENTIRE WATERSHED AREA	a. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name Mooresville East NRCS Soil Map Page	NRCS Soil Map Stream Order:
County: Morgan Township / City: Harrison	
MISCELLANEOUS	
Base flow conditions? (Y/N) Yes Date of last precipitation: 10/12	Quantity .02
Photograph information:	<u> </u>
Elevated Turbidity? (Y/N) Canopy (% open): 100	
Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. ar	nd attach results) Lab number: N/A
Field Measures: Temp (C) Dissolved oxygen (mg/l): pH:	Conductivity (umhos/cm)
Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note ID number. Include apropriate field data sheets from the Primary F	
Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N)	No Voucher? (Y/N) No
Frogs or tadpoles observed? (Y/N)No Voucher? (Y/N)No Aquatic Macroinvertebrate	tes observed? (Y/N) No Voucher? (Y/N) N
Comments Regarding Biology:	

Stream Reach S6S084a



Stream Location on 2013 Aerial Photograph

Stream Location on Mooresville East USGS Quadra

Stream Name: UNT 21 White River Quadrangle: Mooresville East

Flow Regime:IntermittentCounty:MorganChannel Type:Channelized DitchTownship:T13N

Legal Drain:NoRange:T2EIDEM 303(d) Listed:NoSection:26Predominant Substrate:sand - muckQuarter:SE

Evaluation Score:HHEI = 38Latitude:39.539316Use Designation:Rheocrene PotentialLongitude:-86.274078

OHWM width: 2.1 Basin: White River - Sinking Creek

OHWM depth: 0.5 **14-digit HUC:** 05120201140040

USACE Jurisdiction: Yes **Drainage area:** 0.001

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	95	0.005	0.13
Aternative C2	95	0.005	0.13
Aternative C3	20	0.001	0.00
Aternative C4 (Preferred)	95	0.005	0.13





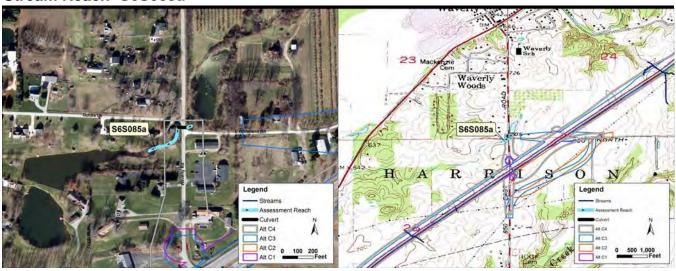


38	
J U	

OTTE INAME/EGOATION	UNT White River				
	SITE NUMBER S6S084	a RIVER BA	SIN White River - Sinking Cre	DRAINAGE AREA (mi)	0.001
LENGTH OF STEAM REA	ACH (ft) LAT	39.539316 LO	NG86.274078 RIVER COD	E N/A RIVER MILE	N/A
DATE 1/26/2016 S	SCORER rh	COMMENT			
NOTE: Complete All Ite	ems On This Form - Refe	r to ""Field Evalua	ation Manual for Ohio's PHWH	Streams" for Instructions	
STREAM CHANNEL MODIFICATIONS:	▼ NONE / NATURAL CH	IANNE	OVERED RECOVERING	RECENT OR NO REC	OVERY
		ubsrate types found	esentCheck ONLY two predomin If (Max of 8). Final metric score i		HHEI Metric Points
BLDR SLABS [BOULDER (>25 BEDROCK [16 COBBLE (65-25 GRAVEL (2-64 SAND (<2 mm)	56 mm) [16 pts pts] 0 56 mm) [9 pt mm) [9 pts] 0		SILT [3 pt] LEAF PACK/WOODY DEBRI FINE DETRITUS [3 pts] CLAY or HARDPAN [0 pts] MUCK [0 pts] ARTIFICIAL [3 pts]	S [3 pts 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Substrate Max = 40
Total of Percei Bldr Slabs, Boulder, (ntages of		Substrate Percentage Check 100 %	(B)	(A+B)
SCORE OF TWO MOST	PREDOMINATE SUBSTR	ATE TYPE 6	TOTAL NUMBER OF SUE	STRATE TYPES 2	
	DEPTH (Measure the ma bid plunge pools from road		within the 61 meter (200 ft) va vater pipes)	luation reach at the time	Pool Depth Max = 30
>>30 centimeters >22.5 - 30 cm [30 p >10 - 22.5 cm [25 p	ots]		>5 cm - 10 cm [15 pts] <5 cm [5 pts] No Water or Moist Channe	I [0 pts]	25
COMMENTS:			MAXIMUM POOL DEPT	H (centimeters): 20	
	[30 pts] 7" - 13') [25 pts]	n average of 3-4	measurements) (Check ON >1.0 m - 1.5m (>3'3" - 4'8") ✓ <=1.0m (<=3'3") [5 pts]	NLY one box):	Bankfull Width Max = 30
3. BANK FULL WI > 4.0 meters (>13') > 3.0 m - 4.0m (>9'7	[30 pts] 7" - 13') [25 pts]	n average of 3-4	measurements) (Check ON >1.0 m - 1.5m (>3'3" - 4'8")	ILY one box): [15 pts]	Width
3. BANK FULL W > 4.0 meters (>13') > 3.0 m - 4.0m (>9'7 > 1.5 m - 3.0 m(>9'7	[30 pts] 7" - 13') [25 pts] 7" - 4'8") [20 pts]		measurements) (Check ON >1.0 m - 1.5m (>3'3" - 4'8") ✓ <=1.0m (<=3'3") [5 pts]	ILY one box): [15 pts]	Width Max = 30
3. BANK FULL W > 4.0 meters (>13') > 3.0 m - 4.0m (>9'7 > 1.5 m - 3.0 m(>9'7	[30 pts] 7" - 13') [25 pts] 7" - 4'8") [20 pts]	his information m	measurements) (Check ON >1.0 m - 1.5m (>3'3" - 4'8") <=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL	JLY one box): [15 pts] WIDTH (Meters): ####	Width Max = 30
3. BANK FULL W > 4.0 meters (>13') > 3.0 m - 4.0m (>9'7 > 1.5 m - 3.0 m(>9'7	[30 pts] 7" - 13') [25 pts] 7" - 4'8") [20 pts] TONE AND FLOODPLAIN	his information m	measurements) (Check ON >1.0 m - 1.5m (>3'3" - 4'8") <=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL sust also be completed HOTE: River left (L) and Right (R)	JLY one box): [15 pts] WIDTH (Meters): ####	Width Max = 30
3. BANK FULL WI > 4.0 meters (>13') >3.0 m - 4.0m (>9'7 >1.5 m - 3.0 m(>9'7 COMMENTS:	[30 pts] 7" - 13') [25 pts] 7" - 4'8") [20 pts] ONE AND FLOODPLAIN WIDTH	Chis information maguality NOODPLAIN QUALITY R (Most Predoming Mature Forest Immature Forest I	measurements) (Check ON >1.0 m - 1.5m (>3'3" - 4'8") <=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL Lust also be completed IOTE: River left (L) and Right (R) TY nant Per Bank L R Wetland est, Shrub or Old Field ark, New Field	JLY one box): [15 pts] WIDTH (Meters): ####	Width Max = 30
3. BANK FULL WI > 4.0 meters (>13') >3.0 m - 4.0m (>9'7) >1.5 m - 3.0 m(>9'7) COMMENTS: RIPARIAN ZO RIPARIAN ZO RIPARIAN L R (Per Bank Wide >10 Moderate V V Narrow <5 None Comments: FLOW REGII Steam flowing	[30 pts] 7" - 13') [25 pts] 7" - 4'8") [20 pts] ONE AND FLOODPLAIN WIDTH L m 5-10 m 5 m	Chis information maguality NOODPLAIN QUALITY NOODPLAIN QUALITY NOT	measurements) (Check ON >1.0 m - 1.5m (>3'3" - 4'8") <=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL Lust also be completed IOTE: River left (L) and Right (R) TY nant Per Bank Wetland est, Shrub or Old Field ark, New Field re One box):	JLY one box): [15 pts] WIDTH (Meters): #### as looking downstream Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction d pools, no flow (Intermittent)	Width Max = 30
3. BANK FULL WI > 4.0 meters (>13') >3.0 m - 4.0m (>9'7) >1.5 m - 3.0 m(>9'7) COMMENTS: RIPARIAN ZO RIPARIAN ZO RIPARIAN L R (Per Bank Wide >10 Moderate V Narrow <5 None Comments: FLOW REGII Steam flowing Subsurface flo Comments: SINUOSITY None 0.5	[30 pts] 7" - 13') [25 pts] 7" - 4'8") [20 pts] ONE AND FLOODPLAIN WIDTH M 5-10 m 5 m ME (At time of evaluation of the sound of the	Chis information maguality NOODPLAIN QUALITY NOODPLAIN QUALITY NATURE FOR MATURE FOR Residential, Penced Pasturen) (Check ONLY prestitial)	measurements) (Check ON >1.0 m - 1.5m (>3'3" - 4'8") <=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL Lust also be completed IOTE: River left (L) and Right (R) TY nant Per Bank L R Wetland est, Shrub or Old Field ark, New Field re One box): Moist channel, isolate	JLY one box): [15 pts] WIDTH (Meters): #### as looking downstream Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction d pools, no flow (Intermittent)	Width Max = 30

ADDITIONAL STREAM INFORMATION (This information must also be comple	ete
	tach completed QHEI form)
DOWNSTREAM DESIGNATED USE(S)	
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 ENTIRE WATERSHED AREA	A. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name Mooresville East NRCS Soil Map Page	NRCS Soil Map Stream Order:
County: Morgan Township / City: Harrison	
MISCELLANEOUS	
Base flow conditions? (Y/N) Yes Date of last precipitation: 1/26	Quantity .01
Photograph information:	<u> </u>
Elevated Turbidity? (Y/N) Canopy (% open): 60	
Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. ar	nd attach results) Lab number: N/A
Field Measures: Temp (C) Dissolved oxygen (mg/l): pH:	Conductivity (umhos/cm)
Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note ID number. Include apropriate field data sheets from the Primary F	
Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N)	No Voucher? (Y/N) No
Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrate	tes observed? (Y/N) No Voucher? (Y/N) N
Comments Regarding Biology:	

Stream Reach S6S085a



Stream Location on 2013 Aerial Photograph

Stream Location on Mooresville East USGS Quadra

Stream Name: UNT 22 White River Quadrangle: Mooresville East

Flow Regime: Intermittent Morgan County: Natural T13N **Channel Type:** Township: R2E No Legal Drain: Range: IDEM 303(d) Listed: Section: 26 No Predominant Substrate: hardpan - gravel Quarter: NE

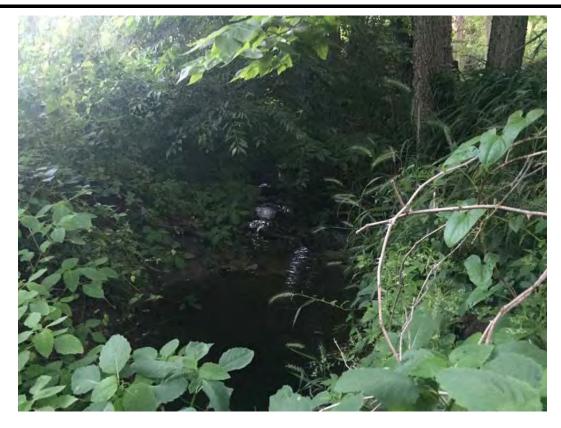
Evaluation Score:HHEI = 41Latitude:39.545656Use Designation:Rheocrene PotentialLongitude:-86.269518

OHWM width: 3.3 Basin: White River - Sinking Creek

OHWM depth: 14-digit HUC: 05120201140040

USACE Jurisdiction: Yes **Drainage area:** 0.082

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	0	0.000	0.00
Aternative C2	171	0.013	0.03
Aternative C3	0	0.000	0.00
Aternative C4 (Preferred)	171	0.013	0.03



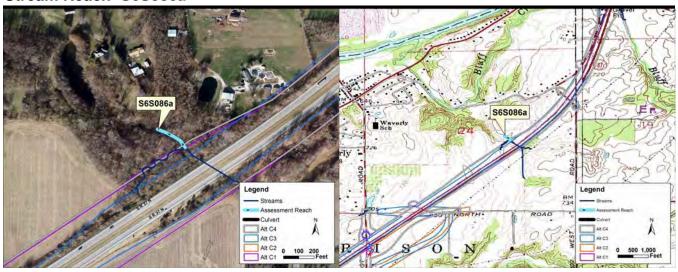




SITE NAME/LOCATION	UNT White River				
	SITE NUMBER S6S085	a RIVER BASIN	White River - Sinking Cre	DRAINAGE AREA (mi)	0.082
LENGTH OF STEAM RE	EACH (ft) LAT	39.545656 LONG.	-86.269518 RIVER CODE	N/A RIVER MILE	N/A
DATE 6/4/2016	SCORER ry	COMMENT			
NOTE: Complete All It	tems On This Form - Refe	r to ""Field Evaluation	Manual for Ohio's PHWH St	treams" for Instructions	
STREAM CHANNEL MODIFICATIONS:	NONE / NATURAL CH	IANNE RECOVE	RECOVERING	RECENT OR NO REC	COVERY
(Max of 32). Add to TYPE BLDR SLABS BOULDER (>2	otal number of significant sig	ubsrate types found (Ma	MCheck ONLY two predominar ax of 8). Final metric score is s SILT [3 pt] EAF PACK/WOODY DEBRIS	sum of boxes A and B.) PERCENT 0	HHEI Metric Points
BEDROCK [16 COBBLE (65-2 GRAVEL (2-64 SAND (<2 mm	256 mm) [9 pt 4 mm) [9 pts] 0		TINE DETRITUS [3 pts] CLAY or HARDPAN [0 pts] MUCK [0 pts] RTIFICIAL [3 pts]		Max = 40
Total of Perce Bldr Slabs, Boulder,			Substrate Percentage Check 100 %	(B)	(A+B)
SCORE OF TWO MOST	PREDOMINATE SUBSTR	ATE TYPE 9	TOTAL NUMBER OF SUBS	TRATE TYPES 2	
	DEPTH (Measure the may roid plunge pools from road		hin the 61 meter (200 fte) value roppes)	ation reach at the time	Pool Depth Max = 30
>>30 centimeters >22.5 - 30 cm [30 >10 - 22.5 cm [25	pts]	V	>5 cm - 10 cm [15 pts] <5 cm [5 pts] No Water or Moist Channel [0 pts]	15
COMMENTS:			MAXIMUM POOL DEPTH	(centimeters):	
	') [30 pts] '7" - 13') [25 pts]	h average of 3-4 me	MAXIMUM POOL DEPTH asurements) (Check ONL >1.0 m - 1.5m (>3'3" - 4'8") [<=1.0m (<=3'3") [5 pts]	Y one box):	Bankfull Width Max = 30
3. BANK FULL W > 4.0 meters (>13' > 3.0 m - 4.0m (>9	') [30 pts] '7" - 13') [25 pts]		asurements) (Check ONL >1.0 m - 1.5m (>3'3" - 4'8") [Y one box):	Width
3. BANK FULL W > 4.0 meters (>13' >3.0 m - 4.0m (>9 >1.5 m - 3.0 m(>9	') [30 pts] '7" - 13') [25 pts] '7" - 4'8") [20 pts]		asurements) (Check ONL >1.0 m - 1.5m (>3'3" - 4'8") [<=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL W	Y one box):	Width Max = 30
3. BANK FULL W > 4.0 meters (>13' > 3.0 m - 4.0m (>9 > 1.5 m - 3.0 m(>9) COMMENTS:	') [30 pts] '7" - 13') [25 pts] '7" - 4'8") [20 pts]	This information must	asurements) (Check ONL >1.0 m - 1.5m (>3'3" - 4'8") [<=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL W	Y one box): 15 pts]	Width Max = 30
3. BANK FULL W > 4.0 meters (>13' > 3.0 m - 4.0m (>9 > 1.5 m - 3.0 m(>9) COMMENTS:	') [30 pts] '7" - 13') [25 pts] '7" - 4'8") [20 pts] ZONE AND FLOODPLAIN	This information must	asurements) (Check ONL >1.0 m - 1.5m (>3'3" - 4'8") [<=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL W also be completed	Y one box): 15 pts]	Width Max = 30
3. BANK FULL W > 4.0 meters (>13' > 3.0 m - 4.0m (>9 >1.5 m - 3.0 m(>9) COMMENTS:	') [30 pts] '7" - 13') [25 pts] '7" - 4'8") [20 pts] ZONE AND FLOODPLAIN WIDTH bk 0 m e 5-10 m 55 m	This information must. QUALITY NOTE	asurements) (Check ONL >1.0 m - 1.5m (>3'3" - 4'8") [<=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL W also be completed E: River left (L) and Right (R) a Per Bank L R etland Shrub or Old Field New Field	Y one box): 15 pts]	Width Max = 30
3. BANK FULL W > 4.0 meters (>13' >3.0 m - 4.0m (>9) >1.5 m - 3.0 m(>9) COMMENTS: RIPARIAN Z RIPARIAN Z RIPARIAN Wide >10 Moderate V W Narrow < None Comments: FLOW REG Steam flowin Subsurface file	1) [30 pts] 1'7" - 13') [25 pts] 1'7" - 4'8") [20 pts] ZONE AND FLOODPLAIN I WIDTH Buk 0 m 9 5-10 m 55 m L SIME (At time of evaluations)	This information must. QUALITY NOTE OODPLAIN QUALITY R (Most Predominant Mature Forest, We Immature Forest, S Residential, Park, Fenced Pasture on) (Check ONLY one	asurements) (Check ONL >1.0 m - 1.5m (>3'3" - 4'8") [<=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL W also be completed E: River left (L) and Right (R) a E: Per Bank L R etland Shrub or Old Field New Field box):	Y one box): 15 pts] IDTH (Meters): 1 s looking downstream Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction pools, no flow (Intermittent)	Width Max = 30
3. BANK FULL W > 4.0 meters (>13' >3.0 m - 4.0m (>9) >1.5 m - 3.0 m(>9) COMMENTS: RIPARIAN Z RIPARIAN Z RIPARIAN Z RIPARIAN Z Wide >10 Moderate V V Narrow < None Comments: FLOW REG Steam flowin Subsurface fl Comments: SINUOSITY None 0.5	(30 pts) (7" - 13') [25 pts] (7" - 4'8") [20 pts] (20 pts) (20 p	This information must. QUALITY NOTE OODPLAIN QUALITY R (Most Predominant Mature Forest, We Immature Forest, S Residential, Park, Fenced Pasture on) (Check ONLY one erstitial)	asurements) (Check ONL >1.0 m - 1.5m (>3'3" - 4'8") [<=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL W also be completed E: River left (L) and Right (R) a Per Bank L R etland Shrub or Old Field New Field box): Moist channel, isolated Dry channel, no water (I) Check ONLY one box) 2.0 2.5	Y one box): 15 pts] IDTH (Meters): 1 s looking downstream Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction pools, no flow (Intermittent) Ephemeral) 3.0 3.0 3.0	Width Max = 30

ADDITIONAL STREAM INFORMATION (This information must also be comple	ete
	tach completed QHEI form)
DOWNSTREAM DESIGNATED USE(S)	
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 ENTIRE WATERSHED AREA	A. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name Mooresville East NRCS Soil Map Page	NRCS Soil Map Stream Order:
County: Morgan Township / City: Harrison	
MISCELLANEOUS	
Base flow conditions? (Y/N) Yes Date of last precipitation:	Quantity
Photograph information:	<u> </u>
Elevated Turbidity? (Y/N) No Canopy (% open): 30	
	nd attach results) Lab number: N/A
Field Measures: Temp (C) Dissolved oxygen (mg/l): pH:	Conductivity (umhos/cm)
Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note ID number. Include apropriate field data sheets from the Primary H	
Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N)	No Voucher? (Y/N) No
Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrat	tes observed? (Y/N) No Voucher? (Y/N) N
Comments Regarding Biology:	

Stream Reach S6S086a



Stream Location on 2013 Aerial Photograph

Stream Location on Mooresville East USGS Quadra

Stream Name: UNT 1 Bluff Creek Quadrangle: Mooresville East

Flow Regime: Perennial Morgan County: Natural T13N **Channel Type:** Township: R2E No Legal Drain: Range: IDEM 303(d) Listed: Section: 24 No Predominant Substrate: sand - gravel Quarter: SE

Evaluation Score:HHEI = 58Latitude:39.552216Use Designation:Class III PHWHLongitude:-86.256465

OHWM width: 11.0 Basin: White River - North Bluff/Bluff Cre

OHWM depth: 0.5 **14-digit HUC:** 05120201140030

USACE Jurisdiction: Yes **Drainage area:** 0.167

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	1	0.000	0.01
Aternative C2	18	0.005	0.06
Aternative C3	0	0.000	0.00
Aternative C4 (Preferred)	18	0.005	0.06



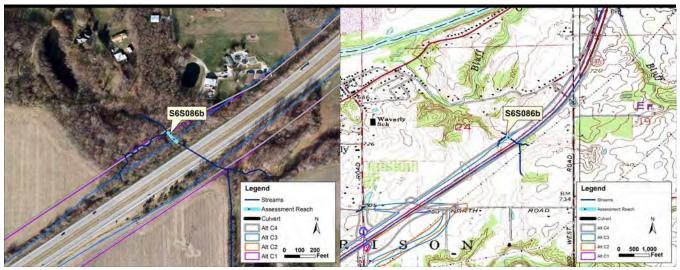




SITE NAME/LOCATION	N UNT Bluff Creek					
	SITE NUMBER S	SS086a RIVE	R BASIN White R	iver - North Bluff/	DRAINAGE AREA (mi)	0.167
ENGTH OF STEAM R			-	3465 RIVER CODE	` '	
DATE 6/26/2016	SCORER ry	COMMEN				
-		- Refer to ""Field E	valuation Manual	for Ohio's PHWH S	treams" for Instruction	ns
STREAM CHANNEL MODIFICATIONS:	▼ NONE / NATUR		RECOVERED	RECOVERING	RECENT OR NO I	
					nt substrate TYPE boxes sum of boxes A and B.)	I HHE
TYPE	Р	ERCENT T	YPE		PERCENT	Metri Point
BLDR SLABS	[16 pts]	0	SILT [3 pt]		0	
BOULDER (>	256 mm) [16 pts 6 pts]	0		K/WOODY DEBRIS RITUS [3 pts]	[3 pts0	Substra Max = 4
☐ ☐ COBBLE (65- ☐ ☑ GRAVEL (2-6	-256 mm) [9 pt	<u>20</u> 35	CLAY or H	ARDPAN [0 pts]	0	
SAND (<2 mr		45	ARTIFICIA		0	18
Total of Pero Bldr Slabs, Boulder		20.00% (A)	Substrate P	ercentage 100 %	(B)	(A+B)
CORE OF TWO MOS	-	BSTRATE TYPE	15 TOTAL	NUMBER OF SUBS	STRATE TYPES 3	
				l meter (200 ft) valu	ation reach at the time	Pool De
	void plunge pools from	n road culverts or st		40 [45]		Max =
>>30 centimeter >22.5 - 30 cm [30]			>5 cm - <5 cm [5	10 cm [15 pts] 5 pts]		
>10 - 22.5 cm [25	5 pts]			er or Moist Channel	[0 pts]	15
>10 - 22.5 cm [25	5 pts]		No Wate			15
COMMENTS:	WIDTH (Measured	as teh average o	MAXII	or Moist Channel MUM POOL DEPTH ents) (Check ONL	Y one box):	Bankfo
COMMENTS: BANK FULL \ > 4.0 meters (>1)	WIDTH (Measured 3') [30 pts]	as teh average o	MAXII f 3-4 measurement >1.0 m -	wum POOL DEPTH ents) (Check ONL 1.5m (>3'3" - 4'8") [Y one box):	Bankfu Width
COMMENTS: BANK FULL \ > 4.0 meters (>1: >3.0 m - 4.0m (>)	WIDTH (Measured	as teh average o	MAXII f 3-4 measurement >1.0 m -	or Moist Channel MUM POOL DEPTH ents) (Check ONL	Y one box):	Bankfu Width Max = 3
COMMENTS: BANK FULL V > 4.0 meters (>1: >3.0 m - 4.0m (>: >1.5 m - 3.0 m(>:	WIDTH (Measured 3') [30 pts] 9'7" - 13') [25 pts]	as teh average o	MAXII f 3-4 measurement >1.0 m - <=1.0m	wum POOL DEPTH ents) (Check ONL 1.5m (>3'3" - 4'8") [(<=3'3") [5 pts]	Y one box): 15 pts]	Bankfu Width Max = 3
COMMENTS: BANK FULL \ > 4.0 meters (>1: >3.0 m - 4.0m (>)	WIDTH (Measured 3') [30 pts] 9'7" - 13') [25 pts]	as teh average o	MAXII f 3-4 measurement >1.0 m - <=1.0m	wum POOL DEPTH ents) (Check ONL 1.5m (>3'3" - 4'8") [Y one box): 15 pts]	Bankfı Widtl
COMMENTS:	WIDTH (Measured 3') [30 pts] 9'7" - 13') [25 pts]		MAXII f 3-4 measurement >1.0 m - <=1.0m	www.pool DEPTH www.pool DEPTH ents) (Check ONL 1.5m (>3'3" - 4'8") [(<=3'3") [5 pts] AGE BANKFULL W	Y one box): 15 pts]	Bankfr Widtl Max =
COMMENTS: BANK FULL \ > 4.0 meters (>1: ✓ >3.0 m - 4.0m (>: >1.5 m - 3.0 m(>: COMMENTS:	WIDTH (Measured 3') [30 pts] 9'7" - 13') [25 pts]	This informat	MAXII f 3-4 measurement of the second of th	wum POOL DEPTH ents) (Check ONL 1.5m (>3'3" - 4'8") [(<=3'3") [5 pts] AGE BANKFULL W	Y one box): 15 pts]	Bankfr Widtl Max =
COMMENTS: BANK FULL \ > 4.0 meters (>1: >3.0 m - 4.0m (>: >1.5 m - 3.0 m(>: COMMENTS: RIPARIAN	WIDTH (Measured 3') [30 pts] 9'7" - 13') [25 pts] 9'7" - 4'8") [20 pts]	This informat	MAXII f 3-4 measurement >1.0 m - <=1.0m AVER ion must also be converted to the convert	wum POOL DEPTH ents) (Check ONL 1.5m (>3'3" - 4'8") [(<=3'3") [5 pts] AGE BANKFULL W	Y one box): 15 pts] //IDTH (Meters): 3.5	Bankfi Widtl Max =
COMMENTS: BANK FULL \ > 4.0 meters (>1: > 3.0 m - 4.0m (> 1: > 1.5 m - 3.0 m(> 1: COMMENTS: RIPARIAN RIPARIAN L R (Per Ba	WIDTH (Measured 3') [30 pts] 9'7" - 13') [25 pts] 9'7" - 4'8") [20 pts] ZONE AND FLOODP N WIDTH	This informat PLAIN QUALITY FLOODPLAIN Q L R (Most Pre	MAXII f 3-4 measurement	wum POOL DEPTH ents) (Check ONL 1.5m (>3'3" - 4'8") [(<=3'3") [5 pts] AGE BANKFULL W ompleted ft (L) and Right (R) a	Y one box): 15 pts] VIDTH (Meters): 3.5	Bankfi Widtl Max =
COMMENTS: BANK FULL \ > 4.0 meters (>1: > 3.0 m - 4.0m (>) > 1.5 m - 3.0 m(>) COMMENTS: RIPARIAN RIPARIAN RIPARIA L R (Per Ba	WIDTH (Measured 3') [30 pts] 9'7" - 13') [25 pts] 9'7" - 4'8") [20 pts] ZONE AND FLOODP N WIDTH	This informat PLAIN QUALITY FLOODPLAIN C L R (Most Pre	MAXII f 3-4 measureme >1.0 m <=1.0m AVER NOTE: River le	wum POOL DEPTH ents) (Check ONL 1.5m (>3'3" - 4'8") [(<=3'3") [5 pts] AGE BANKFULL W ompleted ft (L) and Right (R) a	Yone box): 15 pts] VIDTH (Meters): 3.5 as looking downstream Conservation Tillage Urban or Industrial	Bankf Widtl Max =
COMMENTS: BANK FULL \ > 4.0 meters (>1: > 3.0 m - 4.0m (>: > 1.5 m - 3.0 m(>: COMMENTS: RIPARIAN RIPARIAN L R (Per Ba W Wide > Modera Narrow	WIDTH (Measured 3') [30 pts] 9'7" - 13') [25 pts] 9'7" - 4'8") [20 pts] ZONE AND FLOODP N WIDTH unk 10 m te 5-10 m	This informate PLAIN QUALITY FLOODPLAIN Company of the property of the proper	MAXII f 3-4 measureme >1.0 m - <=1.0m AVER ion must also be of NOTE: River letter	wum POOL DEPTH ents) (Check ONL 1.5m (>3'3" - 4'8") [(<=3'3") [5 pts] AGE BANKFULL W ompleted ft (L) and Right (R) a	A (centimeters): A yone box): 15 pts] A yiDTH (Meters): A soloking downstream Conservation Tillage Urban or Industrial Open Pasture, Row Cro	Bankfi Widtl Max =
COMMENTS: BANK FULL \ > 4.0 meters (>1: > 3.0 m - 4.0m (>) > 1.5 m - 3.0 m(>) COMMENTS: RIPARIAN RIPARIAN L R (Per Ba	WIDTH (Measured 3') [30 pts] 97" - 13') [25 pts] 9'7" - 4'8") [20 pts] ZONE AND FLOODE N WIDTH unk 10 m te 5-10 m <5 m	This informate PLAIN QUALITY FLOODPLAIN COLUMN COL	MAXII f 3-4 measureme >1.0 m - <=1.0m AVER ion must also be of NOTE: River letter	wum POOL DEPTH ents) (Check ONL 1.5m (>3'3" - 4'8") [(<=3'3") [5 pts] AGE BANKFULL W ompleted ft (L) and Right (R) a	Yone box): 15 pts] VIDTH (Meters): 3.5 as looking downstream Conservation Tillage Urban or Industrial	Bankf Widt Max =
COMMENTS: BANK FULL \ > 4.0 meters (>1: >3.0 m - 4.0m (>: >1.5 m - 3.0 m(>: COMMENTS: RIPARIAN RIPARIAN RIPARIAN L R (Per Ba W Wide > Modera Narrow None Comments	WIDTH (Measured 3') [30 pts] 9'7" - 13') [25 pts] 9'7" - 4'8") [20 pts] ZONE AND FLOODE N WIDTH ank 10 m te 5-10 m <5 m	This informate PLAIN QUALITY FLOODPLAIN Q L R (Most Pre Mature F Immatur Residen Fenced	MAXII f 3-4 measurement >1.0 m - <=1.0m AVER ion must also be of NOTE: River less	wum POOL DEPTH ents) (Check ONL 1.5m (>3'3" - 4'8") [(<=3'3") [5 pts] AGE BANKFULL W ompleted ft (L) and Right (R) a	A (centimeters): A yone box): 15 pts] A yiDTH (Meters): A soloking downstream Conservation Tillage Urban or Industrial Open Pasture, Row Cro	Bankf Widt Max =
COMMENTS: BANK FULL \ > 4.0 meters (>1: >3.0 m - 4.0m (>) >1.5 m - 3.0 m(>) COMMENTS: RIPARIAN RIPARIAN RIPARIA L R (Per Ba W Wide > ' Modera Narrow None Comments FLOW REC	WIDTH (Measured 3') [30 pts] 9'7" - 13') [25 pts] 9'7" - 4'8") [20 pts] ZONE AND FLOODP N WIDTH Ink 10 m te 5-10 m <5 m s: GIME (At time of ev	This informate PLAIN QUALITY FLOODPLAIN Company of the property of the proper	MAXII f 3-4 measurement >1.0 m - <=1.0m AVER NOTE: River let QUALITY edominant Per Bank Forest, Wetland e Forest, Shrub or Ottial, Park, New Field Pasture PNLY one box):	wum POOL DEPTH ents) (Check ONL 1.5m (>3'3" - 4'8") [(<=3'3") [5 pts] AGE BANKFULL W ompleted ft (L) and Right (R) a	A (centimeters): A yone box): 15 pts] A light of the continuous	Bankf Widtl Max =
COMMENTS: BANK FULL \ > 4.0 meters (>1: >3.0 m - 4.0m (>1: >1.5 m - 3.0 m(>1: COMMENTS: RIPARIAN RIPARIAN RIPARIAN L R (Per Ba W Wide > 1: Modera Narrow None Comments FLOW REC	WIDTH (Measured 3') [30 pts] 9'7" - 13') [25 pts] 9'7" - 4'8") [20 pts] ZONE AND FLOODP N WIDTH Ink 10 m te 5-10 m <5 m s: GIME (At time of events) ng flow with isolated poo	This informate PLAIN QUALITY FLOODPLAIN Control Land Mature For Immature Residen Fenced (Check Control Contro	MAXII f 3-4 measureme >1.0 m - <=1.0m AVER ion must also be of NOTE: River letter	wum POOL DEPTH ents) (Check ONL 1.5m (>3'3" - 4'8") [(<=3'3") [5 pts] AGE BANKFULL W ompleted ft (L) and Right (R) a	A (centimeters): A yone box): 15 pts] A JIDTH (Meters): A Soloking downstream Conservation Tillage Urban or Industrial Open Pasture, Row Cro Mining or Construction pools, no flow (Intermitt	Bankf Widt Max =
COMMENTS: BANK FULL \ > 4.0 meters (>1: > 3.0 m - 4.0m (> > 1.5 m - 3.0 m(> COMMENTS: RIPARIAN RIPARIAN RIPARIA L R (Per Ba W Wide > 1 Modera Narrow None Comments FLOW REC Steam flowi Subsurface Comments	WIDTH (Measured 3') [30 pts] 9'7" - 13') [25 pts] 9'7" - 4'8") [20 pts] ZONE AND FLOODP N WIDTH Ink 10 m te 5-10 m <5 m s: GIME (At time of events) ng flow with isolated poo	This informate PLAIN QUALITY FLOODPLAIN Q L R (Most Pre Mature F Immature Residen Fenced Mature F	MAXII f 3-4 measurement >1.0 m - <=1.0m AVER ion must also be or NOTE: River less NOTE: River less CUALITY Orderinant Per Bank Forest, Wetland E Forest, Shrub or Order Cuality Pasture NLY one box): Mo Dry	wum POOL DEPTH ents) (Check ONL 1.5m (>3'3" - 4'8") [(<=3'3") [5 pts] AGE BANKFULL W ompleted ft (L) and Right (R) a L R Old Field d ist channel, isolated or channel, no water (A (centimeters): A yone box): 15 pts] A JIDTH (Meters): A Soloking downstream Conservation Tillage Urban or Industrial Open Pasture, Row Cro Mining or Construction pools, no flow (Intermitt	Bankf Widt Max =
COMMENTS: BANK FULL \ > 4.0 meters (>1: > 3.0 m - 4.0m (> > 1.5 m - 3.0 m(> COMMENTS: RIPARIAN RIPARIAN RIPARIA L R (Per Ba W Wide > 1 None Comments FLOW REC Steam flowi Subsurface Comments SINUOSIT	WIDTH (Measured 3') [30 pts] 9'7" - 13') [25 pts] 9'7" - 4'8") [20 pts] ZONE AND FLOODP N WIDTH Ink 10 m te 5-10 m <5 m s: GIME (At time of ev ng flow with isolated poo	This informate PLAIN QUALITY FLOODPLAIN G L R (Most Pre Immatur Residen Fenced Immatur) Residen Fenced Immatur Residen Fenced Immature Residen Fenced Immature Resident Fenced Immature Res	MAXII f 3-4 measurement >1.0 m - <=1.0m AVER ion must also be or NOTE: River less NOTE: River less Publication Note Not	wum POOL DEPTH ents) (Check ONL 1.5m (>3'3" - 4'8") [(<=3'3") [5 pts] AGE BANKFULL W ompleted ft (L) and Right (R) a L R Old Field d ist channel, isolated or channel, no water (A (centimeters): (Yone box): 15 pts] (IDTH (Meters):	Bankf Widtl Max =
COMMENTS: BANK FULL \ > 4.0 meters (>1: >3.0 m - 4.0m (>1: >1.5 m - 3.0 m(>1: >1.5 m - 3.0 m(>1: COMMENTS: RIPARIAN RIPARIA L R (Per Ba W Wide > Modera Narrow None Comments FLOW REC Steam flowi Subsurface Comments SINUOSIT	WIDTH (Measured 3') [30 pts] 9'7" - 13') [25 pts] 9'7" - 4'8") [20 pts] ZONE AND FLOODP N WIDTH Ink 10 m te 5-10 m <5 m s: GIME (At time of ev ng flow with isolated poo	This informate PLAIN QUALITY FLOODPLAIN COLOR (Most Presented Informature Residen Fenced Information) (Check Color (Information)	MAXII f 3-4 measurement >1.0 m - <=1.0m AVER ion must also be or NOTE: River less NOTE: River less NOTE: Note NO	wum POOL DEPTH ents) (Check ONL 1.5m (>3'3" - 4'8") [(<=3'3") [5 pts] AGE BANKFULL W ompleted ft (L) and Right (R) a L R Old Field d ist channel, isolated or channel, no water (A (centimeters): (Yone box): 15 pts] (IDTH (Meters):	Bankf Widt Max =

ADDITIONAL STREAM INFORMATION (This information must also be comple	ete
	tach completed QHEI form)
DOWNSTREAM DESIGNATED USE(S)	
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 ENTIRE WATERSHED AREA	a. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name Mooresville East NRCS Soil Map Page	NRCS Soil Map Stream Order:
County: Morgan Township / City: Harrison	
MISCELLANEOUS	
Base flow conditions? (Y/N) Yes Date of last precipitation:	Quantity
Photograph information:	<u> </u>
Elevated Turbidity? (Y/N) No Canopy (% open): 20	
Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. an	nd attach results) Lab number: N/A
Field Measures: Temp (C) Dissolved oxygen (mg/l): pH:	Conductivity (umhos/cm)
Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note ID number. Include apropriate field data sheets from the Primary H	
Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N)	No Voucher? (Y/N) No
Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrat	tes observed? (Y/N) No Voucher? (Y/N) N
Comments Regarding Biology:	

Stream Reach S6S086b



Stream Location on 2013 Aerial Photograph

Stream Location on Mooresville East USGS Quadra

Stream Name: UNT 1 Bluff Creek Quadrangle: Mooresville East

Flow Regime: Perennial Morgan County: Natural T13N **Channel Type:** Township: R2E No Legal Drain: Range: IDEM 303(d) Listed: Section: 24 No Predominant Substrate: cobble - gravel Quarter: SE

Evaluation Score: HHEI = 48 **Latitude:** 39.552111 **Use Designation:** Rheocrene Potential **Longitude:** -86.256377

OHWM width: 5.6 Basin: White River - North Bluff/Bluff Cre

OHWM depth: 0.6 **14-digit HUC:** 05120201140030

USACE Jurisdiction: Yes **Drainage area:** 0.067

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	73	0.009	0.33
Aternative C2	73	0.009	0.33
Aternative C3	17	0.002	0.09
Aternative C4 (Preferred)	73	0.009	0.33



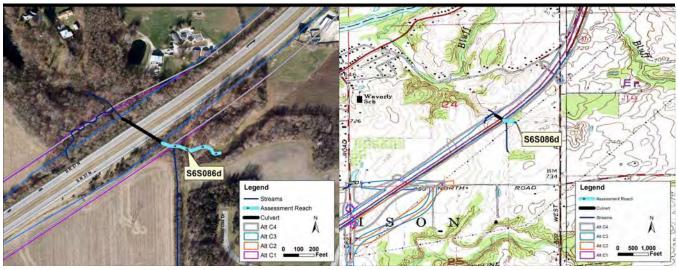




SITE NAME/LOCATION UNT Bluff Cree	-1-				
CITE NILIMBED	-	D. D.A.CINI White Diver	North Divit/ DDAINI	CE ADEA (m:)	0.067
SITE NUMBER		R BASIN White River -		` '	
LENGTH OF STEAM REACH (ft)		LONG86.256377	RIVER CODE_IN/A	RIVER MILE N/	<u> </u>
DATE 6/25/2016 SCORER ry	COMMEN		Lists BURALL Organis	II 6 I (I	
NOTE: Complete All Items On This Fo	rm - Refer to ""Field Ev	/aluation Manual for O	hio's PHWH Streams	for Instructions	
SUBSTRATE (Estimate percent of (Max of 32). Add total number of significant statements.					HHEI
, ,		,	metric score is sum or		Metric
TYPE BLDR SLABS [16 pts]	PERCENT TY	<u>YPE</u> ☐ SILT [3 pt]		PERCENT 0	Points
BOULDER (>256 mm) [16 pts	0	LEAF PACK/WO	OODY DEBRIS [3 pts	0	Substrate
■ BEDROCK [16 pts]✓ COBBLE (65-256 mm) [9 pt	80	FINE DETRITU: CLAY or HARD	S [3 pts] PAN [0 pts]	0	Max = 40
GRAVEL (2-64 mm) [9 pts]	20	MUCK [0 pts]		0	23
☐ ☐ SAND (<2 mm) [6 pts]		ARTIFICIAL [3 p	otsj		23
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock	80.00% (A)	Substrate Percenta Check	100 %	(B)	(A+B)
SCORE OF TWO MOST PREDOMINATE		21 TOTAL NUM	BER OF SUBSTRATE	TYPES 2	
2. MAXIMUM POOL DEPTH (Measu			ter (200 ft) valuation re	ach at the time	Pool Depth
of evaluation. Avoid plunge pools	from road culverts or sto	orm water pipes)	· ,		Max = 30
>>30 centimeters [20 pts] >22.5 - 30 cm [30 pts]		>5 cm - 10 cr ✓ <5 cm [5 pts]	n [15 pts]		
>10 - 22.5 cm [25 pts]			Moist Channel [0 pts]		5
COMMENTS:	_	MAXIMUM	POOL DEPTH (centing	neters): 4	
3. BANK FULL WIDTH (Measur	ed as teh average of	3-4 measurements	(Check ONLY one b	oox):	Bankfull
		>1.0 m - 1.5n	n (>3'3" - 4'8") [15 pts]		Width
> 4.0 meters (>13') [30 pts]			3") 15 pts1		Max = 30
>3.0 m - 4.0m (>9'7" - 13') [25 pts]		<=1.0m (<=3	- / [-]		
>3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts]				4.7	20
>3.0 m - 4.0m (>9'7" - 13') [25 pts]			BANKFULL WIDTH (Meters): 1.7	20
>3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts]		AVERAGE	BANKFULL WIDTH (Meters): 1.7	20
>3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts]	This information	AVERAGE on m <u>ust a</u> lso be comp	BANKFULL WIDTH (20
>3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS:	This information	AVERAGE on must also be comp NOTE: River left (L)	BANKFULL WIDTH (20
>3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: RIPARIAN ZONE AND FLOCE	This information DDPLAIN QUALITY FLOODPLAIN QU	AVERAGE on must also be comp NOTE: River left (L)	BANKFULL WIDTH (I leted and Right (R) as looking		20
>3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: RIPARIAN ZONE AND FLOOR RIPARIAN WIDTH L R (Per Bank Wide >10 m	This information DDPLAIN QUALITY FLOODPLAIN QUALITY L R (Most Predict of Mature Follows)	AVERAGE on must also be comp NOTE: River left (L) UALITY dominant Per Bank prest, Wetland	BANKFULL WIDTH (Interest of the Interest of th	ng downstream	20
>3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: RIPARIAN ZONE AND FLOCE RIPARIAN WIDTH L R (Per Bank Wide >10 m Moderate 5-10 m	This information DDPLAIN QUALITY FLOODPLAIN QUALITY L R (Most Precipitation of the control of	AVERAGE on must also be comp NOTE: River left (L) UALITY dominant Per Bank brest, Wetland Forest, Shrub or Old F	BANKFULL WIDTH (I	ng downstream vation Tillage or Industrial	20
>3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: RIPARIAN ZONE AND FLOOR RIPARIAN WIDTH L R (Per Bank W Wide >10 m	This information DDPLAIN QUALITY FLOODPLAIN QUALITY L R (Most Precipitation of the control of	AVERAGE On must also be comp NOTE: River left (L) UALITY dominant Per Bank brest, Wetland Forest, When or Old F al, Park, New Field	BANKFULL WIDTH (I	ng downstream	20
>3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: RIPARIAN ZONE AND FLOCE RIPARIAN WIDTH L R (Per Bank Wide >10 m Moderate 5-10 m Narrow <5 m	This information DDPLAIN QUALITY FLOODPLAIN QUALITY L R (Most Prediction of the p	AVERAGE On must also be comp NOTE: River left (L) UALITY dominant Per Bank brest, Wetland Forest, When or Old F al, Park, New Field	BANKFULL WIDTH (I	ng downstream vation Tillage or Industrial Pasture, Row Crop	20
>3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: RIPARIAN ZONE AND FLOCE RIPARIAN WIDTH L R (Per Bank Wide >10 m Moderate 5-10 m Narrow <5 m None Comments:	This information DDPLAIN QUALITY FLOODPLAIN QUALITY L R (Most Prediction of the p	AVERAGE On must also be comp NOTE: River left (L) UALITY dominant Per Bank orest, Wetland e Forest, Shrub or Old F ial, Park, New Field Pasture	BANKFULL WIDTH (I	ng downstream vation Tillage or Industrial Pasture, Row Crop	20
>3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: RIPARIAN ZONE AND FLOCE RIPARIAN WIDTH L R (Per Bank Wide >10 m Moderate 5-10 m Narrow <5 m None Comments: FLOW REGIME (At time of Steam flowing)	This information DDPLAIN QUALITY FLOODPLAIN QUALITY FLOODPLAIN QUALITY Was (Most Precipies of Mature For Immature Residenting Fenced Particular For Immature) Graph of evaluation (Check Of Immature)	AVERAGE On must also be comp NOTE: River left (L) UALITY dominant Per Bank prest, Wetland Prorest, Shrub or Old F al, Park, New Field Pasture NLY one box): Moist ch	BANKFULL WIDTH (Including Including	ng downstream vation Tillage or Industrial Pasture, Row Crop or Construction no flow (Intermittent)	20
>3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: RIPARIAN ZONE AND FLOCE RIPARIAN WIDTH L R (Per Bank Wide >10 m Moderate 5-10 m Narrow <5 m None Comments: FLOW REGIME (At time of	This information DDPLAIN QUALITY FLOODPLAIN QUALITY FLOODPLAIN QUALITY Was (Most Precipies of Mature For Immature Residenting Fenced Particular For Immature) Graph of evaluation (Check Of Immature)	AVERAGE On must also be comp NOTE: River left (L) UALITY dominant Per Bank prest, Wetland Prorest, Shrub or Old F al, Park, New Field Pasture NLY one box): Moist ch	BANKFULL WIDTH (Interest of the Interest of th	ng downstream vation Tillage or Industrial Pasture, Row Crop or Construction no flow (Intermittent)	20
>3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: RIPARIAN ZONE AND FLOCE RIPARIAN WIDTH L R (Per Bank W Wide >10 m Moderate 5-10 m Narrow <5 m None Comments: FLOW REGIME (At time of Subsurface flow with isolated)	This information DDPLAIN QUALITY FLOODPLAIN QUALITY L R (Most Precipies Mature For Immature Residenting Fenced Procedure of evaluation) (Check Office of Interstitial)	AVERAGE On must also be comp NOTE: River left (L) UALITY dominant Per Bank orest, Wetland : Forest, Shrub or Old F ial, Park, New Field Pasture NLY one box): Moist ch Dry chai	BANKFULL WIDTH (Interest of the Interest of th	ng downstream vation Tillage or Industrial Pasture, Row Crop or Construction no flow (Intermittent)	20
>3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: RIPARIAN ZONE AND FLOCE RIPARIAN WIDTH L R (Per Bank W Wide >10 m	This information DDPLAIN QUALITY FLOODPLAIN QUALITY FLOODPLAIN QUALITY A (Most Precipies of Mature For Immature Residenting Fenced Particles of evaluation) (Check Office of evaluation) (Check Office of evaluation) ds per 61 m (200 ft) of classics of the control of the con	AVERAGE On must also be comp NOTE: River left (L) UALITY dominant Per Bank orest, Wetland Forest, Shrub or Old F ial, Park, New Field Pasture NLY one box): Moist ch Dry chai hannel. Check ONLY o	BANKFULL WIDTH (Interest of the Interest of th	ng downstream Evation Tillage or Industrial Pasture, Row Crop or Construction no flow (Intermittent) eral)	20
>3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: RIPARIAN ZONE AND FLOCE RIPARIAN WIDTH L R (Per Bank Wide >10 m Moderate 5-10 m Narrow <5 m None Comments: FLOW REGIME (At time of Subsurface flow with isolated Comments: SINUOSITY (Number of bendard)	This information DDPLAIN QUALITY FLOODPLAIN QUALITY FLOODPLAIN QUALITY A (Most Precion of Immature Residenting Residenting Fenced Particles of Example 1997) For evaluation (Check On Proposity (Interstitial)) In this information of Important information information of Important information o	AVERAGE on must also be comp NOTE: River left (L) UALITY dominant Per Bank orest, Wetland Forest, Shrub or Old F al, Park, New Field Pasture NLY one box): Moist ch Dry char	BANKFULL WIDTH (Interest of the Interest of th	ng downstream Evation Tillage or Industrial Pasture, Row Crop or Construction no flow (Intermittent) eral)	20
>3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: RIPARIAN ZONE AND FLOCE RIPARIAN WIDTH L R (Per Bank Wide >10 m Moderate 5-10 m Narrow <5 m None Comments: FLOW REGIME (At time of Subsurface flow with isolated of Comments: SINUOSITY (Number of bendard) None 0.5 STREAM GRADIENT ESTIM	This information DDPLAIN QUALITY FLOODPLAIN QU L R (Most Precipies of Mature For Immature Residenting Fenced Point Procedure of Example 1.0 1.0 1.5 ATE	AVERAGE On must also be comp NOTE: River left (L) UALITY dominant Per Bank brest, Wetland Forest, Shrub or Old F al, Park, New Field l'asture NLY one box): Moist ch Dry char hannel. Check ONLY o	BANKFULL WIDTH (Interest of the Interest of th	ng downstream Evation Tillage or Industrial Pasture, Row Crop or Construction no flow (Intermittent) eral)	

ADDITIONAL STREAM INFORMATION (This information must also be completed)	re
	ach completed QHEI form)
DOWNSTREAM DESIGNATED USE(S)	
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 ENTIRE WATERSHED AREA.	CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name Mooresville East NRCS Soil Map Page	NRCS Soil Map Stream Order:
County: Morgan Township / City: Harrison	
MISCELLANEOUS	
Base flow conditions? (Y/N) Yes Date of last precipitation:	Quantity
Photograph information:	<u> </u>
Elevated Turbidity? (Y/N) No Canopy (% open): 20	
Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and	d attach results) Lab number: N/A
Field Measures: Temp (C) Dissolved oxygen (mg/l): pH:	Conductivity (umhos/cm)
Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: ID number. Include apropriate field data sheets from the Primary He	
Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) 1	No Voucher? (Y/N) No
Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrate	es observed? (Y/N) No Voucher? (Y/N) No
Comments Regarding Biology:	

Stream Reach S6S086d



Stream Location on 2013 Aerial Photograph

Stream Location on Mooresville East USGS Quadra

Stream Name: UNT 1 Bluff Creek Quadrangle: Mooresville East

Flow Regime: Perennial Morgan County: Natural T13N **Channel Type:** Township: R2E No Legal Drain: Range: IDEM 303(d) Listed: Section: 24 No Predominant Substrate: gravel - sand Quarter: SE

Evaluation Score: HHEI = 57 **Latitude:** 39.551563 **Use Designation:** Rheocrene Potential **Longitude:** -86.255475

OHWM width: 1.7 Basin: White River - North Bluff/Bluff Cre

OHWM depth: 0.4 **14-digit HUC:** 05120201140030

USACE Jurisdiction: Yes **Drainage area:** 0.054

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	67	0.003	0.19
Aternative C2	44	0.002	0.14
Aternative C3	0	0.000	0.03
Aternative C4 (Preferred)	44	0.002	0.14



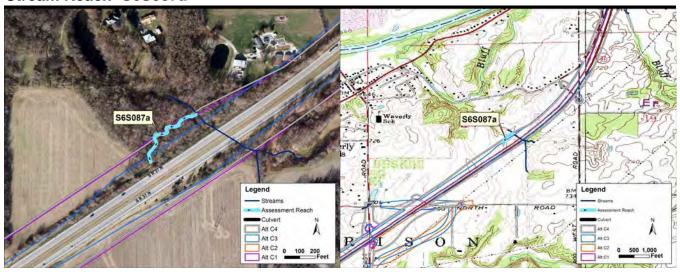




SITE NUMBER SES0866	SITE NAME/LOCATION UNT Bluff Creek	
NOTE: Complete All Items On This Form - Refer to ""Field Evaluation Manual for Ohio's PHWH Streams" for Instructions STREAM CHANNEL MONE / NATURAL CHANNE RECOVERED RECOVERING RECENT OR NO RECOVERY MODIFICATIONS: 1. SUBSTRATE (Estimate percent of every type of substrate present/heak 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 and B.) TYPE BLDR SLABS [16 pts] PERCENT BOULDER (≥256 mm) [16 pts] PERCENT CRANYEL (2246 mm) [9 pt] Q D D D D D D D D D D D D D D D D D D	SITE NUMBER S6S086d RIVER BASIN White River - North Bluff/ DRAINAGE AREA (mi)	0.054
NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions STREAM CHANNEL NONE / NATURAL CHANNE RECOVERED RECOVERING RECENT OR NO RECOVERY RECOVERING RECENT OR NO RECOVERY RECOVERING RECENT OR NO RECOVERY RECOVERING RECENT OR NO RECOVERY RECOVERING RECENT OR NO RECOVERY RECOVERING RECENT OR NO RECOVERY RECOVERING RECENT OR NO RECOVERY SUBSTRATE (Estimate percent of every type of substrate presentCheck ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate presentCheck ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate presentCheck ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate TYPE boxes (Max of 32). Add total number of significant substrate TYPE boxes (Max of 32). Add total number of significant substrate TYPE boxes (Max of 32). Add total number of significant substrate TYPE boxes (Max of 32). Add total number of significant substrate TYPE boxes (Max of 32). Add total number of significant substrate TYPE boxes (Max of 32). Add total number of significant substrate TYPE boxes (Max of 32). Add total number of significant substrate TYPE boxes (Max of 32). Add total number of significant substrate TYPE boxes (Max of 32). Add total number of significant substrate TYPE boxes (Max of 32). Add total number of significant substrate TYPE boxes (Max of 32). Add total number of significant substrate TYPE boxes (Max of 32). Add total number of significant substrate TYPE boxes (Max of 32). Add total number of significant substrate TYPE boxes (Max of 32). Add total number of significant substrate TYPE boxes (Max of 32). Add total number of significant substrate TYPE boxes (Max of 32). Add total number of significant substrate TYPE boxes (Max of 32). Add total number of significant substrate TYPE boxes (Max of 32). Add total number of significant substrate TYPE boxes (Max of 32). Add total number of significant subs	LENGTH OF STEAM REACH (ft) LAT 39.551563 LONG86.255475 RIVER CODE N/A RIVER MILE	N/A
STREAM CHANNEL MODIFICATIONS: 1. SUBSTRATE (Estimate percent of every type of substrate present/heck 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 and B.) TYPE (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A and B.) TYPE (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A and B.) FINAL SUBSTRATE (Estimate percent of every type of substrate present/heck ONLY two predominant substrate TYPE boxes (Max of 8). Final metric score is sum of boxes A and B.) HHEI Metric FINAL SUBSTRATE (Percentage of SECENT TYPE SULT) Substrate Percentage (Percentage of SULT) Substrate Percentage (Percentage of Substrate Substrate Types Substrate Types Substrate Types Substrate Types (Percentage of Substrate Percentage of Substrate Types Su	DATE 1/26/2016 SCORER rh COMMENT	
1. SUBSTRATE (Estimate percent of every type of substrate presentCheck 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 and B.)	NOTE: Complete All Items On This Form - Refer to ""Field Evaluation Manual for Ohio's PHWH Streams" for Instructions	
Max of 32). Add total number of significant substrate types (ound (Max of 8). Final metric score is sum of boxes A and B.) HHELT		ECOVERY
MUCK (p pts)	(Max of 32). Add total number of significant subsrate types found (Max of 8). Final metric score is sum of boxes A and B.) TYPE BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts] BEDROCK [16 pts] BEDROCK [16 pts] FINE DETRITUS [3 pts] O D D D D D D D D D D D D	Metric Points Substrate
Comments	✓ GRAVEL (2-64 mm) [9 pts] 30 Under MUCK [0 pts] 0 ✓ SAND (<2 mm) [6 pts]	17
2. MAXIMUM POOL DEPTH (Measure the maximum pool depth within the 61 meter (200 ftlyvaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) 2	Total of Percentages of Check 100 % (B)	(A+B)
of evaluation. Avoid plunge pools from road culverts or storm water pipes) >>30 centimeters [20 pts] >>30 centimeters [20 pts] >>10 - 22.5 c m [30 pts] >>10 - 22.5 c m [25 pts] MAXIMUM POOL DEPTH (centimeters): 33 3. BANK FULL WIDTH (Measured as teh average of 3-4 measurements) (Check ONLY one box): >>4.0 meters (>13) [30 pts] >>3.0 m - 4.0 m (>97" - 13) [25 pts] >>1.5 m - 3.0 m (>97" - 48") [20 pts] AVERAGE BANKFULL WIDTH (Meters): 1.5 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE: River left (L) and Right (R) as looking downstream RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank L R (Most Predominant Per Bank L R		
22.5 - 30 cm [30 pts]		Pool Depth Max = 30
3. BANK FULL WIDTH (Measured as teh average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (>13') [30 pts] > 3.0 m · 4.0m (>97' - 13') [25 pts] > 3.0 m · 4.0m (>97' - 13') [25 pts] > 1.5 m · 3.0 m(>97" - 48") [20 pts] COMMENTS: AVERAGE BANKFULL WIDTH (Meters): I.5 I.5 II5 II5 II5 II5 II5 II	>22.5 - 30 cm [30 pts] <5 cm [5 pts]	20
> 4.0 meters (>13) [30 pts] >3.0 m - 4.0m (>9'7' - 13) [25 pts] >1.5 m - 3.0 m (>9'7' - 4'8') [20 pts] COMMENTS: AVERAGE BANKFULL WIDTH (Meters): This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE: River left (L) and Right (R) as looking downstream RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank Wide >10 m Moderate 5-10 m Narrow <5 m Narrow <5 m None Comments: FLOW REGIME (At time of evaluation) (Check ONLY one box): Steam flowing Subsurface flow with isolated pools (interstitial) Comments: SINUOSITY (Number of bends per 61 m (200 ft) of channel. Check ONLY one box) STREAM GRADIENT ESTIMATE	COMMENTS: MAXIMUM POOL DEPTH (centimeters): 33	
This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE: River left (L) and Right (R) as looking downstream RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank L R (Most Predominant Per Bank L	mizzumioni i coe dei in (continieters).	
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RIPARIAN WIDTH L R (Per Bank Wide >10 m Moderate 5-10 m Narrow <5 m None Comments: FLOW REGIME At time of evaluation) Subsurface flow with isolated pools (interstitial) Comments: SINUOSITY (Number of bends per 61 m (200 ft) of channel. Check ONLY one box) None 1.0 1.0 1.5 STREAM GRADIENT ESTIMATE	3. BANK FULL WIDTH (Measured as teh average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts] > 1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] (Check ONLY one box): > 1.0 m - 1.5m (>3'3" - 4'8") [15 pts] <=1.0m (<=3'3") [5 pts]	Width Max = 30
L R (Per Bank	3. BANK FULL WIDTH (Measured as teh average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (>13') [30 pts]	Width Max = 30
Wide >10 m	3. BANK FULL WIDTH (Measured as teh average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts] > 1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: AVERAGE BANKFULL WIDTH (Meters): 1.5 This information must also be completed	Width Max = 30
Steam flowing Subsurface flow with isolated pools (interstitial) Comments: SINUOSITY (Number of bends per 61 m (200 ft) of channel. Check ONLY one box) None 1.0 2.0 3.0 3.0 0.5 STREAM GRADIENT ESTIMATE	3. BANK FULL WIDTH (Measured as teh average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts] > 1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: AVERAGE BANKFULL WIDTH (Meters): This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE: River left (L) and Right (R) as looking downstream	Width Max = 30
None 1.0 2.0 3.0 0.5 1.5 2.5 >3.0 STREAM GRADIENT ESTIMATE	3. BANK FULL WIDTH (Measured as teh average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (>13') [30 pts]	Width Max = 30
	3. BANK FULL WIDTH (Measured as teh average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>97" - 13') [25 pts] >1.5 m - 3.0 m(>917" - 4'8") [20 pts] COMMENTS: AVERAGE BANKFULL WIDTH (Meters): AVERAGE BANKFULL WIDTH (Meters): 1.5 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE: River left (L) and Right (R) as looking downstream RIPARIAN WIDTH L R (Per Bank L R (Most Predominant Per Bank V Wide >10 m Moderate 5-10 m Moderate 5-10 m Narrow <5 m None Comments: FLOW REGIME (At time of evaluation) (Check ONLY one box): Steam flowing Subsurface flow with isolated pools (interstitial) Moist channel, isolated pools, no flow (Intermitter Dry channel, no water (Ephemeral))	Width Max = 30

ADDITIONAL STREAM INFORMATION (This information must also be completely	lete
	attach completed QHEI form)
DOWNSTREAM DESIGNATED USE(S)	
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 ENTIRE WATERSHED ARE	:A. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name Mooresville East NRCS Soil Map Page	NRCS Soil Map Stream Order:
County: Morgan Township / City: Harrison	
MISCELLANEOUS	
Base flow conditions? (Y/N) Yes Date of last precipitation: 10/26	Quantity 0.01
Photograph information:	
Elevated Turbidity? (Y/N) Canopy (% open): 30	
Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. a	and attach results) Lab number: N/A
Field Measures: Temp (C) Dissolved oxygen (mg/l): pH:	Conductivity (umhos/cm)
Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Not ID number. Include apropriate field data sheets from the Primary	
Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N)	No Voucher? (Y/N) No
Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebra	ates observed? (Y/N) No Voucher? (Y/N) No
Comments Regarding Biology:	

Stream Reach S6S087a



Stream Location on 2013 Aerial Photograph

Stream Location on Mooresville East USGS Quadra

Stream Name: UNT 2 Bluff Creek Quadrangle: Mooresville East

Flow Regime: Intermittent Morgan County: Natural T13N **Channel Type:** Township: R2E No Legal Drain: Range: IDEM 303(d) Listed: No Section: 24 Predominant Substrate: silt - sand Quarter: SE

Evaluation Score:HHEI = 60Latitude:39.551901Use Designation:Class III PHWHLongitude:-86.256989

OHWM width: 6.0 Basin: White River - North Bluff/Bluff Cre

OHWM depth: 0.5 **14-digit HUC:** 05120201140030

USACE Jurisdiction: Yes **Drainage area:** 0.078

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	356	0.049	0.93
Aternative C2	312	0.043	0.90
Aternative C3	40	0.006	0.39
Aternative C4 (Preferred)	312	0.043	0.90



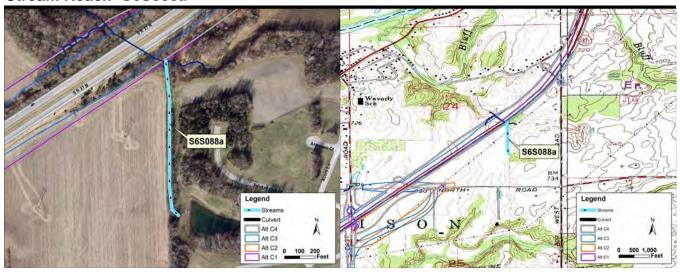




SITE NAME/LOCATION UNT Bluff Creek		
SITE NUMBER S6S087a RIVER B	BASIN White River - North Bluff/ DRAINAGE AREA (mi)	0.078
LENGTH OF STEAM REACH (ft) LAT 39.551901 L	ONG86.256989 RIVER CODE N/A RIVER MILE N/A	4
DATE 6/23/2016 SCORER al COMMENT		
NOTE: Complete All Items On This Form - Refer to ""Field Evalu	uation Manual for Ohio's PHWH Streams" for Instructions	
STREAM CHANNEL	COVERED RECOVERING RECENT OR NO RECOV	/ERY
SUBSTRATE (Estimate percent of every type of substrate p (Max of 32). Add total number of significant subsrate types four TYPE PERCENT TYPE	nd (Max of 8). Final metric score is sum of boxes A and B.)	HHEI Metric
BLDR SLABS [16 pts]	SILT [3 pt] <u>35</u>	
BOULDER (>256 mm) [16 pts 5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		Substrate Max = 40
COBBLE (65-256 mm) [9 pt	CLAY or HARDPAN [0 pts] 0 MUCK [0 pts] 0 ARTIFICIAL [3 pts] 0	15
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 15.00% (A)	Substrate Percentage Check 100 % (B)	(A+B)
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPE	TOTAL NUMBER OF SUBSTRATE TYPES 6	
2. MAXIMUM POOL DEPTH (Measure the maximum pool dep of evaluation. Avoid plunge pools from road culverts or storm		Pool Dep Max = 3
>>30 centimeters [20 pts] >22.5 - 30 cm [30 pts] >10 - 22.5 cm [25 pts]	 >5 cm - 10 cm [15 pts] <5 cm [5 pts] No Water or Moist Channel [0 pts] 	25
COMMENTS:	MAXIMUM POOL DEPTH (centimeters): 20	
BANK FULL WIDTH (Measured as teh average of 3-> 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts]	>1.0 m - 1.5m (>3'3" - 4'8") [15 pts]	Bankful Width Max = 30
COMMENTS:	AVERAGE BANKFULL WIDTH (Meters): 2.8	20
This information	must also be completed	
RIPARIAN ZONE AND FLOODPLAIN QUALITY	NOTE: River left (L) and Right (R) as looking downstream	
RIPARIAN WIDTH FLOODPLAIN QUA	<u>LITY</u>	
	est, Wetland Orest, Shrub or Old Field Park, New Field Conservation Tillage Urban or Industrial Open Pasture, Row Crop	
FLOW REGIME (At time of evaluation) (Check ONL) ✓ Steam flowing	Y one box): Moist channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)	
Steam flowing Subsurface flow with isolated pools (interstitial) Comments:		
Subsurface flow with isolated pools (interstitial)		

DOWNSTREAM DESIGNATED USE(S) WWH Name: CWH Name: Disc	
DOWNSTREAM DESIGNATED USE(S) WWH Name: CWH Name: EWH Name: Dist MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLI USGS Quadrangle Name Mooresville East NRCS Soil Map Page County: Morgan Township / City: Harrison	stance from Evaluated Stream stance from Evaluated Stream stance from Evaluated Stream stance from Evaluated Stream
WWH Name: CWH Name: EWH Name: Diss MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLI USGS Quadrangle Name Mooresville East NRCS Soil Map Page County: Morgan Township / City: Harrison	stance from Evaluated Stream stance from Evaluated Stream SEARLY MARK THE SITE LOCATION
CWH Name: EWH Name: Disc MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLI USGS Quadrangle Name Mooresville East NRCS Soil Map Page County: Morgan Township / City: Harrison MISCELLANEOUS	stance from Evaluated Stream stance from Evaluated Stream EARLY MARK THE SITE LOCATION
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLI USGS Quadrangle Name	EARLY MARK THE SITE LOCATION
USGS Quadrangle Name Mooresville East NRCS Soil Map Page County: Morgan Township / City: Harrison MISCELLANEOUS	
County: Morgan Township / City: Harrison MISCELLANEOUS	NRCS Soil Map Stream Order:
MISCELLANEOUS	
	Quantity
Photograph information:	
Elevated Turbidity? (Y/N) No Canopy (% open): 10	
Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and att	tach results) Lab number: N/A
Field Measures: Temp (C) Dissolved oxygen (mg/l): pH:	Conductivity (umhos/cm)
Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	_
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all v ID number. Include apropriate field data sheets from the Primary Headw	
Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No	Voucher? (Y/N) No
Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrates of	bserved? (Y/N) No Voucher? (Y/N) N
Comments Regarding Biology:	

Stream Reach S6S088a



Stream Location on 2013 Aerial Photograph

Stream Location on Mooresville East USGS Quadra

Stream Name: UNT 3 Bluff Creek Quadrangle: Mooresville East

Flow Regime:IntermittentCounty:MorganChannel Type:Channelized DitchTownship:T13N

Legal Drain: No Range: R2E

IDEM 303(d) Listed: No Section: 24

Predominant Substrate: sand - muck Quarter: SE

Evaluation Score: HHEI = 28 **Latitude:** 39.551542 **Use Designation:** Class I PHWH **Longitude:** -86.255376

OHWM width: 1.6 Basin: White River - North Bluff/Bluff Cre

OHWM depth: 0.4 **14-digit HUC:** 05120201140030

USACE Jurisdiction: Yes **Drainage area:** 0.001

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	3	0.000	0.00
Aternative C2	0	0.000	0.00
Aternative C3	0	0.000	0.00
Aternative C4 (Preferred)	0	0.000	0.00





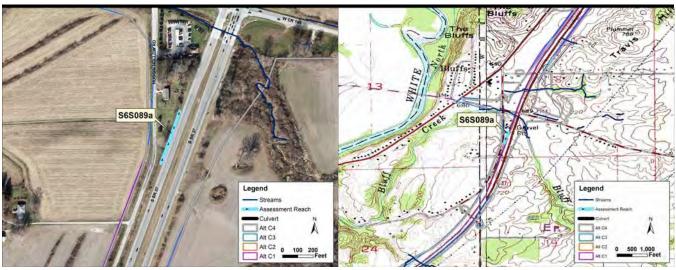


20	
20	

SITE NUMBER S6S088a RIVER BASIN White River - North Bluff/ DRAINAGE AREA (r	mi) 0.001
LENGTH OF STEAM REACH (ft) LAT 39.551542 LONG86.255376 RIVER CODE N/A RIVER	MILE N/A
DATE 1/26/2016 SCORER rh COMMENT	
NOTE: Complete All Items On This Form - Refer to ""Field Evaluation Manual for Ohio's PHWH Streams" for Instruc	tions
STREAM CHANNEL	NO RECOVERY
 SUBSTRATE (Estimate percent of every type of substrate presentCheck ONLY two predominant substrate TYPE be (Max of 32). Add total number of significant subsrate types found (Max of 8). Final metric score is sum of boxes A and TYPE PERCENT TYPE PERCENT	B.) HHEI Metric
□ □ BLDR SLABS [16 pts] 0 □ SILT [3 pt] 0	Points
BOULDER (>256 mm) [16 pts	Substrate Max = 40
COBBLE (65-256 mm) [9 pt CLAY or HARDPAN [0 pts] GRAVEL (2-64 mm) [9 pts] MUCK [0 pts]	-
SAND (<2 mm) [6 pts] 30 ARTIFICIAL [3 pts] 0	8
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock O.00% (A) Substrate Percentage Check 100 % (B)	(A+B)
	2
2. MAXIMUM POOL DEPTH (Measure the maximum pool depth within the 61 meter (200 ft) valuation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes)	Pool Depth Max = 30
→ >30 centimeters [20 pts] → 5 cm - 10 cm [15 pts] → 5 cm [5 pts] → 5 cm [5 pts]	
>10 - 22.5 cm [25 pts]	15
COMMENTS: MAXIMUM POOL DEPTH (centimeters):	0
3. BANK FULL WIDTH (Measured as teh average of 3-4 measurements) (Check ONLY one box):	Bankfull
3. BANK FULL WIDTH (Measured as teh average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] (Check ONLY one box): > 1.0 m - 1.5m (>3'3" - 4'8") [15 pts] <=1.0m (<=3'3") [5 pts]	Bankfull Width Max = 30
> 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] > 1.5 m - 3.0 m(>9'7" - 4'8") [20 pts]	Width
> 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS:	Width Max = 30
> 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: AVERAGE BANKFULL WIDTH (Meters): This information must also be completed	Width Max = 30
> 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: AVERAGE BANKFULL WIDTH (Meters): This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE: River left (L) and Right (R) as looking downstreal	Width Max = 30
> 4.0 meters (>13') [30 pts] > 1.0 m - 1.5m (>3'3" - 4'8") [15 pts] <=1.0m (<=3'3") [5 pts] > 1.5 m - 3.0 m(>9'7" - 4'8") [20 pts]	Width Max = 30
> 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: AVERAGE BANKFULL WIDTH (Meters): This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE: River left (L) and Right (R) as looking downstreal	Width Max = 30 5 am
> 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE: River left (L) and Right (R) as looking downstreat RIPARIAN WIDTH L R (Per Bank	Width Max = 30 5 am
> 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE: River left (L) and Right (R) as looking downstreat RIPARIAN WIDTH L R (Per Bank L R (Most Predominant Per Bank Wide >10 m Mature Forest, Wetland Moderate 5-10 m Moderate 5-10 m None None Comments:	Width Max = 30 5 am e / Croption
> 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE: River left (L) and Right (R) as looking downstread RIPARIAN WIDTH L R (Per Bank L R (Most Predominant Per Bank Wide >10 m Mature Forest, Wetland Moderate 5-10 m Mature Forest, Shrub or Old Field Moderate 5-10 m None None Comments: FLOW REGIME (At time of evaluation) (Check ONLY one box): Steam flowing Subsurface flow with isolated pools (interstitial) >1.0 m - 1.5m (>3'3" - 4'8") [15 pts] >1.0 m - 1.5m (>3'3" 4'8") [15 pts] NOTE: River left (L) and Right (R) as looking downstread RIPARIAN (Per Bank L R (Most Predominant Per Bank L R (Des Park	Width Max = 30 5 am e / Croption
> 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE: River left (L) and Right (R) as looking downstreat RIPARIAN WIDTH L R (Per Bank Wide >10 m Wide >10 m Mature Forest, Wetland Wide >10 m Moderate 5-10 m Wide >10 m None Comments: FLOW REGIME (At time of evaluation) Comments: Moist channel, isolated pools, no flow (Interstitial) Comments: Moist channel, no water (Ephemeral) Comments:	Width Max = 30 5 am e / Croption

ADDITIONAL STREAM INFORMATION (This information must also be compl	lete
	attach completed QHEI form)
DOWNSTREAM DESIGNATED USE(S)	
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 ENTIRE WATERSHED ARE	EA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name Mooresville East NRCS Soil Map Page	NRCS Soil Map Stream Order:
County: Morgan Township / City: Harrison	
MISCELLANEOUS	
Base flow conditions? (Y/N) Yes Date of last precipitation: 1/26	Quantity .01
Photograph information:	<u> </u>
Elevated Turbidity? (Y/N) Canopy (% open): 60	
Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. a	and attach results) Lab number: N/A
Field Measures: Temp (C) Dissolved oxygen (mg/l): pH:	Conductivity (umhos/cm)
Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. No ID number. Include apropriate field data sheets from the Primary	
Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N)	No Voucher? (Y/N) No
Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebra	rates observed? (Y/N) No Voucher? (Y/N) No
Comments Regarding Biology:	

Stream Reach S6S089a



Stream Location on 2013 Aerial Photograph

Stream Location on Bargersville USGS Quadrangle

UNT 4 Bluff Creek Quadrangle: Bargersville **Stream Name:** Flow Regime: Ephemeral Johnson County: Roadside Ditch T13N **Channel Type:** Township: No R3E Legal Drain: Range: IDEM 303(d) Listed: No Section: 18 Predominant Substrate: sand - hardpan Quarter: SW

Evaluation Score: HHEI = 13 Latitude: 39.563046 Use Designation: Class I PHWH Longitude: -86.248175

OHWM width: 1.0 Basin: White River - North Bluff/Bluff Cre

OHWM depth: 0.4 **14-digit HUC:** 05120201140030

USACE Jurisdiction: Yes Drainage area: 0.001

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	352	0.008	0.00
Aternative C2	352	0.008	0.00
Aternative C3	352	0.008	0.00
Aternative C4 (Preferred)	352	0.008	0.00



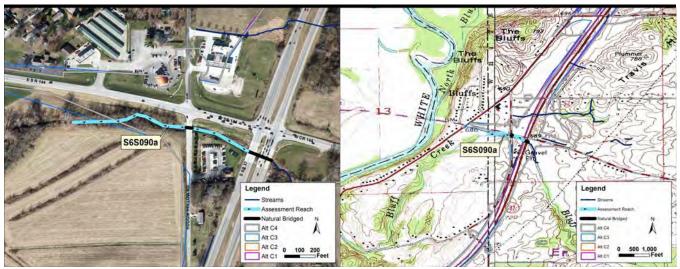




SITE NAME/LOCATION UNT Bluff Cree	ek	
SITE NUMBER	S6S089a RIVER BASIN White River - North Bluff/ DRAINAGE AREA (mi)	0.001
LENGTH OF STEAM REACH (ft)	LAT 39.563046 LONG86.248175 RIVER CODE N/A RIVER MILE	N/A
DATE 2/18/2016 SCORER rh	COMMENT	
NOTE: Complete All Items On This Fo	orm - Refer to ""Field Evaluation Manual for Ohio's PHWH Streams" for Instructions	
STREAM CHANNEL NONE / NAT MODIFICATIONS:	TURAL CHANNE ☐ RECOVERED ☐ RECOVERING ☑ RECENT OR NO REC	OVERY
	f every type of substrate presentCheck ONLY two predominant substrate TYPE boxes gnificant subsrate types found (Max of 8). Final metric score is sum of boxes A and B.) PERCENT TYPE PERCENT	HHEI Metric Points
BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts BEDROCK [16 pts] COBBLE (65-256 mm) [9 pt GRAVEL (2-64 mm) [9 pts]	0 SILT [3 pt] 0 0 LEAF PACK/WOODY DEBRIS [3 pts 0 0 FINE DETRITUS [3 pts] 0 0 ✓ CLAY or HARDPAN [0 pts] 70 0 MUCK [0 pts] 0	Substrate Max = 40
✓	30 ARTIFICIAL [3 pts] 0	8
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock	0 000/ (Δ) Check 100 % (B)	(A+B)
SCORE OF TWO MOST PREDOMINATE	SUBSTRATE TYPE 6 TOTAL NUMBER OF SUBSTRATE TYPES 2	
	re the maximum pool depth within the 61 meter (200 ft) valuation reach at the time from road culverts or storm water pipes)	Pool Dept Max = 30
>>30 centimeters [20 pts] >22.5 - 30 cm [30 pts] >10 - 22.5 cm [25 pts]	>5 cm - 10 cm [15 pts] <5 cm [5 pts] ✓ No Water or Moist Channel [0 pts]	0
COMMENTS: Constructed Roadsid	ide Ditch MAXIMUM POOL DEPTH (centimeters):	
3. BANK FULL WIDTH (Measure > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts] > 1.5 m - 3.0 m(>9'7" - 4'8") [20 pts]	red as teh average of 3-4 measurements) (Check ONLY one box): >1.0 m - 1.5m (>3'3" - 4'8") [15 pts] <=1.0m (<=3'3") [5 pts]	Bankfull Width Max = 30
COMMENTS:	AVERAGE BANKFULL WIDTH (Meters): 0.3	5
	This information must also be completed	
RIPARIAN ZONE AND FLOO	DDPLAIN QUALITY NOTE: River left (L) and Right (R) as looking downstream	
<u>RIPARIAN WIDTH</u>	FLOODPLAIN QUALITY	
L R (Per Bank Wide >10 m Moderate 5-10 m Narrow <5 m None Comments:	L R (Most Predominant Per Bank Mature Forest, Wetland Immature Forest, Shrub or Old Field Residential, Park, New Field Fenced Pasture L R Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction	
FLOW REGIME (At time of Steam flowing Subsurface flow with isolated programments:	of evaluation) (Check ONLY one box): Moist channel, isolated pools, no flow (Intermittent) Dry channel, no water (Ephemeral)	
SINUOSITY (Number of bendance	1.0	
	Moderate Moderate (2 ft/100 ft) Moderate to Severe Severe (10 ft /10	0 ft)

ADDITIONAL STREAM INFORMATION (This information must also be comple	ete .
	tach completed QHEI form)
DOWNSTREAM DESIGNATED USE(S)	
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 ENTIRE WATERSHED AREA	. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name Bargersville NRCS Soil Map Page	NRCS Soil Map Stream Order:
County: Johnson Township / City: White River	
MISCELLANEOUS	
Base flow conditions? (Y/N) No Date of last precipitation: 2/14	Quantity 2.2
Photograph information:	<u> </u>
Elevated Turbidity? (Y/N) Canopy (% open): 100	
Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. ar	nd attach results) Lab number: N/A
Field Measures: Temp (C) Dissolved oxygen (mg/l): pH:	Conductivity (umhos/cm)
Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note ID number. Include apropriate field data sheets from the Primary H	
Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N)	No Voucher? (Y/N) No
Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrat	tes observed? (Y/N) No Voucher? (Y/N) N
Comments Regarding Biology:	

Stream Reach S6S090a



Stream Location on 2013 Aerial Photograph

Stream Location on Bargersville USGS Quadrangle

Bluff Creek **Stream Name:** Quadrangle: Bargersville Flow Regime: Perennial Johnson County: Natural T13N **Channel Type:** Township: No R3E Legal Drain: Range: IDEM 303(d) Listed: Section: 18 No Predominant Substrate: muck - silt Quarter: SW

Evaluation Score: QHEI = 32 **Latitude:** 39.565282 **Use Designation:** Modified Warm Water Habitat **Longitude:** -86.247877

OHWM width: 11.5 Basin: White River - North Bluff/Bluff Cre

OHWM depth: 0.3 **14-digit HUC:** 05120201140030

USACE Jurisdiction: Yes **Drainage area:** 3.689

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	776	0.205	0.95
Aternative C2	699	0.185	0.85
Aternative C3	776	0.205	0.95
Aternative C4 (Preferred)	699	0.185	0.85





OWQ Biological Studies QHEI (Qualitative Habitat Evaluation Index)

IDEM	Sample #		bioSample #	Stream Name Bluff Creek		Location	
	Surveyor	Sample Date		Macro Sample Type	☐ Habitat	OUEI Coore	22
	rh	4/26/2016	Johnson	N/A	Complete	QHEI Score:	32
1] SUB	STRATE	Check ONLY Two	predominant sub 6 and check ever	strate TYPE BOXES;	Chack ON	E (Or 2 and average)	
1	BEST TYP			IER TYPES	ORIGIN	E (Or 2 and average) QUALITY	
PREDOMINA		PRESENT TOTAL 9	6 PREDOMINANT	PRESENT TOTAL %			
$\stackrel{P}{\square} \stackrel{R}{\square} BL$	DR/SLABS [1	01 PR	P R HARDPA	AN [4] PR V	LIMESTONE [1] TILLS [1]]	
Щ	OULDERS [9] OBBLE [8]	´	☐☐☐ DETRITU		WETLANDS [0]		Substrate
	AVEL [7]		✓ ☐ MUCK [2 ☐ ✓ SILT [2]	$\begin{array}{c c} 40 & $	HARDPAN [0] SANDSTONE [o]	4.0
	ND [6] DROCK [5]		□□ ARTIFIC	IAL [0]	RIP/RAP [0] LACSTRINE [0]	☐ EXTENSIVE [-2] ☐ MODERATE [-1]	- 11
	OF BEST TY	PES: 4 or me		natural substrates;ignore	SHALE [-1]	☐ NORMAL [0]	Maximum
		✓ 3 or les	ss [0] sludge	from point-sources)	COAL FINES [-	2]	20
Comme							
	FREAM CO V			d estiamte percent: 0-Absent; in small amounts of highest qu			
quality in	moderate or g	greater amounts (e.g., very large b	oulders in deep or fast water, la	arge diameter lo		_
	•	eloped root wad ir	•	or deep, well-defined, functino	al pools.)	EXTENSIVE >	
% Amount 0 1 I	UNDERCUT B	ANKS [1]	% Amount 0 1 PO	% Amount OOLS>70CM [2] <u>0</u> <u>0</u> OXB0	OWS. BACKWAT	☐ MODERATE 2 [ERS [1] ☑ SPARSE -<25	
0 0	OVERHANGIN	IG VEGETATION	[1] <u>0 0</u> RO	OTWADS [1] <u>0</u> <u>1</u> AQU	ATIC MACROPH	YTES [1] 🗌 NEARLY ABS	
	SHALLOWS (I ROOTMATS [IN SLOW WATER 1])[1] <u>U</u> BO	ULDERS[I] <u>U 1</u> LUG	S OR WOODY D	Cov Maxim	
	-					IVIAXIIII	3.0
Comme							
-				category (Or 2 and average)			
SINUOS		DEVELO		CHANNELIZATION		ABILITY	
HIGH [RATE [3]	☐ EXCELLE ☐ GOOD [5		☐ NONE [6] ☐ RECOVERED [4]		HIGH [3] MODERATE [2	nel 🗀
LOW [✓ FAIR [3[POOR [1]		RECOVERING [3] RECENT OR NO RECOVER		OW [1] Maxim	um 20 10.0
Comme				_ KECENT OK NO KECOVER	VI [I]		20 1010
4] <i>BAN</i>	IK EROSIOI	N AND RIPARI	AN ZONE Che	ck ONE in each category for E.	ACH BANK (Or	2 per bank and average)	
River rig	ht looking downst		ARIAN WIDT			L R	
L R	EROSION	' □ □ MODE	>50m [4] ERATE 10-50m	FOREST, SWAMP [3] SCRUB OR OLD FIEL		☐ CONSERVATION T✓ URBAN OR INDUS	
	NE/LITTLE [3] Derate [2]	J □□ NARF	OW 5-10m [2]	RESIDENTIAL, PRK,	NEW FIELD [1]	☐ ☐ MINING/CONSTRU	CTION [0]
HE.	AVY/SEVERE	[1] VERY	NARROW [1] [0]	FENCED PASTURE [TODOD TOT	cate predominant land use(s	
					P	Ripari Maxim	
Comme							10
5] <i>POO</i>	L/GLIDE A	ND RIFFLE /RU	IN QUALITY			Recreation	Potential
	UM DEPTI NE (ONLY!	H CHAN	NEL WIDTH IE (Or 2 and ave		NT VELOCI k All that apply		
>1 m [d	6] [`]	POOL WI	DTH > RIFFLE WI	DTH [2] 🔲 TORRENTIAL	[-1] 🗹 SLO\		
✓ 0.7 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0.4 - < 0	1m [4] 0.7m [2]		DTH = RIFFLE WI DTH < RIFFLE WI			חאודדבאד ניז	ry Contact
0.2 - <0	0.4m [1]			☐ MODERATE [1]] 🗌 Eddi	ES [1] Curre	ool/ ent
<0.2m				Indic	ate for reach - p	ools and riffles Maxim	6.0
Comme		rifflos: Post ora-	e muet he lever -	nough to curport a population			14
	obligate speci		s musi be large e	nough to support a population	ao)	✓ NO RIFFLE [MET	TRIC=01
RIFFLE	DEPTH	RUN DI	EPTH	Check One (Or 2 and average RIFFLE/RUN SUBSTR	o ,	FLE/RUN EMBEDDE	
BEST	AREAS>10cm	n [2] 🔲 MAXIM	1UM >50cm [2]	☐ STABLE (e.g., Cobble, Bou	ılder) [2	NONE [2]	-
	AREAS 5-10cı AREAS <5cm	m [i ∟ MAXIN	1UM<50cm [1]	MOD. STABLE (e.g., Large UNSTABLE (e.g., Fine Frve	Gravei) [1] el, Sand) [0]	LOW [1] Riff MODERATE [0] Riff	
	[metri	c=0]		(J,	. ,	EXTENSIVE [-1] Maxim	
Comme	nts						8
6] GRAD	DIENT (8.6	· · · · · · · · · · · · · · · · · · ·	VERY LOW - I		⁵⁰ % GL		ian 🗔
DRAII	NAGE AREA	4 (3.69 ft/mi)	✓ MODERATE [☐ HIGH - VERY		0 % RIF	Ripari F LE: 40 Maxim	an um 10 6.0

OWQ Biological Studies QHEI (Qualitative Habitat Evaluation Index)

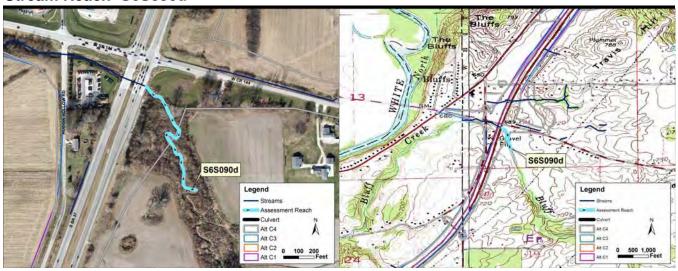


Comment

A-CANOPY					
✓ >85% - Open Loo	king upstream (>10m, 3 readin	gs, <10m reading in midd	le); Round to the ne	earest whole percent	
55% -<85%	Left	Middle	Right	Total Average	
30%-<55% % 6	open %	%	%	%	
10%-<30%					
<10% - Closed					
B-AESTHETICS		C-RECR	EATION		
	l sheen				
	ash/Litter	Area Pool:	Depth □ > 3ft		
	isance odor	Pool: > 100ft ²	·		
	udge deposits				
Foam/Scum CS	SOs/SSOs/Outfalls				
			_		
D-MAINTENANCE		<u>E-ISSUE</u>	<u>:S</u>		
☐ Public ☐ Private		WWTP		IPDES	
Active Historic		Industr	y 🗌 Urban		
Succession: Young Old		Harden	ed 🗌 Dirt Gr	ime	
☐ Spray ☐ Islands ☐ Scoure	d	Contam	ninated 🗌 La	andfill	
Snag: Removed Modified	t	BMPs:	Construction	Sediment	
Leveed: One sided Bot	n banks	Logging	g 🗌 Irrigation	Cooling	
☐ Relocated ☐ Cutoffs		Erosion:	Bank S	Surface	
Bedload: Moving Stab	le	False b	ank 🗌 Manu	re 🗌 Lagoon	
Armoured Slumped		Wash H	I2O 🗌 Tile 🛚	H2O table	
☐ Impounded ☐ Desiccated		Mine:	Acid 🗌 Quar	ry	
☐ Flood control ☐ Drainage		Flow:	Natural 🗌 Sta	agnant	
		Wetland	d 🗌 Park 🗌	Issues: Golf	
		Lawn	Home		
		Atmosp	heric deposition	on	

Stream Drawing:

Stream Reach S6S090d



Stream Location on 2013 Aerial Photograph

Stream Location on Bargersville USGS Quadrangle

Bluff Creek **Stream Name:** Quadrangle: Bargersville Flow Regime: Perennial Johnson County: Natural T13N **Channel Type:** Township: No R3E Legal Drain: Range: IDEM 303(d) Listed: Section: 18 No Predominant Substrate: muck - silt Quarter: 18

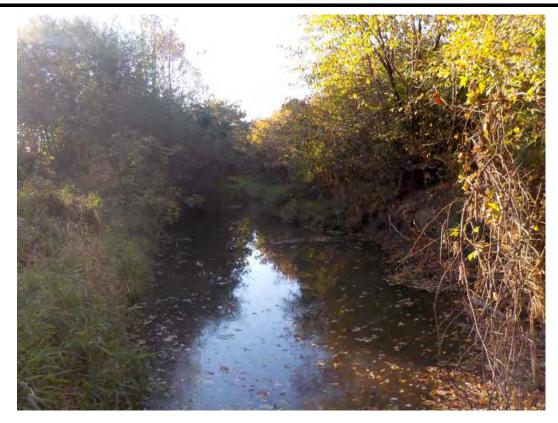
Evaluation Score: QHEI = 46 **Latitude:** 39.564653 **Use Designation:** Probable Warm Water Habitat **Longitude:** -86.246731

OHWM width: 16.5 Basin: White River - North Bluff/Bluff Cre

OHWM depth: 3.0 **14-digit HUC:** 05120201140030

USACE Jurisdiction: Yes Drainage area: 3.4

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	451	0.171	1.10
Aternative C2	441	0.167	1.06
Aternative C3	441	0.167	1.06
Aternative C4 (Preferred)	441	0.167	1.05





OWQ Biological Studies QHEI (Qualitative Habitat Evaluation Index)

IDEM	Sample # S6S090d		bioSample #	Stream Name Bluff Creek		Location	1
1000	Surveyor	Sample Date	County	Macro Sample Type	☐ Habitat	QHEI Score:	46
41 040	rc	10/20/2015	Johnson	N/A	Complete	<u> </u>	
-	BEST TYP	estimate %	and check ever OTh	ostrate TYPE BOXES; y type present HER TYPES	Check ON	IE (Or 2 and average) QUALITY	
BC CC GR SA BE	ANT DR/SLABS [11 DULDERS [9] DBBLE [8] RAVEL [7] AND [6] DROCK [5] OF BEST TY		P R HARDPA DETRITION MUCK [1 SILT [2] ARTIFIC	US [3]	LIMESTONE [1 TILLS [1] WETLANDS [0] HARDPAN [0] SANDSTONE [RIP/RAP [0] LACSTRINE [0] SHALE [-1] COAL FINES [-	MODERATE [-1] ✓ NORMAL [0] FREE [1] FREE [1] EXTENSIVE [-2] ✓ MODERATE [-1] NORMAL [0]	Substrate 4.0
Comme							
quality; 2- quality in that is sta % Amount 0 1 0 1 0 0	moderate or globle, well developed to the well developed to the well and the well a	ounts, but not of greater amounts (eloped root wad in ANKS [1] IG VEGETATION N SLOW WATER	highest quality or e.g., very large b or deep/fast water, % Amount 0 1 PO 1 0 RO	d estiamte percent: 0-Absent; in small amounts of highest quoulders in deep or fast water, le or deep, well-defined, functing Amount (OOLS>70CM [2]00OXB (OTWADS [1]01AQU (ULDERS [1]01LOG	uality; 3- Highest arge diameter log pal pools.)	AMO G Check One (Or 2 EXTENSIVE : MODERATE 2 TERS [1] ✓ SPARSE -<25 IYTES [1] NEARLY ABS	UNT and average) >75% [11] 25-75% [7] [% [3] SENT <5% [1] Ver
		PHOLOGY Ch	eck ONE in each	category (Or 2 and average)			
SINUOS HIGH [SITY [4] RATE [3] [2] [1]	DEVELOI ☐ EXCELLE ☑ GOOD [5 ☐ FAIR [3] ☐ POOR [1]	PMENT ENT [7]]	CHANNELIZATION NONE [6] RECOVERED [4] RECOVERING [3] RECENT OR NO RECOVER	 \ 	ABILITY HIGH [3] MODERATE [2 Chan LOW [1] Maxim	
4] <i>BAN</i>	IK EROSIOI	N AND RIPARIA	AN ZONE Che	eck ONE in each category for E	ACH BANK (Or	2 per bank and average)	
L R NO	ent looking downst EROSION DNE/LITTLE [3] DDERATE [2] AVY/SEVERE nts	WIDE MODE NARR	ARIAN WIDT >50m [4] ERATE 10-50m PROW 5-10m [2] NARROW [1] E [0]	H L R FLOOD PLAIN FOREST, SWAMP [3] SCRUB OR OLD FIEL RESIDENTIAL, PRK, FENCED PASTURE [OPEN PASURE, ROV	LD [2] NEW FIELD [1] 1] Indic	L R CONSERVATION 1 URBAN OR INDUS MINING/CONSTRU cate predominant land use(100m riparian Ripar Maxim	TRIAL [0] SINGLE [0] S
5] <i>POC</i>	DL/GLIDE A	ND RIFFLE /RU	JN QUALITY			Recreation	Dotontial
Check ON >1 m [4	1m [4] 0.7m [2] 0.4m [1] [0]	Check ON POOL WI	NEL WIDTH NE (Or 2 and ave DTH > RIFFLE W DTH = RIFFLE W DTH < RIFFLE W	rage) Chec IDTH [2] TORRENTIAL IDTH [1] VERY FAST [1] IDTH [0] FAST [1] MODERATE [1]] INTE	TY (Circle one and co W [1] Primary RSTITIAL [-1] Seconda RMITTENT [-2] Po ES [1] Curr	mment on back) Contact ry Contact OOI/ ent
		riffles: Best area	s must be large e	enough to support a population			
of riffle-o	obligate speci E DEPTH AREAS>10cm AREAS 5-10c AREAS <5cm [metri	RUN DI [2] MAXIN m [1 MAXIN	Ū	Check One (Or 2 and avera RIFFLE/RUN SUBSTR STABLE (e.g., Cobble, Bot MOD. STABLE (e.g., Large UNSTABLE (e.g., Fine Free	ATE RIF ulder) [2 [Gravel) [1]	✓ <u>NO RIFFLE [ME</u> FLE/RUN EMBEDDE NONE [2] LOW [1] Rif MODERATE [0] F EXTENSIVE [-1] Maxim	DNES
		ft/mi)	☐ VEDV LOW	LOW [2 - 4] % POOL:	65 % GL	IDE: 5	
_	DIENT (8.6 NAGE ARE	· ·	VERY LOW -MODERATE HIGH - VERY	6 - 10]	20 % RIF	Ripar	ian ium 10.0

OWQ Biological Studies QHEI (Qualitative Habitat Evaluation Index)

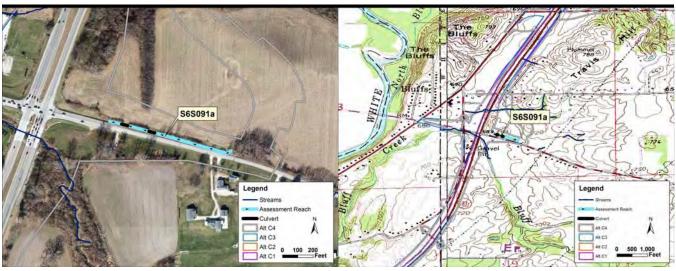


Comment

A-CANOPY						
✓ >85% - Open	Looking upstrea	m (>10m, 3 readi	ngs, <10m reading in m	iddle); Round to the n	earest whole percent	
55% -<85%		Left	Middle	Right	Total Average	
30%-<55 %	% open	%	%	%	%	
10%-<30%	•					
<10% - Closed						
B-AESTHETICS			C-REC	REATION		
Nuisance algae	Oil sheen		Area	Depth		
Invasive macrophytes	Trash/Litter		Pool:	•		
Excess turbidity	Nuisance o	dor	1 001 > 1001			
☐ Discoloration ☐	Sludge dep	osits				
☐ Foam/Scum	CSOs/SSOs	/Outfalls				
D-MAINTENANCE			E-ISSU	IEG		
					NDDEC	
☐ Public ☐ Private ☐ Active ☐ Historic			☐ WWT		NPDES	
	Old		☐ Indu	· —	rimo	
	oured				andfill	
_ · <u>-</u>	dified		BMPs:	Construction		
	Both banks		Logg			
Relocated Cutoffs	Don's barine		Erosion		_	
	Stable			e bank Manu		
Armoured Slumped			☐ Wasl	h H2O 🔲 Tile [H2O table	
☐ Impounded ☐ Desiccated	d		Mine:	Acid Qua	rry	
☐ Flood control ☐ Drainag	ge		Flow:	Natural St	agnant	
			Wetla	and 🗌 Park 📗	Issues: Golf	
			Lawı	n 🗌 Home		
			Atmo	spheric depositi	on	

Stream Drawing:

Stream Reach S6S091a



Stream Location on 2013 Aerial Photograph

Stream Location on Bargersville USGS Quadrangle

UNT 5 Bluff Creek Bargersville Quadrangle: **Stream Name:** Flow Regime: Ephemeral Johnson County: Roadside Ditch T13N **Channel Type:** Township: No R3E Legal Drain: Range: IDEM 303(d) Listed: Section: 18 No Predominant Substrate: woody detritus - fine detritus Quarter: SE

Evaluation Score:HHEI = 13Latitude:39.565043Use Designation:Class I PHWHLongitude:-86.245235

OHWM width: 1.3 Basin: White River - North Bluff/Bluff Cre

OHWM depth: 0.5 **14-digit HUC:** 05120201140030

USACE Jurisdiction: Yes **Drainage area:** 0.005

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	588	0.017	0.04
Aternative C2	588	0.017	0.04
Aternative C3	588	0.017	0.04
Aternative C4 (Preferred)	588	0.017	0.04



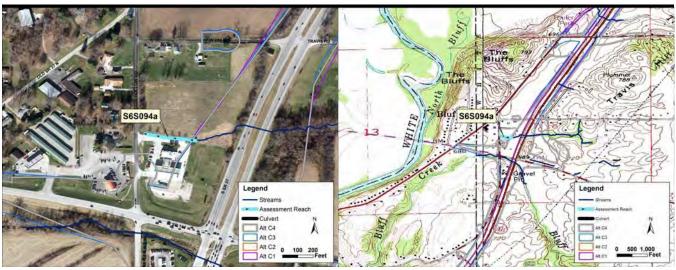




SITE NAME/LOCATION UNT Bluff Creek				
SITE NUMBER S6	S091a RIVER BASIN	White River - North Bluff/ DF	RAINAGE AREA (mi)	0.005
LENGTH OF STEAM REACH (ft)	LAT 39.565043 LONG	686.245235 RIVER CODE	N/A RIVER MILE N	I/A
DATE 10/20/2015 SCORER rjc	COMMENT			
NOTE: Complete All Items On This Form -	Refer to ""Field Evaluatio	n Manual for Ohio's PHWH Stre	eams" for Instructions	
STREAM CHANNEL NONE / NATURA MODIFICATIONS:	AL CHANNE	ERED RECOVERING	RECENT OR NO RECO	OVERY
	ant subsrate types found (MERCENT	lax of 8). Final metric score is su	Im of boxes A and B.) PERCENT	HHEI Metric Points
BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts BEDROCK [16 pts] COBBLE (65-256 mm) [9 pt GRAVEL (2-64 mm) [9 pts]	0 0 0 0	SILT [3 pt] LEAF PACK/WOODY DEBRIS [3 FINE DETRITUS [3 pts] CLAY or HARDPAN [0 pts] MUCK [0 pts]	80 0	Substrate Max = 40
SAND (<2 mm) [6 pts] Total of Percentages of	0 0.00% (A)	ARTIFICIAL [3 pts] Substrate Percentage Check 100 %	(B)	(A+B)
Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUI		TOTAL NUMBER OF SUBST	`` -	
 MAXIMUM POOL DEPTH (Measure th of evaluation. Avoid plunge pools from 			ion reach at the time	Pool Depth Max = 30
>>30 centimeters [20 pts] >22.5 - 30 cm [30 pts] >10 - 22.5 cm [25 pts]	▽	>5 cm - 10 cm [15 pts] <5 cm [5 pts] No Water or Moist Channel [0	pts]	0
COMMENTS:		MAXIMUM POOL DEPTH (centimeters): 0	
3. BANK FULL WIDTH (Measured a > 4.0 meters (>13') [30 pts]	ns teh average of 3-4 m	•	one box):	Bankfull Width Max = 30
3. BANK FULL WIDTH (Measured a > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts]	ns teh average of 3-4 m ✓	easurements) (Check ONLY >1.0 m - 1.5m (>3'3" - 4'8") [15	one box):	Width
3. BANK FULL WIDTH (Measured a > 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts]	s teh average of 3-4 m	easurements) (Check ONLY >1.0 m - 1.5m (>3'3" - 4'8") [15 <=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL WIE	one box):	Width Max = 30
3. BANK FULL WIDTH (Measured a > 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts]	This information mus	easurements) (Check ONLY >1.0 m - 1.5m (>3'3" - 4'8") [15 <=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL WIE talso be completed E: River left (L) and Right (R) as	one box): 5 pts] OTH (Meters): 4.5	Width Max = 30
3. BANK FULL WIDTH (Measured a > 4.0 meters (>13') [30 pts]	This information mus	easurements) (Check ONLY >1.0 m - 1.5m (>3'3" - 4'8") [15 <=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL WIE talso be completed E: River left (L) and Right (R) as	one box): 5 pts] OTH (Meters): 4.5	Width Max = 30
3. BANK FULL WIDTH (Measured a > 4.0 meters (>13') [30 pts]	This information mus. AIN QUALITY NOT FLOODPLAIN QUALITY L R (Most Predominar	easurements) (Check ONLY >1.0 m - 1.5m (>3'3" - 4'8") [15 <=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL WILL talso be completed TE: River left (L) and Right (R) as at Per Bank tetland Shrub or Old Field New Field	one box): 5 pts] OTH (Meters): 4.5	Width Max = 30
3. BANK FULL WIDTH (Measured a > 4.0 meters (>13') [30 pts]	This information mustalin QUALITY L R (Most Predominar Mature Forest, W Immature Forest, Residential, Park Fenced Pasture	easurements) (Check ONLY >1.0 m - 1.5m (>3'3" - 4'8") [15 <=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL WILL talso be completed E: River left (L) and Right (R) as at Per Bank Vetland Shrub or Old Field New Field C D New Field	one box): dual disconting downstream one box and a second downstream one box and a se	Width Max = 30
3. BANK FULL WIDTH (Measured a > 4.0 meters (>13') [30 pts]	This information must. AIN QUALITY NOT FLOODPLAIN QUALITY L R (Most Predominar Mature Forest, W. Immature Forest, Residential, Park Fenced Pasture Aluation) (Check ONLY one is (interstitial) er 61 m (200 ft) of channel. 1.0 1.5	easurements) (Check ONLY >1.0 m - 1.5m (>3'3" - 4'8") [15 <=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL WILL talso be completed Te: River left (L) and Right (R) as at Per Bank L R retland Shrub or Old Field New Field Down the box): Moist channel, isolated property of the property	one box): dual disconting downstream one box and a second downstream one box and a se	Width Max = 30

QHEI PERFORMED Yes ✓ No QHEI Score: 0 (If yes, attach completed QHEI form) DOWNSTREAM DESIGNATED USE(S) WWH Name: Distance from Evaluated Stream CWH Name: Distance from Evaluated Stream EWH Name: Distance from Evaluated Stream WAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION USGS Quadrangle Name Bargersville NRCS Soil Map Page NRCS Soil Map Stream Order: County: Johnson Township / City: White River MISCELLANEOUS Base flow conditions? (Y/N) Yes Date of last precipitation: 10/3 Quantity ,13 Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 100 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach results) Lab number: N/A Field Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conductivity (umhos/cm) Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:
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Stream Reach S6S094a



Stream Location on 2013 Aerial Photograph

Stream Location on Bargersville USGS Quadrangle

UNT 8 Bluff Creek **Stream Name:** Quadrangle: Bargersville Flow Regime: Intermittent Johnson County: Channelized Ditch T13N **Channel Type:** Township: No R3E Legal Drain: Range: IDEM 303(d) Listed: No Section: 18 Predominant Substrate: artificial - hardpan Quarter: SW

Evaluation Score: HHEI = 25 **Latitude:** 39.567102 **Use Designation:** Class I PHWH **Longitude:** -86.247457

OHWM width: 3.0 Basin: White River - North Bluff/Bluff Cre

OHWM depth: 0.3 **14-digit HUC:** 05120201140030

USACE Jurisdiction: Yes **Drainage area:** 0.253

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	21	0.001	0.00
Aternative C2	18	0.001	0.00
Aternative C3	14	0.001	0.00
Aternative C4 (Preferred)	18	0.001	0.00



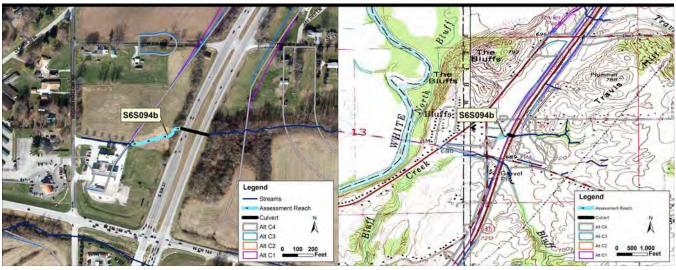




SITE NAME/LOCATION UNT Bluff Creek		
SITE NUMBER S6S094a RIVE	R BASIN White River - North Bluff/ DRAINAGE AREA (mi)	0.253
LENGTH OF STEAM REACH (ft) LAT 39.567102	LONG86.247457 RIVER CODE N/A RIVER MILE	N/A
DATE 1/26/2016 SCORER rh COMMEN	ιт	
NOTE: Complete All Items On This Form - Refer to ""Field E	valuation Manual for Ohio's PHWH Streams" for Instructions	
STREAM CHANNEL NONE / NATURAL CHANNE MODIFICATIONS:	RECOVERED ☐ RECOVERING ✓ RECENT OR NO REC	COVERY
(Max of 32). Add total number of significant subsrate types TYPE PERCENT T	re presentCheck ONLY two predominant substrate TYPE boxes found (Max of 8). Final metric score is sum of boxes A and B.) YPE PERCENT	HHEI Metric Points
BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts	SILT [3 pt] LEAF PACK/WOODY DEBRIS [3 pts 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Substrate Max = 40
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock (A)	Substrate Percentage Check 100 % (B)	(A+B)
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPE	3 TOTAL NUMBER OF SUBSTRATE TYPES 2	
MAXIMUM POOL DEPTH (Measure the maximum pool of evaluation. Avoid plunge pools from road culverts or stop to the pool of	depth within the 61 meter (200 ft) valuation reach at the time orm water pipes)	Pool Depth Max = 30
>>30 centimeters [20 pts] >22.5 - 30 cm [30 pts] >10 - 22.5 cm [25 pts]	✓ >5 cm - 10 cm [15 pts] <5 cm [5 pts] No Water or Moist Channel [0 pts]	15
COMMENTS:	MAXIMUM POOL DEPTH (centimeters): 10	
COMMENTS: BANK FULL WIDTH (Measured as teh average of > 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts]		Bankfull Width Max = 30
3. BANK FULL WIDTH (Measured as teh average of > 4.0 meters (>13') [30 pts]	f 3-4 measurements) (Check ONLY one box): >1.0 m - 1.5m (>3'3" - 4'8") [15 pts]	Width
3. BANK FULL WIDTH (Measured as teh average of > 4.0 meters (>13') [30 pts]	f 3-4 measurements) (Check ONLY one box): >1.0 m - 1.5m (>3'3" - 4'8") [15 pts] <=1.0m (<=3'3") [5 pts]	Width Max = 30
3. BANK FULL WIDTH (Measured as teh average of > 4.0 meters (>13') [30 pts]	f 3-4 measurements) (Check ONLY one box): >1.0 m - 1.5m (>3'3" - 4'8") [15 pts] <=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL WIDTH (Meters): ####	Width Max = 30
3. BANK FULL WIDTH (Measured as teh average of > 4.0 meters (>13') [30 pts]	f 3-4 measurements) (Check ONLY one box): >1.0 m - 1.5m (>3'3" - 4'8") [15 pts] <=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL WIDTH (Meters): #### on must also be completed NOTE: River left (L) and Right (R) as looking downstream	Width Max = 30
3. BANK FULL WIDTH (Measured as teh average of > 4.0 meters (>13') [30 pts]	f 3-4 measurements) (Check ONLY one box): >1.0 m - 1.5m (>3'3" - 4'8") [15 pts] <=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL WIDTH (Meters): #### On must also be completed NOTE: River left (L) and Right (R) as looking downstream UALITY dominant Per Bank L R Conservation Tillage Urban or Industrial Open Pasture, Row Crop Open Pasture, Row Crop	Width Max = 30
3. BANK FULL WIDTH (Measured as teh average of > 4.0 meters (>13') [30 pts]	F 3-4 measurements) (Check ONLY one box): >1.0 m - 1.5m (>3'3" - 4'8") [15 pts] <=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL WIDTH (Meters): #### on must also be completed NOTE: River left (L) and Right (R) as looking downstream UALITY dominant Per Bank Forest, Wetland Forest, Wetland Forest, Shrub or Old Field Fi	Width Max = 30
3. BANK FULL WIDTH (Measured as teh average of 24.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: This informati RIPARIAN ZONE AND FLOODPLAIN QUALITY RIPARIAN WIDTH L R (Per Bank L R (Most Pre Wide >10 m Moderate 5-10 m Moderate 5-10 m Narrow <5 m None Comments: FLOW REGIME (At time of evaluation) (Check Of 5 team flowing Subsurface flow with isolated pools (interstitial) Comments: SINUOSITY (Number of bends per 61 m (200 ft) of compense of 1.0 compense of 1.5 team GRADIENT ESTIMATE	F 3-4 measurements) (Check ONLY one box):	Width Max = 30

ADDITIONAL STREAM INFORMATION (This information must also be comple	te
	ach completed QHEI form)
DOWNSTREAM DESIGNATED USE(S)	
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 ENTIRE WATERSHED AREA	. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name Bargersville NRCS Soil Map Page	NRCS Soil Map Stream Order:
County: Johnson Township / City: White River	
MISCELLANEOUS	
Base flow conditions? (Y/N) Yes Date of last precipitation: 1/26	Quantity 0.01
Photograph information:	<u> </u>
Elevated Turbidity? (Y/N) Canopy (% open): 100	
Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. ar	nd attach results) Lab number: N/A
Field Measures: Temp (C) Dissolved oxygen (mg/l): pH:	Conductivity (umhos/cm)
Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note ID number. Include apropriate field data sheets from the Primary H	
Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N)	No Voucher? (Y/N) No
Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrat	es observed? (Y/N) No Voucher? (Y/N) N
Comments Regarding Biology:	

Stream Reach S6S094b



Stream Location on 2013 Aerial Photograph

Stream Location on Bargersville USGS Quadrangle

UNT 8 Bluff Creek **Stream Name:** Quadrangle: Bargersville Flow Regime: Intermittent Johnson County: Natural T13N **Channel Type:** Township: No R3E Legal Drain: Range: IDEM 303(d) Listed: Section: 18 No Predominant Substrate: sand - hardpan SW Quarter:

Evaluation Score:HHEI = 53Latitude:39.567208Use Designation:Class II PHWHLongitude:-86.246942

OHWM width: 4.6 Basin: White River - North Bluff/Bluff Cre

OHWM depth: 1.0 **14-digit HUC:** 05120201140030

USACE Jurisdiction: Yes **Drainage area:** 0.242

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	286	0.030	0.22
Aternative C2	286	0.030	0.22
Aternative C3	286	0.030	0.22
Aternative C4 (Preferred)	286	0.030	0.22



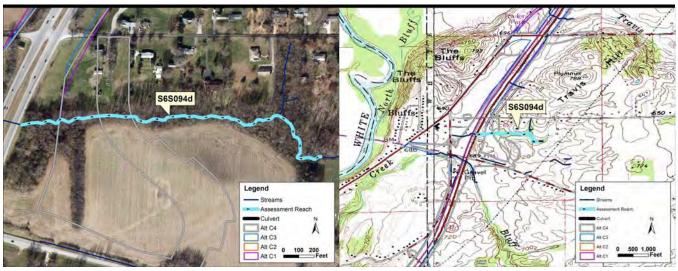




SITE NAME/LOCATION UNT Bluff Cre	ek			
SITE NUMBER	R S6S094b RIVER B	ASIN White River - North Bluff/ DR	RAINAGE AREA (mi)	0.242
LENGTH OF STEAM REACH (ft)	LAT 39.567208 L	ONG86.246942 RIVER CODE N	N/A RIVER MILE N	N/A
DATE 1/26/2016 SCORER rh	COMMENT			
NOTE: Complete All Items On This Fo	orm - Refer to ""Field Evalu	uation Manual for Ohio's PHWH Stre	eams" for Instructions	
STREAM CHANNEL NONE / NA MODIFICATIONS:	TURAL CHANNE	COVERED V RECOVERING [RECENT OR NO REC	OVERY
		resentCheck ONLY two predominant and (Max of 8). Final metric score is su		HHEI Metric Points
BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts] BEDROCK [16 pts] COBBLE (65-256 mm) [9 pt] GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts]	0 0 0 0 0 0	SILT [3 pt] LEAF PACK/WOODY DEBRIS [3 FINE DETRITUS [3 pts] CLAY or HARDPAN [0 pts] MUCK [0 pts] ARTIFICIAL [3 pts]	0 0 0 70 0	Substrate Max = 40
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock	0.00% (A)	Substrate Percentage Check 100 %	(B)	(A+B)
SCORE OF TWO MOST PREDOMINATE		TOTAL NUMBER OF SUBSTR	RATE TYPES 2	
2. MAXIMUM POOL DEPTH (Measu of evaluation. Avoid plunge pools		th within the 61 meter (200 ft) valuati water pipes)	on reach at the time	Pool Dept Max = 30
>>30 centimeters [20 pts] >22.5 - 30 cm [30 pts] >10 - 22.5 cm [25 pts]		>5 cm - 10 cm [15 pts] <5 cm [5 pts] No Water or Moist Channel [0	pts]	30
COMMENTS:		MAXIMUM POOL DEPTH (c	centimeters): 28	
3. BANK FULL WIDTH (Measure > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts] > 1.5 m - 3.0 m(>9'7" - 4'8") [20 pts]		4 measurements) (Check ONLY v >1.0 m - 1.5m (>3'3" - 4'8") [15 <=1.0m (<=3'3") [5 pts]		Bankfull Width Max = 30
COMMENTS:		AVERAGE BANKFULL WID	OTH (Meters): 1.5	15
	This information	must also be completed		
RIPARIAN ZONE AND FLO	ODPLAIN QUALITY	NOTE: River left (L) and Right (R) as	looking downstream	
<u>RIPARIAN WIDTH</u>	FLOODPLAIN QUAI	<u>LITY</u>		
L R (Per Bank Wide >10 m Moderate 5-10 m Narrow <5 m None Comments:		st, Wetland orest, Shrub or Old Field Park, New Field C C U U V V O	onservation Tillage rban or Industrial pen Pasture, Row Crop ining or Construction	
FLOW REGIME (At time of Steam flowing Subsurface flow with isolated Comments:	of evaluation) (Check ONLY pools (interstitial)	one box): Moist channel, isolated po Dry channel, no water (Ep		
SINUOSITY (Number of ber None 0.5 STREAM GRADIENT ESTIN	1.0 1.5	nnel. Check ONLY one box) 2.0 2.5	3.0 >3.0	
☐ Flat (0.5 ft/100 ft)		2 ft/100 ft) Moderate to Sever	e Severe (10 ft /10	- 60

OMETER OF STATE OF S	ADDITIONAL STREAM INFORMATION (This information must also be comple	te
WWH Name: Distance from Evaluated Stream		
WWH Name: Distance from Evaluated Stream Distance from Eval	DOWNSTREAM DESIGNATED LISE(S)	
CWH Name: EWH Name: Distance from Evaluated Stream MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION USGS Quadrangle Name Bargersville NRCS Soil Map Page NRCS Soil Map Stream Order: County: Johnson Township / City: White River MISCELLANEOUS Base flow conditions? (Y/N) Yes Date of last precipitation: 1/26 Quantity .01 Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 100 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach results) Lab number: N/A Field Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conductivity (umhos/cm) Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain: Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number: Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N) N	WWH Name	Distance from Evaluated Stream
MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION USGS Quadrangle Name Bargersville NRCS Soil Map Page NRCS Soil Map Stream Order: County: Johnson Township / City: White River MISCELLANEOUS Base flow conditions? (Y/N) Yes Date of last precipitation: 1/26 Quantity		Distance from Evaluated Stream
USGS Quadrangle Name Bargersville	EWH Name:	Distance from Evaluated Stream
MISCELLANEOUS Base flow conditions? (Y/N) Yes Date of last precipitation: 1/26 Quantity .01 Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 100 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach results) Lab number: N/A Field Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conductivity (umhos/cm) Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain: Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N) No Voucher? (Y/N) No No Voucher? (Y/N) No No Voucher? (Y/N) No Voucher? (Y/N) No No Voucher? (Y/N) No No Voucher? (Y/N) No No Voucher? (Y/N) No V	MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA	. CLEARLY MARK THE SITE LOCATION
MISCELLANEOUS Base flow conditions? (Y/N) Yes Date of last precipitation: 1/26 Quantity	USGS Quadrangle Name Bargersville NRCS Soil Map Page	NRCS Soil Map Stream Order:
Base flow conditions? (Y/N) Yes Date of last precipitation: 1/26 Quantity .01 Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 100 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach results) Lab number: N/A Field Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conductivity (umhos/cm) Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain: Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrates observed? (Y/N) No Voucher? (Y/N) No No Noucher? (Y/N) No	County: Johnson Township / City: White River	
Base flow conditions? (Y/N) Yes Date of last precipitation: 1/26 Quantity .01 Photograph information: Elevated Turbidity? (Y/N) Canopy (% open): 100 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach results) Lab number: N/A Field Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conductivity (umhos/cm) Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain: Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrates observed? (Y/N) No Voucher? (Y/N) No No Noucher? (Y/N) No	MISCELLANEOUS	
Elevated Turbidity? (Y/N) Canopy (% open): 100 Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach results) Lab number: N/A Field Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conductivity (umhos/cm) Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain: Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N) No Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrates observed? (Y/N) No Voucher? (Y/N) N		Quantity .01
Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and attach results) Lab number: N/A Field Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conductivity (umhos/cm) Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain: Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N) No Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrates observed? (Y/N) No Voucher? (Y/N) No Voucher? (Y/N) No No Voucher? (Y/N) No Voucher	Photograph information:	<u> </u>
Field Measures: Temp (C) Dissolved oxygen (mg/l): pH: Conductivity (umhos/cm) Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain: Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N) No	Elevated Turbidity? (Y/N) Canopy (% open): 100	
Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain: Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N) No	Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. an	d attach results) Lab number: N/A
Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N) No	Field Measures: Temp (C) Dissolved oxygen (mg/l): pH:	Conductivity (umhos/cm)
BIOTIC EVALUATION Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N) No	Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:	
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: all voucher samples must be labeled with the site ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N) No Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrates observed? (Y/N) No Voucher?	Additional comments/description of pollution impacts:	
ID number. Include apropriate field data sheets from the Primary Headwater Habitat Assessment Manual.) Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) No Voucher? (Y/N) No Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrates observed? (Y/N) No Voucher? (Y/N) No No No Voucher? (Y/N) No	BIOTIC EVALUATION	
Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrates observed? (Y/N) No Voucher? (Y/N) No		
	Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N)	No Voucher? (Y/N) No
Comments Regarding Biology:	Frogs or tadpoles observed? (Y/N) _No _Voucher? (Y/N) _No _Aquatic Macroinvertebrat	es observed? (Y/N) No Voucher? (Y/N) N
	Comments Regarding Biology:	

Stream Reach S6S094d



Stream Location on 2013 Aerial Photograph

Stream Location on Bargersville USGS Quadrangle

UNT 8 Bluff Creek Bargersville **Stream Name:** Quadrangle: Flow Regime: Ephemeral County: Johnson Natural T13N **Channel Type:** Township: No R3E Legal Drain: Range: IDEM 303(d) Listed: Section: 18 No Predominant Substrate: sand - gravel Quarter: SW

Evaluation Score: HHEI = 42 **Latitude:** 39.567293 **Use Designation:** Class II PHWH **Longitude:** -86.245442

OHWM width: 22.0 Basin: White River - North Bluff/Bluff Cre

OHWM depth: 1.2 **14-digit HUC:** 05120201140030

USACE Jurisdiction: Yes **Drainage area:** 0.22

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	400	0.202	1.15
Aternative C2	381	0.192	1.08
Aternative C3	385	0.194	1.09
Aternative C4 (Preferred)	381	0.192	1.08







ChieFPA Primary Headwater Habitat Evaluation Form

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

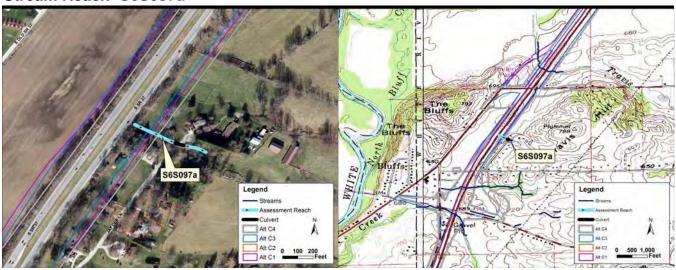
SITE NAME/LOCATION UNT Bluff Creek	(
SITE NUMBER	S6S094d RIVER BA	ASIN White River - North Bluff/ DRAII	NAGE AREA (mi) 0.22	2
LENGTH OF STEAM REACH (ft)	LAT 39.567293 LC	ONG86.245442 RIVER CODE N/A	RIVER MILE N/A	
DATE 10/20/2015 SCORER rc	COMMENT			_
NOTE: Complete All Items On This For	m - Refer to ""Field Evalu	ation Manual for Ohio's PHWH Stream	s" for Instructions	_
STREAM CHANNEL NONE / NATUMODIFICATIONS:	JRAL CHANNE	COVERED RECOVERING	RECENT OR NO RECOVERY	
		esentCheck ONLY two predominant sub d (Max of 8). Final metric score is sum of		ric
BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts BEDROCK [16 pts] COBBLE (65-256 mm) [9 pt GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts]	0 0 0 0 20 80	SILT [3 pt] LEAF PACK/WOODY DEBRIS [3 pts FINE DETRITUS [3 pts] CLAY or HARDPAN [0 pts] MUCK [0 pts] ARTIFICIAL [3 pts]	<u> </u>	rate 40
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock	0.00% (A)	Substrate Percentage Check 100 %	(B) (A+B	3)
SCORE OF TWO MOST PREDOMINATE S	SUBSTRATE TYPE 15	TOTAL NUMBER OF SUBSTRAT	TE TYPES 2	
2. MAXIMUM POOL DEPTH (Measure of evaluation. Avoid plunge pools fr		h within the 61 meter (200 ft) valuation water pipes)	reach at the time Pool D	-
>>30 centimeters [20 pts] >22.5 - 30 cm [30 pts] >10 - 22.5 cm [25 pts]		>5 cm - 10 cm [15 pts] <5 cm [5 pts] No Water or Moist Channel [0 pts]	0	
COMMENTS:		MAXIMUM DOOL DERTH (con	timeters): 0	
COMMENTO:		MAXIMUM POOL DEPTH (cen	timeters): 0	
	d as teh average of 3-4	measurements (Check ONLY one >1.0 m - 1.5m (>3'3" - 4'8") [15 pts <=1.0m (<=3'3") [5 pts]	e box): Bank	lth
3. BANK FULL WIDTH (Measure > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts]	d as teh average of 3-4	measurements	Bank Widt Max =	th = 30
3. BANK FULL WIDTH (Measure > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts] > 1.5 m - 3.0 m(>9'7" - 4'8") [20 pts]		measurements	Bank Widt Max =	th = 30
3. BANK FULL WIDTH (Measure > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts] > 1.5 m - 3.0 m(>9'7" - 4'8") [20 pts]	This information n	measurements	Bank Width Max = (Meters): 0	th = 30
3. BANK FULL WIDTH (Measure > 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS:	This information n	A measurements) (Check ONLY one >1.0 m - 1.5m (>3'3" - 4'8") [15 pts <=1.0m (<=3'3") [5 pts] AVERAGE BANKFULL WIDTH must also be completed NOTE: River left (L) and Right (R) as loo	Bank Width Max = (Meters): 0	th = 30
3. BANK FULL WIDTH (Measure > 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: RIPARIAN ZONE AND FLOOR	This information in DPLAIN QUALITY FLOODPLAIN QUAL L R (Most Predom Mature Fores Immature Fores	Average Bankfull Width But also be completed NOTE: River left (L) and Right (R) as lood ITY inant Per Bank	Bank Width Max = (Meters): 0	lth = 30
3. BANK FULL WIDTH (Measure > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts] > 1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: RIPARIAN ZONE AND FLOOM RIPARIAN WIDTH L R (Per Bank Wide >10 m Moderate 5-10 m Narrow <5 m None Comments:	This information in DPLAIN QUALITY FLOODPLAIN QUAL L R (Most Predom Mature Fores Immature Fores Residential, F Fenced Pastu	AVERAGE BANKFULL WIDTH AVERAGE BANKFULL WIDTH Nust also be completed NOTE: River left (L) and Right (R) as loo ITY inant Per Bank t, Wetland est, Shrub or Old Field Park, New Field Park, New Field Urba Oper Minir	Bank Widt Max = (Meters): 0 25 king downstream ervation Tillage on or Industrial or Pasture, Row Croping or Construction a, no flow (Intermittent)	th = 30
3. BANK FULL WIDTH (Measure > 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: RIPARIAN ZONE AND FLOOM RIPARIAN WIDTH L R (Per Bank Wide >10 m Moderate 5-10 m Narrow <5 m None Comments: FLOW REGIME (At time of Steam flowing Subsurface flow with isolated properties)	This information in DPLAIN QUALITY FLOODPLAIN QUAL L R (Most Predom Mature Fores Immature For Residential, Fenced Pasture For Sevaluation) (Check ONLY pols (interstitial) s per 61 m (200 ft) of changed 1.0 1.5 TE	A measurements) (Check ONLY one >1.0 m - 1.5m (>3'3" - 4'8") [15 pts] AVERAGE BANKFULL WIDTH nust also be completed NOTE: River left (L) and Right (R) as loo ITY inant Per Bank t, Wetland est, Shrub or Old Field Park, New Field ure Moist channel, isolated pools Dry channel, no water (Ephe nel. Check ONLY one box) 2.0 2.5	Bank Widt Max = (Meters): 0 25 king downstream ervation Tillage on or Industrial or Pasture, Row Croping or Construction a, no flow (Intermittent)	th = 30

ADDITIONAL STREAM INFORMATION (This information must also be comple	ete
	tach completed QHEI form)
DOWNSTREAM DESIGNATED USE(S)	
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 ENTIRE WATERSHED AREA	A. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name Bargersville NRCS Soil Map Page	NRCS Soil Map Stream Order:
County: Johnson Township / City: White River	
MISCELLANEOUS	
Base flow conditions? (Y/N) Yes Date of last precipitation: 10/03	Quantity .13
Photograph information:	
Elevated Turbidity? (Y/N) Canopy (% open): 15	
, , , <u> </u>	nd attach results) Lab number: N/A
Field Measures: Temp (C) Dissolved oxygen (mg/l): pH:	Conductivity (umhos/cm)
Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note ID number. Include apropriate field data sheets from the Primary F	
Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N)	No Voucher? (Y/N) No
Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrat	tes observed? (Y/N) No Voucher? (Y/N) N
Comments Regarding Biology:	

DRAWING AMD NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):

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

Stream Reach S6S097a



Stream Location on 2013 Aerial Photograph

Stream Location on Bargersville USGS Quadrangle

UNT 1 Travis Creek Bargersville **Stream Name:** Quadrangle: Flow Regime: Ephemeral County: Johnson Channelized Ditch T13N **Channel Type:** Township: No R3E Legal Drain: Range: IDEM 303(d) Listed: No Section: 18 Predominant Substrate: hardpan Quarter: NE HHEI = 6**Evaluation Score:** Latitude: 39.571853

Use Designation: Class I PHWH Longitude: -86.242959

OHWM width: 11.0 Basin: White River - North Bluff/Bluff Cre

OHWM depth: 0.3 **14-digit HUC:** 05120201140030

USACE Jurisdiction: Yes Drainage area: 0.001

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	105	0.027	0.05
Aternative C2	136	0.034	0.05
Aternative C3	80	0.020	0.05
Aternative C4 (Preferred)	136	0.034	0.05







ChieFPA Primary Headwater Habitat Evaluation Form

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

0
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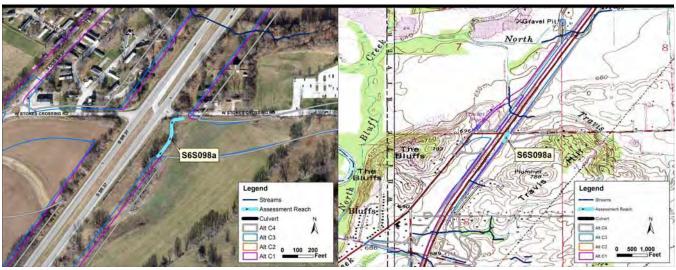
SITE NAME/LOCATION UNT Travis Cr	ook				
SITE NUMBER		R BASIN White River -	North Bluff/ DRAIN	ΔGE ΔREΔ (mi)	0.001
LENGTH OF STEAM REACH (ft)		3 LONG86.242959		` ′	
DATE 4/22/2016 SCORER rh	COMMEN		THE CODE 14/7		
NOTE: Complete All Items On This Fo			hio's PHWH Streams	" for Instructions	
SUBSTRATE (Estimate percent of (Max of 32). Add total number of significant significa					HHEI Metric
TYPE		YPE		PERCENT	Points
BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts	0		OODY DEBRIS [3 pts	0	Substrate
■ BEDROCK [16 pts]■ COBBLE (65-256 mm) [9 pt	0	FINE DETRITU CLAY or HARD		 100	Max = 40
GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts]	0	MUCK [0 pts] ARTIFICIAL [3		0 0	1
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock	0.00% (A)	Substrate Percent Check	100 %	(B)	(A+B)
SCORE OF TWO MOST PREDOMINATE	SUBSTRATE TYPE	0 TOTAL NUM	BER OF SUBSTRATI	TYPES 1	
2. MAXIMUM POOL DEPTH (Measure of evaluation. Avoid plunge pools			ter (200 ft≱valuation re	each at the time	Pool Depth Max = 30
>>30 centimeters [20 pts] >22.5 - 30 cm [30 pts] >10 - 22.5 cm [25 pts]		>5 cm - 10 cr <5 cm [5 pts] V No Water or			0
COMMENTS:		MAXIMUM	POOL DEPTH (centi	meters): 0	
			•	<u> </u>	
3. BANK FULL WIDTH (Measur > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts] > 1.5 m - 3.0 m(>9'7" - 4'8") [20 pts]		f 3-4 measurements	n (>3'3" - 4'8") [15 pts]		Bankfull Width Max = 30
3. BANK FULL WIDTH (Measur > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts]		f 3-4 measurements >1.0 m - 1.5r ✓ <=1.0m (<=3	n (>3'3" - 4'8") [15 pts]		Width
3. BANK FULL WIDTH (Measur > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts] > 1.5 m - 3.0 m(>9'7" - 4'8") [20 pts]		f 3-4 measurements >1.0 m - 1.5r <=1.0m (<=3	n (>3'3" - 4'8") [15 pts] '3") [5 pts] BANKFULL WIDTH (Width Max = 30
3. BANK FULL WIDTH (Measur > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts] > 1.5 m - 3.0 m(>9'7" - 4'8") [20 pts]	This informati	f 3-4 measurements >1.0 m - 1.5r <=1.0m (<=3 AVERAGE	n (>3'3" - 4'8") [15 pts] '3") [5 pts] BANKFULL WIDTH (Meters): 0	Width Max = 30
3. BANK FULL WIDTH (Measur > 4.0 meters (>13') [30 pts]	This informati	f 3-4 measurements >1.0 m - 1.5r <=1.0m (<=3) AVERAGE ion must also be comp NOTE: River left (L)	n (>3'3" - 4'8") [15 pts] 3") [5 pts] BANKFULL WIDTH (Meters): 0	Width Max = 30
3. BANK FULL WIDTH (Measur > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts] > 1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS:	This information of the composition of the composit	AVERAGE NOTE: River left (L) RUALITY Edominant Per Bank Forest, Wetland E Forest, Shrub or Old Fital, Park, New Field	n (>3'3" - 4'8") [15 pts] BANKFULL WIDTH (leted and Right (R) as look L R L R Urban Open	Meters): 0	Width Max = 30
3. BANK FULL WIDTH (Measur > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts] > 1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: RIPARIAN ZONE AND FLOOM RIPARIAN WIDTH L R (Per Bank Wide >10 m Moderate 5-10 m Narrow <5 m None Comments:	This information of the control of t	AVERAGE NOTE: River left (L) AUALITY Edominant Per Bank Forest, Wetland E Forest, Shrub or Old Fital, Park, New Field Pasture NLY one box): Moist ch	n (>3'3" - 4'8") [15 pts] BANKFULL WIDTH (leted and Right (R) as look L R L R Urban Open	Meters): 0 Ing downstream Invation Tillage or Industrial Pasture, Row Crop or Construction In of low (Intermittent)	Width Max = 30
3. BANK FULL WIDTH (Measur > 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: RIPARIAN ZONE AND FLOOR RIPARIAN WIDTH L R (Per Bank Wide >10 m Moderate 5-10 m Narrow <5 m None Comments: FLOW REGIME (At time of Steam flowing Subsurface flow with isolated)	This information of the control of t	AVERAGE AVERAGE NOTE: River left (L) OUALITY Idominant Per Bank Forest, Wetland Forest, Wetland Forest, Shrub or Old Fital, Park, New Field Pasture NLY one box): Moist ch	n (>3'3" - 4'8") [15 pts] (3") [5 pts] BANKFULL WIDTH (leted and Right (R) as look L R Consecution Open Mining mannel, isolated pools, noel, no water (Ephem	Meters): 0 Ing downstream Invation Tillage or Industrial Pasture, Row Crop or Construction In of low (Intermittent)	Width Max = 30

ADDITIONAL STREAM INFORMATION (This information must also be complet QHEI PERFORMED ☐ Yes ✔ No QHEI Score:0 (If yes, atta DOWNSTREAM DESIGNATED USE(S)	ach completed QHEI form)
DOWNSTREAM DESIGNATED USE(S)	
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 ENTIRE WATERSHED AREA.	CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name Bargersville NRCS Soil Map Page	NRCS Soil Map Stream Order:
County: Johnson Township / City: White River	
MISCELLANEOUS	
Base flow conditions? (Y/N) Yes Date of last precipitation: 10/12	Quantity 0.02
Photograph information:	
Elevated Turbidity? (Y/N) Canopy (% open): 100	
Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. and	d attach results) Lab number: N/A
Field Measures: Temp (C) Dissolved oxygen (mg/l): pH:	Conductivity (umhos/cm)
Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note: ID number. Include apropriate field data sheets from the Primary He	
Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N) 1	No Voucher? (Y/N) No
Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrate	es observed? (Y/N) No Voucher? (Y/N)
Comments Regarding Biology:	

DRAWING AMD NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):

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

Stream Reach S6S098a



Stream Location on 2013 Aerial Photograph

Stream Location on Bargersville USGS Quadrangle

UNT 2 Travis Creek Quadrangle: Bargersville **Stream Name:** Flow Regime: Ephemeral Johnson County: Natural T13N **Channel Type:** Township: No T3E Legal Drain: Range: IDEM 303(d) Listed: No Section: 18 Predominant Substrate: hardpan Quarter: NE

Evaluation Score:HHEI = 6Latitude:39.575867Use Designation:Class I PHWHLongitude:-86.239927

OHWM width: 2.8 Basin: White River - North Bluff/Bluff Cre

OHWM depth: 0.4 **14-digit HUC:** 05120201140030

USACE Jurisdiction: Yes **Drainage area:** 0.247

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	301	0.019	0.35
Aternative C2	301	0.019	0.37
Aternative C3	301	0.019	0.35
Aternative C4 (Preferred)	301	0.019	0.37







ChieFPA Primary Headwater Habitat Evaluation Form

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

|--|

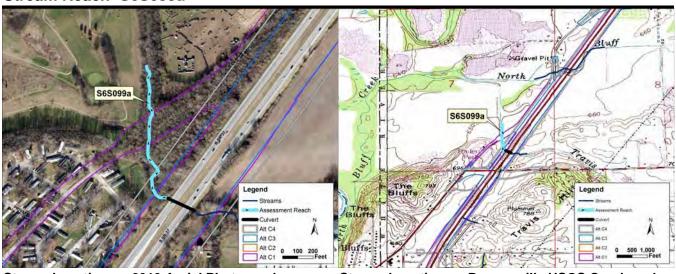
SITE NAME/LOCATION UNT Travis Cre	eek	
SITE NUMBER	S6S098a RIVER BASIN White River - North Bluff/ DRAINAGE AREA (mi)	0.247
LENGTH OF STEAM REACH (ft)	LAT 39.575867 LONG86.239927 RIVER CODE N/A RIVER MILE	N/A
DATE 10/22/2015 SCORER rh	COMMENT	
	rm - Refer to ""Field Evaluation Manual for Ohio's PHWH Streams" for Instructions	
	URAL CHANNE	
	every type of substrate presentCheck ONLY two predominant substrate TYPE boxes inificant subsrate types found (Max of 8). Final metric score is sum of boxes A and B.) PERCENT TYPE PERCENT	HHEI Metric Points
BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts] BEDROCK [16 pts] COBBLE (65-256 mm) [9 pt] GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts]	0 SILT [3 pt] 0 LEAF PACK/WOODY DEBRIS [3 pts 0 FINE DETRITUS [3 pts] 0 CLAY or HARDPAN [0 pts] 100 MUCK [0 pts] 0 ARTIFICIAL [3 pts] 0	Substrate Max = 40
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock	0.00% (A) Substrate Percentage 100 % (B)	(A+B)
SCORE OF TWO MOST PREDOMINATE	SUBSTRATE TYPE 0 TOTAL NUMBER OF SUBSTRATE TYPES 1	
of evaluation. Avoid plunge pools	re the maximum pool depth within the 61 meter (200 ft) valuation reach at the time from road culverts or storm water pipes)	Pool Depti Max = 30
>>30 centimeters [20 pts] >22.5 - 30 cm [30 pts] >10 - 22.5 cm [25 pts]	>5 cm - 10 cm [15 pts] <5 cm [5 pts] No Water or Moist Channel [0 pts]	0
COMMENTS:	MAXIMUM POOL DEPTH (centimeters): 0	
3. BANK FULL WIDTH (Measure > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts] > 1.5 m - 3.0 m(>9'7" - 4'8") [20 pts]	ed as teh average of 3-4 measurements) (Check ONLY one box): >1.0 m - 1.5m (>3'3" - 4'8") [15 pts] <=1.0m (<=3'3") [5 pts]	Bankfull Width Max = 30
COMMENTS:	AVERAGE BANKFULL WIDTH (Meters): ####	5
	This information must also be completed	
RIPARIAN ZONE AND FLOO	DPLAIN QUALITY NOTE: River left (L) and Right (R) as looking downstream	
<u>RIPARIAN WIDTH</u>	FLOODPLAIN QUALITY	
L R (Per Bank Wide >10 m Moderate 5-10 m Narrow <5 m None Comments:	L R (Most Predominant Per Bank L R Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Field Residential, Park, New Field Fenced Pasture L R Conservation Tillage Urban or Industrial Open Pasture, Row Crop Mining or Construction	
FLOW REGIME (At time of Steam flowing Subsurface flow with isolated programments:	f evaluation) (Check ONLY one box): Moist channel, isolated pools, no flow (Intermitter pools (interstitial) Dry channel, no water (Ephemeral)	nt)
SINUOSITY (Number of bendance	ds per 61 m (200 ft) of channel. Check ONLY one box) 1.0	
☐ Flat (0.5 ft/100 ft) ✓ Flat to M		(100 ft)

ADDITIONAL STREAM INFORMATION (This information must also be comple	ete
	tach completed QHEI form)
DOWNSTREAM DESIGNATED USE(S)	
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 ENTIRE WATERSHED AREA	A. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name Bargersville NRCS Soil Map Page	NRCS Soil Map Stream Order:
County: Johnson Township / City: White River	
MISCELLANEOUS	
Base flow conditions? (Y/N) Yes Date of last precipitation: 10/12	Quantity .02
Photograph information:	<u> </u>
Elevated Turbidity? (Y/N) Canopy (% open): 40	
Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. ar	nd attach results) Lab number: N/A
Field Measures: Temp (C) Dissolved oxygen (mg/l): pH:	Conductivity (umhos/cm)
Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note ID number. Include apropriate field data sheets from the Primary H	
Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N)	No Voucher? (Y/N) No
Frogs or tadpoles observed? (Y/N) _No _Voucher? (Y/N) _No _Aquatic Macroinvertebrat	tes observed? (Y/N) No Voucher? (Y/N) N
Comments Regarding Biology:	

DRAWING AMD NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):

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

Stream Reach S6S099a



Stream Location on 2013 Aerial Photograph

Stream Location on Bargersville USGS Quadrangle

Travis Creek Bargersville **Stream Name:** Quadrangle: Flow Regime: Perennial Johnson County: Natural T13N **Channel Type:** Township: No R3E Legal Drain: Range: 7 IDEM 303(d) Listed: Section: No Predominant Substrate: gravel - sand Quarter: SE

Evaluation Score: QHEI = 51 **Latitude:** 39.578008 **Use Designation:** Probable Warm Water Habitat **Longitude:** -86.239404

OHWM width: 9.3 Basin: White River - North Bluff/Bluff Cre

OHWM depth: 0.4 **14-digit HUC:** 05120201140030

USACE Jurisdiction: Yes **Drainage area:** 1.905

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	287	0.061	1.10
Aternative C2	258	0.055	0.75
Aternative C3	83	0.018	0.43
Aternative C4 (Preferred)	258	0.055	0.75





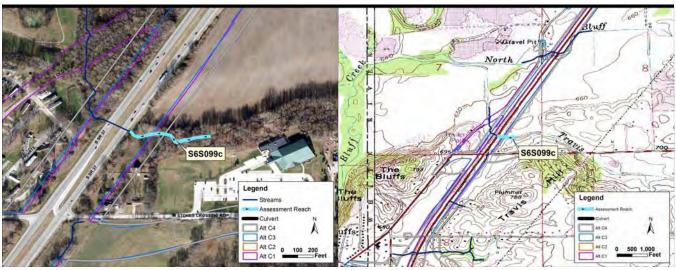
IDEM	Sample #		bioSample #	Stream Name Travis Creek		Location	
1	Surveyor	Sample Date	County	Macro Sample Type	☐ Habitat	QHEI Score:	51
N. P.	rh	2/19/2016	Johnson	N/A	Complete	WITEI OCOIC.	<u> </u>
1] SUB	STRATE		predominant sul 6 and check ever	ostrate TYPE BOXES;	Check ON	IE (Or 2 and average)	
	BEST TYP			HER TYPES	ORIGIN	QUALITY	
PREDOMINA		PRESENT TOTAL 9	6 PREDOMINANT	PRESENT TOTAL %			
$\square \square \square$ BL	DR/SLABS [1	01 PR	P R HARDP	AN [4] 🗀 🗀 💹 🔽	LIMESTONE [1 TILLS [1]]	1
<u></u>	ULDERS [9]		DETRIT	US [3] 💹 👱 🔙 📙	WETLÄNDS [0]] ✓ NORMAL [0]	Substrate
✓ GR	BBLE [8] AVEL [7]	50			HARDPAN [0] SANDSTONE [☐ FREE [1]	
□ ✓ SA	ND [6]	50	ARTIFIC		RIP/RAP [0]	EXTENSIVE [-2]	
	DROCK [5]	(DEC	(Score	e natural substrates;ignore	LACSTRINE [0] SHALE [-1]]	
NUMBER	OF BEST TY	'PES:		e from point-sources)	COAL FINES [-	- NOKWINE [0]	Maximum 20
Comme	nts						
	REAM CO	/ER Indicate p	resence 0 to 3 ar	nd estiamte percent: 0-Absent;	1- Verv small ar	mounts or if more common	of marginal
		ounts, but not of	highest quality or	in small amounts of highest qu	ality; 3- Highest	AMO	UNT
				oulders in deep or fast water, la , or deep, well-defined, functino		0110011 0110 (01 2	0 .
% Amount	Dio, Woll dove	nopou root waa n	% Amount	% Amount	a. poolo.)	☐ EXTENSIVE : ✓ MODERATE 2	
	UNDERCUT B			000LS>70CM [2] <u>0</u> <u>0</u> OXB	OWS, BACKWA	TERS [1] 🔲 SPARSE -<25	% [3]
0 1	OVERHANGIN	IG VEGETATION N SLOW WATER	[1] <u>0 0</u> RC	OTWADS [1] <u>0 1</u> AQU	ATIC MACROPH S OR WOODY D	LDDIC [1]	
	ROOTMATS [)[1] <u>v</u> v bc	OULDERS[i] LOG.	3 OK WOOD! D	Maxim Co	ver
						Waxiiii	7.0
Comme							L
-				category (Or 2 and average)			
SINUOS		DEVELO		CHANNELIZATION		ABILITY	
☐ HIGH [✓ MODE	4] RATE [3]	✓ EXCELLE ✓ GOOD [5		NONE [6] □ RECOVERED [4]		HIGH [3] MODERATE [2	nel 🖳
LOW [2]	FAIR [3]	-	▼ RECOVERING [3]		LOW [1] Maxim	um 42 0
		☐ POOR [1]		☐ RECENT OR NO RECOVER	RY [1]		20 13.0
		N AND RIPARI	AN ZONE Che	eck ONE in each category for E	ACH BANK (Or	2 per bank and average)	
-	ht looking downst		ARIAN WIDT			L R	
L R	EROSION		>50m [4]	FOREST, SWAMP [3]		CONSERVATION T	
_ NO	NE/LITTLE [3]		ERATE 10-50m ROW 5-10m [2]	SCRUB OR OLD FIEL✓ RESIDENTIAL, PRK,		URBAN OR INDUS MINING/CONSTRU	
✓ ✓ MO)DERATE [2] AVY/SEVERE	r₁₁ ✓ □ VERY	NARROW [1]	FENCED PASTURE [1] India	cate predominant land use	
	AVI/SEVENE	[1] NONE	: [0]	OPEN PASURE, ROW	VCROP [0] past	100m riparian Ripar	ian
Comme	nte					Maxim	10 6.0
		ND RIFFLE /RU	JN QUALITY				
MAXIM	UM DEPTI	H CHAN	NEL WIDTH		NT VELOCI	Recreation (Circle one and co	
	NE (ONLY!	Check ON	NE (Or 2 and ave DTH > RIFFLE W		ck All that apply	`	,
>1 m [0 0.7 - <	*		DTH = RIFFLE W				ry Contact
□ 0.4 - <0 ✓ 0.2 - <0	0.7m [2]	☐ POOL WI	DTH < RIFFLE W	IDTH [0] FAST [1]		RMITTENT [-2] Po	ool/
V 0.2 - <0				✓ MODERATE [1	ate for reach - p	IES [1] Currools and riffles Maxim	
Comme				maio	4.0 101 104011 P	oole and rimee Maxim	12
Indicate	for functional	riffles; Best area	s must be large	enough to support a population			
of riffle-o	obligate speci	es:		Check One (Or 2 and avera	ge)	☐ NO RIFFLE [ME	TRIC=0]
	DEPTH	RUN DI		RIFFLE/RUN SUBSTR		FLE/RUN EMBEDDE	DNES
	AREAS>10cm AREAS 5-10c	ı[∠] ∐ MAXIN m [1 ✔ MAXIN	1UM >50cm [2] 1UM<50cm [1]	STABLE (e.g., Cobble, Bou ✓ MOD. STABLE (e.g, Large	ııder) [2 Gravel) [1]	NONE [2] ✔ LOW [1]	flo/
	AREAS <5cm	_	[•]	UNSTABLE (e.g., Fine Frve	el, Sand) [0]	MODEDATE [0]	fle/ Run
_	[metri	C=U]			L	EXTENSIVE [-1] Maxim	
Comme							<u> </u>
6] GRAD	DIENT (54.5	5 ft/mi)	VERY LOW -		% GL	. IDE: Ripar	ian
DRAII	VAGE AREA	4 (1.905 ft/m	☐ MODERATE ☐ HIGH - VERY		% RIF		4.0



Comment

A-CANOPY						
	Looking upstream	(>10m, 3 readin	ngs, <10m reading in mide	dle); Round to the n	nearest whole percent	
55% -<85%		Left	Middle	Right	Total Average	
30%-<55%	% open	%	%	%	%	
✓ 10%-<30%	· <u>-</u>					
<10% - Closed						
B-AESTHETICS			C-RECE	REATION		
Nuisance algae	Oil sheen		Area	Depth		
Invasive macrophytes	Trash/Litter		Pool:			
Excess turbidity	Nuisance odd	or				
Discoloration		sits				
Foam/Scum	CSOs/SSOs/	Outfalls				
	ted		BMPs: Loggir Erosion: False I Wash Mine: Flow: Wetlar Lawn	ry CSO ry Urban ned Dirt G minated L Construction ng Irrigation Bank Manu H2O Tile Acid Qua	andfill Sediment Cooling Surface Lagoon H2O table rry tagnant Issues: Golf	

Stream Reach S6S099c



Stream Location on 2013 Aerial Photograph

Stream Location on Bargersville USGS Quadrangle

Travis Creek Bargersville **Stream Name:** Quadrangle: Flow Regime: Intermittent Johnson County: Natural T13N **Channel Type:** Township: No R3E Legal Drain: Range: IDEM 303(d) Listed: Section: 7 No Predominant Substrate: sand - gravel Quarter: SE

Evaluation Score: QHEI = 43 **Latitude:** 39.577716 **Use Designation:** Modified Warm Water Habitat **Longitude:** -86.238589

OHWM width: 13.5 Basin: White River - North Bluff/Bluff Cre

OHWM depth: 1.2 **14-digit HUC:** 05120201140030

USACE Jurisdiction: Yes **Drainage area:** 1.508

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	135	0.042	0.00
Aternative C2	187	0.058	0.02
Aternative C3	120	0.037	0.00
Aternative C4 (Preferred)	187	0.058	0.02





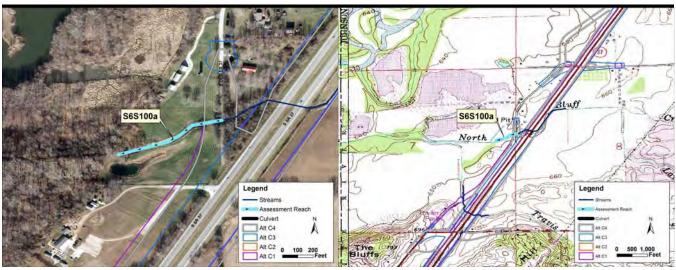
IDEM	Sample # S6S099c		bioSample #	Stream Name Travis Creek		Location	
1 ion	Surveyor	Sample Date	County	Macro Sample Type	☐ Habitat	QHEI Score:	43
N. P.	rh	10/22/2015	Johnson	N/A	Complete	QIILI COOIC.	_ 1 5
1] SUB	SSTRATE (predominant su 6 and check eve	bstrate TYPE BOXES; rv type present	Check ON	E (Or 2 and average)	
	BEST TYP			HER TYPES	ORIGIN	QUALITY	
PREDOMINA P R		PRESENT TOTAL 9		PRESENT TOTAL %	LIMESTONE [1	<u></u>	
	DR/SLABS [1		HARDF		TILLS [1]	MODERATE [-1]	
	OULDERS [9] OBBLE [8]	HH —	DETRIT		WETLANDS [0] HARDPAN [0]	✓ NORMAL [0] ☐ FREE [1]	Substrate
∟ 🗹 GR	RAVEL [7]	50	SILT [2]		SANDSTONE [o]	13.0
	ND [6] :DROCK [5]		□□ ARTIFI	CIAL [0]	RIP/RAP [0] LACSTRINE [0]	EXTENSIVE [-2] MODERATE [-1]	
	OF BEST TY	/PES: 4 or me		e natural substrates;ignore	SHALE [-1]	NORMAL [0]	Maximum
		✓ 3 or les	ss [0] sludg	e from point-sources)	COAL FINES [-	2]	20
Comme	nts						
	TREAM CO			nd estiamte percent: 0-Absent;			
				r in small amounts of highest qu boulders in deep or fast water, la			_
				, or deep, well-defined, functino		EXTENSIVE	0 .
% Amount		A NU CO [4]	% Amount	% Amount		✓ MODERATE 2	25-75% [7]
	UNDERCUT E	SANKS [1] NG VEGETATION		DOOLS>70CM [2] <u>0</u>	OWS, BACKWA ATIC MACROPH		
0 0	SHALLOWS (IN SLOW WATER)[1] <u>0 0</u> B	OULDERS [1] 0 1 LOGS	S OR WOODY D	בטטוכ [1]	ver
	ROOTMATS [1]				Maxim	um Zo
Comme	nts						20 7.0
		RPHOLOGY Ch	eck ONE in eacl	n category (Or 2 and average)			
SINUO		DEVELO		CHANNELIZATION	ST	ABILITY	
HIGH [[4]	EXCELLE	ENT [7]	NONE [6]	□ I	HIGH [3]	
✓ MODE LOW [RATE [3]	✓ GOOD [5 ☐ FAIR [3[]	☐ RECOVERED [4] ✓ RECOVERING [3]		MODERATE [2	um
		POOR [1]]	RECENT OR NO RECOVER			^{uiii} 12.0
Comme							
-				eck ONE in each category for E		2 per bank and average)	
River rig	ght looking downst	. A . A WIDE	ARIAN WIDT . >50m [4]	H L R FLOOD PLAIN (QUALITY	L R	III ACE [1]
L R	EROSION	¦ 🔲 🔲 MODE	ERATE 10-50m	SCRUB OR OLD FIEL		URBAN OR INDUS	TRIAL [0]
☐ ☐ MC)NE/LITTLE [3)DERATE [2]	VEDV	ROW 5-10m [2] ' NARROW [1]	RESIDENTIAL, PRK,		☐ ☐ MINING/CONSTRU	
✓ ✓ HE	AVY/SEVERE	[1] NONE	[0]	OPEN PASURE, ROW	TODOD IOI IIIOII	cate predominant land use(
					•	Ripar Maxim	
Comme							10
5] <i>POC</i>	DL/GLIDE A	ND RIFFLE /RU	JN QUALITY			Recreation	Potential
	I <mark>UM DEPTI</mark> NE (ONLY!	H CHAN	INEL WIDTH NE (Or 2 and ave	CURRE	NT VELOCITE All that apply		
□ >1 m [`	POOL WI	IDTH > RIFFLE W	/IDTH [2] 🔲 TORRENTIAL		N [1] Primary	
0.7 - <	1m [4] 0.7m [2]		IDTH = RIFFLE W IDTH < RIFFLE W			DMITTENT [3]	ry Contact
2 0.2 - <	0.4m [1]	I OOL WI	IDIII < KIITEE W	MODERATE [1]	=	ES [1] Po	ool/
<0.2m	[0]			Indic	ate for reach - p		um 0.0
Comme	nts						12
	for functiona obligate spec		s must be large	enough to support a population			TD10 -3
			-DTI:	Check One (Or 2 and avera	o ,	NO RIFFLE [ME	
	E DEPTH AREAS>10cm	RUN DI	EPIH 1UM >50cm [2]	RIFFLE/RUN SUBSTR. STABLE (e.g., Cobble, Bou		FLE/RUN EMBEDDE ☐ NONE [2]	פשמע
BEST	AREAS 5-10c	m [1 🔲 MAXIN	//UM<50cm [1]	MOD. STABLE (e.g, Large)	Gravel) [1]	LOW [1] Rif	fle/
☐ BEST	AREAS <5cm metri	_		UNSTABLE (e.g., Fine Frve	ei, Sand) [0]		
Comme	-	1					8 0.0
	DIENT (56.6	S ft/mi)	☐ VERY LOW -	LOW [2 - 4] % POOL:	% GL	IDE:	
_	•	•	☐ MODERATE			Ripar	
DRAII	NAGE ARE	4 (1.512 ft/m	✓ HIGH - VERY		% RIF	FLE: Maxim	4.0



Comment

A-CANOPY						
>85% - Open	Looking upstrea	ım (>10m, 3 read	ings, <10m reading in m	iddle); Round to the r	nearest whole percent	
✓ 55% -<85%		Left	Middle	Right	Total Average	
30%-<55%	% open	%	%	%	%	
10%-<30%						
<10% - Closed						
B-AESTHETICS			C-REC	REATION		
Nuisance algae	Oil sheen		Area	Depth		
Invasive macrophytes	Trash/Litter	,	Pool:	•		
Excess turbidity	Nuisance o	dor	1 001.	it > 5it		
Discoloration	Sludge dep	osits				
☐ Foam/Scum	CSOs/SSOs	s/Outfalls				
D MAINITENIANCE			E 1001	IEC		
D-MAINTENANCE			E-ISSI			
Public Private			ww₁		NPDES	
Active Historic			Indu	, <u> </u>		
Succession: Young	Old coured		_	ened Dirt G		
	courea odified		☐ Cont	aminated	.andfill Sediment	
Snag: Removed Mo	Both banks		□ Logg			
Relocated Cutoffs	Dotti baliks		Erosion	·	Surface	
	Stable			e bank 🦳 Manı	_	
☐ Armoured ☐ Slumped			=	h H2O Tile	H2O table	
☐ Impounded ☐ Desiccate			Mine:	Acid Qua	rry	
☐ Flood control ☐ Draina	age		Flow:	Natural S	tagnant	
			Wetl	and 🗌 Park 🗌	Issues: Golf	
			Lawı	n Home		
			Atmo	ospheric depositi	on	

Stream Reach S6S100a



Stream Location on 2013 Aerial Photograph

Stream Location on Bargersville USGS Quadrangle

North Bluff Creek **Stream Name:** Quadrangle: Bargersville Flow Regime: Perennial Johnson County: Natural T13N **Channel Type:** Township: No R3E Legal Drain: Range: IDEM 303(d) Listed: Section: 7 No Predominant Substrate: sand - gravel Quarter: NE

Evaluation Score: QHEI = 45 **Latitude:** 39.584965 **Use Designation:** Modified Warm Water Habitat **Longitude:** -86.235063

OHWM width: 4.3 Basin: White River - North Bluff/Bluff Cre

OHWM depth: 0.6 **14-digit HUC:** 05120201140030

USACE Jurisdiction: Yes **Drainage area:** 1.57

Alternatives Length of Impact (feet)		Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1 94		0.009	0.00
Aternative C2	91	0.009	0.00
Aternative C3	0	0.000	0.00
Aternative C4 (Preferred)	91	0.009	0.00





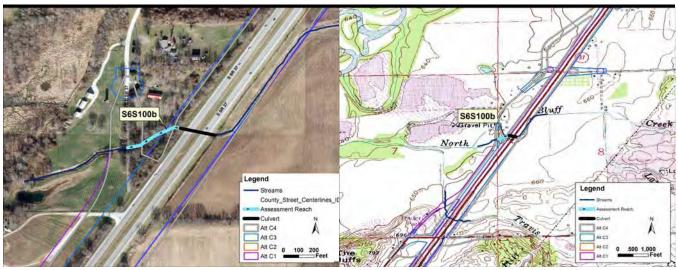
IDEM	Sample #		bioSample #	Stream Name North Bluff Creek		Location I	
1 Dan	Surveyor	Sample Date		Macro Sample Type	☐ Habitat		
	rh	2/18/2016	Johnson	N/A	Complete	QHEI Score:	45
-		estimate %	and check ever	, ,, ,		NE (Or 2 and average)	
PREDOMINA P R BL BC CO GR GR SA NUMBER	DR/SLABS [10 ULDERS [9] UBBLE [8] AVEL [7] ND [6] DROCK [5] OF BEST TY	PRESENT TOTAL %	PREDOMINANT PR HARDP/ DETRITION MUCK [2] ARTIFIC OTE [2] (Score	JS [3] 2]	ORIGIN LIMESTONE [1 TILLS [1] WETLANDS [0] HARDPAN [0] SANDSTONE [RIP/RAP [0] LACSTRINE [0 SHALE [-1] COAL FINES [-	MODERĂTÉ MODERĂTÉ NORMAL [0] FREE [1] EXTENSIVE [MODERATE NORMAL [0]	Substrate
Comme		/ED tellerie		destants manage 0 Absent	4		(
quality; 2- quality in that is sta % Amount 0 1 0 1 0 0	moderate or g ble, well deve UNDERCUT B OVERHANGIN	ounts, but not of reater amounts (loped root wad in ANKS [1] G VEGETATION N SLOW WATER	nighest quality or e.g., very large b deep/fast water, % Amount	d estiamte percent: 0-Absent in small amounts of highest quoulders in deep or fast water, or deep, well-defined, functin **Amount** OOLS>70CM [2]	juality; 3- Highest large diameter lo oal pools.)	Check One (Or CHECK OR CHECK ONE (OR CHECK O	OUNT 2 and average) 5 >75% [11] 6 25-75% [7] 25% [3] BSENT <5% [1] Cover
Commo	nto					IVIAA	3.0
Comme		PHOLOGY Ch	eck ONE in each	category (Or 2 and average)			
SINUOS HIGH [SITY [4] RATE [3] 2] [1]	DEVELOI EXCELLE GOOD [5] FAIR [3] POOR [1]	PMENT ENT [7] 	CHANNELIZATION NONE [6] RECOVERED [4] RECOVERING [3] RECENT OR NO RECOVE	V		annel imum 20 11.0
4] BAN	IK EROSION	I AND RIPARIA	AN ZONE Che	ck ONE in each category for	EACH BANK (Or	2 per bank and average)	
L R NO MC		WIDE MODE V VERY		L R FLOOD PLAIN FOREST, SWAMP [: SCRUB OR OLD FIE FENCED PASTURE OPEN PASURE, RO	B] ELD [2] , NEW FIELD [1] [1] India		JSTRIAL [0] Î RUCTION [0]
5] <i>POC</i>	L/GLIDE AI	ND RIFFLE /RU	IN QUALITY			Recreati	on Potential
Check ON >1 m [1m [4] 0.7m [2] 0.4m [1] [0]	Check ON POOL WI	NEL WIDTH IE (Or 2 and aver DTH > RIFFLE WI DTH = RIFFLE WI DTH < RIFFLE WI	rage) Che DTH [2] TORRENTIAL DTH [1] VERY FAST [DTH [0] FAST [1] MODERATE	1] INTE	TY (Circle one and W [1] Prima Secon ERMITTENT [-2] IES [1] CL	ry Contact dary Contact Pool/ Irrent imum 12
		riffles; Best area	s must be large e	nough to support a population	١		
of riffle-o	obligate specie E DEPTH AREAS>10cm AREAS 5-10cm AREAS <5cm [metric	RUN DI [2]	· ·	Check One (Or 2 and aver RIFFLE/RUN SUBSTF STABLE (e.g., Cobble, Bo MOD. STABLE (e.g., Large UNSTABLE (e.g., Fine From	age) RATE RIF oulder) [2 [e Gravel) [1]	MODERATE [U]	
61 GPAE		ft/mi)	VEDV I OW	10W[2 4] W BOOL-	20 % GI	IDE: 20	
	DIENT (43.6 NAGE AREA	1 (1 57 ft/mi)	VERY LOW -MODERATE [✓ HIGH - VERY	6 - 10]	20 % GL 50 % RIF	Rip	arian imum 10



Comment

A-CANOPY						
✓ >85% - Open	Looking upstrea	m (>10m, 3 readi	ngs, <10m reading in m	iddle); Round to the n	earest whole percent	
55% -<85%		Left	Middle	Right	Total Average	
30%-<55 %	% open	%	%	%	%	
10%-<30%	•					
<10% - Closed						
B-AESTHETICS			C-REC	REATION		
Nuisance algae	Oil sheen		Area	Depth		
Invasive macrophytes	Trash/Litter		Pool:	•		
Excess turbidity	Nuisance o	dor	1 001 > 1001			
☐ Discoloration ☐	Sludge dep	osits				
☐ Foam/Scum	CSOs/SSOs	/Outfalls				
D-MAINTENANCE			E-ISSU	IEG		
					NDDEC	
☐ Public ☐ Private ☐ Active ☐ Historic			☐ WWT		NPDES	
	Old		☐ Indu	· —	rimo	
	oured				andfill	
_ · <u>-</u>	dified		BMPs:	Construction		
	Both banks		Logg			
Relocated Cutoffs	Don's barine		Erosion		_	
	Stable			e bank Manu		
Armoured Slumped			☐ Wasl	h H2O 🔲 Tile [H2O table	
☐ Impounded ☐ Desiccated	d		Mine:	Acid Qua	rry	
☐ Flood control ☐ Drainag	ge		Flow:	Natural St	agnant	
			Wetla	and 🗌 Park 📗	Issues: Golf	
			Lawı	n 🗌 Home		
			Atmo	spheric depositi	on	

Stream Reach S6S100b



Stream Location on 2013 Aerial Photograph

Stream Location on Bargersville USGS Quadrangle

North Bluff Creek Bargersville **Stream Name:** Quadrangle: Flow Regime: Perennial Johnson County: Natural T13N **Channel Type:** Township: No R3E Legal Drain: Range: IDEM 303(d) Listed: No 8 Section: Predominant Substrate: sand Quarter: NW QHEI = 43

Evaluation Score: QHEI = 43 **Latitude:** 39.585282 **Use Designation:** Modified Warm Water Habitat **Longitude:** -86.234232

OHWM width: 9.5 Basin: White River - North Bluff/Bluff Cre

OHWM depth: 0.5 **14-digit HUC:** 05120201140030

USACE Jurisdiction: Yes **Drainage area:** 1.518

Alternatives	Alternatives Length of Impact (feet)		Riparian Area Impact (ac)
Aternative C1 172		0.038	0.00
Aternative C2	110	0.024	0.00
Aternative C3	92	0.020	0.00
Aternative C4 (Preferred)	110	0.024	0.00





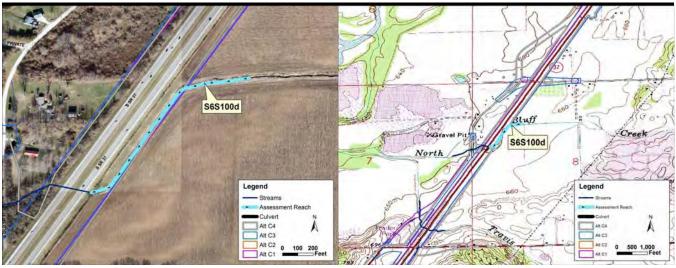
IDEM	Sample #		bioSample #	Stream Name North Bluff Creek		Location	
A	Surveyor	Sample Date		Macro Sample Type	☐ Habitat	OUEL Occurs	42
	rh	2/18/2016	Johnson	N/A	Complete	QHEI Score:	43
1] SUB	STRATE		predominant su 6 and check eve	bstrate TYPE BOXES;	Chack ON	IE (Or 2 and average)	
	BEST TYP			HER TYPES	ORIGIN	QUALITY	
PREDOMINA		PRESENT TOTAL %	6 PREDOMINANT	PRESENT TOTAL %	LIMESTONE [1		
□ □ BL	DR/SLABS [1	0] 🖺 🖺	P R HARDF		TILLS [1]	MODERATE [-1]	
⊢ ⊢ BO)ULDERS [9])BBLE [8]		DETRIT		WETLANDS [0] HARDPAN [0]]	Substrate
☐ ☐ GR	RAVEL [7]		☐ ☐ SILT [2]	i	SANDSTONE [0]	13.0
	ND [6] :DROCK [5]	100	□□ ARTIFI	CIAL [0]	RIP/RAP [0] LACSTRINE [0]	EXTENSIVE [-2] MODERATE [-1]	
	OF BEST TY	_		e natural substrates;ignore e from point-sources)	SHALE [-1] COAL FINES [-	✓ NORMAL [0]	Maximum
Comme	nte	✓ 3 or les	ss [0] Sludy	e nom point-sources)	COAL FINES [-		20
	TREAM CO	VER Indicate o	resence 0 to 3 a	nd estiamte percent: 0-Absent;	1- Very small ar	mounts or if more common	of marginal
quality; 2-	-Moderate am	ounts, but not of l	highest quality o	r in small amounts of highest qu	ality; 3- Highest	AMO	UNT
				poulders in deep or fast water, la r, or deep, well-defined, functing		01.001.01.0 (0. 2	.
% Amount		·	% Amount	% Amount	. ,	EXTENSIVE :	25-75% [7]
	UNDERCUT B OVERHANGIN	SANKS [1] IG VEGETATION		OO0LS>70CM [2] <u>0</u> <u>0</u> OXB(OWS, BACKWAT ATIC MACROPH		
0 1	Shallows (i	IN SLOW WATER)[1] <u>0</u> <u>0</u> B	OULDERS [1] 0 1 LOGS	S OR WOODY D	EDDIC [1]	ver
<u> </u>	ROOTMATS [ıj				Maxim	um 20 3.0
Comme	nts						
3] <i>CHA</i>	NNEL MOR	RPHOLOGY Ch	eck ONE in eacl	n category (Or 2 and average)			
SINUO		DEVELO		CHANNELIZATION		ABILITY	
☐ HIGH [☐ MODE	RATE [3]	EXCELLE GOOD [5]		NONE [6] RECOVERED [4]		HIGH [3] MODERATE [2	nel 🖂
LOW [✓ FAIR [3[POOR [1]		▼ RECOVERING [3] □ RECENT OR NO RECOVER	l	LOW [1] Maxim	um 🛮 🗚 🐧
Comme				RECEIVE OR NO RECOVER	KT [I]		20 10.0
4] <i>BAN</i>	IK EROSIOI	N AND RIPARIA	AN ZONE Ch	eck ONE in each category for E	ACH BANK (Or	2 per bank and average)	
River rig	ht looking downst		ARIAN WIDT		QUALITY	L R	ACE [4]
L R	EROSION	¹ ✓ ✓ MODE	>50m [4] ERATE 10-50m	FOREST, SWAMP [3] SCRUB OR OLD FIEL	.D [2]	CONSERVATION T	TRIAL [0]
□ □ MC)NE/LITTLE [3])DERATE [2]	VEDV	OW 5-10m [2] NARROW [1]	RESIDENTIAL, PRK, I		☐ ☐ MINING/CONSTRU	
☐ ☐ HE	AVY/SEVERE	[1] NONE	[0]	OPEN PASURE, ROW	TODOD IOI IIIOII	cate predominant land use(100m riparian Ripar	
						Maxim	um 9.0
Comme		ND RIFFLE /RU	IN OUALITY				10 [
-	UM DEPTI		NEL WIDTH	CURRE	NT VELOCI	Recreation (Circle one and co	
Check Of	NE (ONLY!	Check ON	NE (Or 2 and ave DTH > RIFFLE W	erage) Chec	k All that apply	(Girdie erie and de	,
>1 m [c	1m [4]	▼ POOL WI	DTH = RIFFLE W	/IDTH [1] 🔲 VERY FAST [1]	☐ INTE	RSTITIAL [-1] Seconda	ry Contact
	0.7m [2] 0.4m [1]	☐ POOL WI	DTH < RIFFLE W	/IDTH [0]	∐ INTE 1 □ FDDI	IF < 1.11	ool/
✓ <0.2m					ate for reach - p	t i Cull	
Comme							12
	for functional obligate speci	•	s must be large	enough to support a population	,	□ NO DIEELE IME	LDIC=01
	DEPTH	RUN DI	EPTH	Check One (Or 2 and average RIFFLE/RUN SUBSTRA	o ,	NO RIFFLE [ME] FLE/RUN EMBEDDE	
BEST	AREAS>10cm	n [2] MAXIM	1UM >50cm [2]	STABLE (e.g., Cobble, Bou	ılder) [2	NONE [2]	-
	AREAS 5-10ci AREAS <5cm	m[I <u>▼</u> MAXIN	1UM<50cm [1]	MOD. STABLE (e.g, Large €✓ UNSTABLE (e.g., Fine Frve	ا ا دا داتا داد. I, Sand) [0]		fle/
	[metri	c=0]				EXTENSIVE [-1] Maxim	1.0
Comme							°
6] GRAD	DIENT (44.7	ft/mi)	☐ VERY LOW -		³⁰ % GL	.IDE: 20 Ripar	ian
DRAII	NAGE AREA	4 (1.518 ft/m			³⁰ % RIF		4.0



Comment

A-CANOPY						
	Looking upstrea	m (>10m, 3 readi	ings, <10m reading in m	niddle); Round to the r	earest whole percent	
✓ 55% -<85%		Left	Middle	Right	Total Average	
30%-<55%	% open	%	%	%	%	
10%-<30%						
<10% - Closed						
B-AESTHETICS			C-REC	CREATION		
Nuisance algae	Oil sheen		Area	Depth		
☐ Invasive macrophytes	Trash/Litter		Pool:	•		
Excess turbidity	Nuisance o	dor				
Discoloration	Sludge dep	osits				
Foam/Scum	CSOs/SSOs	/Outfalls				
D-MAINTENANCE			E-ISSI	<u>JES</u>		
☐ Public ☐ Private			□ ww	TP 🗌 CSO 🔲	NPDES	
Active Historic			Indu	stry 🗌 Urban		
Succession:	Old		☐ Hard	lened 🗌 Dirt G	rime	
☐ Spray ☐ Islands ☐ Sco	oured		☐ Cont	aminated 🗌 L	andfill	
Snag: Removed Mod	lified		BMPs:	Construction	Sediment	
Leveed: One sided	Both banks		Log	ging 🗌 Irrigatio	n 🗌 Cooling	
Relocated Cutoffs			Erosion	: Bank	Surface	
Bedload: Moving	Stable		☐ Fals	e bank 🔲 Manı	ıre 🗌 Lagoon	
Armoured Slumped			☐ Was	h H2O 🔲 Tile [H2O table	
☐ Impounded ☐ Desiccated	d		Mine:	Acid Qua	rry	
☐ Flood control ☐ Drainag	ge		Flow:		agnant	
			Wetl		Issues: Golf	
			Law	n Home		
			Atmo	ospheric depositi	on	

Stream Reach S6S100d



Stream Location on 2013 Aerial Photograph

Stream Location on Bargersville USGS Quadrangle

North Bluff Creek Bargersville **Stream Name:** Quadrangle: Flow Regime: Perennial Johnson County: Channelized Ditch T13N **Channel Type:** Township: No R3E Legal Drain: Range: IDEM 303(d) Listed: 8 No Section: Predominant Substrate: muck - gravel Quarter: 8

Evaluation Score: QHEI = 27 **Latitude:** 39.586105 **Use Designation:** Limited Warm Water Habitat **Longitude:** -86.232441

OHWM width: 5.8 Basin: White River - North Bluff/Bluff Cre

OHWM depth: 0.4 **14-digit HUC:** 05120201140030

USACE Jurisdiction: Yes **Drainage area:** 1.417

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	Aternative C1 860		0.00
Aternative C2 827		0.109	0.00
Aternative C3	854	0.113	0.00
Aternative C4 (Preferred)	827	0.109	0.00





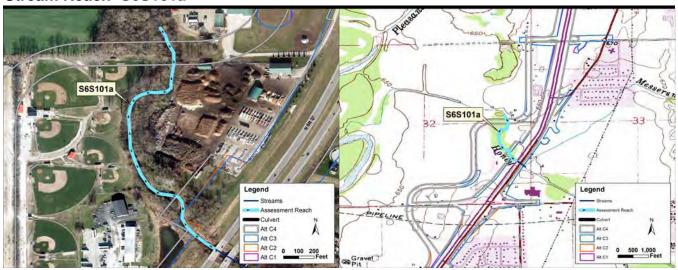
IDEM	Sample #		bioSample #		am Name		Location	
100a	S6S100d		N/A		th bluff			
	Surveyor rh	Sample Date 4/19/2016	County Johnson	Macro S N/A	Sample Type	☐ Habitat ☐ Complete	QHEI Scor	e: 27
1] SUB	STRATE	Check ONLY Two	predominant sub	strate TYPE	BOXES;	Oh a als OA	IF (O= 2 and average)	
	BEST TYP		and check every	ER TYPES		ORIGIN	IE (Or 2 and average) QUAL I	
PREDOMINA		PRESENT TOTAL %	6 PREDOMINANT	PRES	SENT TOTAL %		_	
P R □ □ BL	.DR/SLABS [10	ງາ 🖺 🖺	P R HARDPA	.N [4]	R ✓	LIMESTONE [1 TILLS [1]]	
□ □ BC	OULDERS [9]		DETRITU	S [3]	40	WETLANDS [0]] NORMAL	
)BBLE [8] RAVEL [7]	60	✓]	40	HARDPAN [0] SANDSTONE [☐ FREE [1] 0] —	
	ND [6] DROCK [5]		□□ ARTIFIC	AL [0]		RIP/RAP [0] LACSTRINE [0	EXTENSIN MODERA	
	OF BEST TY	PES: 4 or mo		natural subs		SHALE [-1]	¹ NORMAL	
		✓ 3 or les	ss [0] sludge	from point-so	ources)	COAL FÎNES [-	.2]	20
Comme	nts TREAM COV	/ED Indicate a	racense O to 2 on	d aatiamta na	roanti O Abaanti	1 \/am. amall as	manusta ar if mara sam	man of marginal
			resence 0 to 3 and highest quality or				mounts or if more com	nmon of marginal
quality in	moderate or g	greater amounts (e.g., very large bo deep/fast water,	ulders in dee	p or fast water, la	arge diameter lo	g Check One	(Or 2 and average)
% Amount		noped root wad in	% Amount	or deep, well	% Amount	ai poois.)		SIVE >75% [11] RATE 25-75% [7]
0 1	UNDERCUT B	ANKS [1]	<u>0</u> <u>0</u> PO	00LS>70CM [2] <u>0 0</u> OXB0	OWS, BACKWA	TERS [1] 🗹 SPARSI	E -<25% [3]
<u>0</u> <u>1</u> 0 0	OVERHANGIN SHALLOWS (I	IG VEGETATION N SLOW WATER	[1] <u> </u>	OTWADS [1] JLDERS [1]	_00_AQU/	ATIC MACROPH S OR WOODY D	IYTES [1]	Y ABSENT <5% [1]
	ROOTMATS [1		/t·1 — — = = =	[.,				Cover Maximum
Comme	nts							20 3.0
		PHOLOGY Ch	eck ONE in each	category (Or	2 and average)			<u> </u>
SINUO		DEVELO			LIZATION	ST	ABILITY	
HIGH		EXCELLE		NONE [6]			HIGH [3]	
LOW [RATE [3] 21	☐ GOOD [5] ✓ FAIR [3]	J	RECOVE RECOVE	RED [4] RING [3]			Channel Maximum
✓ NONE	[1]	☐ POOR [1]			OR NO RECOVER			7.0
4] BAN		N AND DIDADI	AN ZONE Che	rk ONE in ea	ch category for F	ACH BANK (Or	2 per bank and avera	(ana)
-	ght looking downstr		ARIAN WIDTH		OOD PLAIN		L R	90)
L R	EROSION	WIDE	>50m [4]	□□ FOI	REST, SWAMP [3]		CONSERVAT	TION TILLAGE [1]
	NE/LITTLE [3]		ERATE 10-50m ROW 5-10m [2]		RUB OR OLD FIEL SIDENTIAL, PRK, I			NDUSTRIAL [0] ISTRUCTION [0]
✓ ✓ MC	DERATE [2] AVY/SEVERE	[1] VERY NONE	NARROW [1]	FEN	ICED PASTURE [1	1] Indic	cate predominant land	
		I V V NONE	. [U]	V V UPI	en Pasure, Row	past		Riparian 2.0
Comme	nts						IV.	Maximum 2.0
5] <i>POC</i>	DL/GLIDE AI	ND RIFFLE /RU	JN QUALITY				Doo	reation Detential
	UM DEPTH		NEL WIDTH	240)		NT VELOCI	T\/	reation Potential and comment on back)
□ >1 m [NE (ONLY! 6]		NE (Or 2 and aver DTH > RIFFLE WI		TORRENTIAL	ck All that apply [-1] ✓ SLO'	W [1] Pi	rimary Contact
0.7 - <	1m [4] 0.7m [2]		DTH = RIFFLE WI DTH < RIFFLE WI		VERY FAST [1] FAST [1]		:RSTITIAL [-1] Si :RMITTENT [-2]	econdary Contact
0.2 - <	0.4m [1]	1 00E W	DITT \ KIII I EE WII	J 111 [0]	MODERATE [1]]	IES [1]	Pool/ Current
✓ <0.2m					Indic	ate for reach - p	ools and riffles	/Jaximum 12 2.0
Comme		riffles: Best area	s must be large e	nough to sup	port a population			.2
	obligate speci		50 large 0		e (Or 2 and avera	ae)	✓ NO RIFFLI	E [METRIC=0]
	DEPTH	RUN DI		RIFFLE/R	UN SUBSTR	ĂTE RIF	FLE/RUN EMBE	
	AREAS>10cm AREAS 5-10cr	[2] ∐ MAXIM m [1 ☐ MAXIM	1UM >50cm [2] 1UM<50cm [1]	STABLE MOD ST	(e.g., Cobble, Bou ABLE (e.g, Large (ılder) [2 Gravel) [1]	NONE [2] LOW [1]	Diffle/
	AREAS <5cm	_			LE (e.g., Fine Frve		MODERATE [0]	Riffle/ Run
Comme	[metri	C=U]				L	EXTENSIVE [-1] N	/laximum 0.0
	nts DIENT (44.7	r ft/mi)	☐ VERY LOW - I	OW [2 - 4]	% POOL:	40 % GL	IDF: 10	
-	•	•	☐ MODERATE [Riparian 4.0
DKAII	NAGE AKEA	4 (1.417 ft/m	HIGH - VERY	HIGH [10 - 6]	% RUN:	40 % RIF	FLE: 0 1	Maximum 4.0



Comment

A-CANOPY								
✓ >85% - Open	Looking upstream	n (>10m, 3 readin	igs, <10m reading in mid	dle); Round to the n	earest whole percent			
55% -<85%		Left	Middle	Right	Total Average			
30%-<55 %	% open	%	%	%	%			
10%-<30%	· -							
<10% - Closed								
B-AESTHETICS			C-RECE	REATION				
Nuisance algae	Oil sheen							
Invasive macrophytes	Trash/Litter		Area	Depth				
Excess turbidity	Nuisance od	or	Pool: > 100ft	² > 3ft				
Discoloration	Sludge depo							
Foam/Scum	CSOs/SSOs/							
		- uu						
D-MAINTENANCE			E-ISSUE	<u>ES</u>				
☐ Public ☐ Private			☐ WWTP	cso 🗌 ı	NPDES			
Active Historic			Indust	ry 🗌 Urban				
Succession: Young	Old		Harder	ned 🗌 Dirt G	rime			
☐ Spray ☐ Islands ☐ S	coured		Contai	minated 🗌 L	andfill			
Snag: Removed Mo	odified		BMPs:	Construction	Sediment			
Leveed: One sided	Both banks		Loggir	ng 🗌 Irrigatio	n 🗌 Cooling			
Relocated Cutoffs			Erosion:	☐ Bank ☐ S	Surface			
Bedload: Moving	Stable		False I	☐ False bank ☐ Manure ☐ Lagoon				
Armoured Slumped	l		Wash	H2O 🗌 Tile [H2O table			
☐ Impounded ☐ Desiccat	ed		Mine:	Acid Qua	rry			
Flood control Drain	age		Flow:	Natural St	agnant			
			Wetlar		Issues: Golf			
			Lawn	Home				
			Atmos	pheric deposition	on			

Stream Reach S6S101a



Stream Location on 2013 Aerial Photograph

Stream Location on Bargersville USGS Quadrangle

Honey Creek Bargersville **Stream Name:** Quadrangle: Flow Regime: Perennial Johnson County: Natural T14N **Channel Type:** Township: No R3E Legal Drain: Range: IDEM 303(d) Listed: Section: 32 No Predominant Substrate: gravel - sand Quarter: SE

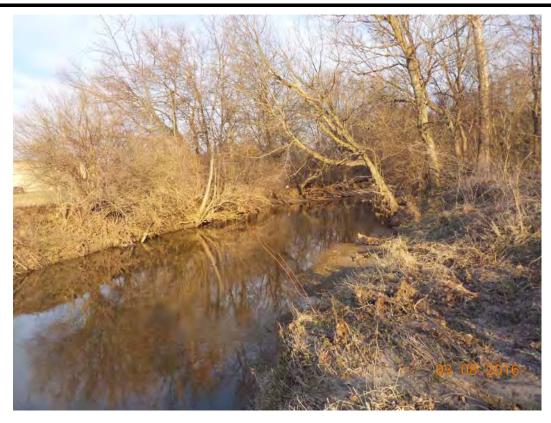
Evaluation Score: QHEI = 47.5 **Latitude:** 39.608869 **Use Designation:** Probable Warm Water Habitat **Longitude:** -86.217085

OHWM width: 32.0 Basin: Honey Creek -Turkey Pen Creek

OHWM depth: 1.1 **14-digit HUC:** 05120201140010

USACE Jurisdiction: Yes **Drainage area:** 17.9

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	416	0.306	0.87
Aternative C2	313	0.230	0.80
Aternative C3	284	0.209	0.55
Aternative C4 (Preferred)	573	0.421	1.19





IDEM	Sample #		bioSample #		am Name		Location	
100m	S6S101a		N/A		ney Creek			
1	Surveyor rh	Sample Date 2/19/2016	County Johnson	Macro S	Sample Type	☐ Habitat Complete	QHEI Scor	e: 47.5
1] SUB	STRATE	Check ONLY Two	predominant sub	strate TYPE	BOXES;	011-01	JE (0=0 == d ======)	
	DECT TVD		and check every	,, ,			NE (Or 2 and average)	
PREDOMINA	BEST TYP	PRESENT TOTAL %	PREDOMINANT	ER TYPES	SENT TOTAL %	ORIGIN	QUALI	
BC CC GR	DR/SLABS [10 DULDERS [9] BBLE [8] RAVEL [7] ND [6] DROCK [5] OF BEST TY	✓ ✓ 50 ✓ ✓ 50 FES: 4 or mo	DE [Z]	N [4] S [3] 		LIMESTONE [1 TILLS [1] WETLANDS [0] HARDPAN [0] SANDSTONE [RIP/RAP [0] LACSTRINE [0 SHALE [-1] COAL FINES [-	MODERAT 	ÉE [-1] [0] Substrate [E [-2] TE [-1] 13.0
	nts also mud							
quality; 2- quality in that is sta % Amount 0 1 0 1 0 1	moderate or g ble, well deve UNDERCUT B OVERHANGIN SHALLOWS (I ROOTMATS [1	ounts, but not of lareater amounts (loped root wad in ANKS [1] IG VEGETATION N SLOW WATER	nighest quality or e.g., very large bo deep/fast water, % Amount	in small amou oulders in dee or deep, well OOLS>70CM [OTWADS [1]	unts of highest quest por fast water, laddefined, functino	ality; 3- Highest arge diameter lo al pools.) OWS, BACKWA	9 Check One EXTENS MODER TERS [1] SPARSE HYTES [1] NEARLY EBRIS [1]	mon of marginal MOUNT (Or 2 and average) SIVE >75% [11] ATE 25-75% [7] E -<25% [3] Y ABSENT <5% [1] Cover Maximum 20 3.0
31 CHA	NNFI MOR	PHOLOGY Ch	eck ONE in each	category (Or	2 and average)			
SINUO:	SITY [4] RATE [3] 2] [1]	DEVELOI EXCELLE GOOD [5] FAIR [3] POOR [1]	PMENT ENT [7] 	CHANNE NONE [6] RECOVE RECOVE	LIZATION RED [4]	✓		Channel laximum 20
		N AND RIPARIA	AN ZONE Che	ck ONE in ea	ch category for E.	ACH BANK (Or	2 per bank and average	ge)
River rig	ht looking downstr EROSION INE/LITTLE [3] INE/LITTLE [2] INE/LITTLE [2] INE/LITTLE [3] INE/LITTLE [3]	L R RIPA WIDE MODE	ARIAN WIDTH >50m [4] :RATE 10-50m :OW 5-10m [2] NARROW [1]	L R FL FOR SCF RES	OOD PLAIN (REST, SWAMP [3] RUB OR OLD FIEL SIDENTIAL, PRK, ICED PASTURE [EN PASURE, ROW	D [2] NEW FIELD [1] 1] Indi	L R CONSERVAT URBAN OR IF MINING/CON: cate predominant land t 100m riparian	ION TILLAGE [1] NDUSTRIAL [0] STRUCTION [0]
5] POC	L/GLIDE AI	ND RIFFLE /RU	IN QUALITY				5	
Check ON >1 m [0.7 - <	1m [4] 0.7m [2] 0.4m [1] [0]	Check ON POOL WI	NEL WIDTH JE (Or 2 and aver DTH > RIFFLE WI DTH = RIFFLE WI DTH < RIFFLE WI	OTH [2] OTH [1] OTH [0]	Chec TORRENTIAL VERY FAST [1] FAST [1] MODERATE [1]	INTE	TY (Circle one a W [1] Pri ERSTITIAL [-1] Se ERMITTENT [-2] IES [1]	eation Potential and comment on back) imary Contact econdary Contact Pool/ Current flaximum 12
		riffles: Rest area	s must be large e	nough to sup-	nort a nonulation			
of riffle-o	obligate speci E DEPTH AREAS>10cm AREAS 5-10cr AREAS <5cm [metri	RUN DI [2]		Check One RIFFLE/R STABLE MOD. STA	e (Or 2 and avera LUN SUBSTR. (e.g., Cobble, Bou ABLE (e.g., Large LE (e.g., Fine Frve	ATE RIF ılder) [2 Gravel) [1]	FLE/RUN EMBEI NONE [2] LOW [1] MODERATE [0]	Riffle/ Run Maximum 8
Comme		·/mi)	VEDV LOW	OW [2 41	N/ BOOL -	25 % GI	IDE. 25	
-	DIENT (15 ft	*	VERY LOW - L ✓ MODERATE [6 HIGH - VERY I	o - 10]	% POOL:	25 % GL 25 % RIF		Riparian laximum 10



Comment

A-CANOPY							
✓ >85% - Open Lo	ooking upstream (>10m, 3 re	adings, <10m reading	in middle); Round to the	nearest whole percent			
55% -<85%	Left	Middle	Right	Total Average			
30%-<55%	open %	%	%	%			
10%-<30%							
<10% - Closed							
B-AESTHETICS		C-R	ECREATION				
Nuisance algae	Oil sheen	Area	Depth				
☐ Invasive macrophytes ☐ T	rash/Litter		00ft ² □ > 3ft				
	luisance odor	1 001.					
☐ Discoloration ☐ S	Sludge deposits						
☐ Foam/Scum ☐ C	SOs/SSOs/Outfalls						
D-MAINTENANCE		F-IS	SUES				
Public Private			WTP CSO	NPDES			
Active Historic			dustry Urban	_			
Succession: Young Old	4	_	ardened Dirt (
Spray Islands Scour		_		Landfill			
Snag: Removed Modific		ВМР					
	oth banks		ogging Irrigatio				
Relocated Cutoffs	AII DUING	Eros					
Bedload: Moving Sta	ble		☐ False bank ☐ Manure ☐ Lagoon				
Armoured Slumped		_	☐ Wash H2O ☐ Tile ☐ H2O table				
Impounded Desiccated		Mine	: Acid Qu	arry			
☐ Flood control ☐ Drainage		Flow	: Natural S	Stagnant			
_		W	etland Park	Issues: Golf			
		L	awn Home				
		A	tmospheric deposi	tion			

Stream Reach S6S101c



Stream Location on 2013 Aerial Photograph

Stream Location on Bargersville USGS Quadrangle

Honey Creek **Stream Name:** Quadrangle: Bargersville Flow Regime: Perennial Johnson County: Natural T14N **Channel Type:** Township: No R3E Legal Drain: Range: IDEM 303(d) Listed: Section: 32 No Predominant Substrate: gravel - sand Quarter: SE

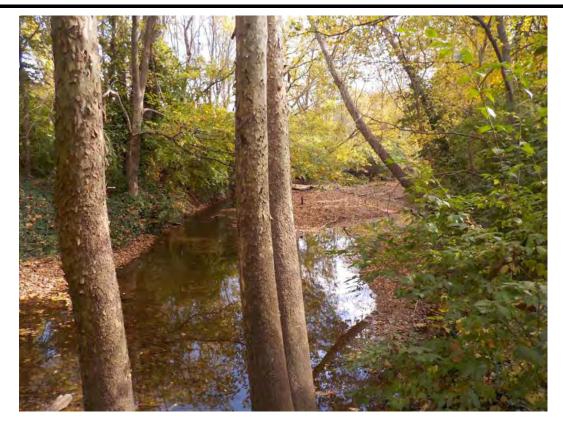
Evaluation Score: QHEI = 48 **Latitude:** 39.608308 **Use Designation:** Probable Warm Water Habitat **Longitude:** -86.216209

OHWM width: 32.5 Basin: Honey Creek -Turkey Pen Creek

OHWM depth: 5.0 **14-digit HUC:** 05120201140010

USACE Jurisdiction: Yes **Drainage area:** 17.86

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	70	0.052	0.00
Aternative C2	133	0.099	0.17
Aternative C3	125	0.093	0.15
Aternative C4 (Preferred)	70	0.052	0.00





IDEM	Sample #		bioSample #	Stream Name Honey Creek		Location	1
	Surveyor	Sample Date		Macro Sample Type	☐ Habitat	OUEL Seere	40
	rh	10/21/2015	Johnson	N/A	Complete	QHEI Score:	48
1] SUB	STRATE		predominant su 6 and check eve	bstrate TYPE BOXES;	Chack OA	IE (Or 2 and average)	
	BEST TYP			HER TYPES	ORIGIN	NE (Or 2 and average) QUALITY	
PREDOMINA		PRESENT TOTAL 9	6 PREDOMINANT	PRESENT TOTAL %	_		
$\Box \Box BL$.DR/SLABS [1	01 🗖 🗖	P R	PAN [4] PR	■ LIMESTONE [1 ✓ TILLS [1]]	1
$\square \square \square$ BC	OULDERS [9]	"	L DETRIT	rus [3] 🔲 🖳 🚃 📗	WETLÄNDS [0] V NORMAL [0]	^¹ S <u>ubstrate</u>
	OBBLE [8] RAVEL [7]	✓ ✓ <u>50</u>	MUCK SILT [2]			☐ FREE [1] 01 —	
Ľ ⊻ SA	ND [6]	<u>✓</u> <u>✓</u> <u>50</u>		CIAL [0]	RIP/RAP [0] -	EXTENSIVE [-2]	
	EDROCK [5] B OF BEST T Y	 PES: ☐ 4 or mo	ore [2] (Scor	e natural substrates;ignore	LACSTRINE [0 SHALE [-1]] MODERATE [-1 NORMAL [0]	J Maximum
NOMBER	OI DEGITI	3 or les		e from point-sources)	☐ COAL FÎNÊS [-		20
Comme	nts						
	TREAM CO			nd estiamte percent: 0-Absen			
				r in small amounts of highest of coulders in deep or fast water,			_
				r, or deep, well-defined, functir		EXTENSIVE	•
% Amount		ANUC 543	% Amount	% Amount	DOMC DACKE	✓ MODERATE:	25-75% [7]
	UNDERCUT E OVERHANGIN	SANKS [1] IG VEGETATION		DO0LS>70CM [2] <u> 0 </u>	BOWS, BACKWA UATIC MACROPH	TERS [1] SPARSE -<25 IYTES [1]	
0 0	SHALLOWS (IN SLOW WATER)[1] <u>0 0</u> B	OULDERS [1] 0 1 LO	GS OR WOODY D	LDDIC [1]	ver 🖂
<u> </u>	ROOTMATS [ıj				Maxim	num 7.0
Comme	nts						20
3] CHA	NNEL MOR	RPHOLOGY Ch	eck ONE in eacl	h category (Or 2 and average)			
SINUO		DEVELO		CHANNELIZATION		ABILITY	
HIGH	• •	EXCELLE		NONE [6]		HIGH [3]	
✓ LOW [[rate [3] [2]	✓ GOOD [5 ☐ FAIR [3[J	☐ RECOVERED [4] ✓ RECOVERING [3]		MODERATE [2	um II
☐ NONE		☐ POOR [1]]	RECENT OR NO RECOV			12.0
Comme		N AND BIBABI	AN ZONE Ch	eck ONE in each category for	EACH BANK (Or	2 per bank and average)	
_	ght looking downst		ARIAN WIDT			L R	
L R	EROSION	u 🔲 🔲 Wide	>50m [4]	☐☐ FOREST, SWAMP [[3]	☐ ☐ CONSERVATION	
	NE/LITTLE [3	, ЩЩМООН	ERATE 10-50m ROW 5-10m [2]	SCRUB OR OLD FI RESIDENTIAL, PR	ELD [2] (NEW FIELD [1]	✓ ✓ URBAN OR INDUS MINING/CONSTRU	
l l MC	DERATE [2]	VEDV	ווואסססאאן בֿוֹן	☐ FENCED PASTURE	[1] Indi	cate predominant land use(
	AVIISEVERE	[1] VERY NONE	[0]	☐☐ OPEN PASURE, RO		t 100m riparian Ripar	ian
Camma	nto					Maxim	10 3.0
51 POC		ND RIFFLE /RU	JN QUALITY				10
-	UM DEPTI		INEL WIDTH	CURR	ENT VELOCI	Recreation (Circle one and co	
Check Of	NE (ONLY!	Check ON	NE (Or 2 and ave DTH > RIFFLE W	erage) Ch	eck All that apply	(on the time and the	,
✓ >1 m [0.7 - <	oj 1m [4]		IDTH > RIFFLE W IDTH = RIFFLE W			W [1] □ Primary :RSTITIAL [-1] □ Seconda	ary Contact
	0.7m [2] 0.4m [1]	☐ POOL WI	IDTH < RIFFLE W	/IDTH [0] ☐ FAST [1] ✓ MODERATE			ool/
<0.2 - <					licate for reach - p	Cull	
Comme	nts				p	IVIANIII	12
			s must be large	enough to support a populatio	n		
	obligate spec			Check One (Or 2 and ave	o ,	NO RIFFLE [ME	
	DEPTH	RUN DI		RIFFLE/RUN SUBST		FLE/RUN EMBEDDE	DNES
✓ BEST	AREAS>10cm AREAS 5-10c		/IUM >50cm [2] /IUM<50cm [1]	STABLE (e.g., Cobble, B ✓ MOD. STABLE (e.g, Larg	e Gravel) [1]	_ NONE [2] _ LOW [1] Rif	ffle/
☐ BEST	AREAS <5cm [metri	_		UNSTABLE (e.g., Fine Fr	vel, Sand) [0]	MODERATE [0] F EXTENSIVE [-1] Maxim	
Commo	-	υ- υ]			L	LVILIAOIAE [-1] AIQXIII	8 2.0
Comme		mi)	NEDV I OW	10W[2 4] W BOOL - [30 % GI	IDE: 30	
_	DIENT (0 ft/	·			30 % GL	Ripar	ian
DRAII	NAGE ARE	4 (17.86 ft/m		' HIGH [10 - 6] % RUN: [³⁰ % RIF		10 2.0



Comment

A-CANOPY							
>85% - Open	Looking upstrea	m (>10m, 3 readi	ings, <10m readin	g in middle); Round to	o the nearest whole	percent	
<u> </u>		Left	Middle	Right	Total A	Average	
✓ 30%-<55%	% open	%	%	9	/ o	%	
10%-<30%			<u> </u>				
<10% - Closed							
B-AESTHETICS			<u>C-I</u>	RECREATION	<u>I</u>		
Nuisance algae	Oil sheen		Are	a Depth			
☐ Invasive macrophytes	Trash/Litter			100ft ² > 3ft			
Excess turbidity	Nuisance o	dor					
Discoloration	Sludge depo	osits					
Foam/Scum	CSOs/SSOs	/Outfalls					
D-MAINTENANCE			E-I	SSUES			
Public Private				WWTP CSO	NPDES		
Active Historic				ndustry Ur	ban		
Succession: Young	Old			Hardened D	irt Grime		
Spray Islands Sco	oured			Contaminated	Landfill		
	lified		ВМ	Ps: 🗌 Constru	ction Sedi	iment	
Leveed: One sided	Both banks			_ogging 🗌 Irrig	gation 🗌 Cool	ling	
☐ Relocated ☐ Cutoffs			Ero	sion: 🔲 Bank	Surface		
Bedload: Moving S	Stable			False bank	Manure 🗌 Lag	goon	
Armoured Slumped				Wash H2O 🔲 T	ile 🗌 H2O tab	ole	
☐ Impounded ☐ Desiccated	d		Min	e: Acid	Quarry		
☐ Flood control ☐ Drainag	ge		Flo	w: Natural	Stagnant		
				Wetland 🗌 Par	k 🗌 Issues: C	Golf	
				Lawn 🗌 Home	•		
				Atmospheric dep	osition		

Stream Reach S6S102a



Stream Location on 2013 Aerial Photograph

Stream Location on Maywood USGS Quadrangle

Pleasant Run Creek **Stream Name:** Maywood Quadrangle: Flow Regime: Perennial Marion County: Natural T14N **Channel Type:** Township: No R3E Legal Drain: Range: IDEM 303(d) Listed: Yes Section: 21 Predominant Substrate: gravel - sand Quarter: SE

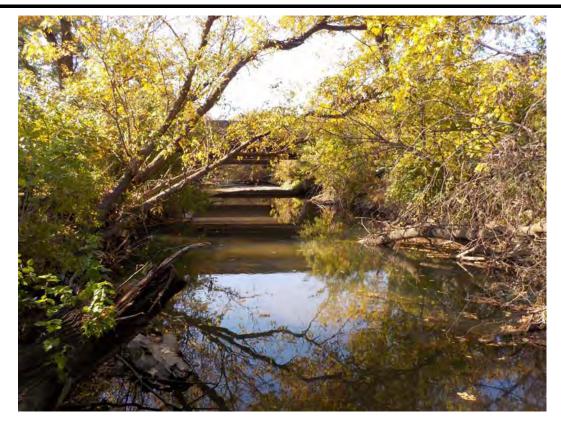
Evaluation Score: QHEI = 56 **Latitude:** 39.640024 **Use Designation:** Probable Warm Water Habitat **Longitude:** -86.202274

OHWM width: 37.5 Basin: Pleasant Run Creek - Buffalo Cre

OHWM depth: 2.0 **14-digit HUC:** 05120201130110

USACE Jurisdiction: Yes **Drainage area:** 20.924

Alternatives Length of Impact (feet)		Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	440	0.379	1.64
Aternative C2	1565	1.347	1.29
Aternative C3	1588	1.367	1.26
Aternative C4 (Preferred)	440	0.379	1.64





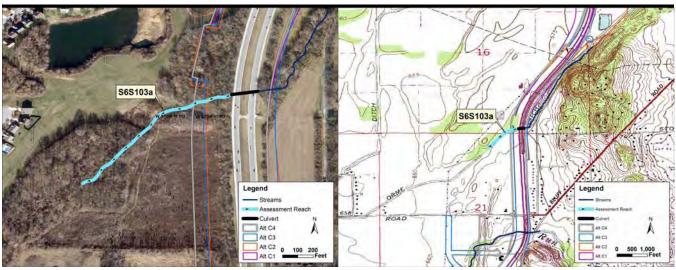
IDEM	Sample #		bioSample #	Stream Name Pleasant Run Creek		Location	
1	Surveyor	Sample Date 10/22/2015		Macro Sample Type	☐ Habitat	QHEI Score:	56
-	STRATE	Check ONLY Two estimate %	predominant su and check eve	bstrate TYPE BOXES; ry type present	Check ON	IE (Or 2 and average)	
PREDOMINA P R BL B0 C0 GR SA BE NUMBER	DR/SLABS [10 OULDERS [9] OBBLE [8] OAVEL [7] ND [6] DROCK [5] OF BEST TY	PRESENT TOTAL %	PREDOMINANT PR HARDP DETRIT MUCK [SILT [2] ARTIFIC	US [3]	ORIGIN LIMESTONE [1 TILLS [1] WETLANDS [0] HARDPAN [0] SANDSTONE [I RIP/RAP [0] LACSTRINE [0] SHALE [-1] COAL FINES [-	MODERATE [-1] NORMAL [0] FREE [1] EXTENSIVE [-2] MODERATE [-1] NORMAL [0]	Substrate 14.0
Comme	nts TREAM CO	/ER Indicate pi	esence 0 to 3 ar	nd estiamte percent: 0-Absent;	1- Very small ar	mounts or if more common	of marginal
quality in that is sta % Amount 0 2 0 0 1 0	moderate or oble, well developed UNDERCUT BOVERHANGIN SHALLOWS (IROOTMATS [1	greater amounts (eloped root wad in ANKS [1] IG VEGETATION I N SLOW WATER	e.g., very large b deep/fast water % Amount _0_0_PC 1] _0_1_RC	r in small amounts of highest qui coulders in deep or fast water, la c, or deep, well-defined, functino % Amount DOOLS>70CM [2]00OXBC DOTWADS [1]00AOU/ DULDERS [1]01LOGS	rge diameter log al pools.) DWS, BACKWA	Check One (Or 2 EXTENSIVE MODERATE: SPARSE -<2! YTES [1] NEARLY ABS	and average) >75% [11] 25-75% [7] 5% [3] SENT <5% [1] over
		RPHOLOGY Ch	eck ONE in each	n category (Or 2 and average)			
SINUOS HIGH [SITY 4] RATE [3] 2] [1]	DEVELOI EXCELLE GOOD [5] FAIR [3] POOR [1]	PMENT INT [7]	CHANNELIZATION NONE [6] RECOVERED [4] ✓ RECOVERING [3] RECENT OR NO RECOVER	☐ I	ABILITY HIGH [3] MODERATE [2 Char LOW [1] Maxim	
-				eck ONE in each category for E		2 per bank and average)	
L R	ht looking downst EROSION NE/LITTLE [3] DERATE [2] AVY/SEVERE	WIDE WIDE MODE NARR	ARIAN WIDT >50m [4] .RATE 10-50m OW 5-10m [2] NARROW [1] [0]	H L R FLOOD PLAIN (FOREST, SWAMP [3] SCRUB OR OLD FIEL RESIDENTIAL, PRK, I FENCED PASTURE [1] OPEN PASURE, ROW	.D [2] NEW FIELD [1] I] Indic	L R CONSERVATION URBAN OR INDUS MINING/CONSTRUCATE predominant land use(100m riparian Ripar Maxim	STRIAL [0] JCTION [0] s) rian
5] <i>POO</i>	L/GLIDE A	ND RIFFLE /RU	IN QUALITY			Recreation	Potential
Check ON >1 m [6 0.7 - <1	1m [4] 0.7m [2] 0.4m [1]	Check ON POOL WI	NEL WIDTH IE (Or 2 and ave DTH > RIFFLE W DTH = RIFFLE W DTH < RIFFLE W	erage) Chec IDTH [2]	INTE	N [1] Primary RSTITIAL [-1] Seconda RMITTENT [-2] Po ES [1] Curr	Contact ary Contact cool/ cent bum 5.0
Comme		viffloor Deathers	a manat be deem	on ough to our most a month of			12 [
of riffle-or	obligate speci E DEPTH AREAS>10cm AREAS 5-10ci AREAS <5cm [metri	RUN DE [2]	· ·	enough to support a population Check One (Or 2 and average RIFFLE/RUN SUBSTRATE) STABLE (e.g., Cobble, Bou MOD. STABLE (e.g., Large Output) UNSTABLE (e.g., Fine Frve)	ATE RIF Ider) [2 Gravel) [1]		EDNES
	DIENT (14.5	5 ft/mi)	VERY LOW -	LOW [2 - 4] % POOL:	²⁰ % G L	IDF: 30	
-	•	•	✓ MODERATE		30 % RIF	Ripar	



Comment

A-CANOPY						
	Looking upstrean	n (>10m, 3 readin	gs, <10m reading in mide	dle); Round to the n	earest whole percent	
55% -<85%		Left	Middle	Right	Total Average	
✓ 30%-<55%	% open	%	%	%	%	
10%-<30%	· -					
<10% - Closed						
B-AESTHETICS			C-RECR	REATION		
Nuisance algae	Oil sheen		-			
Invasive macrophytes	Trash/Litter		Area	Depth		
Excess turbidity	Nuisance od	or	Pool: > 100ft	²		
Discoloration	Sludge depo	sits				
Foam/Scum	CSOs/SSOs/	Outfalls				
<u>D-MAINTENANCE</u>			<u>E-ISSUE</u>	<u> </u>		
☐ Public ☐ Private			WWTP	CSO I	NPDES	
Active Historic			Indust	ry 🗌 Urban		
Succession: Young	Old		Harder	ned 🗌 Dirt G	rime	
Spray Islands Sc	oured		☐ Contar	ninated 🗌 L	andfill	
Snag: Removed Mo	dified		BMPs:	Construction	Sediment	
Leveed: One sided	Both banks		Loggin	ıg 🗌 Irrigatioı	n 🗌 Cooling	
Relocated Cutoffs			Erosion:	Bank S	Surface	
Bedload: Moving	Stable		False b	oank 🗌 Manu	ıre 🗌 Lagoon	
☐ Armoured ☐ Slumped			Wash I	H2O 🗌 Tile [H2O table	
☐ Impounded ☐ Desiccate	ed		Mine:	Acid Quar	rry	
☐ Flood control ☐ Draina	ige		Flow:	Natural St	agnant	
			Wetlan	d Park	Issues: Golf	
			Lawn	Home		
			Atmos	pheric deposition	on	

Stream Reach S6S103a



Stream Location on 2013 Aerial Photograph

Stream Location on Maywood USGS Quadrangle

Orme Ditch **Stream Name:** Quadrangle: Maywood Flow Regime: Ephemeral Marion County: Natural T14N **Channel Type:** Township: No R3E Legal Drain: Range: IDEM 303(d) Listed: No Section: 21 Predominant Substrate: sand Quarter: SE

Evaluation Score:QHEI = 48Latitude:39.649268Use Designation:Probable Warm Water HabitatLongitude:-86.203264

OHWM width: 6.5 Basin: White River - Mann Creek/Harnes

OHWM depth: 0.3 **14-digit HUC:** 05120201130100

USACE Jurisdiction: Yes **Drainage area:** 3.653

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	205	0.031	0.76
Aternative C2	135	0.020	0.56
Aternative C3	146	0.022	0.58
Aternative C4 (Preferred)	205	0.031	0.76





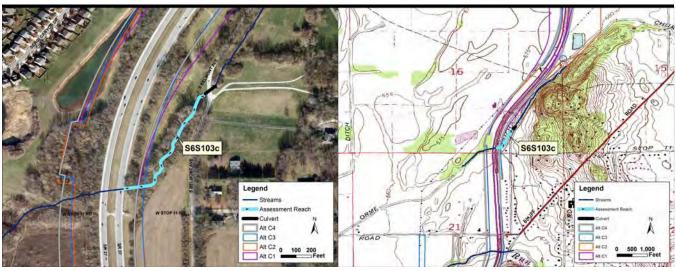
IDEM	Sample #		bioSample #	Stream Name Orme Ditch		Location	
1	Surveyor	Sample Date	County	Macro Sample Type	Habitat	QHEI Score:	48
N. P.	rh	2/19/2016	Marion	N/A	Complete	WITEI OCOIC.	_ +0
1] <i>SUB</i>	STRATE		predominant sul 6 and check ever	bstrate TYPE BOXES;	Check ON	IE (Or 2 and average)	
	BEST TYP			HER TYPES	ORIGIN	QUALITY	
PREDOMINA		PRESENT TOTAL 9	6 PREDOMINANT	PRESENT TOTAL %			
$\square \square \square$ BI	DR/SLABS [1	01 🗖 🗖	$\square \square \square$ HARDP	AN [4] PR S	☑ LIMESTONE [1 ☑ TILLS [1]] HEAVY [-2] MODERATE [-1]]
<u></u>	ULDERS [9]	", <u> </u>	DETRIT	us [3] 🔲 🖳 👢	WETLÄNDS [0] V NORMAL [0]	Substrate
	BBLE [8] RAVEL [7]				⊒ HARDPAN [0] ⊒ Sandstone [☐ FREE [1]	
✓ ✓ SA	ND [6]	100	ARTIFIC		RIP/RAP [0]	EXTENSIVE [-2]	
	DROCK [5]		sea (Score	e natural substrates;ignore	LACSTRIÑE [0 SHALE [-1]]	
NUMBER	OF BEST TY	PES:4 or move. ✓ 3 or les		e from point-sources)	COAL FINES [-		Maximum 20
Comme	nts dry chan		30 101				20
	REAM CO			nd estiamte percent: 0-Absent			of marginal
				in small amounts of highest q		_	_
				oulders in deep or fast water, , or deep, well-defined, functin			0 .
% Amount	•	•	% Amount	% Amount	. ,	☐ EXTENSIVE ✔ MODERATE 2	
	UNDERCUT B			000LS>70CM [2] <u>0</u> <u>0</u> OXI		TERS [1] 🔲 SPARSE -<25	i% [3]
0 1	OVERHANGIN SHALLOWS (1	IG VEGETATION IN SLOW WATER	[1] <u> </u>)OTWADS[1] <u> </u>	JATIC MACROPH GS OR WOODY D	EDDIC [1]	
	ROOTMATS [//··	ococno[i] <u> </u>	50 OK 110051 B	Maxim	ver
						Maxiii	7.0
Comme			and ONE in analy				
-				category (Or 2 and average)	0.7	ADILITY	
SINUOS		DEVELOI EXCELLE		CHANNELIZATION NONE [6]		ABILITY HIGH [3]	
MODE	RATE [3]	GOOD [5		RECOVERED [4]		MODERATE [2 Chan	nel
LOW [✓ FAIR [3[POOR [1]	1	RECOVERING [3]		LOW [1] Maxim	
☐ NONE Comme				☐ RECENT OR NO RECOVE	נאז נון		20 10.0
		N AND RIPARI	AN ZONE Che	eck ONE in each category for	EACH BANK (Or	2 per bank and average)	<u>-</u>
River rig	ht looking downst	rea L R RIP	ARIAN WIDT	H LR FLOOD PLAIN	QUALITY	L R	
L R	EROSION		>50m [4]	FOREST, SWAMP [3		CONSERVATION 1	
_ NO	NE/LITTLE [3]		ERATE 10-50m ROW 5-10m [2]	SCRUB OR OLD FIE		URBAN OR INDUS	
✓ ✓ MO)DERATE [2] AVY/SEVERE	UERY	NARROW [1]	☐ FENCED PASTURE	[1] India	cate predominant land use(
	AVI/SEVERE	Lij 🔲 🔲 NONE	[0]	OPEN PASURE, RO		t 100m riparian Ripar	ian
Comme	nte					Maxim	
		ND RIFFLE /RU	JN QUALITY			_	
	UM DEPTI	H CHAN	NEL WIDTH		ENT VELOÇI	Recreation (Circle one and co	
Check ON >1 m [NE (ONLY!		NE (Or 2 and ave DTH > RIFFLE W		eck All that apply . [-1] SLO'	`	,
0.7 - <	1m [4]	✓ POOL WI	DTH = RIFFLE W	IDTH [1] 🔲 VERY FAST [1] 🗌 INTE	:RSTITIAL [-1] 🔲 Seconda	ry Contact
	0.7m [2] 0.4m [1]	☐ POOL WI	DTH < RIFFLE W	IDTH [0]			ool/
✓ <0.2 m					cate for reach - p	Cull	
Comme				11101	oato for foacit p	IVIAXIII	12
			s must be large	enough to support a population)		
	obligate speci			Check One (Or 2 and aver	0 ,	✓ NO RIFFLE [ME	
	E DEPTH AREAS>10cm	RUN DI	EPTH 1UM >50cm [2]	RIFFLE/RUN SUBSTF		FLE/RUN EMBEDDE ☐ NONE [2]	DNES
	AREAS 5-10cii		10M > 50cm [2] 1UM < 50cm [1]	MOD. STABLE (e.g, Large	e Gravel) [1]	LOW [1] Rif	fle/
☐ BEST	AREAS <5cm	c-01		UNSTABLE (e.g., Fine Fr	/el, Sand) [0]	MODERATE [0] EXTENSIVE [-1] Maxim	
0	[metri	C-Uj			L	TVIEWOINE [-1] MISKILL	
Comme		\ ft/:\		10W[2 4] 2/ 5 -5- F	0 2 2:	IDE [0]	-
_	DIENT (13.6	·	VERY LOW - ✓ MODERATE		0 % GL	Ripar	ian
DRAII	NAGE ARE	4 (3.653 ft/m	HIGH - VERY	0/ 51111	0 % RIF		8.0



Comment

A-CANOPY						
	Looking upstre	am (>10m, 3 readi	ings, <10m reading in mid	dle); Round to the n	earest whole percent	
55% -<85%		Left	Middle	Right	Total Average	
30%-<55 %	% open	%	%	%	%	
✓ 10%-<30%	-					
<10% - Closed						
B-AESTHETICS			C-REC	REATION		
Nuisance algae	Oil sheen		Area	Depth		
Invasive macrophytes	Trash/Litte	r	Pool:	•		
Excess turbidity	Nuisance o	odor	1001 > 10010	> 3it		
☐ Discoloration ☐	Sludge der	oosits				
Foam/Scum	CSOs/SSO	s/Outfalls				
D-MAINTENANCE			E-ISSU	<u>ES</u>		
Public Private			☐ WWTF	oso 🗌 r	NPDES	
Active Historic			Indust	ry Urban		
Succession: Young	Old		Harde	ned Dirt Gı	rime	
Spray Islands Sc	oured		☐ Conta	minated 🗌 L	andfill	
Snag: Removed Mod	dified		BMPs:	Construction	Sediment	
Leveed: One sided	Both banks		Loggii	ng 🗌 Irrigatior	n 🗌 Cooling	
Relocated Cutoffs			Erosion:	Bank S	Surface	
Bedload: Moving	Stable		☐ False	bank 🗌 Manu	re 🗌 Lagoon	
Armoured Slumped			Wash	H2O 🗌 Tile [H2O table	
☐ Impounded ☐ Desiccate	d		Mine:	Acid Quai	rry	
☐ Flood control ☐ Draina	ge		Flow:	Natural St	agnant	
			Wetlar	nd 🗌 Park 🗌	Issues: Golf	
			Lawn	Home		
			Atmos	spheric deposition	on	

Stream Reach S6S103c



Stream Location on 2013 Aerial Photograph

Stream Location on Maywood USGS Quadrangle

Stream Name: Orme Ditch Quadrangle: Maywood Flow Regime: Intermittent Marion County: Natural T14N **Channel Type:** Township: No R3E Legal Drain: Range: IDEM 303(d) Listed: Section: 16 No Predominant Substrate: cobble - gravel Quarter: NE

Evaluation Score: QHEI = 46 **Latitude:** 39.64942 **Use Designation:** Probable Warm Water Habitat **Longitude:** -86.202273

OHWM width: 11.5 Basin: White River - Mann Creek/Harnes

OHWM depth: 0.9 **14-digit HUC:** 05120201130100

USACE Jurisdiction: Yes **Drainage area:** 3.532

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	71	0.019	0.29
Aternative C2	99	0.026	0.39
Aternative C3	99	0.026	0.39
Aternative C4 (Preferred)	65	0.017	0.27





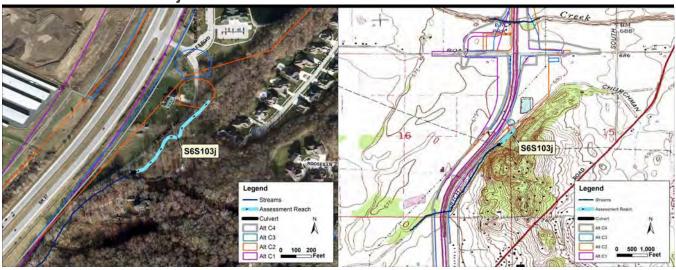
IDEM	Sample #		bioSample #	Stream Name Orme Ditch		Location	
	Surveyor	Sample Date	1	Macro Sample Type	Habitat	OUEL Sooro	46
N. P.	rh	2/18/2016	Marion	N/A	Complete	QHEI Score:	40
1] <i>SUB</i>	STRATE		predominant sub 6 and check ever	bstrate TYPE BOXES;	Chack ON	IE (Or 2 and average)	
	BEST TYP			HER TYPES	ORIGIN	QUALITY	
PREDOMINA		PRESENT TOTAL 9	6 PREDOMINANT	PRESENT TOTAL %	1		
P R □ □ BI	DR/SLABS [1	01 🗖 🗖	P R HARDPA	AN [4] PR V	LIMESTONE [1 TILLS [1]] HEAVY [-2] MODERATE [-1]	
<u></u>	ULDERS [9]		DETRIT	us [3] 🔲 🔲 🔙	WETLANDS [0]] ✓ NORMAL [0]	Substrate
	BBLE [8] RAVEL [7]	✓ <u>50</u> ✓ <u>50</u>			HARDPAN [0] SANDSTONE [☐ FREE [1] 01 —	
∟∟ SA	ND [6]		□□ ARTIFIC		RIP/RAP [0]	EXTENSIVE [-2]	15.0
	DROCK [5] OF BEST TY	 PES: ☐ 4 or mo	ore [2] (Score	e natural substrates;ignore	LACSTRINE [0] SHALE [-1]]	Maximum
NOMBER	OI BLOT II	✓ 3 or les	aluda.	e from point-sources)	COAL FÎNÊS [-		20
Comme	nts						
	REAM CO			nd estiamte percent: 0-Absent;			
				in small amounts of highest quoulders in deep or fast water, la		_	_
				, or deep, well-defined, functing		9 Check One (Or 2 EXTENSIVE:	•
% Amount			% Amount	% Amount		✓ MODERATE 2	25-75% [7]
	UNDERCUT B OVERHANGIN	SANKS [1] IG VEGETATION		000LS>70CM [2] <u>0</u> <u>0</u> 0XB	OWS, BACKWA ⁻ ATIC MACROPH		
0 0	Shallows (i	IN SLOW WATER)[1] <u>0</u> 0 BC	OULDERS [1] 0 1 LOG	S OR WOODY D	EDDIC [1]	ver
<u>U</u> <u>O</u> I	ROOTMATS [1]				Maxim	um 📗 🕇 🐧
Comme	nte						20 7.0
		PPHOLOGY Ch	eck ONE in each	category (Or 2 and average)			
SINUOS		DEVELOI		CHANNELIZATION	ST	ABILITY	
		EXCELLE		□ NONE [6]		HIGH [3]	
☐ MODE	RATE [3]	GOOD [5		RECOVERED [4]]	MODERATE [2 Chan	
■ NONE		✓ FAIR [3[□ POOR [1]	1	✓ RECOVERING [3] □ RECENT OR NO RECOVE		LOW [1] Maxim	um 9.0
Comme							
4] <i>BAN</i>	IK EROSIOI			eck ONE in each category for E		2 per bank and average)	
River rig	ht looking downst	□ □ WIDE	ARIAN WIDT			L R	III ACE [1]
L R	EROSION	¹ ✓ ✓ MODE	>50m [4] ERATE 10-50m	FOREST, SWAMP [3]		CONSERVATION TO URBAN OR INDUS	
	NE/LITTLE [3] DERATE [2]	J 🔲 🗌 NARF	ROW 5-10m [2]	RESIDENTIAL, PRK,	NEW FIELD [1]	☐ ☐ MINING/CONSTRU	
☐ ✓ HE	AVY/SEVERE	[1] NONE	' NARROW [1] [[0]	FENCED PASTURE [NODOD IOI IIION	cate predominant land use(
					paol	Ripar Maxim	
Comme	nts						10
5] <i>POO</i>	L/GLIDE A	ND RIFFLE /RU	JN QUALITY			Recreation	Detential
	UM DEPTI	H CHAN	NEL WIDTH		NT VELOCI		
>1 m [c	NE (ONLY! 6]		NE (Or 2 and ave IDTH > RIFFLE W		ck All that apply [-1]	W [1] Primary	
0.7 - <	1m [4]	✓ POOL WI	IDTH = RIFFLE W	IDTH [1] UERY FAST [1] INTE	RSTITIAL [-1]	ry Contact
	0.7m [2] 0.4m [1]	☐ POOL WI	IDTH < RIFFLE W	IDTH [0] U FAST [1] MODERATE [1		RMITTENT [-2] Po IES [1] Curr	ool/
✓ <0.2m	[0]			Indic	ate for reach - p	ools and riffles Maxim	
Comme	nts						12
			s must be large e	enough to support a population			
	obligate speci			Check One (Or 2 and avera	o ,	✓ NO RIFFLE [ME	
	E DEPTH AREAS>10cm	RUN DI	EPTH NUM >50cm [2]	RIFFLE/RUN SUBSTR STABLE (e.g., Cobble, Bot		FLE/RUN EMBEDDE NONE [2]	DNES
	AREAS 5-10cii		//UM >50CH [2] //UM <50cm [1]	MOD. STABLE (e.g, Large	Gravel) [1]	LOW [1] Rif	fle/
∐ BEST	AREAS <5cm metri]	c=0]		UNSTABLE (e.g., Fine Frv	el, Sand) [0]	MODERATE [0]	
Comme	•	0- 0]			L	EXTENSIVE [-1] INIGNIIII	8 0.0
		7 ft/mi\	NEDV I OW	10W[2 4] W BOOL-	0 % GI	IDE: 0	
_	DIENT (13.7	•	VERY LOW - ✓ MODERATE [0 % GL	Ripar	ian
DRAII	NAGE ARE	4 (3.5 ft/mi)	HIGH - VERY	0/ 51111	0 % RIF		8.0



Comment

A-CANOPY					
Section 2.	ostream (>10m, 3 readii	ngs, <10m reading in mide	dle); Round to the n	earest whole percent	
55% -<85	Left	Middle	Right	Total Average	
✓ 30%-<55% % open	%	%	%	%	
10%-<30%					
<10% - Closed					
B-AESTHETICS		C-RECF	REATION		
Nuisance algae Oil she	en				
☐ Invasive macrophytes ☐ Trash/L		Area Pool: ☐ > 100ft	Depth 2 > 3ft		
	ce odor	Pool: > 100ft	²		
	deposits				
☐ Foam/Scum ☐ CSOs/S	SOs/Outfalls				
D-MAINTENANCE		<u>E-ISSUE</u>	<u>ES</u>		
☐ Public ☐ Private			CSO 🗌 I	NPDES	
Active Historic		Indust	ry 🗌 Urban		
Succession: Young Old		Harder	ned 🗌 Dirt G	rime	
Spray Islands Scoured		Contai	minated 🗌 L	andfill	
Snag: Removed Modified		BMPs:	Construction	Sediment	
Leveed: One sided Both ban	ks	Loggir	ng 🗌 Irrigation	n 🗌 Cooling	
☐ Relocated ☐ Cutoffs		Erosion:	☐ Bank ☐ S	Surface	
Bedload: Moving Stable		False I	bank 🗌 Manu	ıre 🗌 Lagoon	
☐ Armoured ☐ Slumped		Wash	H2O 🗌 Tile [H2O table	
☐ Impounded ☐ Desiccated		Mine:	Acid Qua	rry	
☐ Flood control ☐ Drainage		Flow:	Natural St	agnant	
		Wetlar	nd 🗌 Park 🗌	Issues: Golf	
		Lawn	Home		
		Atmos	pheric deposition	on	

Stream Reach S6S103j



Stream Location on 2013 Aerial Photograph

Stream Location on Maywood USGS Quadrangle

Orme Ditch Quadrangle: Maywood **Stream Name:** Flow Regime: Ephemeral County: Marion Natural T14N **Channel Type:** Township: No R3E Legal Drain: Range: IDEM 303(d) Listed: Section: 16 No Predominant Substrate: cobble - gravel Quarter: NE

Evaluation Score: QHEI = 38.5 **Latitude:** 39.656649 **Use Designation:** Modified Warm Water Habitat **Longitude:** -86.19634

OHWM width: 7.0 Basin: White River - Mann Creek/Harnes

OHWM depth: 0.3 **14-digit HUC:** 05120201130100

USACE Jurisdiction: Yes **Drainage area:** 3.37

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	0	0.000	0.00
Aternative C2	53	0.009	0.06
Aternative C3	0	0.000	0.00
Aternative C4 (Preferred)	0	0.000	0.00





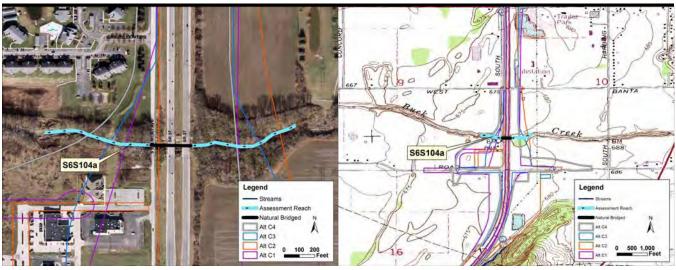
Surveyor Sample Date County Macro Sample Type Habitat QHEI Score: 38.5	IDEM	Sample #		bioSample #	Stream Name Orme Ditch		Location	1
1) SUBSTRATE Check ONLY Two predominant substrate TYPE BOXES; estimate % and check every type present Check ONE (Or 2 and average) BEST TYPES BULDERS [9] BULDERS [9] BULDERS [1] BULDE	1		Sample Date			☐ Habitat	OUEI Coore	20.5
BEST TYPES BEST TYPES BESENT TOTAL* PREDOMINAT PRESENT TOTAL* PRES		rh	2/18/2016	Marion	N/A	Complete	QHEI Score:	38.5
REST TYPES ORIGIN PRESENT IOTAL 19. PRECOMENT PRESENT IOTAL 19. PR	1] SUB	STRATE				Chack ON	IE (Or 2 and average)	
PRESENT TOTAL % PRESENT T		REST TVD					,	
BOULDERS [9]	PREDOMINA		PRESENT TOTAL %	6 PREDOMINANT	PRESENT TOTAL %	7		
Comments	BL BC CC GR	OULDERS [9] OBBLE [8] RAVEL [7]		HARDP DETRIT MUCK [SILT [2]	AN [4]	TILLS [1] WETLANDS [0] HARDPAN [0] SANDSTONE [MODERÀTÉ [-1] ✓ NORMAL [0] FREE [1] O]	Substrate
Soore natural substrates-ignore SALE [-1] NORMAL [0] Maximum 2 or legal for point-sources) Sand sudge from point-sources) COAL FINES [-2] NORMAL [0] NONE [1]				□ □ ARTIFIC] 🖳 MODERATE [-1]	
Comments Also had some sand 2] INSTREAM COVER Indicate presence 0 to 3 and estiamte percent. 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; 3-Highest quality; 3-Highest quality; 3-Moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed frow and in deep/fists water, or deep, well-defined, functional pools.) Moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed frow and in deep/fists water, or deep, well-defined, functional pools.) Moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well-defined, functional pools.) Moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well-defined, functional pools.) Moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well-defined, functional pools.) Moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well-defined, functional pools.) Moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well-defined, functional pools.) Moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well-defined, functional pools. Moderate or greater amounts (e.g., very large boulders in deep or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that the great category of each pool pool pool pool pool pool pool poo	NUMBER	OF BEST TY		DIE [Z]				Maximum
2) INSTREAM COVER Indicate presence 0 to 2 and estimate persont: 0Absent: 1Very small amounts or if more common of marginal quality. 2 Moderate amounts, but not of highest quality a highest quality. 3 High quality. 4 Hi	Commo	nta Also had		ss [0]		- COAL FINES [-		20
quality: 2-Moderate amounts, but not of highest quality or in small amounts of highest quality: 3-Highest quality or in small amounts (e.g., very large boulders in deep of fast water, large diameter log that is stable, well developed root wad in deepfast water, or deep, well-defined, functinoal pools.) **Moment** 0				raaanaa 0 ta 2 a	ad actiomta paraent. O Abaant	. 1 . Vom. omoll o	mounts or if more common a	of marainal
3.0 Comments Stream frozen 3] CHANNEL MORPHOLOGY Check ONE in each category (Or 2 and average) 3] CHANNEL MORPHOLOGY Check ONE in each category (Or 2 and average) SINUOSITY DEVELOPMENT CHANNELIZATION STABILITY HIGH [4] MODERATE [3] GOOD [5] RECOVERD [4] WIDE SECOVERD [4] WIDE SECOVERD [4] RECOVERING [3] RECOVERING [3] RECOVERD [4] WIDE SECOVERD [4] RECOVERING [3] RECOVERD [6] RECOVERD [7] RECOVERING [3] RECOVERD [7] RECOVERD [7] RECOVERING [8] RECOVERD [1] RECOVER	quality; 2- quality in that is sta % Amount 0 1 0 0	Moderate am moderate or g ble, well deve UNDERCUT B OVERHANGIN	ounts, but not of ligreater amounts (eloped root wad in ANKS [1] IG VEGETATION	highest quality or e.g., very large b deep/fast water % Amount 	r in small amounts of highest quoulders in deep or fast water, I or deep, well-defined, function Amount OOOLS>70CM [2]OO_OXE OOTWADS [1]OO_AQU	uality; 3- Highest arge diameter lo pal pools.) BOWS, BACKWA JATIC MACROPH	General Properties (1) Gener	UNT and average) -75% [11] -5-75% [7] % [3] ENT <5% [1]
Sinusity Development Channel Recovering Sinusity Development Channel Recovering Sinusity Development Channel Recovering Sinusity Development Channel Recovering Recovering Sinusity Development Channel Recovering Sinusity Development Channel Recovering Sinusity Development Channel Recovering Sinusity Development Channel Sinusity Development Channel Sinusity Development Sinusity Development Channel Development Development Channel Development D				χ., <u> </u>		o on mood. D		um II
3] CHANNEL MORPHOLOGY Check ONE in each category (Or 2 and average) SINUOSITY DEVELOPMENT CHANNELIZATION NONE [6] NONE [6] NONE [6] NONE [6] NONE [7] NONE [8] RECOVERD [4] NONE [1] POOR [1] RECOVERD [4] RECOVERD [6] RECOVERD								
SINUOSITY HIGH [4]								
HIGH [4]	-						ADU ITV	
MODERATE [3]								
A] BANK EROSION AND RIPARIAN ZONE River right looking downstrea R RIPARIAN WIDTH R FLOOD PLAIN QUALITY R REOSION WIDE >50m [4] FOREST, SWAMP [3] CONSERVATION TILLAGE [1] WINDERATE 10-50m SCRUB OR OLD FIELD [2] URBAN OR INDUSTRIAL [0] URBAN OR INDUSTRIAL [0] WINDOERATE [1] VERY NARROW [1] FENCED PASTURE [1] WINNO/CONSTRUCTION [0] Indicate predominant land use(s) Riparian Maximum 2.5	■ MODE LOW [NONE	RATE [3] 2] [1]	GOOD [5] FAIR [3]]	☐ RECOVERED [4] ☑ RECOVERING [3]	✓	MODERATE [2 Chan	um 📗 👝 🧥
RIPARIAN WIDTH REROSION NONE/LITTLE [3] WIDE 550m [4] NARROW 5-10m [2] WIDE 50m [4] NARROW 5-10m [2] NARROW 5-10m [2] NARROW 5-10m [2] NARROW 5-10m [2] NONE [0] WIDE 50m [4] NARROW 5-10m [2] NA			N AND DIDADI	AN ZONE Ch	eck ONE in each category for F	EACH BANK (Or	2 per hank and average)	
REROSION NONE/LITTLE [3]	_							
Comments Comments Comments Comments Comments	L R	EROSION ONE/LITTLE [3] ODERATE [2]	WIDE MODE NARR	>50m [4] ERATE 10-50m ROW 5-10m [2]	FOREST, SWAMP [3 SCRUB OR OLD FIE FENCED PASTURE	i] LD [2] , NEW FIELD [1] [1] India	CONSERVATION T URBAN OR INDUS MINING/CONSTRU cate predominant land use(s	TRIAL [0] CTION [0]
Torrection (Circle one and comment on back (Circle one and co			V V NONE	- [v]	or ENT Addite, No	voltor [o] pasi	' Ripari	
MAXIMUM DEPTH Check ONE (ONLY! Check ONE (OR 2 and average) > 1 m [6] POOL WIDTH > RIFFLE WIDTH [2] POOL WIDTH > RIFFLE WIDTH [1] VERY FAST [1] VINTERSTITIAL [-1] Primary Contact Secondary Contact Secondary Contact Secondary Contact Secondary Contact Secondary Contact Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: RIFFLE DEPTH RUN DEPTH RIFFLE WIDTH [0] Primary Contact Secondary Contact Secondary Contact Indicate for reach - pools and riffles Pools and riffles Pools and riffles Pools and riffles Run Depth RIFFLE/RUN SUBSTRATE RIFFLE/RUN EMBEDDEDNES RIFFLE DEPTH RUN DEPTH RIFFLE/RUN SUBSTRATE RIFFLE/RUN EMBEDDEDNES BEST AREAS > 10cm [1] MAXIMUM > 50cm [2] MAXIMUM > 50cm [2] MOD. STABLE (e.g., Cobble, Boulder) [2] MOD. STABLE (e.g., Large Gravel) [1] MODERATE [0] EXTENSIVE [-1] MAXIMUM 80cm [1] MODERATE [0] RIFFLE/RUN SUBSTRATE RIFFLE/RUN EMBEDDEDNES 6] GRADIENT (15.4 ft/mi) VERY LOW - LOW [2 - 4] POOL: 30 Moderate Maximum Riparian Maximum Ma	Comme	nts					WidAiiii	
MAXIMUM DEPTH Check ONE (ONLY! Check ONE (Or 2 and average) □ 1 m [6] □ 0.7 - <1m [4] □ 0.4 - <0.7m [2] □ 0.2 - <0.4m [1] □ 0.2 - <0.4m [1] □ 0.2 - <0.4m [1] □ 0.4 - <0.7m [2] □ 0.2 - <0.4m [1] □ 0.5 - <1m [4] □ 0.5 - <1	5] <i>POC</i>	L/GLIDE A	ND RIFFLE /RU	JN QUALITY			Dographica	Dotontial
Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Check One (Or 2 and average) RIFFLE DEPTH BEST AREAS>10cm [2] BEST AREAS 5-10cm [1] MAXIMUM >50cm [2] MAXIMUM >50cm [2] MAXIMUM >50cm [2] MOD. STABLE (e.g., Cobble, Boulder) [2] MOD. STABLE (e.g., Large Gravel) [1] MODERATE [0] MODERATE [0] Riffle/ Run Maximum Maximum Riparian MODERATE [6 - 10] MODERATE [6 - 10]	Check ON >1 m [0.7 - < 0.4 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 - < 0.2 -	NE (ONLY! 6] 1m [4] 0.7m [2] 0.4m [1]	Check ON POOL WI POOL WI	NE (Or 2 and ave DTH > RIFFLE W DTH = RIFFLE W	erage) Che VIDTH [2] TORRENTIAL VIDTH [1] VERY FAST [1] VIDTH [0] FAST [1] MODERATE [ck All that apply [-1] SLO' [1] VINTE INTE 1] EDD	TY (Circle one and col W [1] Primary (RSTITIAL [-1] Seconda RMITTENT [-2] IES [1] PC Curre	Contact ry Contact ool/
Of riffle-obligate species: RIFFLE DEPTH BEST AREAS>10cm [2] BEST AREAS 5-10cm [1] BEST AREAS 5-10cm [1] BEST AREAS 5-10cm [1] BEST AREAS 5-10cm [1] MAXIMUM > 50cm [2] BEST AREAS 5-10cm [1] WOD. STABLE (e.g., Cobble, Boulder) [2] MOD. STABLE (e.g., Large Gravel) [1] WODERATE [0] EXTENSIVE [-1] MAXIMUM > 50cm [1] WODERATE [0] Riffle/ Run Maximum Maximum O.0 Riparian Riparian Maximum MODERATE [6-10]	Comme	nts						
RIFFLE DEPTH BEST AREAS > 10cm [2] BEST AREAS 5-10cm [1] BEST AREAS 5-10cm [1] MAXIMUM > 50cm [2] MAXIMUM > 50cm [1] MODERATE [0] MODERATE [0] Comments RIFFLE/RUN SUBSTRATE STABLE (e.g., Cobble, Boulder) [2] MOD. STABLE (e.g., Large Gravel) [1] WINSTABLE (e.g., Fine Frvel, Sand) [0] Comments RIFFLE/RUN EMBEDDEDNES RIFFLE/RUN EMBEDDEDNES NONE [2] LOW [1] RIFFLE/RUN EMBEDDEDNES ONOME [2] LOW [1] MAXIMUM > 50cm [1] WINSTABLE (e.g., Fine Frvel, Sand) [0] RIFFLE/RUN EMBEDDEDNES ONOME [2] LOW [1] MAXIMUM > 50cm [1] WINSTABLE (e.g., Fine Frvel, Sand) [0] RIFFLE/RUN EMBEDDEDNES ONOME [2] LOW [1] RIFFLE/RUN EMBEDDEDNES ONOME [2] NONE [2				s must be large	enough to support a population	ı	A NO DIES: E S:	TDIO 03
BEST AREAS>10cm [2] MAXIMUM >50cm [2] MOD. STABLE (e.g., Cobble, Boulder) [2] LOW [1] LOW [1] MODERATE [0] M		•		EDTU	•	0 ,		
BEST AREAS 5-10cm [1] WAXIMUM<50cm [1] WOD. STABLE (e.g., Large Gravel) [1] LOW [1] MODERATE [0] RIFFLE (e.g., Fine Frvel, Sand) [0] EXTENSIVE [-1] MAXIMUM (Socm [1] WODERATE [0] PRAINAGE AREA (3.37 ft/mi) MODERATE [6-10] MODERATE [6-10] MODERATE [6-10] MODERATE [6-10] MODERATE [0] RIFFLE (e.g., Fine Frvel, Sand) [0] WODERATE [0] RIPERATOR (A.3.37 ft/mi) WODERATE [6-10] MODERATE					STABLE (e.g., Cobble, Bo	ulder) [2		DIALO
Comments 6] GRADIENT (15.4 ft/mi) VERY LOW - LOW [2 - 4] % POOL: 30 % GLIDE: 30 Riparian Mayimum 10.0	BEST	AREAS 5-10ci AREAS <5cm	m [1		MOD. STABLE (e.g, Large	Gravel) [1]	LOW [1] Rif	un 0.0
Riparian 10.0					-			ٽ 🖳
	_	•	•	✓ MODERATE	[6 - 10]		Ripar	ian 10.0



Comment

A-CANOPY						
	Looking upstream	ı (>10m, 3 readir	ngs, <10m reading in mid	dle); Round to the n	earest whole percent	
55% -<85%		Left	Middle	Right	Total Average	
✓ 30%-<55%	% open	%	%	%	%	
10%-<30%	· -					
<10% - Closed						
B-AESTHETICS Nuisance algae	☐ Oil sheen			REATION		
Invasive macrophytes	Trash/Litter		Area	Depth		
Excess turbidity	Nuisance od	or	Pool: > 100ft	² > 3ft		
Discoloration	Sludge depo					
Foam/Scum	CSOs/SSOs/					
D-MAINTENANCE			<u>E-ISSUE</u>	<u>ES</u>		
☐ Public ☐ Private			WWTP	CSO 🗌 I	NPDES	
Active Historic			Indust	ry 🗌 Urban		
Succession: Young	Old		Harder	ned 🗌 Dirt G	rime	
☐ Spray ☐ Islands ☐ S	Scoured		Contai	minated 🗌 L	andfill	
Snag: Removed M	odified		BMPs:	Construction	Sediment	
Leveed: One sided	Both banks		Loggir	ng 🗌 Irrigation	n 🗌 Cooling	
☐ Relocated ☐ Cutoffs			Erosion:	☐ Bank ☐ S	Surface	
Bedload: Moving	Stable		False I	bank 🗌 Manu	ıre 🗌 Lagoon	
Armoured Slumped	d		Wash	H2O 🗌 Tile [H2O table	
☐ Impounded ☐ Desicca	ted		Mine:	Acid Qua	rry	
Flood control Drain	nage		Flow:	Natural St	agnant	
			Wetlar		Issues: Golf	
			Lawn	Home		
			Atmos	pheric deposition	on	

Stream Reach S6S104a



Stream Location on 2013 Aerial Photograph

Stream Location on Maywood USGS Quadrangle

Little Buck Creek **Stream Name:** Quadrangle: Maywood Flow Regime: Intermittent Marion County: Natural T14N **Channel Type:** Township: R3E No Legal Drain: Range: IDEM 303(d) Listed: Section: 9 No Predominant Substrate: sand - gravel Quarter: SE

Evaluation Score: QHEI = 49 **Latitude:** 39.666455 **Use Designation:** Probable Warm Water Habitat **Longitude:** -86.196221

OHWM width: 38.0 Basin: Little Buck Creek (Southport)

OHWM depth: 1.8 **14-digit HUC:** 05120201130090

USACE Jurisdiction: Yes **Drainage area:** 17.063

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	373	0.325	1.60
Aternative C2	484	0.422	2.17
Aternative C3	558	0.487	2.32
Aternative C4 (Preferred)	566	0.494	1.82





IDEM	Sample #		bioSample #	Stream Name Little Buck Creek		Location	
1000	Surveyor	Sample Date	County	Macro Sample Type	☐ Habitat	QHEI Score:	49
N. P.	rh	10/22/2015	Marion	N/A	Complete	WITE OCOIC.	_ +5
1] SUB	STRATE (Check ONLY Two estimate %	predominant su 6 and check eve	ubstrate TYPE BOXES;	Check ON	IE (Or 2 and average)	
	BEST TYP			HER TYPES	ORIGIN	QUALITY	
PREDOMINA		PRESENT TOTAL 9	6 PREDOMINANT	PRESENT TOTAL %	LIMESTONE [1	_	
	DR/SLABS [1	0] 🖺 🖺	PR HARDF	PAN [4] PR V	TILLS [1]]]
□ □ BC	OULDERS [9]	· - - - - - - - - - - - - -	L DETRI		WETLANDS [0]	NORMAL [0]	Substrate
∟ ⊻ GR	OBBLE [8] RAVEL [7]		☐☐☐ MUCK☐☐☐☐ SILT [2		HARDPAN [0] SANDSTONE [☐ FREE [1] ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	
	ND [6] DROCK [5]	H Y —	∟ ∟ ARTIFI	ČIAL [0]	RIP/RAP [0] LACSTRINE [0	EXTENSIVE [-2] MODERATE [-1]	
	OF BEST TY	/PES:		re natural substrates;ignore	SHALE [-1]	NORMAL [0]	Maximum
		✓ 3 or les		ge from point-sources)	COAL FINES [-	2] UNONE [1]	20
Comme	nts						
	TREAM CO			and estiamte percent: 0-Absent;			
				or in small amounts of highest qu boulders in deep or fast water, la			_
				r, or deep, well-defined, functing		EXTENSIVE	0 .
% Amount			% Amount	% Amount		✓ MODERATE 2	25-75% [7]
0 2 0 1	UNDERCUT E	BANKS [1] NG VEGETATION	<u>0</u> 0 P([1] 0 1 R(OO0LS>70CM [2] <u>0</u> <u>0</u> OXB OOTWADS [1] 0 0 AOU	OWS, BACKWA' ATIC MACROPH		
0 0	SHALLOWS (IN SLOW WATER)[1] <u> </u>	OULDERS [1] 0 1 LOG	S OR WOODY D	EDDIC [4]	ver
_0_1_	ROOTMATS [1]				Maxim	num 📗 🕇 🕠
Comme	nts						20 7.0
		PHOLOGY Ch	eck ONF in eac	h category (Or 2 and average)			<u> </u>
SINUO		DEVELO		CHANNELIZATION	ST	ABILITY	
HIGH	[4]	EXCELLE		□ NONE [6]		HIGH [3]	
✓ MODE LOW [RATE [3]	✓ GOOD [5]	RECOVERED [4] ✓ RECOVERING [3]		MODERATE [2	
		☐ FAIR [3[☐ POOR [1]		RECENT OR NO RECOVER		LOW [1] Maxim	^u 12.0
Comme							
-				neck ONE in each category for E		2 per bank and average)	
River rig	ght looking downst	□ □ WIDE	ARIAN WIDT >50m [4]	H L R FLOOD PLAIN (✓ ✓ FOREST, SWAMP [3]		L R	TILL ACE [1]
L R	EROSION	, 🔲 🗌 MODE	>50111 [4] ERATE 10-50m	SCRUB OR OLD FIEI		URBAN OR INDUS	TRIAL [0]
)NE/LITTLE [3)DERATE [2]	- V V IVAIN	ROW 5-10m [2] NARROW [1]	RESIDENTIAL, PRK,	4.5	☐ ☐ MINING/CONSTRU	
✓ ✓ HE	AVY/SEVERE	[1] NONE	[0]	FENCED PASTURE [NODOD IOI "IO"	cate predominant land use(
					p-3-3-	Ripar Maxim	
Comme	nts						10
5] <i>POC</i>	DL/GLIDE A	ND RIFFLE /RU	JN QUALITY			Recreation	Potential
	I <mark>UM DEPTI</mark> NE (ONLY!	H CHAN	NEL WIDTH	CURRE	ENT VELOCI		
□ >1 m [`	☐ POOL WI	DTH > RIFFLE V		ck All that apply [-1] SLO'	W [1] Primary	
0.7 - <	1m [4] 0.7m [2]		DTH = RIFFLE V DTH < RIFFLE V			DMITTENT [3]	ry Contact
0.2 - <	0.4m [1]	FOOL WI	DIII < KIII LL V	MODERATE [1]		IES [1] Po	pol/
<0.2m	[0]			Indic	ate for reach - p	ools and riffles Maxim	num 4.0
Comme							12
	for functiona obligate spec		s must be large	enough to support a population			
			-DTU	Check One (Or 2 and avera	0 /	NO RIFFLE [ME]	
	E DEPTH AREAS>10cm	RUN DI	EPIH 1UM >50cm [2]	RIFFLE/RUN SUBSTR STABLE (e.g., Cobble, Bou		FLE/RUN EMBEDDE ☐ NONE [2]	טאב5
BEST	AREAS 5-10c	m [1 🔲 MAXIN	10M > 50cm [2] 1UM < 50cm [1]	MOD. STABLE (e.g, Large	Gravel) [1]	LOW [1] Rif	fle/
☐ BEST	AREAS <5cm metri	_		UNSTABLE (e.g., Fine Frve	ei, Sand) [0]	MODERATE [0] Maxim ■ EXTENSIVE [-1] Maxim	
Comme	-	1					8
	DIENT (14.3	R ft/mi)	☐ VERY LOW -	- LOW [2 - 4] % POOL:	0 % GL	IDE: 0	
_	•	,	✓ MODERATE			Ripar	ian
DRAII	NAGE ARE	4 (17.1 ft/mi)		7 HIGH [10 - 6] % RUN: ☐	0 % RIF	FLE: 0 Maxim	8.0



Comment

>85% - Open	A-CANOPY						
30%-<55%		Looking upstrean	n (>10m, 3 readin	igs, <10m reading in mide	dle); Round to the n	earest whole percent	
30%-<55%	✓ 55% -<85%		Left	Middle	Right	Total Average	
10%-<30% <10% - Closed	30%-<55%	% open	%	%	•	%	
B-AESTHETICS Nuisance algae Oil sheen Area Depth Invasive macrophytes Trash/Litter Pool: > 100ft 2 > 3ft Excess turbidity Nuisance odor Discoloration Sludge deposits Foam/Scum CSOs/SSOs/Outfalls D-MAINTENANCE E-ISSUES Public Private WWTP CSO NPDES Active Historic Industry Urban Spray Islands Scoured Dirt Grime Spray Islands Scoured Contaminated Landfill Snag: Removed Modified BMPs: Construction Sediment Leveed: One sided Both banks Logging Irrigation Cooling Relocated Cutoffs Erosion: Bank Surface Bedload: Moving Stable False bank Manure Lagoon Armoured Slumped Wash H2O Tile H2O table Impounded Desiccated Mine: Acid Quarry Flood control Drainage Flow: Natural Stagnant	10%-<30%	· -					
Nuisance algae	<10% - Closed						
Invasive macrophytes Trash/Litter Pool: > 100ft 2 > 3ft	B-AESTHETICS			C-RECE	REATION		
Invasive macrophytes	■ Nuisance algae	Oil sheen		Area	Denth		
Excess turbidity	☐ Invasive macrophytes	Trash/Litter					
Foam/Scum CSOs/SSOs/Outfalls D-MAINTENANCE E-ISSUES WWTP CSO NPDES Active Historic Industry Urban Succession: Young Old Hardened Dirt Grime Spray Islands Scoured Contaminated Landfill Snag: Removed Modified BMPs: Construction Sediment Leveed: One sided Both banks Logging Irrigation Cooling Relocated Cutoffs Erosion: Bank Surface Bedload: Moving Stable False bank Manure Lagoon Armoured Slumped Wash H2O Tile H2O table Impounded Desiccated Mine: Acid Quarry Flood control Drainage Flow: Natural Stagnant	Excess turbidity	Nuisance od	or		> 0.10		
D-MAINTENANCE E-ISSUES Public Private WWTP	Discoloration	Sludge depo	sits				
Public Private WWTP CSO NPDES Active Historic Industry Urban Succession: Young Old Hardened Dirt Grime Spray Islands Scoured Contaminated Landfill Snag: Removed Modified BMPs: Construction Sediment Leveed: One sided Both banks Logging Irrigation Cooling Relocated Cutoffs Erosion: Bank Surface Bedload: Moving Stable False bank Manure Lagoon Armoured Slumped Wash H2O Tile H2O table Impounded Desiccated Mine: Acid Quarry Flood control Drainage Flow: Natural Stagnant	☐ Foam/Scum	CSOs/SSOs/	Outfalls				
Lawn Home Atmospheric deposition	Public Private Active Historic Succession: Young Spray Islands S Snag: Removed M Leveed: One sided Relocated Cutoffs Bedload: Moving Armoured Slumped Impounded Desicca	Scoured odified Both banks Stable d		WWTP Indust Harder Contar BMPs: Loggir Erosion: False t Wash I Mine: Flow: Uetlan	ry CSO I ry Urban ned Dirt Gminated L Construction Bank Spank Manu H2O Tile Acid Qual Natural Stand Home	rime andfill Sediment Cooling Surface Lagoon H2O table rry agnant Issues: Golf	

Stream Reach S6S105e



Stream Location on 2013 Aerial Photograph

Stream Location on Maywood USGS Quadrangle

Haueisen Ditch **Stream Name:** Quadrangle: Maywood Flow Regime: Ephemeral Morgan County: Natural T14N **Channel Type:** Township: No R3E Legal Drain: Range: IDEM 303(d) Listed: Section: 32 No Predominant Substrate: sand - hardpan Quarter: SE

Evaluation Score: QHEI = 37 **Latitude:** 39.69458 **Use Designation:** Modified Warm Water Habitat **Longitude:** -86.189128

OHWM width: 2.0 Basin: White River - Hide Creek

OHWM depth: 1.8 **14-digit HUC:** 05120201130080

USACE Jurisdiction: Yes Drainage area: 2.304

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	146	0.007	0.00
Aternative C2	76	0.003	0.00
Aternative C3	76	0.003	0.00
Aternative C4 (Preferred)	76	0.003	0.00





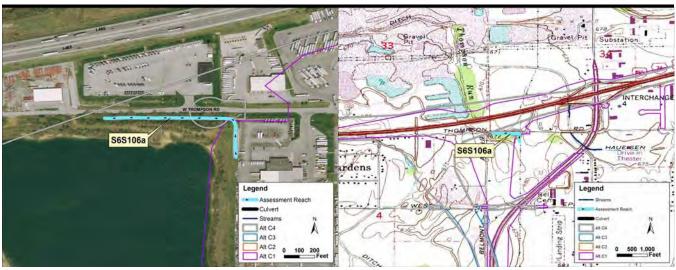
IDEM	Sample #		bioSample #	Stream Name Haueisen Ditch		Location	
A	Surveyor	Sample Date		Macro Sample Type	☐ Habitat	OUEL Coores	27
	rh	11/20/2015	Morgan	N/A	Complete	QHEI Score:	37
1] SUB	STRATE (predominant su 6 and check eve	bstrate TYPE BOXES;	Check ON	IE (Or 2 and average)	
	BEST TYP			HER TYPES	ORIGIN	QUALITY	
PREDOMINA		PRESENT TOTAL 9	6 PREDOMINANT	PRESENT TOTAL %	LIMESTONE [1		
	DR/SLABS [1	0] 🖺 🖺	P R □ ✓ HARDP		TILLS [1]]]
□ □ BC	OULDERS [9] OBBLE [8]	· - - - - - - - - - - - - -	L DETRIT		WETLANDS [0]	NORMAL [0] NORMAL [1] FREE [1]	Substrate
□ □ GR	RAVEL [7]		MUCK SILT [2]		SANDSTONE [0]	11.0
	ND [6] :DROCK [5]		□□ ARTIFIC	CIAL [0]	RIP/RAP [0] LACSTRINE [0]	EXTENSIVE [-2] MODERATE [-1]	
	OF BEST TY	PES: 4 or me		e natural substrates;ignore	SHALE [-1]	✓ NORMAL [0]	Maximun
		✓ 3 or les	ss [0] sludg	e from point-sources)	COAL FINES [-	2]	20
Comme							
				nd estiamte percent: 0-Absent; rin small amounts of highest qu			
quality in	moderate or g	greater amounts (e.g., very large b	ooulders in deep or fast water, la	arge diameter lo		_
that is sta % Amount	•	eloped root wad in	deep/fast water % Amount	r, or deep, well-defined, functino % Amount	al pools.)	EXTENSIVE	
	UNDERCUT B	ANKS [1]	,,	OO0LS>70CM [2] <u>0</u> <u>0</u> OXB	OWS, BACKWAT	☐ MODERATE 2 TERS [1] ☑ SPARSE -<25	
0 1	OVERHANGIN	IG VEGETATION	[1] <u>0 0</u> R0	OOTWADS [1] <u>0</u> <u>1</u> AQU	ATIC MACROPH S OR WOODY D	IYTES [1] 🗌 NEARLY ABS	SENT < 5% [1]
	ROOTMATS [N SLOW WATER 1])[1] <u>U</u> <u>U</u> B(DOLDEKS[I] _V _L LOG.	ט זעטטטא אט נ	Co Maxim	ver
						Waxiiii	3.0
Comme				. (2.2.1)			
-				n category (Or 2 and average)	O.T.	A DILLITY	
SINUO:		DEVELOI EXCELLE		CHANNELIZATION NONE [6]		ABILITY HIGH [3]	
MODE	RATE [3]	GOOD [5		RECOVERED [4]		MODERATE [2 Chan	
LOW [✓ FAIR [3[POOR [1]	1	□ RECOVERING [3]✓ RECENT OR NO RECOVER		LOW [1] Maxim	7.0
Comme					[.]		
4] <i>BAN</i>	IK EROSIOI			eck ONE in each category for E		2 per bank and average)	
River rig	ght looking downst	□ □ WIDE	ARIAN WIDT			L R	III I ACE [1]
L R	EROSION	, 🔲 🗌 MODE	>50m [4] ERATE 10-50m	FOREST, SWAMP [3] SCRUB OR OLD FIEL	_D [2]	☐ ☐ CONSERVATION T ✓ ✓ URBAN OR INDUS	
)ne/Little [3])derate [2]	. V V	OW 5-10m [2] NARROW [1]	RESIDENTIAL, PRK, FENCED PASTURE [NEW FIELD [1]	☐ ☐ MINING/CONSTRU	
☐ ☐ HE	AVY/SEVERE	[1] NONE	[0]	OPEN PASURE, ROW	10D0D101	cate predominant land use(100m riparian	
					·	Ripar Maxim	
Comme		/					10
-		ND RIFFLE /RU				Recreation	Potential
	I um depti Ne (only!	H CHAN Check ON	NEL WIDTH IE (Or 2 and ave	erage) Chec	NT VELOCI ck All that apply	(Circle one and co	mment on back)
>1 m [0.7 - <			DTH > RIFFLE W DTH = RIFFLE W			W [1] Primary (IRSTITIAL [-1] Seconda	Contact ry Contact
0.4 - <	0.7m [2]		DTH < RIFFLE W	/IDTH [0] 🔲 FAST [1]	INTE	RMITTENT [-2] Po	ool/
0.2 - <0 ✓ <0.2m	0.4m [1] [0]			☐ MODERATE [1] EDDI ate for reach - p	Curr Curr	ent 📗 🛕 🛕
	nts dry chan	nel		maic	ale ioi reach - p	ools and riffles Maxim	12 1.0
			s must be large	enough to support a population			
of riffle-	obligate speci	es:		Check One (Or 2 and avera	ge)	✓ NO RIFFLE [ME	TRIC=0]
	DEPTH	RUN DI		RIFFLE/RUN SUBSTR		FLE/RUN EMBEDDE	DNES
	AREAS>10cm AREAS 5-10cm		1UM >50cm [2] 1UM<50cm [1]	STABLE (e.g., Cobble, Bou MOD. STABLE (e.g, Large	Gravel) [1]	_ NONE [2] _ LOW [1]	fle/
☐ BEST	AREAS <5cm [metri	_		UNSTABLE (e.g., Fine Frve	el, Sand) [0]	☐ MODĖŔATE [0] — KII ☐ EXTENSIVE [-1] Maxim	
Comme	•	υ - υ <u>]</u>			L	ENTERVOIVE [-1] IVIAXIIII	8 0.0
	DIENT (21.5	5 ft/mi)	☐ VERY LOW -	LOW [2 - 4] % POOL:	0 % GL	IDE: 0	
_			☐ WERY LOW -		%	Ripar	ian 10.0
DRAII	NAGE AREA	4 (2.304 ft/m	✓ HIGH - VERY		0 % RIF I	FLE: 0 Maxim	10.0



Comment

A-CANOPY						
	Looking upstrean	n (>10m, 3 readin	gs, <10m reading in mide	dle); Round to the n	earest whole percent	
55% -<85%		Left	Middle	Right	Total Average	
✓ 30%-<55%	% open	%	%	%	%	
10%-<30%	· -					
<10% - Closed						
B-AESTHETICS			C-RECR	REATION		
Nuisance algae	Oil sheen		-			
Invasive macrophytes	Trash/Litter		Area	Depth		
Excess turbidity	Nuisance od	or	Pool: > 100ft	²		
Discoloration	Sludge depo	sits				
Foam/Scum	CSOs/SSOs/	Outfalls				
<u>D-MAINTENANCE</u>			<u>E-ISSUE</u>	<u> </u>		
☐ Public ☐ Private			WWTP	CSO I	NPDES	
Active Historic			Indust	ry 🗌 Urban		
Succession: Young	Old		Harder	ned 🗌 Dirt G	rime	
Spray Islands Sc	oured		☐ Contar	ninated 🗌 L	andfill	
Snag: Removed Mo	dified		BMPs:	Construction	Sediment	
Leveed: One sided	Both banks		Loggin	ıg 🗌 Irrigatioı	n 🗌 Cooling	
Relocated Cutoffs			Erosion:	Bank S	Surface	
Bedload: Moving	Stable		False b	oank 🗌 Manu	ıre 🗌 Lagoon	
☐ Armoured ☐ Slumped			Wash I	H2O 🗌 Tile [H2O table	
☐ Impounded ☐ Desiccate	ed		Mine:	Acid Qua	rry	
☐ Flood control ☐ Draina	ige		Flow:	Natural St	agnant	
			Wetlan	d Park	Issues: Golf	
			Lawn	Home		
			Atmos	pheric deposition	on	

Stream Reach S6S106a



Stream Location on 2013 Aerial Photograph

Stream Location on Maywood USGS Quadrangle

UNT to 1 Little Buck Creek **Stream Name:** Quadrangle: Maywood Flow Regime: Ephemeral County: Marion Roadside Ditch T14N **Channel Type:** Township: No R3E Legal Drain: Range: IDEM 303(d) Listed: No Section: 3 Predominant Substrate: sand - cobble Quarter: NW

Evaluation Score:HHEI = 50Latitude:39.692267Use Designation:Class II PHWHLongitude:-86.194788

OHWM width: 2.0 Basin: White River - Hide Creek

OHWM depth: 0.3 **14-digit HUC:** 05120201130080

USACE Jurisdiction: Yes Drainage area: 0.109

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	663	0.030	0.00
Aternative C2	199	0.009	0.00
Aternative C3	199	0.009	0.00
Aternative C4 (Preferred)	199	0.009	0.00







ChieFPA Primary Headwater Habitat Evaluation Form

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

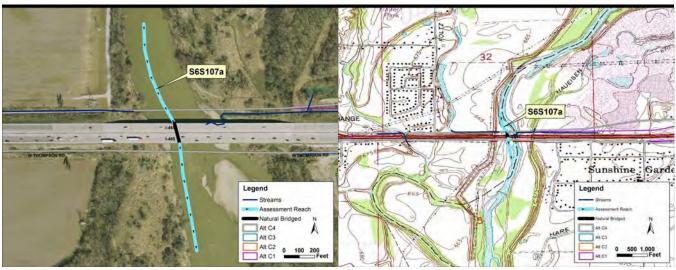
SITE NAME/LOCATION UNT to Buck Creek	
SITE NUMBER S6S106a RIVER BASIN White River - Hide Creek DRAINAGE AREA	A (mi) 0.109
LENGTH OF STEAM REACH (ft) LAT 39.692267 LONG86.194788 RIVER CODE N/A RIV	'ER MILE N/A
DATE 11/20/2015 SCORER rh COMMENT	
NOTE: Complete All Items On This Form - Refer to ""Field Evaluation Manual for Ohio's PHWH Streams" for Instr	ructions
STREAM CHANNEL □ NONE / NATURAL CHANNE □ RECOVERED ☑ RECOVERING □ RECENT O MODIFICATIONS:	OR NO RECOVERY
SUBSTRATE (Estimate percent of every type of substrate presentCheck ONLY two predominant substrate TYPE (Max of 32). Add total number of significant subsrate types found (Max of 8). Final metric score is sum of boxes A a TYPE PERCENT TYPE PERCENT	and B.) HHEI Metric
□ BLDR SLABS [16 pts] 0 □ SILT [3 pt] 0 □ BOULDER (>256 mm) [16 pts] 0 □ LEAF PACK/WOODY DEBRIS [3 pts] 0 □ BEDROCK [16 pts] 0 □ FINE DETRITUS [3 pts] 0 □ CLAY or HARDPAN [0 pts] 0 0 □ GRAVEL (2-64 mm) [9 pts] 0 □ MUCK [0 pts] 0 ✓ SAND (<2 mm) [6 pts]	Substrate
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 30.00% (A) Substrate Percentage Check Check (B)	(A+B)
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPE 18 TOTAL NUMBER OF SUBSTRATE TYPES	2
2. MAXIMUM POOL DEPTH (Measure the maximum pool depth within the 61 meter (200 ft) valuation reach at the of evaluation. Avoid plunge pools from road culverts or storm water pipes)	Pool Depth Max = 30
>>30 centimeters [20 pts] >5 cm - 10 cm [15 pts] >22.5 - 30 cm [30 pts] <5 cm [5 pts]	0
l la companya di managantan di managantan di managantan di managantan di managantan di managantan di managanta	
COMMENTS: MAXIMUM POOL DEPTH (centimeters):	0
COMMENTS: MAXIMUM POOL DEPTH (centimeters): 3. BANK FULL WIDTH (Measured as teh average of 3-4 measurements) (Check ONLY one box): ✓ > 4.0 meters (>13') [30 pts]	Bankfull Width Max = 30
3. BANK FULL WIDTH (Measured as teh average of 3-4 measurements) (Check ONLY one box): ✓ > 4.0 meters (>13') [30 pts]	Bankfull Width
3. BANK FULL WIDTH (Measured as teh average of 3-4 measurements) (Check ONLY one box): ✓ > 4.0 meters (>13') [30 pts]	Bankfull Width Max = 30
3. BANK FULL WIDTH (Measured as teh average of 3-4 measurements) (Check ONLY one box): ✓ > 4.0 meters (>13') [30 pts] >3.0 m - 4.0m (>9'7" - 13') [25 pts] >1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] (Check ONLY one box): >1.0 m - 1.5m (>3'3" - 4'8") [15 pts] <=1.0m (<=3'3") [5 pts]	Bankfull Width Max = 30
3. BANK FULL WIDTH (Measured as teh average of 3-4 measurements) (Check ONLY one box): ✓ > 4.0 meters (>13') [30 pts]	Bankfull Width Max = 30
3. BANK FULL WIDTH (Measured as teh average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (>13') [30 pts] > 3.0 m - 4.0m (>9'7" - 13') [25 pts] > 1.5 m - 3.0 m(>9'7" - 4'8") [20 pts] COMMENTS: AVERAGE BANKFULL WIDTH (Meters): This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE: River left (L) and Right (R) as looking downst	Bankfull Width Max = 30 12 30 tream
3. BANK FULL WIDTH (Measured as teh average of 3-4 measurements) (Check ONLY one box): 3.	Bankfull Width Max = 30 Tream Ilage ial Row Crop ruction
3. BANK FULL WIDTH (Measured as teh average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (>13) [30 pts] > 3.0 m - 4.0m (>97" - 13) [25 pts] > 1.5 m - 3.0 m(>97" - 478") [20 pts] COMMENTS: This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE: River left (L) and Right (R) as looking downst RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank L R (Most Predominant Per Bank Wide >10 m Mature Forest, Wetland Wide >10 m Marrow <5 m None Residential, Park, New Field None Comments: FLOW REGIME (At time of evaluation) (Check ONLY one box): Steam flowing Subsurface flow with isolated pools (interstitial) Comments: SINUOSITY (Number of bends per 61 m (200 ft) of channel. Check ONLY one box) None 1.0 2.5 STREAM GRADIENT ESTIMATE	Bankfull Width Max = 30 Tream Ilage ial Row Crop ruction

ADDITIONAL STREAM INFORMATION (This information must also be comple	ete
	tach completed QHEI form)
DOWNSTREAM DESIGNATED USE(S)	
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 ENTIRE WATERSHED AREA	A. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name Maywood NRCS Soil Map Page	NRCS Soil Map Stream Order:
County: Marion Township / City: Perry	
MISCELLANEOUS	
Base flow conditions? (Y/N) Yes Date of last precipitation: 11/18	Quantity 0.39
Photograph information:	<u> </u>
Elevated Turbidity? (Y/N) Canopy (% open): 30	
Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. ar	nd attach results) Lab number: N/A
Field Measures: Temp (C) Dissolved oxygen (mg/l): pH:	Conductivity (umhos/cm)
Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note ID number. Include apropriate field data sheets from the Primary H	
Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N)	No Voucher? (Y/N) No
Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrate	tes observed? (Y/N) No Voucher? (Y/N) N
Comments Regarding Biology:	

DRAWING AMD NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):

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

Stream Reach S6S107a



Stream Location on 2013 Aerial Photograph

Stream Location on Maywood USGS Quadrangle

White River Quadrangle: Maywood **Stream Name:** Flow Regime: Perennial Marion County: Natural T14N,T15N **Channel Type:** Township: No R3E Legal Drain: Range: IDEM 303(d) Listed: Yes Section: 5,32 Predominant Substrate: cobble Quarter: NE,SE QHEI = 64.5**Evaluation Score:** Latitude: 39.692483 Warm Water Habitat Longitude: -86.2232 **Use Designation:**

OHWM width: 313.3 Basin: White River - Hide Creek

OHWM depth: 14-digit HUC: 05120201130080

USACE Jurisdiction: Yes Drainage area: 1904

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	145	1.043	0.02
Aternative C2	145	1.043	0.02
Aternative C3	145	1.043	0.02
Aternative C4 (Preferred)	145	1.043	0.02





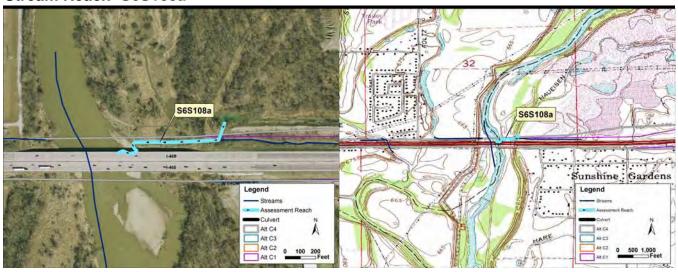
IDEM	Sample #		bioSample #	Stream Name White River		Location	
1 ion	Surveyor	Sample Date		Macro Sample Type	☐ Habitat	OUEI Sooro	64.5
	kl	5/20/2016	Marion	N/A	Complete	QHEI Score:	64.5
1] SUB	STRATE		predominant su 6 and check eve	bstrate TYPE BOXES;	Check ON	IE (Or 2 and average)	
	BEST TYP			HER TYPES	ORIGIN	QUALITY	
PREDOMINA		PRESENT TOTAL %	6 PREDOMINANT	PRESENT TOTAL %			
	DR/SLABS [1	0] 📮 🖺	PR HARDF		LIMESTONE [1 TILLS [1]]	
✓ ✓ CC	OULDERS [9] OBBLE [8]		DETRIT		WETLANDS [0] HARDPAN [0]	NORMAL [0] FREE [1]	Substrate
☐ ☐ GR	RAVEL [7]		☐ ☐ SILT [2]	i	SANDSTONE [0]	16.0
	ND [6] :DROCK [5]	V V —	□□ ARTIFI	CIAL [0]	RIP/RAP [0] LACSTRINE [0]	EXTENSIVE [-2] MODERATE [-1]	
	OF BEST TY) []]	e natural substrates;ignore e from point-sources)	SHALE [-1] COAL FINES [-	NORMAL [0]	Maximum
Comme	nte	✓ 3 or les	ss [0] Sludy	e nom point-sources)	COAL FINES [-	zj 🖭 NONE [1]	20
		/ER Indicate of	resence 0 to 3 a	nd estiamte percent: 0-Absent;	1- Verv small ar	mounts or if more common	of marginal
quality; 2-	 Moderate am 	ounts, but not of I	highest quality o	r in small amounts of highest qu	ality; 3- Highest	AMO	UNT
				ooulders in deep or fast water, la r, or deep, well-defined, functino		Check One (Or 2	0 .
% Amount			% Amount	% Amount		☐ MODERATE 2	5-75% [7]
	UNDERCUT B OVERHANGIN	ANKS [1] IG VEGETATION		DOOLS>70CM [2] <u>0</u> <u>0</u> OXBO DOTWADS [1] 0 0 AOU	OWS, BACKWA ⁻ ATIC MACROPH	「ERS [1] ✓ SPARSE -<25 YTES [1] □ NEARLY ABS	
0 0	SHALLOWS (I	N SLOW WATER)[1] <u>0</u> <u>0</u> B	OULDERS [1] 5 1 LOGS	S OR WOODY D	EBRIS [1] Cov	
	ROOTMATS [IJ				Maxim	um 6.0
Comme	nts						
-				n category (Or 2 and average)			
SINUO		DEVELO		CHANNELIZATION		ABILITY	
HIGH MODE	RATE [3]	EXCELLE GOOD [5]		☐ NONE [6] ☐ RECOVERED [4]		HIGH [3] MODERATE [2	nel 🗀
LOW [✓ FAIR [3[POOR [1]		▼ RECOVERING [3] □ RECENT OR NO RECOVER		OW [1] Maxim	
Comme				RECENT ON NO RECOVER	ΧΙ [Ι]		20 1010
4] <i>BAN</i>	IK EROSIOI	N AND RIPARIA	AN ZONE Ch	eck ONE in each category for E		2 per bank and average)	
River rig	ght looking downst		ARIAN WIDT		QUALITY	L R	II I ACE [1]
L R	EROSION	│	>50m [4] ERATE 10-50m	FOREST, SWAMP [3] SCRUB OR OLD FIEL	.D [2]	CONSERVATION T	TRIAL [0]
☐ ✓ MC)NE/LITTLE [3])DERATE [2]	VEDV	OW 5-10m [2] NARROW [1]	RESIDENTIAL, PRK, I		☐ ☐ MINING/CONSTRU	
HE	AVY/SEVERE	[1] NONE	[0]	OPEN PASURE, ROW	TODOD IOI IIION	cate predominant land use(s 100m riparian Ripar	ian
						Maxim	um 9.5
Comme 51 POC		ND RIFFLE /RU	IN OLIALITY				10 [
-	UM DEPTI		NEL WIDTH	CURRE	NT VELOCI	Recreation (Circle one and as)	
Check Of	NE (ONLY!	Check ON	NE (Or 2 and ave	erage) Chec	k All that apply	(Oncie one and con	,
>1 m [0.7 - <		✓ POOL WI	DTH > RIFFLE W DTH = RIFFLE W	/IDTH [1] 🔲 VERY FAST [1]		N [1]	ry Contact
	0.7m [2] 0.4m [1]	☐ POOL WI	DTH < RIFFLE W	/IDTH [0]			ol/
<0.2m					ate for reach - p	Cull	
Comme							12
	for functional obligate speci	•	s must be large	enough to support a population	,	□ NO DIEELE [ME]	rDIC_01
	DEPTH	RUN DI	EPTH	Check One (Or 2 and average RIFFLE/RUN SUBSTRA	o ,	NO RIFFLE [ME] FLE/RUN EMBEDDE	
✓ BEST	AREAS>10cm	[2] 🗹 MAXIN	1UM >50cm [2]	STABLE (e.g., Cobble, Bou	ılder) [2	✓ NONE [2]	
	AREAS 5-10ci AREAS <5cm	m [1 ∟ MAXIN	IUM<50cm [1]	MOD. STABLE (e.g., Large (UNSTABLE (e.g., Fine Frve	ا] دا داتا داتا دا, Sand) [0]	LOW [1] Rif	
	[metri	c=0]				EXTENSIVE [-1] Maxim	ŭ∭ 5.0
Comme				_			0
6] GRAL	DIENT (3.5	· ·	VERY LOW - ✓ MODERATE		10 % GL	IDE: 5 Ripar	ian .
DRAII	NAGE AREA	4 (1904 ft/mi	✓ MODERATE ☐ HIGH - VERY	(6 - 10] ′ HIGH [10 - 6] % RUN: ☐	60 % RIF		10.0



Comment

A-CANOPY								
✓ >85% - Open	Looking upstream	ı (>10m, 3 readir	ngs, <10m reading in mid	dle); Round to the n	earest whole percent			
55% -<85%		Left	Middle	Right	Total Average			
30%-<55%	% open	%	%	%	%			
10%-<30%	· -							
<10% - Closed								
B-AESTHETICS			C-RECE	REATION				
✓ Nuisance algae	Oil sheen		Area	Depth				
Invasive macrophytes	✓ Trash/Litter		Pool: > 100ft					
Excess turbidity	Nuisance od	or	1 001 > 1001t	> 3it				
Discoloration	Sludge depo	sits						
Foam/Scum	CSOs/SSOs/	Outfalls						
D MAINTENIANCE			E 10011	-0				
D-MAINTENANCE			E-ISSUE					
✓ Public Private			☐ WWTP		NPDES			
Active Historic	¬		☐ Indust	• _				
Succession: Young	_ Old		Harder					
☐ Spray ✓ Islands ☐ Scoured				Contaminated Landfill				
	lodified		BMPs:	Construction				
Leveed: One sided	Both banks		Loggir 		_ •			
Relocated Cutoffs			_	Erosion:				
Bedload: Moving Stable				False bank Manure Lagoon				
Armoured Slumpe			Wash □		H2O table			
Impounded Desiccated			· —	Mine: Acid Quarry				
Flood control Drain	nage				agnant			
			Wetlar		Issues: Golf			
			Lawn	Home	nn.			
			Atmos	pheric deposition	UII			

Stream Reach S6S108a



Stream Location on 2013 Aerial Photograph

Stream Location on Maywood USGS Quadrangle

UNT 23 White River Quadrangle: Maywood **Stream Name:** Flow Regime: Perennial Marion County: Channelized Ditch T15N **Channel Type:** Township: No R3E Legal Drain: Range: IDEM 303(d) Listed: 32 No Section: Predominant Substrate: sand - silt Quarter: SE

Evaluation Score: QHEI = 28.5 **Latitude:** 39.692532 **Use Designation:** Modified Warm Water Habitat **Longitude:** -86.22175

OHWM width: 20.0 Basin: White River - Hide Creek

OHWM depth: 1.7 **14-digit HUC:** 05120201130080

USACE Jurisdiction: Yes Drainage area: 4.082

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)	
Aternative C1	621	0.285	0.07	
Aternative C2	634	0.291	0.09	
Aternative C3	634	0.291	0.09	
Aternative C4 (Preferred)	634	0.291	0.09	





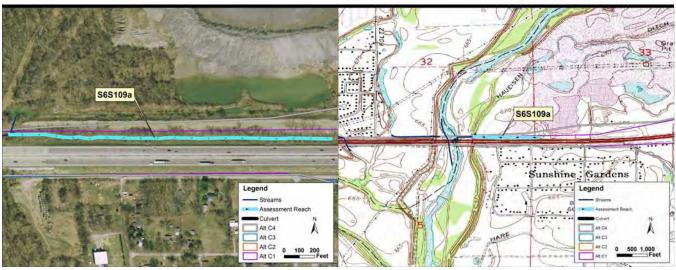
IDEM	Sample #		bioSample #	Stream Name UNT White River		Location	1
	Surveyor	Sample Date		Macro Sample Type	☐ Habitat	OUEL Occurs	20.5
	kl	4/22/2016	Marion	N/A	Complete	QHEI Score:	28.5
1] SUB	STRATE			ubstrate TYPE BOXES; ery type present	Check ON	IE (Or 2 and average)	
	BEST TYP			HER TYPES	ORIGIN	QUALITY	
PREDOMINA P R	ANT	PRESENT TOTAL 9		PRESENT TOTAL %	LIMESTONE [1		
	DR/SLABS [1		☐ ☐ HARDI	PAN [4] 🔲 🔲 💆	TILLS [1]	MODERATE [-1]	
	OULDERS [9] OBBLE [8]		DETRI	[2]	WETLANDS [0] HARDPAN [0]]	Substrate
	RAVEL [7] ND [6]	✓ 30	✓ SILT [2	.j	SANDSTONE [I RIP/RAP [0]	0]	5.0
□□ BE	DRÓCK [5]		(\$00)	re natural substrates;ignore	LACSTRINE [0]		
NUMBER	OF BEST TY	'PES:	DIE [Z]	ge from point-sources)	SHALE [-1] COAL FINES [-		Maximum 20
Comme	nts						_
	TREAM CO			and estiamte percent: 0-Absent;			
				or in small amounts of highest qua boulders in deep or fast water, la			_
that is sta	ble, well deve		deep/fast wate	r, or deep, well-defined, functino		EXTENSIVE >	•
% Amount	UNDERCUT B	ΔNKS [1]	% Amount	% Amount OO0LS>70CM [2] <u>0</u> <u>0</u> OXB0	NWS BACKWAT	☐ MODERATE 2 TERS [1] ☑ SPARSE -<25	
0 0	OVERHANGIN	IG VEGETATION	[1] <u>0 0</u> R	OOTWADS [1] <u>25</u> <u>2</u> AQU <i>I</i>	ATIC MACROPH	IYTES [1] 🗌 NEARLY ABS	
	SHALLOWS (I ROOTMATS [N SLOW WATER 1])[1] <u> </u>	OULDERS[1] <u>U</u> LOGS	S OR WOODY D	EBRIS [1] Cov	um II
						Ινιαλιιτι	4.0
Comme			· · · · · · · · · · · · · · · · · · ·	h			
3] CHA		RPHOLOGY Ch DEVELOI		h category (Or 2 and average) CHANNELIZATION	ет	ABILITY	
HIGH	[4]	EXCELLE		NONE [6]		HIGH [3]	
✓ MODE LOW [RATE [3]	☐ GOOD [5 ✔ FAIR [3]		RECOVERED [4] ✓ RECOVERING [3]		MODERATE [2 Chan LOW [1] Maxim	um II
NONE		POOR [1]		RECENT OR NO RECOVER		LOW [1] IVIAXIIII	20 11.0
Comme		N AND DIDADI	AN ZONE CH	neck ONE in each category for E	ACH BANK (Or	2 per bank and average)	
-	th EROSIOI ght looking downst		ARIAN WIDT			L R	
L R	EROSION	WIDE	>50m [4]	✓ ✓ FOREST, SWAMP [3]		CONSERVATION T	
□ □ NO	NE/LITTLE [3]	I NARF	ERATE 10-50m OW 5-10m [2]	SCRUB OR OLD FIEL RESIDENTIAL, PRK, I	.D [2] NEW FIELD [1]	□ URBAN OR INDUS✓ ✓ MINING/CONSTRU	
✓ ✓ MC	DERATE [2] :AVY/SEVERE	[1] VERY	NARROW [1]	FENCED PASTURE [1	TODOD TOT THOSE	cate predominant land use(s	s) [
		<u> </u>	. [0]		pasi	: 100m riparian Ripari Maxim	
Comme	nts					Waxiiii	10
5] <i>POC</i>	DL/GLIDE A	ND RIFFLE /RU	JN QUALITY			Recreation	Potential
	UM DEPTI NE (ONLY!	H CHAN Check ON	NEL WIDTH IE (Or 2 and av	erage) CURRE	NT VELOCI k All that apply		
>1 m [6]	POOL WI	DTH > RIFFLE V DTH = RIFFLE V	VIDTH [2] 🔲 TORRENTIAL [[-1] 🗹 SLO\	W [1] Primary (Contact ry Contact
	0.7m [2]		DTH < RIFFLE V	VIDTH [0] 🔲 FAST [1]	☐ INTE	RMITTENT [-2] Po	ol/
✓ 0.2 - <0 <0.2m				☐ MODERATE [1]	EDDI ate for reach - p	Curre Curre	ent 📗 a 🕠
Comme				mulca	μ	ools and riffles Maxim	um 12
		•	s must be large	enough to support a population			
	obligate speci			Check One (Or 2 and average	o ,	☐ NO RIFFLE [ME]	
	E DEPTH AREAS>10cm	RUN DI	EPTH 1UM >50cm [2]	RIFFLE/RUN SUBSTRA STABLE (e.g., Cobble, Bou		FLE/RUN EMBEDDE NONE [2]	DNES
BEST	AREAS 5-10ci AREAS <5cm	m [1 🔽 MAXIN	1UM<50cm [1]	■ MOD. STABLE (e.g., Large (✓ UNSTABLE (e.g., Fine Frve	Gravel) [1]	LOW [1] Rift	
▼ DE31	metri]	c=0]		UNSTABLE (e.g., Fille Five	i, Saliu) [v]	EXTENSIVE [-1] Maxim	un -1.0
Comme	nts						8
6] GRAD	DIENT (80 f	t/mi)	✓ VERY LOW		5 % G L		ion
DRAII	NAGE AREA	4 (4 ft/mi)	MODERATEHIGH - VERY	[6 - 10] / HIGH [10 - 6] % RUN:	10 % RIF I	Ripari FLE: 80 Maxim	4.0



Comment

A-CANOPY						
✓ >85% - Open	Looking upstrea	m (>10m, 3 readi	ngs, <10m reading in m	iddle); Round to the n	earest whole percent	
55% -<85%		Left	Middle	Right	Total Average	
30%-<55 %	% open	%	%	%	%	
10%-<30%	•					
<10% - Closed						
B-AESTHETICS			C-REC	REATION		
Nuisance algae	Oil sheen		Area	Depth		
Invasive macrophytes	Trash/Litter		Pool:	•		
Excess turbidity	Nuisance o	dor	1 001 > 1001			
☐ Discoloration ☐	Sludge dep	osits				
☐ Foam/Scum	CSOs/SSOs	/Outfalls				
D-MAINTENANCE			E-ISSU	IEG		
					NDDEC	
☐ Public ☐ Private ☐ Active ☐ Historic			☐ WWT		NPDES	
	Old		☐ Indu	· —	rimo	
	oured				andfill	
_ · <u>-</u>	dified		BMPs:	Construction		
	Both banks		Logg			
Relocated Cutoffs	Don's barine		Erosion		_	
	Stable			e bank Manu		
Armoured Slumped			☐ Wasl	h H2O 🔲 Tile [H2O table	
☐ Impounded ☐ Desiccated	d		Mine:	Acid Qua	rry	
☐ Flood control ☐ Drainag	ge		Flow:	Natural St	agnant	
			Wetla	and 🗌 Park 📗	Issues: Golf	
			Lawı	n 🗌 Home		
			Atmo	spheric depositi	on	

Stream Reach S6S109a



Stream Location on 2013 Aerial Photograph

Stream Location on Maywood USGS Quadrangle

UNT 24 White River Maywood **Stream Name:** Quadrangle: Flow Regime: Ephemeral Marion County: Roadside Ditch T15N **Channel Type:** Township: No R3E Legal Drain: Range: IDEM 303(d) Listed: No Section: 32 Predominant Substrate: sand - muck Quarter: SE

Evaluation Score: HHEI = 58 **Latitude:** 39.692517 **Use Designation:** Rheocrene Potential **Longitude:** -86.217884

OHWM width: 14.0 Basin: White River - Hide Creek

OHWM depth: 1.3 **14-digit HUC:** 05120201130080

USACE Jurisdiction: Yes Drainage area: 0.001

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	1626	0.523	1.14
Aternative C2	1626	0.523	1.33
Aternative C3	1626	0.523	1.33
Aternative C4 (Preferred)	1626	0.523	1.33







ChieFPA Primary Headwater Habitat Evaluation Form

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

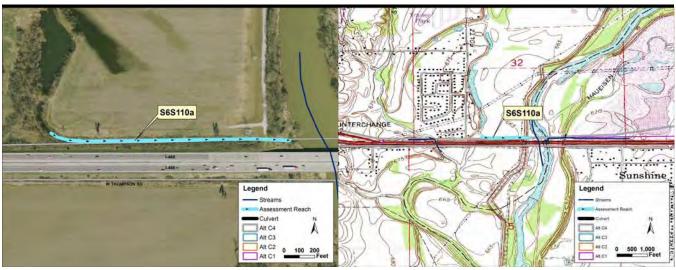
SITE NAME/LOCATION UNT to White River	
SITE NUMBER S6S109a RIVER BASIN White River - Hide Creek DRAINAGE AREA (mi)	0.001
LENGTH OF STEAM REACH (ft) LAT 39.692517 LONG86.217884 RIVER CODE N/A RIVER MILE N	N/A
DATE 2/18/2016 SCORER rh COMMENT	
NOTE: Complete All Items On This Form - Refer to ""Field Evaluation Manual for Ohio's PHWH Streams" for Instructions	
STREAM CHANNEL ☐ NONE / NATURAL CHANNE ☐ RECOVERED ☑ RECOVERING ☐ RECENT OR NO RECOMPLICATIONS:	OVERY
SUBSTRATE (Estimate percent of every type of substrate presentCheck ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant subsrate types found (Max of 8). Final metric score is sum of boxes A and B.) TYPE PERCENT TYPE PERCENT	HHEI Metric
□ BLDR SLABS [16 pts] 0 □ SILT [3 pt] 0 □ BOULDER (>256 mm) [16 pts 0 □ LEAF PACK/WOODY DEBRIS [3 pts 0 □ BEDROCK [16 pts] 0 □ FINE DETRITUS [3 pts] 0 □ COBBLE (65-256 mm) [9 pt 0 □ CLAY or HARDPAN [0 pts] 0 □ GRAVEL (2-64 mm) [9 pts] 0 ✓ MUCK [0 pts] 50	Substrate Max = 40
SAND (<2 mm) [6 pts] ARTIFICIAL [3 pts] O	(A+B)
Bldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPE 6 TOTAL NUMBER OF SUBSTRATE TYPES 2	(ATD)
2. MAXIMUM POOL DEPTH (Measure the maximum pool depth within the 61 meter (200 fte) valuation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes)	Pool Dep
✓ >>30 centimeters [20 pts] >5 cm - 10 cm [15 pts] >22.5 - 30 cm [30 pts] <5 cm [5 pts]	20
COMMENTS: Constructed trap ditch MAXIMUM POOL DEPTH (centimeters): 4	
3. BANK FULL WIDTH (Measured as teh average of 3-4 measurements) (Check ONLY one box): ✓ > 4.0 meters (>13') [30 pts]	Bankful Width Max = 3
COMMENTS: Constructed trap ditch AVERAGE BANKFULL WIDTH (Meters): 4.9	30
This information must also be completed	
RIPARIAN ZONE AND FLOODPLAIN QUALITY NOTE: River left (L) and Right (R) as looking downstream	
RIPARIAN WIDTH FLOODPLAIN QUALITY	
L R (Per Bank L R (Most Predominant Per Bank L R Wide >10 m Mature Forest, Wetland Urban or Industrial Narrow <5 m None Residential, Park, New Field Pasture Comments:	
FLOW REGIME (At time of evaluation) (Check ONLY one box): ✓ Steam flowing Subsurface flow with isolated pools (interstitial) Comments:	
SINUOSITY (Number of bends per 61 m (200 ft) of channel. Check ONLY one box) ✓ None 1.0 2.0 3.0 0.5 1.5 2.5 >3.0 STREAM GRADIENT ESTIMATE	
Flat (0.5 ft/100 ft)	Oft)

QHEI PERFORMED ☐ Yes ✓ No QHEI Score: 0 (If yes,	attach completed QHEI form)
DOWNSTREAM DESIGNATED USE(S)	
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 ENTIRE WATERSHED AR	REA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name Maywood NRCS Soil Map Page	NRCS Soil Map Stream Order:
County: Marion Township / City: Perry	
MISCELLANEOUS	
Base flow conditions? (Y/N) No Date of last precipitation: 2/14	Quantity 2.3
Photograph information:	
Elevated Turbidity? (Y/N) Canopy (% open): 40	
· · · · · · · · · · · · · · · · · · ·	and attach results) Lab number: N/A
Field Measures: Temp (C) Dissolved oxygen (mg/l): pH:	Conductivity (umhos/cm)
Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. No ID number. Include apropriate field data sheets from the Primary	
Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N)	No Voucher? (Y/N) No
Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinverteb	prates observed? (Y/N) No Voucher? (Y/N)
Comments Regarding Biology:	· · · <u></u>

DRAWING AMD NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):

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

Stream Reach S6S110a



Stream Location on 2013 Aerial Photograph

Stream Location on Maywood USGS Quadrangle

UNT 25 White River **Stream Name:** Quadrangle: Maywood Flow Regime: Intermittent Marion County: Roadside Ditch T15N **Channel Type:** Township: No R3E Legal Drain: Range: IDEM 303(d) Listed: Section: 32 No Predominant Substrate: muck - silt Quarter: SW

Evaluation Score: QHEI = 24.5 **Latitude:** 39.692581 **Use Designation:** Limited Warm Water Habitat **Longitude:** -86.224049

OHWM width: 5.0 Basin: White River - Hide Creek

OHWM depth: 0.9 **14-digit HUC:** 05120201130080

USACE Jurisdiction: Yes **Drainage area:** 1.353

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	105	0.012	0.19
Aternative C2	105	0.012	0.19
Aternative C3	105	0.012	0.19
Aternative C4 (Preferred)	105	0.012	0.19





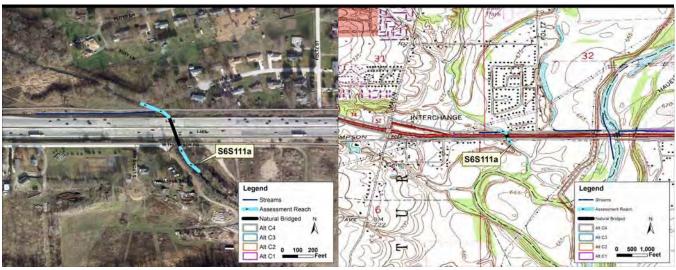
IDEM	Sample #		bioSample #	I	Stream Nan			Location N side of		
1	Surveyor	Sample Date	County	Mad	ro Sample	Type	☐ Habita	nt a		
	kl	4/22/2016	Marion	N/A		Туро	Complete		l Score:	24.5
1] SUE	BSTRATE	Check ONLY Two estimate %	predominant su 6 and check eve				Check (ONE (Or 2 an	d average)	
PREDOMIN	BEST TYP	PES PRESENT TOTAL %		HER TY	PES PRESENT TOTA	M %	ORIGIN		QUALITY	
P R BI BI CC	LDR/SLABS [1 DULDERS [9] DBBLE [8] RAVEL [7] AND [6] EDROCK [5] R OF BEST TY	0] PR	P R HARDF DETRITORY MUCK SILT [2] ARTIFI	TUS [3] [2]] CIAL [0] re natural s	P P 40 40 40 substrates;ignoint-sources)	V Dore	LIMESTONE TILLS [1] WETLANDS HARDPAN [0 SANDSTONE RIP/RAP [0] LACSTRINE SHALE [-1] COAL FINES		HEAVY [-2] MODERATE [-1] NORMAL [0] FREE [1] EXTENSIVE [-2] MODERATE [-1] NORMAL [0] NONE [1]	Substrate 2.0
Comme		(FD					., .,			
quality; 2 quality in that is sta % Amount 0 0 0 0 0 0 0 0 0	e-Moderate am moderate or gable, well deve t UNDERCUT E OVERHANGIN	IG VEGETATION IN SLOW WATER	highest quality of e.g., very large lended to deep/fast wate a Amount of the control of the cont	or in small a boulders in r, or deep, DOOLS>70 OOTWADS	amounts of high n deep or fast well-defined, % Amo CM [2] _0(5 [1] _10	ghest qua water, lar functinoa ount O OXBO L AQUA	ality; 3- Highe ge diameter I pools.)	est log [[/ATERS [1] [PHYTES [1] [AMO Check One (Or 2 EXTENSIVE MODERATE 2 SPARSE -<25 NEARLY ABS	UNT and average) >75% [11] 25-75% [7] % [3] SENT <5% [1] ver
Comme										
SINUO HIGH	SITY [4] ERATE [3] [2] [1]	RPHOLOGY Ch DEVELOI EXCELLE GOOD [5 FAIR [3] POOR [1]	PMENT ENT [7]]	CHAN NON REC REC	INELIZATI	ON	✓	TABILITY HIGH [3] MODERATE LOW [1]	E [2 Chan Maxim	
4] BAN	VK EROSIO	N AND RIPARIA	AN ZONE Ch	eck ONE	in each catego	ory for EA	CH BANK (C	Or 2 per bank	and average)	
L R V V NO	ght looking downst EROSION DNE/LITTLE [3 DDERATE [2] EAVY/SEVERE		ARIAN WIDT >50m [4] :RATE 10-50m :ROW 5-10m [2] NARROW [1] : [0]	H L R	FLOOD P FOREST, SW SCRUB OR C RESIDENTIA FENCED PAS OPEN PASUI	'AMP [3])LD FIELI L, PRK, N STURE [1]	D [2] IEW FIELD [1] UI W	DNSERVATION 1 RBAN OR INDUS NING/CONSTRU ninant land use(rian Ripar Maxim	TRIAL [0] CTION [0] s) ian
5] <i>PO</i> (OL/GLIDE A	ND RIFFLE /RU	JN QUALITY						Recreation	Dotontial
Check O >1 m 0.7 - < 0.4 - <	1m [4] :0.7m [2] :0.4m [1] n [0]	Check ON POOL WI	NEL WIDTH NE (Or 2 and avo DTH > RIFFLE V DTH = RIFFLE V DTH < RIFFLE V	erage) VIDTH [2] VIDTH [1]	TORRI VERY FAST	Check ENTIAL [- FAST [1] [1] RATE [1]	_		(Circle one and co Primary 1] Seconda [-2] Po Curr	mment on back) Contact ry Contact OOI/ ent
		l riffles; Best area	s must be large	enough to	support a por	oulation				
RIFFLE BEST BEST	-obligate speci E DEPTH AREAS>10cm AREAS 5-10c AREAS <5cm [metri	RUN DI n [2]	EPTH IUM >50cm [2] IUM<50cm [1]	RIFFL STA MOD	c One (Or 2 ar . E/RUN SU BLE (e.g., Cob D. STABLE (e.g., TABLE (e.g., F	BSTR ble, Bould J, Large G	ATE RI der) [2 Gravel) [1]		ATE [0] RIF	DNES
	DIENT (12 f	t/mi)	✓ VERY LOW -	.1 ()()() [2	4] % PO	OI .	5 % 6	SLIDE:	5	
_	•	4 (1.4 ft/mi)	MODERATE HIGH - VER	[6 - 10]	۵/ ۵	<u> </u>			Ripar 85 Maxim	



Comment

A-CANOPY						
✓ >85% - Open	Looking upstream	n (>10m, 3 readin	igs, <10m reading in mide	dle); Round to the n	earest whole percent	
55% -<85%		Left	Middle	Right	Total Average	
30%-<55%	% open	%	%	%	%	
10%-<30%	· -					
<10% - Closed						
B-AESTHETICS			C-RECR	REATION		
✓ Nuisance algae	Oil sheen					
	✓ Trash/Litter		Area	Depth		
Excess turbidity	Nuisance od	or	Pool: > 100ft	²		
Discoloration	Sludge depo					
✓ Foam/Scum	CSOs/SSOs/					
D-MAINTENANCE			<u>E-ISSUE</u>	<u>ES</u>		
☐ Public ☐ Private			WWTP	cso 🗌 ı	NPDES	
Active Historic			Indust	ry 🗌 Urban		
Succession: Young	Old		Harder	ned 🗌 Dirt G	rime	
☐ Spray ☐ Islands ☐ S	coured		Contar	minated 🗌 L	andfill	
Snag: Removed Mo	odified		BMPs:	Construction	Sediment	
Leveed: One sided	Both banks		Loggin	ng 🗌 Irrigatio	n 🗌 Cooling	
Relocated Cutoffs			Erosion:	☐ Bank ☐ S	Surface	
Bedload: Moving	Stable		False b	bank 🗌 Manu	ıre 🗌 Lagoon	
Armoured Slumped	l		Wash I	H2O 🗌 Tile [H2O table	
☐ Impounded ☐ Desiccat	ed		Mine:	Acid Qua	rry	
☐ Flood control ☐ Drain	age		Flow:	Natural St	agnant	
			Wetlan	nd 🗌 Park 🗌	Issues: Golf	
			Lawn	Home		
			Atmos	pheric deposition	on	

Stream Reach S6S111a



Stream Location on 2013 Aerial Photograph

Stream Location on Maywood USGS Quadrangle

State Ditch **Stream Name:** Quadrangle: Maywood Flow Regime: Perennial Marion County: Natural T15N **Channel Type:** Township: No R3E Legal Drain: Range: IDEM 303(d) Listed: Section: 32 Yes Predominant Substrate: sand - gravel Quarter: SW

Evaluation Score:QHEI = 56.5Latitude:39.692433Use Designation:Probable Warm Water HabitatLongitude:-86.232461OHWM width:32.2Basin:State Ditch

OHWM depth: 4.1 **14-digit HUC:** 05120201130070

USACE Jurisdiction: Yes **Drainage area:** 9.171

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	75	0.055	0.00
Aternative C2	75	0.055	0.00
Aternative C3	75	0.055	0.00
Aternative C4 (Preferred)	75	0.055	0.00





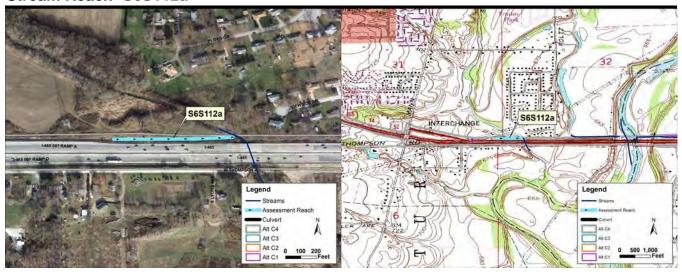
IDEM	Sample #		bioSample #		eam Name		Location		
1000	S6S111a		N/A		te Ditch				
	Surveyor kl	Sample Date 4/22/2016	County Marion	Macro S N/A	Sample Type	☐ Habitat ☐ Complete	QHEI Sco	re: 5	6.5
1] SUB	STRATE	Check ONLY Two	predominant sub	strate TYPE	BOXES;	01 1 01	JE (O. O. J.	`	
	DECT TVD		and check every	,, ,			NE (Or 2 and average	,	
PREDOMINA	BEST TYP	PRESENT TOTAL %	PREDOMINANT	ER TYPE:	SENT TOTAL %	ORIGIN	QUAL		
BC CC GR	DR/SLABS [10 DULDERS [9] DBBLE [8] RAVEL [7] ND [6]	P R	P R HARDPA DETRITU MUCK [2] SILT [2] ARTIFICI	S [3] 		LIMESTONE [1 TILLS [1] WETLANDS [0] HARDPAN [0] SANDSTONE [RIP/RAP [0]	MODERA NORMAL ✓ FREE [1] 0]	NTE [-1] . [0] S VE [-2]	ubstrate
	DROCK [5] OF BEST TY	PES: 4 or mo	JI E IZI `		trates;ignore	LACSTRINE [0] SHALE [-1]	☐ NORMAL	[0]	Maximum
	0. 220	✓ 3 or les	مماميناه	from point-so	ources)	COAL FÎNES [-	-2] 🗹 NONE [1]	ļ	20
Comme	nts								
quality; 2- quality in that is sta % Amount 0 0 0 0	moderate or g ble, well deve UNDERCUT B OVERHANGIN SHALLOWS (I ROOTMATS [ounts, but not of greater amounts (sloped root wad in ANKS [1] IG VEGETATION N SLOW WATER	nighest quality or i e.g., very large bo deep/fast water, % Amount	n small amo ulders in dee or deep, well DOLS>70CM DTWADS [1]	unts of highest que p or fast water, la defined, functino	rality; 3- Highest arge diameter lo al pools.)	9 Check One EXTEN MODE TERS [1] Y SPARS IYTES [1] EBRIS [1]	nmon of m AMOUN' e (Or 2 and ISIVE >759 RATE 25-75 SE -<25% [3 LY ABSENT Cover Maximum 20	T average) 6 [11] 5% [7] 8]
		PHOLOGY Ch	eck ONE in each	category (Or	2 and average)				
SINUO:	SITY [4] RATE [3] 2] [1]	DEVELOI EXCELLE GOOD [5 FAIR [3] POOR [1]	PMENT ENT [7] 	CHANNE NONE [6] RECOVE RECOVE	LIZATION RED [4]	<u> </u>	TABILITY HIGH [3] MODERATE [2 LOW [1]	Channel Maximum 20	11.0
		N AND RIPARIA	AN ZONE Che	ck ONE in ea	ch category for E	ACH BANK (Or	2 per bank and avera	age)	
River rig	ht looking downst EROSION INE/LITTLE [3] INE/LITTLE [2] INE/LITTLE [2] INE/LITTLE [3]	rea L R RIPA WIDE MODE NARR	ARIAN WIDTH >50m [4] ERATE 10-50m OW 5-10m [2] NARROW [1]	L R FL FOI SCI SCI V FEI	OOD PLAIN (REST, SWAMP [3] RUB OR OLD FIEL SIDENTIAL, PRK, NCED PASTURE [EN PASURE, ROW	QUALITY LD [2] NEW FIELD [1] 1] Indicates the second s	L R CONSERVA URBAN OR MINING/CON cate predominant land t 100m riparian	TION TILLA INDUSTRIA NSTRUCTIO	AL [0]
5] <i>POC</i>	L/GLIDE A	ND RIFFLE /RU	IN QUALITY				Dog	erection Date	ntial
Check ON >1 m [1m [4] 0.7m [2] 0.4m [1] [0]	Check ON POOL WI	NEL WIDTH NE (Or 2 and aver: DTH > RIFFLE WII DTH = RIFFLE WII DTH < RIFFLE WII	OTH [2] [OTH [1] [Chec TORRENTIAL VERY FAST [1] FAST [1] MODERATE [1	INTE	TY (Circle one W [1]	creation Potes and comme Primary Conta Secondary Co Pool/ Current Maximum 12	nt on back) act
Comme		william David						12	
of riffle-	obligate speci DEPTH	es: RUN DI		Check One	e (Or 2 and avera	ĂTE RIF	FLE/RUN EMBE	E [METRIC	
✓ BEST	AREAS>10cm AREAS 5-10cı AREAS <5cm [metri	m [1	IUM >50cm [2] IUM<50cm [1]	MOD. ST.	(e.g., Cobble, Bou ABLE (e.g, Large LE (e.g., Fine Frve	Gravel) [1]	NONE [2] ✓ LOW [1] MODERATE [0] EXTENSIVE [-1]	Riffle/ Run Maximum 8	3.0
Comme	nts				-			0	
_	DIENT (19 fi NAGE ARE	t/mi) 4 (9.17 ft/mi)	✓ VERY LOW - L MODERATE [6	- 10]	% POOL: % RUN:	5 % GL		Riparian Maximum	8.0
		•	HIGH - VERY I	11GH [1U - 6]	/U IN UNI.			10	



Comment

>85% - Open	A-CANOPY						
30%-<55%		Looking upstrean	n (>10m, 3 readin	igs, <10m reading in mide	dle); Round to the n	earest whole percent	
30%-<55%	✓ 55% -<85%		Left	Middle	Right	Total Average	
10%-<30% <10% - Closed	30%-<55%	% open	%	%	•	%	
B-AESTHETICS Nuisance algae Oil sheen Area Depth Invasive macrophytes Trash/Litter Pool: > 100ft 2 > 3ft Excess turbidity Nuisance odor Discoloration Sludge deposits Foam/Scum CSOs/SSOs/Outfalls D-MAINTENANCE E-ISSUES Public Private WWTP CSO NPDES Active Historic Industry Urban Spray Islands Scoured Dirt Grime Spray Islands Scoured Contaminated Landfill Snag: Removed Modified BMPs: Construction Sediment Leveed: One sided Both banks Logging Irrigation Cooling Relocated Cutoffs Erosion: Bank Surface Bedload: Moving Stable False bank Manure Lagoon Armoured Slumped Wash H2O Tile H2O table Impounded Desiccated Mine: Acid Quarry Flood control Drainage Flow: Natural Stagnant	10%-<30%	· -					
Nuisance algae	<10% - Closed						
Invasive macrophytes Trash/Litter Pool: > 100ft 2 > 3ft	B-AESTHETICS			C-RECE	REATION		
Invasive macrophytes	■ Nuisance algae	Oil sheen		Area	Denth		
Excess turbidity	■ Invasive macrophytes	Trash/Litter					
Foam/Scum CSOs/SSOs/Outfalls D-MAINTENANCE E-ISSUES WWTP CSO NPDES Active Historic Industry Urban Succession: Young Old Hardened Dirt Grime Spray Islands Scoured Contaminated Landfill Snag: Removed Modified BMPs: Construction Sediment Leveed: One sided Both banks Logging Irrigation Cooling Relocated Cutoffs Erosion: Bank Surface Bedload: Moving Stable False bank Manure Lagoon Armoured Slumped Wash H2O Tile H2O table Impounded Desiccated Mine: Acid Quarry Flood control Drainage Flow: Natural Stagnant	Excess turbidity	Nuisance od	or		> 0.10		
D-MAINTENANCE E-ISSUES Public Private WWTP	Discoloration	Sludge depo	sits				
Public Private WWTP CSO NPDES Active Historic Industry Urban Succession: Young Old Hardened Dirt Grime Spray Islands Scoured Contaminated Landfill Snag: Removed Modified BMPs: Construction Sediment Leveed: One sided Both banks Logging Irrigation Cooling Relocated Cutoffs Erosion: Bank Surface Bedload: Moving Stable False bank Manure Lagoon Armoured Slumped Wash H2O Tile H2O table Impounded Desiccated Mine: Acid Quarry Flood control Drainage Flow: Natural Stagnant	☐ Foam/Scum	CSOs/SSOs/	Outfalls				
Lawn Home Atmospheric deposition	Public Private Active Historic Succession: Young Spray Islands S Snag: Removed M Leveed: One sided Relocated Cutoffs Bedload: Moving Armoured Slumped Impounded Desicca	Scoured odified Both banks Stable d		WWTP Indust Harder Contar BMPs: Loggir Erosion: False t Wash I Mine: Flow: Uetlan	ry CSO I ry Urban ned Dirt Gminated L Construction Bank Spank Manu H2O Tile Acid Qual Natural Stand Home	rime andfill Sediment Cooling Surface Lagoon H2O table rry agnant Issues: Golf	

Stream Reach S6S112a



Stream Location on 2013 Aerial Photograph

Stream Location on Maywood USGS Quadrangle

UNT1 State Ditch **Stream Name:** Quadrangle: Maywood Flow Regime: Ephemeral County: Marion Concrete Gutter T15N **Channel Type:** Township: No R3E Legal Drain: Range: IDEM 303(d) Listed: No Section: 32 Predominant Substrate: artificial Quarter: SW HHEI = 3239.69242

Evaluation Score:HHEI = 32Latitude:39.69242Use Designation:Modified Class II PHWHLongitude:-86.233684OHWM width:5.1Basin:State Ditch

OHWM depth: 0.5 **14-digit HUC:** 05120201130070

USACE Jurisdiction: Yes **Drainage area:** 1.345

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	601	0.070	0.00
Aternative C2	601	0.070	0.00
Aternative C3	601	0.070	0.00
Aternative C4 (Preferred)	601	0.070	0.00







October 24, 2002 Revision

ChieFPA Primary Headwater Habitat Evaluation Form

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

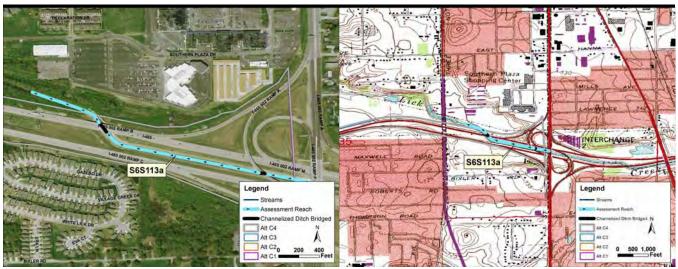
SITE NAME/LOCATION UNT State Di	ich	
SITE NUMBER	R S6S112a RIVER BASIN State Ditch DRAINAGE AREA	(mi) 1.345
LENGTH OF STEAM REACH (ft)	LAT 39.69242 LONG86.233684 RIVER CODE N/A RIVE	R MILE N/A
DATE 4/22/2016 SCORER kl	COMMENT	
NOTE: Complete All Items On This F	orm - Refer to ""Field Evaluation Manual for Ohio's PHWH Streams" for Instr	uctions
STREAM CHANNEL NONE / NA MODIFICATIONS:	TURAL CHANNE ☐ RECOVERED ☐ RECOVERING ✔ RECENT OF	R NO RECOVERY
	of every type of substrate presentCheck ONLY two predominant substrate TYPE ignificant substrate types found (Max of 8). Final metric score is sum of boxes A at PERCENT TYPE PERCENT	nd B.) HHEI Metric
BLDR SLABS [16 pts] BOULDER (>256 mm) [16 pts] BEDROCK [16 pts] COBBLE (65-256 mm) [9 pt] GRAVEL (2-64 mm) [9 pts] SAND (<2 mm) [6 pts]	0 SILT [3 pt] 0 LEAF PACK/WOODY DEBRIS [3 pts 0 FINE DETRITUS [3 pts] 0 CLAY or HARDPAN [0 pts] 0 MUCK [0 pts] 0 ARTIFICIAL [3 pts] 100	Substrate Max = 40
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedroo	Substrate Percentage 100 % (B)	(A+B)
SCORE OF TWO MOST PREDOMINAT	E SUBSTRATE TYPE 6 TOTAL NUMBER OF SUBSTRATE TYPES	1
of evaluation. Avoid plunge pools	ure the maximum pool depth within the 61 meter (200 ft) valuation reach at the from road culverts or storm water pipes)	time Pool Dep
>>30 centimeters [20 pts] >22.5 - 30 cm [30 pts] >10 - 22.5 cm [25 pts]	>5 cm - 10 cm [15 pts] <5 cm [5 pts] No Water or Moist Channel [0 pts]	5
COMMENTS:	MAXIMUM POOL DEPTH (centimeters):	0
3. BANK FULL WIDTH (Measure > 4.0 meters (>13') [30 pts]		Bankfull Width Max = 30
COMMENTS:	AVERAGE BANKFULL WIDTH (Meters):	0 20
	This information must also be completed	-
RIPARIAN ZONE AND FLO	ODPLAIN QUALITY NOTE: River left (L) and Right (R) as looking downstr	eam
<u>RIPARIAN WIDTH</u>	FLOODPLAIN QUALITY	
L R (Per Bank Wide >10 m Moderate 5-10 m Narrow <5 m None Comments:	L R (Most Predominant Per Bank L R Mature Forest, Wetland Conservation Tilla Immature Forest, Shrub or Old Field Urban or Industria Residential, Park, New Field Open Pasture, Ro Fenced Pasture Mining or Constru	al ow Crop
FLOW REGIME (At time Steam flowing Subsurface flow with isolated Comments: Storm water flo		ermittent)
None 0.5	nds per 61 m (200 ft) of channel. Check ONLY one box) ☐ 1.0 ☐ 2.0 ☐ 3.0 ☐ 3.0 ☐ >3.0 ☐ >3.0	
STREAM GRADIENT ESTII Flat (0.5 ft/100 ft) Flat to		e (10 ft /100 ft)

ADDITIONAL STREAM INFORMATION (This information must also be comple	te
	ach completed QHEI form)
DOWNSTREAM DESIGNATED USE(S)	
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 ENTIRE WATERSHED AREA	. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle Name Maywood NRCS Soil Map Page	NRCS Soil Map Stream Order:
County: Marion Township / City: Decatur	
MISCELLANEOUS	
Base flow conditions? (Y/N) Yes Date of last precipitation:	Quantity
Photograph information:	<u> </u>
Elevated Turbidity? (Y/N) No Canopy (% open): 95	
Were samples collected for water chemistry? (Y/N) No (Note lab sample no. or id. ar	nd attach results) Lab number: N/A
Field Measures: Temp (C) Dissolved oxygen (mg/l): pH:	Conductivity (umhos/cm)
Is the sampling reach representative of the stream? (Y/N) Yes If not, please explain:	
Additional comments/description of pollution impacts:	
BIOTIC EVALUATION	
Performed? (Y/N) No (If Yes, record all observations. Voucher collections optional. Note ID number. Include apropriate field data sheets from the Primary H	
Fish observed? (Y/N) No Voucher? (Y/N) No Salamanders observed? (Y/N)	No Voucher? (Y/N) No
Frogs or tadpoles observed? (Y/N) No Voucher? (Y/N) No Aquatic Macroinvertebrat	es observed? (Y/N) No Voucher? (Y/N) N
Comments Regarding Biology:	

DRAWING AMD NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):

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

Stream Reach S6S113a



Stream Location on 2013 Aerial Photograph

Stream Location on Maywood USGS Quadrangle

Lick Creek **Stream Name:** Maywood Quadrangle: Flow Regime: Perennial Marion County: Channelized Ditch T15N **Channel Type:** Township: No R3E Legal Drain: Range: IDEM 303(d) Listed: No Section: 36 Predominant Substrate: sand - cobble Quarter: W

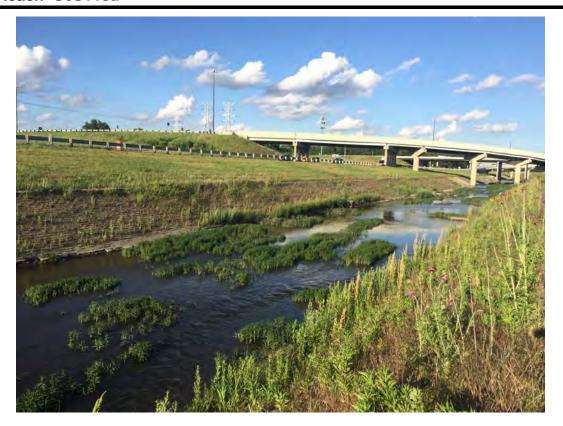
Evaluation Score: QHEI = 43 **Latitude:** 39.699737 **Use Designation:** Modified Warm Water Habitat **Longitude:** -86.152514

OHWM width: 35.0 Basin: Lick Creek - Beech Creek

OHWM depth: 3.0 **14-digit HUC:** 05120201130060

USACE Jurisdiction: Yes Drainage area: 21.3

Alternatives	Length of Impact (feet)	Area of Impact (acres)	Riparian Area Impact (ac)
Aternative C1	1581	1.270	0.05
Aternative C2	1581	1.270	0.05
Aternative C3	1581	1.270	0.05
Aternative C4 (Preferred)	1581	1.270	0.05





IDEM	Sample #		bioSample #	Stream Name		Location	1
1	Surveyor	Sample Date	County	Macro Sample Type	☐ Habitat	QHEI Score:	43
No.	ry	6/25/2016	Marion	N/A	Complete	WITEI OCCIC.	73
1] SUE	SSTRATE (predominant su 6 and check eve	bstrate TYPE BOXES; ry type present	Check ON	E (Or 2 and average)	
	BEST TYP			HER TYPES	ORIGIN	QUALITY	
BC GF	.DR/SLABS [10 DULDERS [9] DBBLE [8] RAVEL [7] ND [6] EDROCK [5] OF BEST TY	V V	P R HARDP DETRIT MUCK SILT [2] ARTIFIC	US [3]	LIMESTONE [1 TILLS [1] WETLANDS [0] HARDPAN [0] SANDSTONE [0] RIP/RAP [0] LACSTRINE [0] SHALE [-1] COAL FINES [-	MODERATE [-1] NORMAL [0] FREE [1] EXTENSIVE [-2] MODERATE [-1] NORMAL [0]	Substrate 16.0
Comme							
quality; 2- quality in that is sta % Amount 0 0 0 0	moderate or gable, well deve able, well deve UNDERCUT B OVERHANGIN SHALLOWS (I ROOTMATS [ounts, but not of greater amounts (sloped root wad in ANKS [1] IG VEGETATION N SLOW WATER	highest quality or e.g., very large by deep/fast water % Amount	nd estiamte percent: 0-Absent; r in small amounts of highest qu coulders in deep or fast water, lat, or deep, well-defined, functino Amount 000LS>70CM [2] 0 0 0XB0 00TWADS [1] 15 2 AQU 0ULDERS [1] 0 0 LOGS	ality; 3- Highest arge diameter loo al pools.)	AMO Check One (Or 2 EXTENSIVE : MODERATE 2 FERS [1] SPARSE -<25 YTES [1] NEARLY ABS	UNT and average) >75% [11] 25-75% [7] % [3] SENT <5% [1] Ver
		PHOLOGY Ch	eck ONF in each	n category (Or 2 and average)			
☐ LOW [✓ NONE Comme	[4] RATE [3] 2] [1] nts	DEVELOI EXCELLE GOOD [5] FAIR [3] POOR [1]	ENT [7]]	CHANNELIZATION NONE [6] RECOVERED [4] RECOVERING [3] ✓ RECENT OR NO RECOVER	RY [1]	ABILITY HIGH [3] MODERATE [2 Chan LOW [1] Maxim	
-				eck ONE in each category for E			
L R		WIDE MODE NARR	ARIAN WIDT >50m [4] ERATE 10-50m ROW 5-10m [2] YNARROW [1] E [0]	H L R FLOOD PLAIN (FOREST, SWAMP [3] SCRUB OR OLD FIEL RESIDENTIAL, PRK, FENCED PASTURE [OPEN PASURE, ROW	.D [2] NEW FIELD [1] 1] Indic	L R CONSERVATION 1 V V URBAN OR INDUS MINING/CONSTRU tate predominant land use(100m riparian Ripar Maxim	TRIAL [0] CTION [0]
5] <i>POC</i>	DL/GLIDE A	ND RIFFLE /RU	JN QUALITY			Recreation	Dotontial
Check OI	1m [4] 0.7m [2] 0.4m [1] [0]	Check ON POOL WI	NEL WIDTH NE (Or 2 and ave DTH > RIFFLE W DTH = RIFFLE W DTH < RIFFLE W	erage) Chec IDTH [2]	INTE	TY (Circle one and co N [1] Primary (RSTITIAL [-1] Seconda RMITTENT [-2] Po ES [1] Curr	mment on back) Contact ry Contact ool/ ent
		riffles: Best area	s must be large	enough to support a population			
of riffle- RIFFLE □ BEST ☑ BEST	obligate speci E DEPTH AREAS>10cm AREAS 5-10cr AREAS <5cm [metri	RUN DI [2] MAXIN m [1 MAXIN	· ·	Check One (Or 2 and average RIFFLE/RUN SUBSTR) STABLE (e.g., Cobble, Bou MOD. STABLE (e.g., Fine Frve UNSTABLE (e.g., Fine Frve	ATE RIF Ilder) [2 Gravel) [1]	NO RIFFLE [ME] FLE/RUN EMBEDDE NONE [2] LOW [1] Rif MODERATE [0] Rif EXTENSIVE [-1] Maxim	DNES
	DIENT (21.5	i ft/mi)	\\ED\ I ∪\\\	LOW [2 - 4] % POOL:	10 % GL	IDE: 5	
			✓ VERY LOW -✓ MODERATE✓ HIGH - VERY		65 % RIF	Ripar	



Comment

A-CANOPY								
✓ >85% - Open	Looking upstrea	ım (>10m, 3 reac	dings, <10m readir	ng in middle); Roun	id to the ne	earest whole percent		
55% -<85%		Left	Middle	Right	t	Total Average		
30%-<55%	% open	%	9	<u> </u>	%	<u></u> %		
10%-<30%								
<10% - Closed								
B-AESTHETICS			<u>C-</u>	RECREATION	<u> N</u>			
Nuisance algae	Oil sheen		Are	ea Dept	h			
✓ Invasive macrophytes	✓ Trash/Litter			> 100ft ²				
Excess turbidity	Nuisance o	dor						
✓ Discoloration	Sludge dep	osits						
Foam/Scum	CSOs/SSOs	/Outfalls						
			_					
D-MAINTENANCE			<u>E-</u>	<u>ISSUES</u>				
✓ Public Private				WWTP CS	60 🗌 N	IPDES		
✓ Active Historic				Industry	Urban			
Succession: V Young	Old		✓	✓ Hardened				
Spray Islands	Scoured			Contaminated Landfill				
Snag: Removed Modified				BMPs: Construction Sediment				
Leveed: One sided	Both banks			☐ Logging ☐ Irrigation ☐ Cooling				
✓ Relocated				Erosion: Bank Surface				
Bedload: ✓ Moving ☐ Stable				☐ False bank ☐ Manure ☐ Lagoon				
✓ Armoured Slumped								
Impounded Desiccated				Mine: Acid Quarry				
✓ Flood control			Flo	Flow: Natural Stagnant				
						Issues: Golf		
				Lawn Hor	ne			
				Atmospheric d	lepositio	on		